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GOLD FIELDS EXPLORATION PTY. LIMITED

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TYNDALL AREA

ANNUAL REPORT 1984/85

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CONTENTS

		Page
SUMMARY		
1.	INTRODUCTION	1
2.	LAND TENURE	2
3.	HENTY PROJECT	3
	3.1 Introduction	3
	3.2 Previous Exploration	3
	3.3 Work Completed 1984-85	6
	3.3.1 Examination of HFZ1-12	6
	3.3.2 Diamond Drilling	7
	3.3.3 Bedrock Sampling	7
	3.3.4 Compilation	8
	3.3.5 Creek Clearing	8
	3.4 Results	8
	3.4.1 Stratigraphy	9
	3.4.2 Structure	16
	3.4.3 Mineralization	18
	3.4.4 Bedrock Sampling	21
	3.5 Discussion of Results	22
	3.6 Conclusions	24
	3.7 Recommendations	25
4.	SELINA	28
	4.1 Introduction	28
	4.2 Previous Exploration	29
	4.3 Work Completed 1984-85	29
	4.3.1 Gridding	29
	4.3.2 Geology	30
	4.3.3 Geochemistry	33
	4.3.4 UTEM Survey	35
	4.4 Conclusions and Recommendations	36
5.	READ EAST	37
	5.1 Introduction	37
	5.2 Previous Exploration	37
	5.3 Work Completed 1984-85	38
	5.3.1 Drilling	38
	5.4 Conclusions and Recommendations	39

	Page
6. WHITE SPUR	41
6.1 Introduction	41
6.2 Previous Exploration	41
6.3 Work Completed 1984-85	42
6.3.1 Gridding	42
6.3.2 UTEM Survey	43
6.4 Conclusions and Recommendations	44
7. BASIN LAKE	45
7.1 Introduction	45
7.2 Previous Exploration	45
7.3 Work Completed 1984-85	46
7.3.1 Geochemistry	46
7.3.2 Drilling	48
7.4 Conclusions and Recommendations	49
8. WEST SEDGWICK	50
8.1 Introduction	50
8.2 Previous Exploration	50
8.3 Work Completed 1984-85	51
8.3.1 Geochemistry	51
8.4 Conclusions and Recommendations	54
9. HUXLEY	55
9.1 Introduction	55
9.2 Previous Exploration	55
9.3 Work Completed 1984-85	56
9.3.1 Gridding	
9.3.2 Geology	57
9.3.3 Geochemistry	60
9.3.4 Dipole-Dipole I.P. Survey	64
9.4 Conclusions and Recommendations	66
10. SNAKE SPUR	68
10.1 Introduction	68
10.2 Previous Exploration	68
10.3 Work Completed 1984-85	68
10.3.1 Gridding	69
10.3.2 Geology	69
10.3.3 Bedrock Geochemistry	71
10.3.4 UTEM Survey	72
10.3.5 Stream Sediment Geochemistry	73

		Page
	10.4 Conclusions and Recommendations	73
11.	GARFIELD-FLANNIGANS	75
	11.1 Introduction	75
	11.2 Previous Exploration	75
	11.3 Work Completed 1984-85	75
	11.3.1 Stream Sediment Geochemistry	76
	11.3.2 Geology	77
	11.3.3 Gridding	79
	11.3.4 Soil and Bedrock Geochemistry	79
	11.4 Conclusions and Recommendations	81
	REFERENCES	
	APPENDICES	
	A. EXPENDITURE DETAILS 1984-85	
	B. DIAMOND DRILL LOGS Holes HFZ 1-6 and 9-12, HP1-6, RE1 and BL5.	
	C. PETROLOGICAL REPORTS (by H.W. FANDER and A.S. JOYCE)	
	D. REPORT ON STREAM SEDIMENT SURVEY WEST SEDGWICK-HUXLEY-GARFIELD (by R.A. POLTOCK)	
	E. INTERPRETATION OF SELINA U.T.E.M. SURVEY (by J.R. BISHOP)	
	F. INTERPRETATION OF WHITE SPUR U.T.E.M. SURVEY (by J.R. BISHOP)	
	G. INTERPRETATION OF HUXLEY DIPOLE-DIPOLE I.P. SURVEY (by J.R. BISHOP)	
	H. INTERPRETATION OF SNAKE SPUR U.T.E.M. SURVEY (by J.R. BISHOP)	
	I. SAMPLE DESCRIPTIONS AND ASSAYS for Henty Project Area, Selina Area, Huxley Area, Snake Spur Area and Garfield-Flannigans Area	

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LIST OF FIGURES

Fig. No.	Title	Scale
1	Locality Plan (in Text)	1:250,000
2	Work Completed 1984-85	1:50,000
	Henty Project Area	
3	Interpretative Geology	1:5,000
4	Longitudinal Projection, Zone A	1:1,000
5	Longitudinal Projection, Zone B	1:1,000
6	Gold Geochemistry, Sheet H9	1:2,000
7	Silver Geochemistry, Sheet H9	1:2,000
8	Copper Geochemistry, Sheet H9	1:2,000
9	Lead Geochemistry, Sheet H9	1:2,000
10	Zinc Geochemistry, Sheet H9	1:2,000
11	Gold Geochemistry, Sheet H10	1:2,000
12	Silver Geochemistry, Sheet H10	1:2,000
13	Copper Geochemistry, Sheet H10	1:2,000
14	Lead Geochemistry, Sheet H10	1:2,000
15	Zinc Geochemistry, Sheet H10	1:2,000
16	Henty Grid, L45N (composite profile)	1:2,000
17	Henty Grid, L46N (composite profile)	1:2,000
18	Henty Grid, L47N (composite profile)	1:2,000
19	Henty Grid, L48N (composite profile)	1:2,000
20	Henty Grid, L49N (composite profile)	1:2,000
21	Henty Grid, L50N (composite profile)	1:2,000
22	Henty Grid, L51N (composite profile)	1:2,000
23	Henty Grid, L52N (composite profile)	1:2,000
24	Henty Grid, L53N (composite profile)	1:2,000
25	Henty Grid, L54N (composite profile)	1:2,000
	Selina Grid	
26	Interpretative Geology	1:5,000
27	Rock Chip Sample Location	1:5,000
28	Rock Chip Geochemistry, Cu	1:5,000
29	Rock Chip Geochemistry, Pb	1:5,000
30	Rock Chip Geochemistry, Zn	1:5,000
31	Rock Chip Geochemistry, Ag	1:5,000
32	UTEM Interpretation	1:5,000
33	Line 96N Profile	1:2,000

GOLD FIELDS EXPLORATION PTY. LIMITED

Fig No.	Title	Scale
34	Line 104N Profile	1:2,000
35	Line 112N Profile	1:2,000
36	Line 120N Profile	1:2,000
37	Line 128N Profile	1:2,000
38	Line 136N Profile	1:2,000
39	Line 144N Profile	1:2,000
	Read East	
40	Drilling Profile Line 55N, DDH RE1	1:1,000
	White Spur	
41	Geological Interpretation	1:5,000
42	UTEM Interpretation	1:5,000
	Basin Lake	
43	Interpretative Geology	1:20,000
44	Basin Lake Grid, Drilling Profile Line 36S DDH BL5	1:1,000
45	Stream Sediment Geochemistry, Geikie	1:5,000
46	Stream Sediment Geochemistry, Langdon	1:5,000
	West Sedgwick	
47	Stream Sediment Geochemistry, Yolande	1:5,000
48	Stream Sediment Geochemistry, Margaret	1:5,000
49	Stream Sediment Geochemistry, Mine	1:5,000
50	Stream Sediment Geochemistry, Diamond	1:5,000
	Huxley Area	
51	Interpretative Geology	1:5,000
52	Outcrop Geology and Sample Location, Owen	1:5,000
53	Outcrop Geology and Sample Location, Huxley	1:5,000
54	Rock Chip & Stream Sediment Geochemistry, Owen	1:5,000
55	Rock Chip & Stream Sediment Geochemistry, Huxley	1:5,000
56	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Owen	1:5,000
57	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Huxley	1:5,000

GOLD FIELDS EXPLORATION PTY. LIMITED

Fig No.	Title	Scale
58	Sample Number Locations, Owen	1:5,000
59	Au Geochemistry, Owen	1:5,000
60	Ag Geochemistry, Owen	1:5,000
61	Cu Geochemistry, Owen	1:5,000
62	Pb Geochemistry, Owen	1:5,000
63	Zn Geochemistry, Owen	1:5,000
64	Sample Numbers, Huxley	1:5,000
65	Au Geochemistry, Huxley	1:5,000
66	Ag Geochemistry, Huxley	1:5,000
67	Cu Geochemistry, Huxley	1:5,000
68	Pb Geochemistry, Huxley	1:5,000
69	Zn Geochemistry, Huxley	1:5,000
70	Huxley Grid IP Interpretation Plan	1:5,000
71	Huxley IP Averaged Chargeability	1:5,000
72	Huxley IP Averaged Resistivity	1:5,000
73	Huxley IP Averaged Metal Factors	1:5,000
74	IP Modelling: Line 0	1:2,500
75	IP Modelling: Zone 1	1:2,500
76	IP Modelling: Zone 2	1:2,500
77	IP Modelling: Zone 3	1:2,500

SNAKE SPUR

78	Interpretative Geology	1:5,000
79	Outcrop Geology & Sample Locations, Snake	1:5,000
80	Outcrop Geology & Sample Locations, Jukes	1:5,000
81	Rock Chip & Stream Sediment Geochemistry, Snake	1:5,000
82	Rock Chip & Stream Sediment Geochemistry, Jukes	1:5,000
83	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Snake	1:5,000
84	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Jukes	1:5,000
85	Snake Spur Grid - Sample Locations	1:5,000
86	Snake Spur Grid, Au Geochemistry	1:5,000
87	Snake Spur Grid, Cu Geochemistry	1:5,000
88	Snake Spur Grid, Pb Geochemistry	1:5,000
89	Snake Spur Grid, Zn Geochemistry	1:5,000
90	UTEM Interpretation	1:5,000

GOLD FIELDS EXPLORATION PTY. LIMITED 113008

Fig No.	Title	Scale
91	Snake Spur Grid, Line 1000N	1:2,000
92	Snake Spur Grid, Line 1400N	1:2,000
93	Snake Spur Grid, Line 1600N	1:2,000
94	Snake Spur Grid, Line 1800N	1:2,000
95	Snake Spur Grid, Line 2000N	1:2,000
96	Snake Spur Grid, Line 2200N	1:2,000
97	Snake Spur Grid, Line 2400N	1:2,000
98	Snake Spur Grid, Line 2600N	1:2,000
99	Snake Spur Grid, Line 3100N	1:2,000
100	Snake Spur Grid, Line 3300N	1:2,000
	Garfield-Flannigans	
101	Interpretative Geology	1:5,000
102	Outcrop Geology & Sample Locations, Garfield	1:5,000
103	Outcrop Geology & Sample Locations, Flannigans	1:5,000
104	Rock Chip & Stream Sediment Geochemistry, Garfield	1:5,000
105	Rock Chip & Stream Sediment Geochemistry, Flannigans	1:5,000
106	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Garfield	1:5,000
107	Rock Chip & Stream Sediment Geochemistry Secondary Elements, Flannigans	1:5,000
108	Flannigans Grid, Sample Number Locations	1:5,000
109	Flannigans Grid, Au Geochemistry	1:5,000
110	Flannigans Grid, Cu Geochemistry	1:5,000
111	Flannigans Grid, Pb Geochemistry	1:5,000
112	Flannigans Grid, Zn Geochemistry	1:5,000
113	Flannigans Grid, Ba Geochemistry	1:5,000

LIST OF TABLES

Table No.	Title
1	Henty Project: Diamond Drilling Completed 1984/85
2	Henty Project: Drilling Results

SUMMARY

Exploration Licence 9/66, the Tyndall Area, Western Tasmania, was reduced to 4 separate blocks totalling 125 km² area in August, 1984. A high level of exploration activity was maintained over this area during 1984-85. This work comprised 3183m of diamond drilling, gridding, geological mapping, stream, soil and bedrock geochemistry and ground geophysical surveys over 9 prospect areas (see Figure 2). Much of this work was carried out with helicopter support during 1985.

A major program was completed over the Henty Prospect to further evaluate the significant gold mineralization which occurs here. Six diamond drill holes and second intersections off wedges in 3 of these holes have outlined gold mineralization along 900m within a large zone of silicified pyritic volcanics adjacent to the Henty Fault. The best intersection to date is in hole HP4 which intersected 28.7m (true width) at 2.5 g/t Au including 3.7m (true width) at 9.3 g/t Au and 6.6m (true width) at 4.4 g/t Au. Bedrock geochemistry using a portable percussion rig has outlined anomalous mineralization over 2 km within this zone. The system appears open both to the north and east where significant potential is virtually untested at present.

Other exploration activity during 1984-85 included a diamond drill test of an EM anomaly concealed by glacial deposits at Read East but no significant mineralization or alteration was detected. A hole was also drilled to test for base and precious metal mineralization along strike from a massive pyrite lens previously intersected at Basin Lake. No significant mineralization was encountered, but the presence of a strongly altered pyritic potential host sequence, which is part of a major linear sulphide zone, has been confirmed.

A UTEM survey was carried out at Selina and although no prominent conductors were detected, additional mapping and rock geochemistry has enhanced the area's high prospectivity for the occurrence of a buried massive sulphide deposit. The negative results from

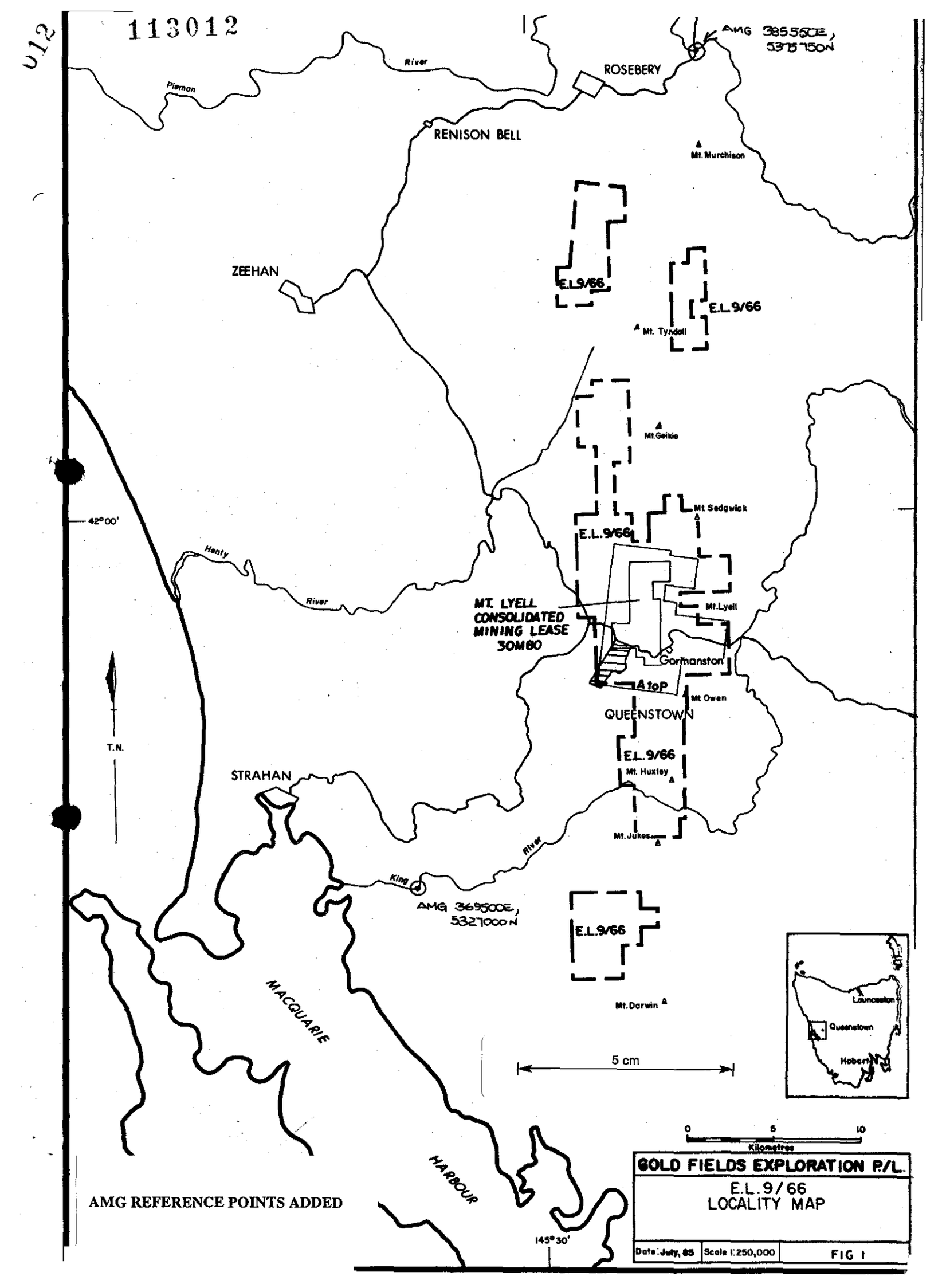
a similar UTEM survey over the White Spur area has down-graded interest in this prospective horizon. A dipole-dipole IP survey over the Huxley grid has outlined several anomalies close to massive sulphide targets identified by previous mapping and geochemistry. Although no massive sulphides were detected by the IP a large zone of disseminated sulphides possibly peripheral to such a body has been interpreted beneath glacial deposits.

Follow-up gridding, geological mapping, bedrock geochemistry and a UTEM survey over the prospective Snake Spur area has identified significant potential for gold and base metal mineralization. Detailed stream sediment geochemical investigations over the West Sedgwick, Huxley and Garfield-Flannigans areas have identified several encouraging gold-in-drainage areas. Follow-up reconnaissance soil and bedrock geochemistry over the Mt. Ellen and Flannigan's grids has shown that the latter area retains significant potential for economic gold mineralization.

The proposed program for 1985-86 includes continuation of the major exploration activity over the Henty gold prospect with substantial drilling, detailed mapping, dipole-dipole IP and bedrock geochemistry. The Selina and Huxley massive sulphide potential will be assessed by diamond drilling. The glacially covered large sulphide system at Basin Lake will be further investigated by a deep-seeking EM survey. Additional gridding, mapping and bedrock geochemistry is recommended over the Snake Spur, Flannigan's, Huxley and West Sedgwick areas to evaluate the gold (and base metal) mineralization potential.

Since January 1985, Getty Oil, the Joint Venture partner in EL 9/66,has not been contributing to the exploration program. They are currently diluting their interest, which is presently 38%.

Total expenditure for the 12 month period to the end of June 1985 on EL 9/66 was $559,489.


113012
U12
AMG 385500E, 5375750N
River
Pieman
ROSEBERY
RENISON BELL
Mt. Murchison
ZEEHAN
E.L.9/66
E.L.9/66
Mt. Tyndall
Mt.Gelkie
Mt Sedgwick
E.L.9/66
42°00'
Henty
River
MT. LYELL CONSOLIDATED MINING LEASE 30M80
Mt.Lyell
Gormanston
A toP
Mt Owen
QUEENSTOWN
T.N.
E.L.9/66
STRAHAN
Mt. Huxley
Mt. Jukes
River
King
AMG 369500E, 5327000N
E.L.9/66
Mt. Darwin
MACQUARIE
HARBOUR
5 cm
Launceston
Queenstown
Hobart
0
5
10
Kilometres
145°30'
AMG REFERENCE POINTS ADDED
GOLD FIELDS EXPLORATION P/L.
E.L.9/66
LOCALITY MAP
Date: July, 85
Scale 1:250,000
FIG 1

1. INTRODUCTION

The Tyndall Licence, E.L. 9/66, covers an area of 125 km² in 4 separate blocks which lie between Mt. Read, near Rosebery, in the north and Mt. Darwin, east of Macquarie Harbour, in the south (see Figure 1).

E.L. 9/66 has been the subject of systematic exploration since the licence was granted in 1966. This work has focused on the search for massive sulphide deposits, Mt. Lyell-style copper mineralization and more recently for economic gold occurrences. As part of this program air-borne geophysical and comprehensive geological, geochemical and ground geophysical surveys have been carried out and a total of 82 diamond drill holes have been completed. This work has identified a number of prospect areas on the E.L. that warrant further exploration during the remaining years of the licence's tenure.

This report details the results of the exploration carried out during 1984-85 on the E.L. This work includes a major drilling program on the Henty Project, as well as more detailed evaluation of 8 other prospect areas including geological mapping, stream sediment, soil and bedrock geochemistry, UTEM and dipole-dipole IP surveys and some diamond drilling. A total of 8 drill holes including wedge second cuts from wedges in 3 of these holes were completed for 3183 metres. This program cost $559,489 to complete and brings the total expenditure on the E.L. since 1966 to $5.1 million (see Appendix A).

2. LAND TENURE

E.L. 9/66 was granted in 1966. Over the next ten years, a further three licences were granted in the general Queenstown area, E.L.'s 10/69, 41/71 and 21/76. The latter were all amalgamated into the one licence in 1978. In 1983, the licence area was reduced from 637 km² to 446 km². Then in August 1984 the E.L. was further reduced to 125 km² in compliance with the Mines Department regulations governing licence tenure. This area does not include a 30 km² "buffer zone" around the Mt. Lyell Consolidated Mining Lease which is now held as an Authority to Prospect.

Since 1976, E.L. 9/66 has been the subject of a Joint Venture Agreement with Getty Oil. This agreement covers all of the current licence area. Since January 1985, Getty Oil (now Getty Mining) have not been contributing to the Joint Venture and are diluting their interest. Current equities in the Joint Venture at 30th June 1985 are:

R.G.C.	62%
Getty	38%

Under the current E.L. tenure conditions, the licence must be relinquished by August 1987.

3. HENTY PROJECT (C.F.D. Pease)

3.1 Introduction

Exploration along the Henty Fault within EL 9/66 had, until 1982-83, concentrated on the potential for viable base metal sulphide deposits in general, and the "Henty Fault Zone Massive Sulphide" in particular. All work up to that time suggested that the "massive sulphide" observed was of limited strike extent, thin and too close to the Henty Fault to be of interest. However, during 1982-83, the emphasis of exploration shifted to the gold potential of the area, with the recognition of an auriferous-pyrite zone in the footwall of the Henty Fault, as well as locally significant gold mineralization within the "massive sulphide". Due to uncertainties of the paragenesis of these two zones, they are at present referred to as Zone A ("massive sulphide") and Zone B (auriferous-pyritic zone).

A large proportion of the 1984-85 Tyndall budget was spent on this prospect, with a large drill program (2470m) being the centrepiece. The drilling has indicated that these zones extend over more than 900m, but that the level of mineralization within them is variable. The prospectivity of the area is considered to be high, and further work is required to define the extent and tenor of auriferous mineralization at the Henty Prospect.

3.2 Previous Exploration

Systematic exploration across the Henty Fault commenced in 1968-69 with gridding on a quarter-mile spacing. This grid was soil sampled, mapped and covered by low-quality ground EM and ground magnetics defining only some minor base metal anomalies in the area.

Geological mapping was extended in 1971-72 resulting in the discovery of some small old workings near the

fault in a sequence of quartz-chlorite schists in the north of the area. This was subsequently costeaned and sampling yielded 1.22% Cu over 40' from pyrite-chalcopyrite mineralization within the schists.

This revived interest in the area, and infill gridding at a nominal 700' spacing, followed by gradient array IP, ground magnetics and mapping was undertaken. This generated 8 primary anomalies between lines 42N and 66N, several of which were coincident with the Henty Fault zone. A small pole-dipole survey was conducted along line 63N over the old workings in the same field season.

The gradient array IP survey was followed up with soil sampling along selected lines over the IP anomalies during 1973-74. The results of this sampling yielded several geochemical anomalies coincident with the IP responses, and it was decided to test these by costeaning and drilling. Of the three costeans attempted, only one, on Line 49N, was completed, revealing a bedded massive sulphide 2.4m in width which assayed at 1.8% Cu, 1.8% Pb, 0.2% Zn and 37.9% FeS_2.

Six drill holes were completed during the year. HFZ 1-2 were drilled in the vicinity of the old workings at the northern end of the grid. HFZ 3-4 were designed to test anomalies along the fault at the southern end of the grid, and HFZ 5-6 were drilled to test the depth extent of the massive sulphide exposed in the costean. More detailed soil sampling, and restricted pole-dipole and 3-array IP surveys were also conducted in the area.

Interpretation of the results from these programs indicated that the close proximity of the Henty Fault to the contact with the unfavourable Tyndall Group rocks, and their angular relationship, severely limited the space available for the development of a viable near-

surface base metal deposit, the target at that time, and exploration was switched to the south of holes HFZ 3-4 where sufficient space was available, and to the west of the Henty Fault (Read East Area).

In 1974-75, HFZ 7-8 were drilled to the south on lines 38N and 40N with discouraging results and interest in the Henty Fault Zone waned.

Additional soil sampling over the 1972-73 gradient array IP anomalies, some of which lie along the Henty Fault, was undertaken in 1975-76, together with detailed mapping around the massive sulphide exposed in the costean, but neither program generated further work for the next season.

Exploration resumed in 1979-80 when lines 47N to 51N over the Henty Fault Zone were re-cleared, and intermediate lines at 100'-250' spacings cut. This small grid was covered by an Applied Potential survey, but interpretation of the results again indicated only limited potential for the development of a viable massive sulphide. Furthermore, a small gradient array IP survey down-graded anomalies at the eastern end of lines 52-53N generated in 1972-73, and work in the area lapsed once again.

Following a review of available data in 1982-83, it was suggested that the structural constraints placed on the size of the sulphide body by previous workers may not exist, and three more holes, HFZ 9-11, were drilled to test for extensions of this body, two of which (HFZ 9-10) intersected the thin massive sulphide. Its width and juxtaposition to bad ground conditions still rendered the body an unattractive base metal target, but it was now recognised that it contained variable but locally significant precious metal values, apparently increasing in tenor to the south. Furthermore, a second mineralised zone was recognised in HFZ 10, a weakly auriferous pyritic zone.

Thus in 1983-84, HFZ 12 was drilled to the south approximately along line 46N to test both gold-bearing zones. The results of this drilling were very discouraging. Although both zones were intersected each was thin and contained very low precious metal values. Prior to the preparation of the 1984-85 work program drill core from HFZ 5, drilled beneath the costean, was quartered and asssayed for gold. The results are presented in this report.

3.3 Work Completed 1984/85

A large proportion of the Tyndall budget was spent on the Henty Prospect area during the year in an attempt to delineate the extent of an auriferous pyritic zone intersected in the footwall of the Henty Fault. The work completed included:

- Re-examination of existing core
- Diamond drilling
- Grid bedrock sampling

3.3.1 Examination of HFZ 1-12

Extensive work was carried out on drill core from previous exploration in the area. Much of the early assaying did not include gold, and thus these samples were re-submitted for this and silver assaying (e.g. HFZ 5). Sampling and assaying of previously untested core from the footwall of the Henty Fault was also undertaken. In addition, HFZ 1 and 2 were re-logged.

The results of this program have been added to the old logs which are appended to this report, along with the logs of holes drilled this year.

3.3.2 Diamond Drilling

Six diamond drill holes and three additional sample wedges were cored from late August 1984 to mid May 1985, for a total of 2470.5m, using a Longyear 38 rig as part of a ground-supported program. All holes were surveyed at regular intervals using an Eastman single shot camera, and their collars were surveyed by Renison staff. Hole details are presented on Table 1.

All holes were logged and photographed, and a total of 677 metres of core from the footwall of the Henty Fault were sampled and assayed for gold and other elements. Selected sections of the core were sliced and submitted for petrographic studies. Full records of these holes and their dip profiles are appended to this report.

3.3.3 Bedrock Sampling

To test whether portable-percussion ("Wacker") bedrock sampling could delineate a surface expression of the auriferous zones intersected in the drill holes, an orientation sampling program was undertaken on line 7120N over HFZ 5 and adjacent to the costean exposure of the Henty massive sulphide. A positive gold base metal expression was obtained over the projected position of the auriferous pyritic zone using this technique. Thus a major sampling program was carried out in two stages along recleared sections of lines 45N-54N over the projected outcrop of the Henty Fault and up to 100m into the footwall zone. A total of 314 samples were collected at approximately 5 metre intervals along sections of these lines, giving a coverage of 1.8 km along the strike of the Henty Fault.

TABLE 1 HENTY PROJECT : DIAMOND DRILLING COMPLETED 1984-85

Hole No	Collar Co-Ordinates N	E	Collar RL	Dip	Azimuth (AMG)	Length	Comments
HP 1	5363975	379879	623	-53°	112°	349.0m	
HP 2	5363831	379706	652	-57°	124°	586.0m	
HP 2A						45.5m	Wedged off HP 2 from 492.0m
HP 3	5364163	379988	593	-63°	125°	250.0m	Abandoned in Henty Fault
HP 3A						33.0m	Attempt to re-start HP 3. Abandoned in Henty Fault at 267m.
HP 4	5364163	379985	593	-57°	122°	364.0m	Re-drill of HP 3
HP 4A						47.5m	Additional sample wedge off HP 4 from 229.5 m
HP 5	5364261	379994	590	-53°	092°	312.5m	
HP 5A						123.5m	Additional sample wedge off HP 5 from 242.8m
HP 6	5364421	380024	604	-51°	102°	359.5m	

3.3.4 Compilation

With the increase in data density in the area it became apparent that the information could not be adequately presented on existing 1:5,000/1:6,000 scales. Thus three 1:2,000 sheets based on AMG were constructed over the area of interest using 1:5,000 contour information and ground points provided by a traverse undertaken by the Renison Survey Department. All existing data is being compiled on these bases.

3.3.5 Creek Clearing

In order to obtain better geological control of the prospect area it is considered necessary to improve existing surface mapping. To this end it was decided to clear access into and along the main creeks over the Henty Fault. It is hoped that this will provide better bedrock exposure than elsewhere over this densely forested area. Approximately 7 km of creeks were cut during June 1985 from the Henty River on Line 50N to its headwaters, and from the northern boundary of the EL south to the headwaters of the Stitt drainage and Koonya Creek. Mapping of this area will be undertaken early in the next field season.

3.4 Results

Appended to this report are full logs of all drill holes completed in the Henty Project area to date (Appendix B). These include all assay information, dip profiles and relevant petrographic descriptions. The petrographic reports from which the recent descriptions are extracted are also attached in Appendix C. The result sheets of the bedrock sampling program are

submitted in Appendix I, and the results of selected elements presented in Figures 6-15, and on composite line profiles together with previous geophysical and geochemical data (Figures 16-25). These profiles also provide sectional geological interpretations to complement the Interpreted Geology and Drill-Hole Locality Plan (Figure 3).

3.4.1 Stratigraphy

Limited mapping and diamond drilling indicate three major stratigraphic elements in the area:

(1) Mt. Read Volcanics in hanging-wall of the Henty Fault.
(2) Volcanics in the footwall of the Henty Fault.
(3) Ordovician Sediments.

(1) Hanging-Wall Volcanics

The hanging-wall volcanics are classified as part of Corbett's Central Volcanic Sequence of the Mt. Read Volcanics and are essentially a suite of steeply dipping bimodal volcanics. These are dominantly felsic but are cut by a swarm of mafic (basaltic) dykes-sills which regionally are said to increase in abundance towards the Henty Fault (Corbett, 1984) although this is not observed at the scale of drilling. Local complex intermixing of the felsic and mafic components may suggest that they are contemporaneous.

Previous workers have divided these volcanics into two units whose contact at this stage is ill-defined. The more westerly unit

is dominated by felsic lavas, while the easterly sequence consists of volcaniclastics, dominantly ignimbrites with subordinate epiclastics. Sections of the latter unit have been intersected in all holes drilled to date, which revealed varying degrees of albitisation-sericitisation in the felsic component, and chloritisation of the mafic component. This alteration has been related to regional lower greenschist facies metamorphism. To the north of the EL, sheared chloritic tuffs adjacent to the Henty Fault may equate to the volcaniclastic division.

(2) Footwall Volcanics

The Henty Fault marks a sharp change in the volcanics, with those on the footwall being strongly silicified and lacking the mafic component, although there is some evidence that this may not represent a large break in time. This sequence appears to dip steeply to the west but faces to the east. Previous workers have divided this sequence into two units based on:

- the presence or absence of sulphide mineralization
- the proportion of quartz-phyric clasts in the volcani-sediments
- the perceived synclinal structure east of the Henty Fault

These two units are:

(a) Mineralised Mt. Read Volcanics
(b) Tyndall Group Volcanics.

Results from this year's drilling indicate that it may be possible to divide the footwall volcanics into "mineralised" and "unmineralised", but whether this is stratigraphic is uncertain at this stage. There is evidence to support a stratigraphic division but due to the complex structural and alteration regimes that have affected the area it is difficult to place this contact with any degree of certainty. In any case it appears that the contact represents only a very small time break. For the purpose of this report the division is convenient even though it may not be strictly "real". Further sub-division of these two units are essentially lithological and not stratigraphic.

(a) Mineralised Footwall Sequence

Three sub-divisions of the mineralised (Mt. Read Volcanics?) section are tentatively proposed:

(i) Poorly sorted silicified lithic tuffaceous sediments and minor phyllitic banded sediments
(ii) Very poorly sorted blocky lithic volcaniclastics
(iii) Brecciated-autobrecciated lavas

(i) Silicified Tuffaceous Sediments

Varying thicknesses of the silicified (or cherty) tuffaceous sediments occur within and on the immediate footwall of the Henty Fault in all

holes with the possible exception of HFZ 11. At the level of highest drilling density (approx 400m RL) it is 30-40m thick and consists of poorly sorted clasts of pinkish white dacitic-rhyolitic lava, and grey quartzose rock set in a sericitic-siliceous dark grey pyritic matrix. Much of the original texture of this unit is obscured by secondary effects such as brecciation, boudinage, cleavage and alteration. Most of the significant mineralization intersected to date lies within this unit. A lithologically similar horizon further away from the fault in the southern holes, HP2 and HFZ 12, is also host to mineralization. Minor very thin shale lenses and possible bedded syngenetic pyrite is also observed in some sections of this unit.

(ii) Lithic Volcaniclastics

The tuffaceous sediments grade into or are faulted against a coarse volcaniclastic unit. Though variable in composition and thickness it generally consists of poorly sorted blocky dacitic-rhyolitic lava clasts (up to several metres in length) with only a minor matrix component. This unit is silicified but contains only trace to minor pyrite.

The volcaniclastics are composed of the broad range of lithologies that lie between the two end members of the tuffaceous sediments and the lavas described below.

(iii) Brecciated Lavas

The third lithological component observed is an autobrecciated or brecciated silicified dacitic lava observed in holes to the north (HP5, HP6 and possibly HP4) and south (HP2, HFZ 12) of the 1 km strike length tested by the main drilling program. The lavas are not observed in the central holes, possibly as they were not drilled far enough to the east or due to some structural complications. They are also strongly silicified but contain only trace pyrite.

The "mineralized sequence" is mapped as pinching out to the north near lines 52-53N although poor bedrock exposure makes this interpretation ambiguous. However, it would appear that it does not outcrop beyond the intersection of the Henty and Great Lyell Faults.

(b) Tyndall Group

Overlying this sequence are units categorised as Tyndall Group, largely on the basis of the absence of sulphide mineralization. In the short sections obtained in core, silicification is noted, as is albitisation. This group has been divided into two units by mapping in the Henty project area:

(i) Comstock Tuff Correlate
(ii) Quartz Porphyry Lavas.

(i) Comstock Tuff

The Comstock Tuff correlate appears to have been intersected in several of the holes drilled to date, and is represented by volcanoclastic breccio-conglomerates and tuffaceous sediments, and locally, at least, pelitic ashes. In keeping with the Tyndall Group elsewhere these rocks are characterised by clasts of quartz-phyric volcanics. The contact between this unit and the underlying volcanics is ill-defined, and is observed to be structural in some holes and possible disconformable in others. However, it appears that the two are fairly similar in composition which infers that the contact does not represent a significant break in time.

Surface mapping of the Comstock Tuff Correlate suggests that it wedges out to the north between the Henty Fault and a body of quartz porphyry lavas also correlated with the Tyndall Group. Again, contact relationships are uncertain but may well be fault controlled in this area.

(ii) Quartz Porphyry Lavas

This unit abuts the northern extension of the Henty Fault along to the EL boundary. It may also be represented in drill holes HP5A and HP6 by the intensely albitised quartz porphyry lavas intersected towards the end of these holes. The alteration observed could well be deuteric as opposed to subsequent hydrothermal activity.

(3) Ordovician Sediments

Overlying the Tyndall Group is the Owen Conglomerate including the Newton Creek Sandstone Member. Mapping indicates that the basal contact is conformable at the North end of the Gooseneck (over the quartz-porphyry lava) but on the western flank it is almost certainly a faulted contact against the Comstock Tuff correlate. HP6 intersected the conglomerate in faulted contact with possible

Tyndall Group sediments indicating a westerly dipping faulted contact zone. HP4 intersected a thin horizon of possible Owen Conglomerate with fault contacts within the volcanic sequence. It is assumed this is tectonically emplaced and may be indicative of the severe structural regime affecting the area.

3.4.2 Structure

The project area is structurally complex and appears to be the locus of convergence of several major structures and inferred lineaments from aerial photographs and aero-magnetic sheets. The Henty Fault and the projected northern extension of the Great Lyell Fault dominate the setting.

The Henty Fault has been mapped as a prominent feature striking SSW-NNE through this section of the E.L. and bifurcating in the south into the North and South Henty Faults. Apart from being observed in outcrop on surface, the fault has also been intersected in all but two of the HFZ-HP series holes (HFZ 1-2). In the drill holes, the fault is represented by a crush zone up to 30m in width, with intense sericitisation and shearing of the hanging-wall volcanics, and breaking and brecciation of the silicified footwall rocks. The position of the lithological contact within this crush zone varies from hole to hole. The fault appears to dip steeply to WNW at surface, shallowing to approximately 65° at depth. The nature of movement along the fault is unknown, but it appears that some movement post-dates mineralization and regional cleavage development as broken mineralization is found

within the fault and the cleavage within it differs from that of the surrounding lithologies.

The Great Lyell Fault is believed to cut across the area with a N-S trend, outcropping east of the Henty Fault in the south and intersecting (and possibly terminating against) it somewhere between lines 53-55N. Poor exposure has prevented mapping of the structure and its position at surface is only inferred. Recent studies at Mt. Lyell indicate that the Great Lyell Fault is a major thrust. Evidence of a similar fault exists in the Henty project area. Hole HP6 intersected Owen Conglomerate beyond a fault at approximately the 360 RL. The position of this contact and that inferred at outcrop indicate a contact surface with an apparent dip of 60° to the west. This is consistent with a fault thrusting pre-Owen volcanics and sediments over the synclinal Owen Conglomerate and upper Tyndall Group Lavas of the Gooseneck. The implications of the Great Lyell Fault in relation to this area are discussed in a later section (3.5).

Other significant faults are present in the area but are poorly defined and considered sub-ordinate to the two major structures. They are however indicative of the severe structural regime that is believed to have affected the area.

The lack of consistent marker horizons, combined with the strong cleavage and faulting makes determination of strike and dip very difficult and thus folding is difficult to recognise in the volcanics. However, the footwall volcanics appear to have steep dips and may be overturned and strike parallel to the Henty Fault. A well defined south plunging syncline has been mapped in the Owen Conglomerate and Tyndall Group lavas

but it is not known whether this structure is continuous with that in the volcanics. The apparent structure of the area is presented schematically on line profiles of 45N-54N attached to this report (Figures 16-25).

3.4.3 Mineralization

Until 1982-83, the mineralization of the Henty Prospect was considered to be purely syngenetic as only a thin bedded massive sulphide exposed in a costean on the immediate footwall of the Henty Fault was recognised. With the definition of auriferous mineralization of different character further into the footwall volcanics, it became apparent that the picture was more complicated and is far from understood at this stage. However it is clear that an epigenetic replacement phase is required within the mineralising sequence to more fully explain the observed mineralization.

Most of the sulphide and gold mineralization intersected in the area occurs within sericitised-silicified lithic tuffs and minor phyllitic sediments which lie in the footwall of the Henty Fault. Mineralization also occurs in similar lithologies some distance from the fault. Pyrite is widespread throughout this unit but in most drill holes it appears to be concentrated, together with base metal sulphides and gold-silver mineralization, into one or two zones called Zone A and Zone B. A full list of significant intersections from the drill holes is given in Table 2, and full assay results are included in the logs in Appendix B. It should be emphasised that although correlation of the zone intersections can be made between some holes, it does not necessarily follow that they are

TABLE 2 HENTY PROJECT : DRILLING RESULTS

Hole No.	Interval From	Interval To	Est. True Width	Fire Assay Au g/t	Ag g/t	Cu %	Pb %	Zn %	Bi ppm	Zone	RL	Horiz. Dist. From Fault FW (m)	Comments
HFZ 5	410'	425'	3.7m	10.0	7.9	0.14	0.12	0.06	-	B	478	4	Part of 4.5m @ 7.9 g/t. No Zone A.
HFC 6	376'	378'	0.4m	2.0	85.0	1.11	4.00	7.00	-	A	488	0	
	425'	435'	1.9m	0.6	2.8	0.46	0.08	0.03	-	B	474	17	
HFC 9	261.9	262.9	0.8	1.4	41.0	1.12	1.06	2.15	-	A	420	0	Hole abandoned at 268m due to fault. Zone B not reached.
HFC 10	208.9	209.55	0.5	7.2	120.0	3.75	1.30	0.56	-	A	423	0	
	242.05	243.60	1.1	4.4	5.6	0.45	0.05	0.10	23	B	398	37	
HFC 11	No Zones intersected.		Fault F/W at 527 R.L.		End of hole at 510 R.L.								
HFC 12	344.0	346.0	0.8	0.3	4.0	0.09	0.35	0.62	-	A?	257	14	
	367.55	368.0	0.2	0.4	51.0	1.90	2.40	0.80	-	B?	235	36	
	451.5	452.5	0.4	1.0	23.0	1.20	0.43	0.32	-	C?	156	112	Part of 2.8m @ 0.63 g/t Au
HF 1	312.0	313.0	0.8	1.1	22.0	0.08	0.07	<0.01	140	A	395	16	Part of 12.3m @ 0.3 g/t Au
	327.8	328.8	0.8	3.8	1.5	0.09	0.01	0.01	8	B	386	34	Part of 3.3m @ 1.7 g/t Au
HF 2	459.0	461.0	1.7	4.3	12.5	0.07	0.39	0.38	25	B?	310	0	In fault. Part of 5.1m @ 1.5 g/t Au
	519.0	520.0	0.9	0.5	2.0	0.08	0.04	0.09	11	C?	276	64	Very weak - probable Zone C
HF 2A	516.0	517.0	0.9	0.1	0.8	<0.01	<0.01	<0.01	4	C?	279	61	Very weak - probable Zone C
HF 4	235.0	237.0	1.6	26.1	112.0	0.41	0.84	0.27	420	A	415	8	Part of 5.4m @ 7.9 g/t Au
	256.0	260.0	3.1	10.9	4.2	0.23	0.02	0.01	16	B	399	30	Part of 14.1m @ 2.9 g/t Au
	334.0	335.0	0.8	5.0	9.6	0.13	0.06	0.07	195	C	348	119	
HF 4A	234.0	236.0	1.5	10.2	54.0	0.27	0.63	0.74	203	A	415	7	Part of 3.8m @ 4.2 g/t Au
	258.0	262.0	3.2	3.4	4.8	0.41	0.03	0.01	18	B	398	35	Part of 13.4m @ 1.3 g/t Au
HF 5	246.1	255.1	6.8	0.2	6.9	0.03	0.06	<0.01	20	A?	398	13	Part of broader, v poorly mineralized zone
	271.1	272.1	0.8	0.1	1.0	<0.01	<0.01	<0.01	7	B?	384	42	Very weak possible Zone B
HF 5A	246.4	255.4	6.8	0.2	6.6	0.02	0.04	<0.01	11	A?	398	13	Maximum 0.8m @ 0.6 g/t Au
	274.4	275.4	0.8	0.2	5.6	<0.01	<0.01	<0.01	9	B?	381	45	Possible Zone B
HF 6	273.8	276.8	2.4	4.2	5.8	0.11	0.53	0.18	15	B	403	42	No Zone A observed. Weak F/W to Zone B of 2.4m @ 0.5 g/t Au

geologically continuous bodies. This is demonstrated by the poor development of the zones in some holes, and their absence in others. Longitudinal projections of the two zones are attached to this report (Figures 4 and 5).

Zone A is equated with the massive sulphide exposed at surface. In holes HFZ 6, HFZ 9 and HFZ 10 (and possibly HFZ 12) very thin (<0.8m) correlates of this body are present in the same structural and/or stratigraphic position. In HP1 and HP4 a broader zone of mineralization was intersected which appears to have a syngenetic component. In HP5 the zone was represented by a pyritic horizon with only trace associated base metal sulphides, and in HFZ 5, HFZ 11, HP2 and HP6 no significant mineralization which could be correlated with Zone A was intersected. This zone appears to be characterised by a distinct geochemical signature. The Ag:Au ratio is high (>4), base-metal values appear to be concentrated in this zone, and in general bismuth values are strongly anomalous.

Zone B occurs towards the eastern margin of the silicified lithic tuffs. This zone appears to have been intersected in all holes except HFZ 9 and HFZ 11, probably as these holes were not drilled far enough through the sequence. In comparison to Zone A, the Ag:Au ratio is low, as are the levels of base-metal sulphides and bismuth. Though local base-metal concentrations occur within Zone B, it is characteristically a strongly pyritic section of the silicified lithic tuffaceous sediments.

There are dangers in using the geochemical signatures as diagnostic features of the zones

due to inherent sampling errors and possible broad scale geochemical zoning. Such problems may manifest themselves in the southernmost holes, HP2 and HFZ 12 (which are also the two deepest intersections) where the relative positions of the diagnostic geochemical features and the stratigraphic/structural components do not correlate to those observed in holes to the north.

Drilling has defined gold mineralization within these zones over a strike length of more than 900m, in a vertical range of approximately 350m. Both zones are open at depth to the north and, to a limited extent, to the south. Its potential in this direction is restricted by the poor results yielded by HFZ 3 and HFZ 4. At the scale of sampling, (NQ-BQ coring) the gold distribution is patchy. Results of Zone A from additional sample wedge HP4A yielded significantly lower levels of gold (10 g/t) compared to the parent hole (26 g/t), although the two intersections are less than 1 metre apart. However it is apparent that broad scale variations in the tenor of gold mineralization occur which empirically appear to be a response to the presence or absence of significant base-metal sulphides. At this stage there is no obvious control over the distribution of the base-metal or gold mineralization within zones in the drilled area.

Microscopic examination of specimens of drill core from these zones indicate that the mineralization is dominantly pyritic with subordinate chalcopyrite, galena and sphalerite and trace tetrahedrite-tennentite. Native gold was observed in two specimens only, both from Zone B, occurring as inclusions or partial inclusions in pyrite in one section, and as clusters or single particles in quartz aggregates in the other (see Appendix C).

Gold mineralization has also been located in a third zone in three of the holes drilled to date, HFZ 12, HP2 and HP4. This mineralization (Zone C) occurs within stratigraphically/structurally distinct horizons of silicified-sericitised lithic tuffs some distance into the footwall of the Henty Fault (minimum 60m horizontal separation observed). It is possible to correlate the zones in HFZ 12 and HP2, but due to structural complications these cannot be equated at present to the zone in HP4. Although Zone C does not constitute a major target at present, it does indicate the potential for significant mineralization some distance from the Henty Fault.

A different style of mineralization is observed in the north of the EL near line 63N. Some minor old workings on the inferred hanging-wall side of the Henty Fault indicated the presence of pyrite-chalcopyrite mineralization disseminated through a sequence of sheared chloritic epiclastics. Assaying of samples from a costean cut in 1971-72 averaged over 40' at 1.22% Cu within these rocks but subsequent drilling (HFZ 1, HFZ 2) yielded disappointing results. Recent assays for gold from HFZ 1 were also negative (see Appendix B). The significance of the copper mineralization is not fully understood at this stage.

3.4.4 Bedrock Sampling

The orientation portable-percussion sampling program on line 7120N (approximately L49N) yielded anomalous levels of Au, Ag, Cu, Pb, As, Bi and Te over the projected outcrop of Zone B from samples taken in a depth range of 0.8-4.3m. The technique was then used to collect samples at 5 metre intervals on lines 45N-54N to delineate the strike extent of significant mineralization along the Henty Fault. The samples were assayed for Au, Ag, As, Bi, Cu, Pb (± Zn, ±Te), the

results of which are listed in Appendix I. Plots of selected elements (Au, Ag, Cu, Pb, Zn) are attached to this report (Figures 6-15) and on Composite Line Profiles (Figures 16-25).

Weakly to strongly anomalous levels of gold were obtained on most lines, with a maximum of 1.54 g/t on line 51N. These values were commonly associated with elevated Ag-Cu-Pb values, and locally Bi and/or As peaks. Although it is not possible to equate these surface responses to the geology observed in the drill holes with any confidence, certain geochemical similarities can be seen on some lines. Glacial cover interfered with sampling locally, but overall the sampling coverage indicates that anomalous responses are almost entirely restricted to the footwall side (East) of the projected outcrop of the Henty Fault. The best gold values were obtained from lines 49N (7120N) to 52N, but lower level gold anomalism persists to the limits of sampling in the north and south. Base metal anomalies exist on all lines and in some cases are open to the east (e.g. Line 53N). It is apparent that better geological control at surface is necessary before the anomalies can be fully evaluated.

3.5 Discussion of Results

During the year, studies by GFEL staff at Mt. Lyell have indicated the existence of a significant post-Ordovician hydrothermal event which is believed to have played a major role in the paragenesis of some of the orebodies at Mt. Lyell (e.g. The Blow, North Lyell). The Great Lyell Fault is considered to be a control on mineralization of this style and as this structure is present in the Henty Project area, it is important to consider the results of work programs in the area in the light of the Mt. Lyell studies.

Macro- and microscopic examination of core from the mineralized zones and other rocks from the footwall of the Henty Fault indicate two probable phases of mineralization. Evidence exists that some of the mineralization is syngenetic, apparently restricted to within Zone A. This is indicated by the local very fine grained, bedded, nature of some sulphides, rare relict framboidal, colloform and nodular pyrite textures and the presence of "chemical" cherts all of which have been described in this zone. The proportion of this style of mineralization is uncertain due to secondary disruption, the existence of "massive pyrite" as temporally late veins, and interpreted fine grained replacement pyrite. However, at this stage this component is believed to be significant.

The second phase is interpreted as being an epigenetic replacement phase. This is believed to be responsible for the widespread silicification and sericitisation observed in the rocks in the footwall of the Henty Fault, including those of the Tyndall Group. Study of samples from HP5A and HP6 suggest that hydrothermal alteration of the lithic tuffs occurred in the following sequence:

(1) Sericitisation with associated sulphides (pyrite + galena)
(2) Silicification with minor carbonate-sphene-sulphides (chalcopyrite + sphalerite)
(3) Barren quartz fissure veining.

The same events affected the lavas and blocky volcaniclastics but seem to have emplaced only trace sulphides. The concentration of sulphide mineralization within the lithic tuffs may be a response to its greater permeability compared to the lavas, or some undefined chemical parameter. To this extent, the mineralization could be interpreted as stratabound.

This two phase paragenesis is very similar to that which is believed to have occurred at Mt. Lyell where syngenetic and epigenetic mineralization apparently exist in the same field. There, the Great Lyell Fault, a major thrust, is an important ore control. It is now believed that epigenetic mineralization is concentrated along the hanging-wall of the fault. This may well be relevant to the Henty area, in which case the mineralization would be connected with the Great Lyell structure and not the Henty Fault along which all efforts have been directed. The salient feature of the mineralization therefore may be that it exists in the hanging wall of the Great Lyell Fault, not that it lies in the footwall of the Henty Fault. This would increase considerably the potential for significant mineralization in the southern part of this section of EL 9/66.

An important aspect for further exploration following recognition of the epigenetic phase is that mineralization is not necessarily confined to the Cambrian units, but could exist in the Tyndall Group and even the Owen Conglomerate, all of which pre-date the hydrothermal event at Mt. Lyell.

3.6 Conclusions

(1) The Henty Project area is one of high prospectivity.

(2) Drilling has indicated that significant but patchy gold mineralization is contained in two strongly sulphidic zones within a silicified lithic tuff horizon in the footwall of the Henty Fault, Zone A and Zone B.

(3) The best results obtained to date are from HP4, which yielded 1.6m at 26.1 g/t Au (Zone A) and 3.1m at 10.9 g/t Au (Zone B).

(4) Two styles of mineralization are recognised within the zones. Syngenetic sulphides are observed but appear to be restricted to Zone A, while an epigenetic replacement phase is apparent in both Zone A and Zone B.

(5) The close proximity of many of the Zone A intersections to the crushed and broken ground of the Henty Fault, combined with its common thinness, make it a less attractive target than Zone B at this stage.

(6) Drilling has defined a possible southern limit to Zone B but it is open at depth and to the north. At this stage it has been intersected along a strike length of more than 900 metres, in a vertical range in excess of 350 metres.

(7) Though no obvious controls on the gold and base-metal mineralization have been defined, it would appear that the zones in which they occur are stratabound.

(8) The recognition of the post-volcanic epigenetic replacement phase greatly increases the potential for significant auriferous mineralization outside Zone B. Intersections of weak gold mineralization categorised as Zone C in three drill-holes may be indicative of this potential.

3.7 Recommendations

It is apparent with the recognition of the post-volcanic epigenetic mineralising phase that the aim of exploration in the coming year in the Henty Project area must be twofold:

(1) To improve definition of the extent of Zones A and B, and the parameters that control the tenor of gold mineralization within them.

(b) To define other target zones elsewhere in this section of the EL along the Great Lyell and Henty Faults.

Both exploration targets require improved surface geological mapping to ensure maximum possible effectiveness of subsequent work programs. It is recommended that this is undertaken, concentrating on the ground between the Henty and Great Lyell Faults, before the end of September.

Also in this period it is recommended that an orientation spectral IP survey is carried out on Lines 50N-51N, to determine the effectiveness of this technique in defining the Zone A-Zone B styles of mineralization. It is hoped that this will provide an optimum IP configuration for exploration of these styles of targets. This is required for the following reasons:

- The Henty Fault extends from the presently tested zones, 4 km northwards to the EL boundary, and the Great Lyell Fault is largely untested from its intersection with the Henty Fault southwards to the EL boundary. A rapid "lead-in" technique is required to adequately test the several kilometres of prospective ground within the time constraints of EL 9/66.

- The portable-percussion sampling has been successful but is impeded by scree cover on the west flank of the Gooseneck. A technique is required that will penetrate this cover.

The results of this orientation program will determine the next stage of exploration. However, it is anticipated that a program involving initial IP and follow-up bedrock sampling will be used to define targets along the Henty and Great Lyell Faults away from the area tested to date. This will involve re-clearing of sections of

old Mt. Lyell grid lines, followed by the necessary ground surveys and mapping. Interpretation of the results of this program should be completed by January 1986 to allow sufficient time for drilling of the defined targets.

It is recommended that the high level of drilling in the Henty Project is maintained during the next year. This is required to drill not only the targets defined by the ground surveys, but also to continue drilling of the Zone A-Zone B mineralization. A total of at least 1700m of coring is required to maintain the effectiveness of both aspects of this year's recommended program.

4. SELINA (F.G. FitzGerald)

4.1 Introduction

The Selina area, which lies within the north-eastern block of EL 9/66 (see Figure 1), is one of the most intensively explored parts of this licence. Most of the previous investigations dating from 1970, have focused on two extensive linear belts of strongly altered sulphidic volcanics known as the Western Pyrite Zone (WPZ) and the Eastern Pyrite Zone (EPZ). To the end of 1983-84 a total of 12 diamond drill holes had been completed to test different parts of these zones without intersecting economic mineralization. Due to limited bedrock exposure, this drilling has been largely directed by the results of geophysical surveys, in particular I.P.

A major soil and bedrock Ag-Pb-Zn geochemical anomaly, the Mt. Selina Anomaly Zone (MSAZ) was first outlined in 1981-82 with maximum values of 24 g/t Ag, 0.4% Pb and 1.35% Zn. Apart from additional geological mapping and rock chip geochemistry this anomaly had not been investigated in more detail because of the apparent lack of any strong I.P. response. However, the encouraging results from hole LS10, drilled 300m north of the MSAZ in 1984, lead to a re-evaluation of this area. Hole LS10 intersected significant Cu, Pb, Zn and Ag mineralization over broad intervals of a strongly altered sulphidic sequence of fine grained epiclastics. These rocks lie adjacent to altered dactic lavas and volcaniclastics in a geological setting similar to Kuroko-style massive sulphide deposits. The hole also intersected the only significant gold value obtained anywhere at Selina (viz 1m of 0.21 g/t Au).

The earlier gradient array I.P. survey showed that the strong I.P. anomaly over the EPZ persisted (as

a weaker response) south into the MSAZ. It was decided to evaluate the massive sulphide potential of this area by surveying the grid using a deep seeking ground E.M. (UTEM) method to delineate possible drill targets.

4.2 Previous Exploration

A comprehensive review of all the previous exploration over the Selina area was prepared by Purvis (1983). Additional work completed during the 1983-84 program was discussed by Cartwright (1984). In summary the area has been covered by: 800 feet (244m) spaced grid lines, locally in-filled to 400 feet (122m); detailed geological mapping and sampling; comprehensive gradient array I.P., S.P.,total field magnetics, and soil geochemical surveys and more restricted dipole-dipole I.P., Genie EM, maxi-min EM, gravity, trace element and lead isotope surveys. In addition, helicopter-borne Turair EM and Dighem surveys have been flown over the area. A total of 12 diamond drill holes have been completed with some geophysical testing of the drill core. Good reviews of the geology and mineralization in the Selina area are given by Hutton (1982) and Purvis (1983).

4.3 Work Completed 1984-85

Work during the 1984-85 period was directed towards a more detailed evaluation of the Mt. Selina Geochemical Anomaly Zone and involved reclearing existing grids, geological mapping, rock chip geochemistry and a UTEM survey. All of this work, apart from the reclearing, was carried out using helicopter support from Queenstown during a 2 week period in February 1985.

4.3.1 Gridding

The existing 800 feet (244m) spaced grid over

the MSAZ was recleared and where necessary re-pegged east from the Lake Selina road to approximately 500m E. Six lines from L104N to 144N, totalling 5.9 line km, were cleared (see Figure 26). The previous pegging, established in 1979-80, was retained so that west of the grid base line pegs are stationed 100 feet apart while east of the base line pegs are 20m apart.

In addition, 3 line km were flagged, and where necessary cut, in preparation for the UTEM survey transmitting loop, located on the western side of the grid.

4.3.2 Geology

A.J. Cartwright carried out detailed geological mapping along the re-cleared grid lines 104N to 144N in conjunction with the UTEM survey. This work has corroborated previous interpretations, in particular the gross similarities in geological setting with the Kuroko-style massive sulphide environment. The interpreted geology over the Selina area is presented in Figure 26. The pertinent aspects of this geology are discussed below, much of this information is from Cartwright (pers. comm.).

The Selina geology has been divided into the following broad units:

Sticht Range Beds

The eastern most unit is a sedimentary sequence of pebble conglomerates, quartz sandstones, siltstones and black shales which lie unconformably on the Precambrian quartzite basement. The sediments appear to grade conformably up into an epiclastic-volcaniclastic sequence to the

west. Earlier workers have tentatively correlated this unprospective unit with the Lower Cambrian Success Creek Formation. More recent interpretations suggest that the unit may be Middle to Upper Cambrian in age.

Selina Volcanics

(a) Dacitic Lavas

Pink to red-brown, very fine-grained (sub-aphanitic) quartz and quartz-feldspar phyric dactic lavas form an elongate "dome-like" complex along the north-south axis of Mt. Selina. The lavas are typically strongly brecciated (inferred autobrecciation) with common intercalcations of thin lenses of green chloritic gritty volcaniclastics. The lavas are characterized by pervasive siliceous-chloritic-haematitic alteration with extensive quartz-chlorite-magnetite-haematite veining, locally forming a stock-work. Both the eastern and western flanks of this dome complex are marked by an increasing quantity of intercalated volcani-clastics which grade outwards into volcani-clastic breccias containing abundant lithic clasts of lava.

(b) Volcaniclastics

Linear belts of volcaniclastics occur along both the eastern and western margins of the dacitic lava dome complex. In general the volcaniclastics grade outwards from coarse-grained unsorted volcanic conglome-rates and grits to fine grained tuffaceous siltstones and shales particularly east of the dome complex. Adjacent to the lavas the volcaniclastics are typically chloritic

with associated magnetite, haematite and variable pyrite. This alteration-mineralization assemblage east of the lavas represents the southern extension of the Eastern Pyrite Zone and minor chalcopyrite was noted here on line 144N. Further away from the lavas, usually between 50 to 150m, the chloritic alteration gives way to pervasive sericite within the finer grained epiclastics.

The western contact of the volcaniclastics is marked by a steeply dipping fault against Owen Conglomerate which has been outlined by drill intersections since most of this zone is concealed by glacial moraine. The eastern volcaniclastic sequence is twice as thick (400-600m) and abuts the Sticht Range Beds to the east. Bedding determinations generally indicate a sub-vertically dipping sequence.

Dora Conglomerate/Jukes Breccia

A sequence of poorly sorted breccio-conglomerates unconformably overlies the Selina Volcanics and generally forms the topographic highs in the area. Hutton subdivided this sequence into the Dora Conglomerate and the Jukes Breccia on the basis of prominent quartzite clasts, paucity of haematite and relative abundance of clasts against matrix in the former unit. It is suggested that this division may not be real as no contact relationships have been observed in the field.

Cartwright's mapping indicated that these rocks form a sequence several hundred metres

thick around the central section over Mt. Selina but which thins markedly towards the margins. He interpreted that the breccio-conglomerates were deposited in a shallow elongate trough over the lava dome complex.

The boulder to grit sized clasts are rounded to sub-angular and composed of dacitic lavas, volcaniclastics, siltstones, quartzite and rarer cherts, magnetite-haematite veins and granite.

Volcanic derived clasts predominate, particularly along the thinner margins of this sequence whereas quartzite, probably derived from the Precambrian Basement, is more abundant towards the centre. The matrix consists of tuffaceous grit which is often rich in haematite-magnetite-chlorite. The clasts typically retain their previous alteration assemblage viz, chlorite-haematite-magnetite within the lavas, chlorite-sericite within the volcaniclastics and silification within the quartzites.

4.3.3 Geochemistry

During the course of the geological mapping 25 rock samples of mineralized or significantly altered volcanic and related lithologies were collected and submitted for assay of Cu, Pb, Zn, Ag, Au, Ba, W, As and Bi (see Appendix I2). The results have been plotted along with all previous rock chip sampling and contoured (see Figures 27-31). Several brief comments on the rock and previous soil geochemistry are pertinent to the prospectivity of the Selina area.

The most significantly mineralized unit appears to be the volcaniclastic-epiclastic sequence which lies to the east of the dacitic lava dome complex. Strong Cu, Pb, Zn and Ag anomalies have been delineated within this belt showing a well defined metal zonation pattern. Copper anomalies are best developed adjacent to the lavas and are strongest towards the north reaching a maximum value of 1675 ppm Cu on line 144N. The Ag-Pb-Zn anomalies generally lie further east, up to several hundred metres away from the lava dome margin and are strongest further south, particularly between lines 120N and 108N. The maximum rock chip values are 3370 ppm Pb, 6700 ppm Zn and 24 ppm Ag.

The western volcaniclastic sequence has much lower metal values than the eastern belt (maximum values within soils here are 110 ppm Cu, 1000 ppm Pb and 510 ppm Zn). The dacitic lavas are not significantly anomalous geochemically apart from minor copper in soils in one area and relatively high barium contents, up to 5000 ppm Ba in rock chips.

Similarly the Dora Conglomerate-Jukes Breccia has a mostly subdued geochemical signature apart from two localized areas. These zones actually include some of the highest metal values obtained at Selina. The first zone lies on line 128N between 100 ft W and 100m E where a thin unit of strongly chloritic-haematitic volcaniclastic rich conglomerate overlies the main geochemical anomaly within the volcaniclastics. This area lies directly along strike from the Eastern Pyrite Zone. The second zone lies in a similar geological setting within the northern portion of the Dora Conglomerate-Jukes Breccia on line 104N.

4.3.4 UTEM Survey

The Mt. Selina Anomaly Zone has been previously covered by a gradient array IP survey which has delineated a weak southern extension of the Eastern Pyrite Zone. Since the principal exploration target within this area is a poly-metallic volcanogenic massive sulphide deposit it was decided to cover the area with a deeper seeking time domain EM survey. Six lines from L104N to 144N inclusive were read by a UTEM III survey during 3 days in February 1985 by Lamontagne Geophysics. Details of the survey parameters are included in the interpretation report prepared by Mitre Geophysics (see Appendix F). The surveyed area covers a zone approximately 1.25 km by 1 km. The transmitting loop, roughly 1.3 km by 0.5 km in size was located to the west of the grid (see Figure 32). Readings were taken every 100 feet west of the base-line and every 40m east of the base line.

The results from the survey were disappointing with no well defined responses being obtained. A detailed examintion of the data by Bishop (Mitre Geophysics) identified five zones of weakly anomalous responses (labelled A to E) within the noise level (see Figure 32). A comparison with the geological interpretation (Figure 26) and composite profiles (Figures 33-39) shows that all of the zones may be related to major lithological contacts. Zone C appears to coincide with the Southern end of the Eastern Pyrite Zone. Zones B and E were modelled and gave approximate depths to source of between 40 and 50 metres. It should be noted that these zones do not have the decay characteristics of a normal conductor.

No discernable anomalies were obtained over the main part of the Ag-Pb-Zn geochemical anomaly.

Experience from sphalerite rich massive sulphide deposits elsewhere within the Mt. Read Volcanics has shown that such mineralization is a relatively poor conductor. Thus while the absence of any significant UTEM responses over the area is disappointing the prospectivity of the zone based on geological and geochemical data is not significantly reduced. It would suggest, however, that any possible massive sulphide ore body is likely to be deeper than 60-80 metres.

4.4 Conclusions and Recommendations

Detailed geological mapping, comprehensive soil and rock chip geochemistry and drill hole LS10 have outlined a major Cu-Pb-Zn-Ag anomaly within a highly altered volcaniclastic-epiclastic sequence on the flanks of a dacitic lava dome complex at Mt. Selina. Previous gradient array I.P. surveys have delineated a response over the southern extension of the Eastern Pyrite Zone, co-incident with the copper geochemical maxima. A UTEM survey has not detected any significant conductors within this zone.

Geological interpretation has shown marked similarities between the geological setting at Selina and typical Kuroko-style massive sulphide deposits. It is recommended that the potential for this type of mineralization be tested by diamond drilling sited to intersect the best geochemical targets. This drilling would be helicopter supported and should be carried out during the 1985-86 summer field program.

5. READ EAST (F.G. FitzGerald)

5.1 Introduction

Ground investiations, including geological mapping and sampling, horizontal loop (Max-min) EM and VLF EM over a zone of Dighem anomalies in the north west corner of the E.L. were carried out in 1983-84 (see FitzGerald, 1984). The results of previous exploration completed by Mt.Lyell between 1968 and 1974 were also compiled and assessed and an anomalous EM zone at least 700m long was delineated over an area covered by unconsolidated glacial deposits estimated to be 20m thick. In addition, a broad zone of anomalous I.P. is centred east of the EM response where strongly altered quartz-sericite-pyrite epiclastic rocks are exposed.

A diamond drill hole was proposed to test the main part of the EM anomaly, which had been interpreted to have a shallow source (Bishop, 1984). The area lies 500m west of the Henty Fault Zone within a sequence of inferred west facing volcanics.

5.2 Previous Exploration

A detailed discussion of the results from previous exploration have been given by FitzGerald (op cit). Briefly the area was first covered by modern exploration methods in 1968 when Mt.Lyell carried out a reconnaissance VHEM survey, however no meaningful results were obtained due to difficulties with the terrain and vegetation. During 1971-73 the area was gridded at a nominal 700 feet (213m) line spacing and surveyed by gradient array I.P. and proton magnetics as part of Mt. Lyell's regional program over the E.L. A broad zone of anomalous I.P. responses were identified and these were further investigated by a Turam EM survey in 1973-74. A moderately weak zone of conductance was outlined west of the main

I.P. anomaly beneath a cover of glacial deposits. Electrical soundings carried out at this time indicated possible depths to bedrock of between 5 and 12 metres.

Interest was renewed in the area following the recognition of 6 airborne EM responses over 4 adjacent lines from a Dighem survey flown by Getty in 1983. The old grid lines were recut and surveyed by Max-min EM and VLF EM to accurately detail the Dighem responses. A 700m long zone of EM conductance was outlined, generally co-incident with the earlier Turam EM anomaly. Geophysical interpretation of all 4 EM surveys indicated a relatively shallow depth to the top of the conductor. Geological mapping showed that the zone was covered by volcanic derived glacial deposits with an inferred thickness of between 5 and 20m. Strong quartz-sericite-pyrite alteration was mapped east of the covered area and adjacent to the Henty Fault Zone. Minor pyritic chlorite schists were also located to the west of the EM zone. Limited rock geochemistry only detected minor base metal mineralization in these exposed units.

5.3 Work Completed 1984-85

5.3.1 Drilling RE1

Between drilling holes HP2 and HP3 of the Henty Project the rig was moved to a site just west of the Henty-Red Hills road between lines 55N and 56N. The hole was designed to test the central part of a 700m long EM conductor previously outlined. The hole was drilled west beneath glacial deposits towards an inferred strike extension of outcropping pyritic chlorite schists 450m to the north (see Figures 3 and 40).

A detailed log of drill hole RE1 is included in Appendix B. A summary of important geological aspects of the hole follows:

After passing through 20m (15m true depth) of volcanic derived glacial moraine the hole drilled 74.5m (over 50m true depth) of very deeply weathered bimodal volcanics. The underlying sequence to the end of the hole (364.0m) is composed of alternating units of weakly altered and unmineralized felsic porphyritic (dacitic?) lavas, welded ignimbrites and minor, possibly related, coarse epiclastic units. The whole sequence appears to have been intruded by a mafic to intermediate (basaltic andesite) dyke swarm. No samples were taken for assay.

The volcanic sequence is quite similar to that intersected by drill holes in the hanging wall of the Henty Fault 1.5 km to the south. This "high energy" volcanic sequence would not be conducive to the formation of a Rosebery-style massive sulphide deposit. The lack of evidence for any strong hydrothermal system within this volcanic pile is very discouraging and it appears unlikely that any significant syngenetic or epithermal mineralization could exist in this area. As a consequence the down-hole EM survey initially proposed for the drill hole was not carried out.

Although the source of the EM anomaly has not been clearly explained it may be related to the interface between the glacial till and the completely weathered volcanics. This depth of weathering is unusual within the Mt. Read Volcanics and it appears to coincide with the interpreted depth to the "EM conductor".

5.4 Conclusions and Recommendations

The central part of the 700m long EM anomaly over the

Read East area has been tested by diamond drill hole RE1 (364.0m). No significant hydrothermal alteration or mineralization was intersected by the drill hole which passed through a sequence of felsic lavas, welded ignimbrites, minor coarse epiclastics and a mafic to intermediate intrustive dyke swarm. The source of the EM response is not clearly evident but appears to be related to differences in the relative conductivity of the inconsolidated glacial deposits (15m thick) and the underlying completely weathered unmineralized volcanics.

Geological inforamtion provided by the drill hole has shown that there is no evidence that the area has potential for containing significant base or precious metal mineralization. It is recommended that no further work be carried out over this prospect.

6. WHITE SPUR (F.G. FitzGerald)

6.1 Introduction

A detailed mapping and litho-geochemical sampling program carried out by Getty in 1983-84 over the White Spur area highlighted the prospectivity of strongly altered fine grained tuffaceous sediments and pyroclastics east of Jones Creek (see FitzGerald 1984). Within this belt of rocks, which extends over more than 1 km along strike, moderate I.P. and soil geochemical anomalies have been outlined and partially tested by drill hole WSP1.

A re-evaluation of the results from this work, in conjunction with Getty data, indicated that considerable potential existed for the occurrence of economic massive sulphide mineralization in this area. In order to more fully assess this mineral potential and better define possible drill targets it was decided to carry out a deep seeking EM surveyover the eastern White Spur grid. A similar UTEM survey had been completed by Getty across this horizon in the adjoining EL 1/62 in 1984 with some encouraging results.

6.2 Previous Exploration

A detailed discussion of the exploration carried out over the White Spur area prior to 1983 is given by FitzGerald in Purvis et al (1983). The pertinent points to come from this work, along with the Getty activity during 1983-84, are summarized below.

Geological mapping has outlined a major sedimentary horizon within the Mt. Read Volcanics along eastern White Spur. The belt is made up of a sequence of grey to brown tuffaceous shales and siltstones, felsic ignimbrites and basaltic intrusives (see Figure 41).

Although only minor mineralization has been observed within the sericitic epiclastic-pyroclastic sequence detailed soil and rock geochemistry has outlined several zones of anomalous base metal.

A moderate, but clearly anomalous, gradient array IP chargeability response was delineated over the altered epiclastic-pyroclastic sequence. The strongest anomaly is coincident with moderate magnetic and Pb-Zn soil anomalies and was tested by hole WSP1, drilled in 1979. This hole intersected a mixed sequence of fine grained tuffaceous sediments, felsic ignimbrites and basic intrustives. Only minor sulphide mineralization was encountered within this generally weakly altered sequence (best assays: 2m at 0.76% Zn, 0.05% Pb and 2m at 0.63% Zn, 0.13% Pb).

The whole of White Spur was covered by a Dighem, helicopter-borne EM survey flown for Getty in 1983. No significant responses were identified over the Eastern White Spur area.

A re-evaluation of the earlier Mt.Lyell data, in conjunction with the Getty work and the results of exploration carried out by the E.Z. Co. over the adjoining ground to the north indicated that considerable potential for economic mineralization exists in this area. In particular encouraging geochemical and I.P. anomalies remain untested north of WSP1 and to the west, behind the collar, of this hole within favourably altered potential host lithologies.

6.3 Work Completed 1984-85

6.3.1 Gridding

The Mt. Lyell Imperial grid covering eastern White Spur was re-established in preparation for the UTEM survey. Lines 37N to 43N were recleared and where necessary re-pegged at the original 100 feet (30m) spacing east of the

central White Spur logging track. The intermediate grid lines were not recut (see Figure 42). In addition lines 37N and 43N were reopened to the west to the main White Spur road to allow the transmitting wire loop to be emplaced. A total of 8.4 line km were recleared during this program.

6.3.2 UTEM Survey

Lamontagne Geophysics carried out a UTEM III survey over an area approximately 1.2 km long by 1 km wide between lines 37N and 43N during February, 1985. The survey employed one transmitting loop (1.2 km x 0.7 km) placed on the western side of the grid. The loop position and coverage are shown on Figure 42. Readings were taken every 100 feet (30m) along the grid lines with only the vertical component being measured. The results were interpreted by Mitre Geophysics (see report GF/MG85/06 in Appendix G).

The results from the survey are disappointing, no good anomalies were recorded. J.R. Bishop (Mitre Geophysics) identified a number of weak zones and single-line responses within the noise level (see Figure 42). However, since they were virtually all early channel responses Bishop believes that none have economic significance. He suggests that superficial fractures and/or lithological contacts are the most likely source of the UTEM responses. In fact the designated UTEM zones are sub-parallel to the general geological strike of the area.

The only possible exception to these superficial sources may be Zone F which is defined by a low amplitude response on Channel 6 and occurs over 5 consecutive lines (see Figure 42). Although

this appears to be a real feature Bishop does not believe that it constitutes an exploration target.

6.4 Conclusions and Recommendations

Previous exploration over eastern White Spur has delineated an area of encouraging lithologies, alteration and geochemistry which may host volcanogenic massive sulphide mineralization. This zone was partially tested by drill WSP1 which confirmed the favourable environment for a Rosebery-style ore body. However, the comprehensive UTEM survey, carried out in 1984-85, failed to detect any significant conductors within the area.

Some potential for economic mineralization remains here although this has been down-graded by the negative results from the UTEM survey. The decision to continue exploration over White Spur must be based on the relative prospectivity of other areas as further results from these prospects are assessed.

7. BASIN LAKE (F.G. FitzGerald)

7.1 Introduction

Previous exploration over the Basin Lake grid has outlined a linear sulphide zone 3-400m wide beneath glacial moraine. This prospective zone appears to be part of a 9 km long belt which extends from north of Howard's Anomaly to Basin Lake (see Figure 43). Although no significant mineralization has been found to date DDH BL4, drilled in 1981, intersected bedded massive pyrite with one assay over 1.7m of 62 g/t Ag. As part of the evaluation of this sulphide zone it was decided to further investigate the BL4 intersection by drilling along strike to the south during the current season.

Widespread assaying for Au from all previous drill core prior to 1984-85 has failed to locate any significant mineralization. However, it was decided to extend the stream sediment geochemical sampling and mapping program north from West Sedgwick to include the main drainages over the Basin Lake area. Some of these creeks will be affected by the Henty-Anthony hydro-electric power development.

7.2 Previous Exploration

A detailed discussion of previous exploration carried out over the area has been given by FitzGerald in Purvis et al (1983). The more important results from this work over the BL4 and proposed hole (BL5) area are summarized below.

Gradient array I.P. surveys in 1974-75 over the Basin Lake grid outlined numerous anomalies many of which have been shown to be due to pyritic black shale units. However, where the depth of the glacial moraine exceeds

25m it appears that the I.P. may not have been effective in penetrating this cover. Detailed soil geochemistry was carried out over the I.P. anomalies between 1975-77. Although most samples were taken over glacial till and are considered to be meaningless it is worth noting that some weak anomalies were defined and subsequent drilling (e.g. BL4) has shown that these may be related to underlying sulphidic units. Restricted dipole-dipole I.P. surveys were carried out prior to drilling and on lines 30S and 36S they confirmed the presence of two chargeable bodies lying adjacent to each other within the sequence.

Hole BL4 was targeted on this double I.P. anomaly and intersected bedded massive and semi-massive pyrite over 15.7m within a strongly sericitic fine-grained epiclastic and coarser andesitic sequence. Although base metal and gold values are disappointingly low (maximum value 1.2m at 0.18% Pb) significant silver mineralization was recorded with 1.7m at 62 g/t Ag within a zone of 17.2m at 11.3 g/t Ag. This sulphide zone appearsto be the source of the weaker I.P. anomaly. The stronger anomaly is due to a pyritic black shale sequence which carried no significant mineralization and was intersected further west in the drill hole.

The only other previous exploration worth noting here is a ground EM (Genie) survey carried out in 1981-82. This survey recorded only one minor response over the gridded area. However, it is important to note that the massive sulphide unit intersected in BL4 was not detected by the Genie EM.

7.3 Work Completed 1984-85

7.3.1 Geochemistry

Geological contractor R.A. Poltock extended coverage of his stream geochemical and mapping

program from the West Sedgwick area in January, 1985 to include limited sampling in the headwaters of the Langdon River, which drains the Basin Lake grid. The aims and methods used in this sampling program are discussed fully in the West Sedgwick part of this report (see Section 8.3.1). A comprehensive report on this work was prepared by Poltock (see Appendix D). In total 3 panned concentrate and 2 minus 80 mesh stream sediment samples were collected from 3 sites. The sample locations and assays are presensted on Figures 45 and 46 along with the results from previous sampling. All samples were assayed for Au, Cu, Pb, Zn, Fe, Ag, As, W, Sb, Te and Tl.

Although Poltock identified 5 very fine-grained gold colours in panned sample No. 15763, no gold was detected in this or any other sample that he took. These results confirm the earlier reconnaissance stream geochemical assays from a survey carried out in 1981-83 over the adjoining Henty-Yolande area.

The lack of any signficiant gold mineralization from stream sediments within the Basin Lake area is in accord with the negative results from previous widespread assaying of rock outcrops and drill core here. It should be noted, however, that the sediments in all of the streams that were sampled are composed almost entirely of glacially derived Owen Conglomerate detritus. Thus it would be expected that subtle sediment geochemical anomalies would be masked by this dilution effect.

7.3.2 Drilling

Diamond drill hole BL5 was designed to test for an enrichment of base and/or precious metal mineralization within a strike extension of the massive pyrite lens intersected in BL4. Hole BL5 was sited 150m south of BL4 so that a strong double I.P. anomaly on line 36S (identified in 1974-75) would also be tested (see Figure 43). The hole was drilled during February-March 1985 to a depth of 346.5m using the Longyear 38 rig from the Henty Project.

A detailed log of BL5 is presented in Appendix B and a composite line profile over the drill section is shown on Figure 44. In summary: no significant mineralization was intersected with the best assays being 229.0-230.8m, 1.8m at 3.5 g/t Ag within semi-massive pyritic schist and 325.4-331.4m, 6.0m at 0.06% Pb, 0.17% Zn and 0.8 g/t Ag within sulphidic epiclastics. The hole showed that the massive sulphide lens does not extend south from BL4. However, a similar sequence of sericitic calcareous epiclastics which carry abundant disseminated pyrite was outlined in BL5 between 213.7-332.0m. This sequence appears to correlate with the sulphide zone in BL4.

The I.P. anomalies appear to be adequately explained by the pyritic mineralization and several black shale lenses intersected further west within the andesitic volcanic sequence. Unfortunately the hole collapsed at the collar within unconsolidated glacial moraine during recovery of the drill hole casing. Consequently no down-hole geophysical surveys could be carried out to test for possible off-hole mineralization.

7.4 Conclusions and Recommendations

The search for potential gold mineralization over the Basin Lake area has failed to produce any significant results. This work involved stream sediment geochemistry as well as extensive previous rock chip and drill core assaying.

Hole BL5, drilled to test for a southern extension of the massive pyrite body intersected in BL4, has shown that the sulphide lens is quite restricted along strike. No enrichment in either base metal or precious metal values was intersected in BL5 within the lateral equivalents of the BL4 host sequence. However, the extent of the strongly altered pyritic epiclastic sequence has been confirmed.

This partially tested sulphide zone, which is inferred to extend over at least 5 km within the E.L., retains considerable potential for containing economic volcanogenic massive sulphide mineralization and warrants more detailed investigation. Since much of this prospective horizon is covered by glacial moraine, often in excess of 30m thick, it is recommended that a deep seeking time domain EM survey be carried out over the projected strike extent of this belt to help delineate possible targets for drill testing.

8. WEST SEDGWICK (F.G. FitzGerald)

8.1 Introduction

A number of old alluvial gold workings and bedrock gold occurrences are known over the West Sedgwick area to the north west of the Mt. Lyell mineral field (see Figure 1). Although all of these gold "shows" appear to have been very restricted in size and are not prospective in themselves, it is believed that they may represent gold remobilized from economically significant mineralization, particularly very fine grained volcanogenic gold.

Previous exploration over the West Sedgwick area had focused on the search for massive sulphides and extensions to the Mt. Lyell copper mineralization. It was decided to investigate the gold potential by carrying out a comprehensive stream sediment geochemical sampling program.

8.2 Previous Exploration

A detailed account of the previous exploration over the West Sedgwick area is given by FitzGerald (in Purvis et al, 1983) and is summarised as follows. Modern exploration commenced in 1956-62 when Rio Tinto held the ground. They followed-up an airborne EM and magnetic survey with ground EM, magnetics, gravity, stream and soil geochemistry and mapping over an anomaly near the Mt. Read Volcanics-Owen Conglomerate contact south west of Mt. Sedgwick. A subsequent I.P. survey gave negative results and no further work was carried out. Pickands Mather held the ground from 1965 to 1971 and also concentrated on the volcanic-conglomerate contact which was covered by a dipole-dipole I.P. survey. It appears that no significant anomalies were obtained and no further work was completed.

Mt. Lyell have explored West Sedgwick since 1971. They progressively gridded, mapped and surveyed the area by gradient array I.P. Detailed magnetic and soil geochemical surveys were carried out over the I.P. anomalies and these focused attention on the black shales in the southwestern part of the area. Severl drill targets were identified and two of these were tested by drilling in 1977 without encountering any significant mineralization. Apart from a partial coverage of the western-most drainages by a regional stream sediment survey over the Henty-Yolande area in 1981-83 no further exploration has been carried out since this drilling.

Sheppard (1971-75) has carried out the most detailed geological mapping at West Sedgwick and his map, with the accompanying comprehensive lithological descriptions, has not been substantially altered. The 1983 geological review was in broad agreement with Sheppard's interpretation. During 1971 and 1972 Dr. K. and E. Corbett mapped the area as part of a Mines Department regional geological survey. A report on this work has been written (see Corbett, 1981). This report attempts to relate the geology of the area to the current thinking on the Mt. Read Volcanics' stratigraphy.

8.3 Work Completed 1984-85

8.3.1 Geochemistry

Geological contractor R. Poltock was employed to carry out a detailed stream sediment geochemical program, accompanied by geological mapping and sampling over the entire West Sedgwick drainage area. This work was carried out during the 1984-85 summer season.

The program was designed to evaluate the potential for economic bedrock gold mineralization. To achieve this a minimum sample density of one sample per 2 km² was established, as it happened a much greater density of samples was obtained over several areas. Both a minus 80 mesh sediment and a panned concentrate sediment sample were collected at each site. The sediment trap site was rated, the panned sample was examined and the relative size and quantity of any gold grains was recorded (see Appendix D). The purpose of this dual sampling was to follow coarser (pannable) alluvial gold upstream to the bedrock source. Experience elsewhere within the Mt. Read Volcanics suggests that volcanogenic gold mineralization, which is generally sub-microscopic in grain-size (unpannable) coarsens away from its source during fluvial erosion and transport. Such fine-grained gold should be detected in the minus 80 mesh sediment fraction.

In addition to these samples, 4 samples of sediment entrapped in moss along stream banks were collected to use as a potential gold indicator. An orientation study on the Mt. Lyell Mine lease had shown that the moss growing inthis area was very effective as a gold trap. The method involved collecting moss, squeezing it through a wire sieve (approximately 1 mm size) to concentrate the contained sediment, then panning off the lighter material.

Bedrock and float geology was examined in conjunction with this geochemical study. No significantly mineralized or altered lithologies were mapped and only one rock sample was submitted for assay, along with the stream sediment samples.

All samples were assayed for Au, Cu, Pb, Zn, Fe, Ag, As, W, Sb, Te and Tl and the results are tabulated in Appendix D as part of a report on this work by Poltock. Sample locations and assays (corrected for concentration of gold in panned samples) are plotted on standard 1:5,000 scale sheets along with previous stream geochemical assays (see Figures 47-50).

The results from this geochemical program were generally disappointing. No visible gold was detected in most drainages, a result confirmed by the very low assay results. Only two areas were identified as having significant gold geochemistry: viz east of the East Queen River and the western tributaries of the West Queen River. The former area lies very close to the Mt. Lyell A to P boundary and it appears that the source of the gold is related to the adjacent copper mineralization at Mt. Lyell.

The West Queen River has been known to carry gold since last century and small scale alluvial workings occur along the lower reaches of the drainage. The current sampling has clearly identified the western side of the drainage as the source area. Moderately anomalous gold was identified in both panned concentrate and minus 80 mesh sediment samples sporadically along 3.5 km of the drainage (maximum values are 2.66 g/t Au [true value] and 0.03 g/t Au respectively). The lateral extent of this linear zone appears to be about 600m since all but one sample across the drainage divide to the west do not contain any detectable gold.

Poltock could not identify any possible bedrock source for this gold mineralization. Sheppard's

geological interpretation map shows a prominent elongate sub-volcanic intrusive quartz-feldspar porphyry in this area which may be related to the gold. The host rock to earlier gold workings at Diamond Hill to the west is a similar porphyritic intrusion. However, previous sampling of this and other similar bodies in the Lake Margaret area has failed to yield anomalous gold (FitzGerald, 1983).

Other very minor and scattered gold geochemical anomalies were located during the survey, particularly west of the Lake Margaret township, but these are not felt to be sufficiently encouraging to warrant further investigation.

8.4 Conclusions and Recommendations

A comprehensive stream sediment geochemical survey over West Sedgwick has located only one area with significant gold values. The program has outlined a linear zone 3.5 km long and up to 0.6 km wide between the western drainage divide and the West Queen River. No bedrock source for this mineralization has been identified from the mapping and sampling to date but previous geological interpretations have outlined potentially favourable lithologies in the area.

This moderate anomaly warrants further investigation. The area is quite accessible from the Lake Margaret road and a power line service track. It is recommended that bedrock geochemical samples are taken using a portable percussion rig ("Wacker") along 3 or 4 tranverse lines between the ridge top and the West Queen River. Detailed geological mapping and sampling in an attempt to identify the source and style of the gold mineralization should accompany this program.

9. HUXLEY (F.G. FitzGerald)

9.1 Introduction

The 1984-85 exploration program over the Huxley area focused on two principal targets, namely massive sulphide mineralization, especially over the North Huxley grid area and economic bedrock gold mineralization which may be related to old alluvial and hard rock gold prospects. Previous exploration over the area has been rather low key despite the proximity to the Mt. Lyell mineral field. Prior to the current year's activity no ground geophysical surveys (apart from magnetics) or drilling had been carried out here.

Given the time constraints on the tenure of the E.L. it was decided to carry out a comprehensive and integrated program to pursue these two targets. This work included: extensions to the Huxley grid with additional soil geochemistry and a dipole-dipole IP survey; a detailed stream sediment geochemical survey with accompanying geological mapping over the main drainage areas; and reconnaissance gridding with mapping and soil and bedrock geochemistry over the West Diorite Creek, Mt. Ellen and West Mt. Huxley areas.

9.2 Previous Exploration

A useful discussion of the main results from exploration carried out over the Huxley area is given by Jones in Purvis et. al. (1983). The area has been investigated during two periods of activity. Between 1971 and 1975 vehicle access was established, a 1600 feet (488m) spaced grid was cut and sampled by soil geochemistry and a Fluxgate magnetic survey and the area was geologically mapped with numerous old prospects being located and sampled. The results from this work were mostly discouraging. Then from 1981 to the present time exploration has involved a Dighem helicopter-borne EM survey, stream

sediment geochemistry, detailed geological mapping and cutting a new 200m spaced grid which was soil sampled using a power auger.

The geological review in 1983 investigated the prospectivity of Ag-Pb-Zn mineralization located along the Mt. Read Volcanics-Owen Conglomerate faulted contact as well as several old, mostly gold, workings. They identified significant massive sulphide and bedrock gold mineralization targets, both of which required follow-up investigations.

Corbett (1979) prepared a useful geological report from his mapping over the area south of Queenstown. The most detailed geology over the Huxley area has been completed by Komyshan (1983).

9.3 Work Completed 1984-85

The initial program proposed for the Huxley area this season involved some extensions to the existing grid in preparation for a dipole-dipole IP survey and a more detailed stream sediment geochemical survey. Due to some encouragement from results of the geochemical work and the limited time left to fully evaluate these before the EL expired it was decided to carry out more detailed investigations late in the current program. To this end a reconnaissance grid was established and sampled by soil and bedrock geochemistry.

The following discussion of the work completed and the results obtained incorporates all of these different phases of activity.

9.3.1 Gridding

Huxley Grid

The 200m spaced grid established in 1982 was extended to the east to adequately cover the

Mt. Read Volcanics-Owen Conglomerate contact in preparation for a dipole-dipole IP survey. In addition, 3 new lines (00 to 3N) were cut to extend the grid coverage to the north. All the grids are pegged at 25m intervals, however, unlike the initial grid, these extensions were all slope corrected. In total 5.4 line km of grid were cut during December 1984.

Mt. Ellen Grid

Following the recognition of anomalous gold in drainages in the West Diorite Creek, the Mt. Ellen and the West Mt. Huxley areas this year it was decided to carry out reconnaissance soil and bedrock sampling over each area. A grid base line 2.4 km long was established and three traverse grid lines were cut and pegged at 25m slope corrected intervals. A total of 4.7 line km of gridding was completed here.

9.3.2 Geology

Geological contractor R.A. Poltock carried out mapping as part of his detailed stream sediment geochemical investigations. The aim was to identify a possible bedrock source and the style of any gold mineralization. In addition Poltock mapped the Mt. Ellen grid, which was established to follow up several anomalous gold occurrences. Some discussion of the results of this mapping is presented in his report (see Appendix D) which is an extension of his earlier geological investigations (see Poltock, 1984).

The main features of the geology within the Huxley area, incorporating the results from Poltock and Komyshan (op. cit.), are discussed

briefly (see Figure 51).

Most of the area is made up of Cambrian Mt. Read Volcanics. These are bounded to the east by the Upper Cambrian-Lower Ordovician Owen Conglomerate along the inferred southern extension of the Great Lyell Fault. An outlier of Owen Conglomerate also forms the Mt. Huxley topographic feature. Widespread, but patchy, cover of fluvio-glacial and scree deposits occur throughout the area, particularly concentrated along the margins of the Owen Conglomerate.

The Mt. Read Volcanics may be broadly subdivided into 3 north-trending belts which appear to young to the east.

(a) Western Belt composed of interlayered quartz-phyric volcanics and tuffaceous sediments.

(b) Central Belt composed of massive rhyolitic lavas and ignimbrites and in the north of the area overlying andesitic volcanics (the Whip Spur Sequence).

(c) Eastern Belt composed of predominantly tuffaceous sediments with minor ignimbrites, rhyodacitic lavas and exhalites.

(a) <u>Western Belt Volcanics</u>

A sequence of tuffaceous greywackes, silt-stones and black shales intercalated with quartz-phyric pyroclastics forms the western margin of the area. This sequence includes prominent quartz-feldspar sub-volcanic intrusive porphyries which are weakly altered. Geological interpretation indicates that

this belt of volcanics and related lithologies were deposited within a large marine basin which deepened westwards. The lack of known prospects and the poor results from geochemical sampling confirm the low prospectivity of this area.

(b) Central Belt Volcanics

A 1.5 km wide zone of massive rhyolitic lavas and felsic ignimbrites form the central belt of volcanics in the area. Andesitic volcanics overlie this sequence in the northern part over Whip Spur. In general these lithologies are weakly altered, however minor mineralization occurs within this belt. Most prominent is the Mt. Ellen Gold Mine where a weak quartz and limonitic (after sulphide) vein stockwork is hosted by deeply weathered argillically altered rhyolitic lava. XRD determinations suggest that the alteration is more likely to be supergene rather than hydrothermal in origin. Poltock also located minor alluvial gold workings in the West Diorite Creek area.

(c) Eastern Belt Volcanics

The most prospective sequence of volcanics in the Huxley area is a zone 1 to 1.5 km wide made up predominantly of altered tuffaceous sediments with minor felsic-ignimbrites and small rhyo-dacitic lavas. In the north-east these volcanics are in faulted contact with Owen Conglomerate, whereas south of the Mt. Huxley Saddle a possible correlate of the Jukes Breccia forms an unconformable contact to the east.

Glacial moraine and Owen Conglomerate scree obscures much of the outcrop within this belt. However, detailed mapping by Komyshan (1983) identified prominent sericitic and chloritic alteration within this structurally complex sequence. Komyshan also located significant Ag-Pb-Zn mineralization within fault wedges adjacent to the Owen Conglomerate east of Nasty Knob. Numerous minor old workings occur north and east of Mt. Huxley, the most notable being the Mountain Maid. The Review Team identified a pyritic exhalite band within this old gold prospect.

Further south along this sequence, Poltock has mapped similar lithologies but the alteration is markedly weaker and no significant mineralization has been recorded.

9.3.3 Geochemistry

Stream Sediment Geochemistry

The 1983-84 stream sediment survey by Poltock indicated that some of the earlier Golden Apple Syndicate sampling was suspect, especially with regard to their locations. However, Poltock also confirmed the presence of encouraging gold geochemistry in several drainages. It was decided to investigate these areas in more detail by carrying out an infill sampling program taking both minus 80 mesh and panned concentrate stream sediment samples and pursuing any "gold train" back up to a bedrock source. The rationale for this dual sampling method has been previously discussed for the West Sedgwick area (see Section 8.3.1).

The results from this sampling along with all the previous stream sediment geochemical results are presented on Figures 52-57. The samples have been variously assayed for Au, Cu, Pb, Zn, Fe, Ag, As, Ba, W, Sn, Sb, Bi, Te and Tl. All the gold assays for panned concentrate samples have been corrected to a true value. A report by Poltock on the 1984-85 program is included in Appendix D.

The results from this geochemical survey are somewhat ambiguous. Although moderately anomalous gold was identified in numerous drainages over the Huxley area, no positive evidence of any bedrock sources for this mineralization could be defined. However, Poltock has located several styles of alteration and mineralization which may be related to the gold geochemistry. These are:

(a) Chlorite-sericite-pyrite-magnetite lenses within rhyolitic lavas such as at Mt. Ellen and in West Diorite Creek areas.

(b) Quartz-chlorite-specular haematite veining within lavas and volcaniclastics such as at Mt. Ellen and in the Toft River headwaters.

(c) Pyritic shales with minor galena-sphalerite such as in South Conglomerate Creek (a weak Dighem anomaly occurs here).

and

(d) Pyritic siliceous exhalites within rhyolitic lavas such as the Mountain Maid Workings.

Rock chip samples from all of these areas have failed to give any significant gold assays,

however the stream sediment geochemistry has outlined four main anomalous gold-in-drainage areas. These are the West Diorite Creek, the Mt. Ellen area, the western slopes of Mt. Huxley and the Toft River headwaters-Mt. Huxley divide. The first three areas have been investigated further by sampling along the Mt. Ellen grid (see below).

Huxley Grid Geochemistry

The 1974-75 soil geochemical survey over the Huxley grid failed to detect any significant base metal anomalies. However, the 1982-83 survey using a power auger was able to penetrate the transported and leached soils and sample the C horizon, in areas away from glacial till cover. This survey outlined several anomalous Ag-Pb-Zn responses.

A brief geochemical orientation survey was carried out at Huxley by consultant Dr. S. Joyce and GFEL geochemist S. Gatehouse during December 1984. This study confirmed that C horizon soil-bedrock samples were necessary to avoid the extreme leaching which occurs here. Consequently the northern extensions to the Huxley grid were sampled using a power auger. In total 67 samples were taken along 4 lines from 2 S to 3N and assayed for Cu, Pb, Zn, Au, Ag, As and Ba. These results are presented in Appendix I and plotted, along with the previous assays, on Figures 65-69. This work shows that the major Ag-Pb-Zn anomaly extends north along the volcanics-conglomerate contact for a further 300m but is apparently terminated between lines 1N and 3N.

As part of the assessment of the mineral potential over the Huxley grid 22 mineralized samples collected during 1982-83 were resubmitted for Au determinations. The results, which are presented in Appendix C, are disappointing. The maximum value was only 0.09 g/t Au and most samples were <0.01 g/t Au. The best gold assay from samples over the Huxley grid is 0.14 g/t Au from this year's soil sampling on line 1N 250mE (see Figure 65).

Mt. Ellen Grid Geochemistry

One reconnaissance traverse line was cut over each of the West Diorite Creek, Mt. Ellen and West Mt. Huxley areas where anomalous gold-in-drainages had been outlined. It was decided to sample along these grids and along sections of the base line using both hand auger soil sampling and portable percussion (Wacker) bedrock sampling techniques to compare the effectiveness of each method in outlining possible bedrock gold mineralization. Samples were taken every 25m along the traverse lines and every 50m along the base line. Due to serious problems with glacial and scree cover along the West Mt. Huxley line only partial soil geochemical coverage was obtained and no bedrock samples were taken. The soil samples were seived to minus 80 mesh and both the soil and bedrock samples were assayed for Au, Cu, Pb, Zn, Ag, As and Ba. The results are listed in Appendix E and the Au, Cu, Pb, Zn and Ag values plotted on Figures 65-69.

The results are very disappointing. No significant gold or base metal mineralization was detected. The maximum gold values are 0.05 g/t Au in bedrock and 0.04 g/t Au in soil samples. The gold and base metal values are slightly elevated along

line 1600E which is located 200m east of the Mt. Ellen workings. However they do not constitute a significant anomaly and confirm previous interpretations that the Mt. Ellen mineralization is very weak and quite restricted in extent. Although no anomalous values were obtained over the West Diorite Creek area, one rock chip sample of chloritic-pyritic tuff assayed 0.15 g/t Au. The sample was from a small lens 10x30m in size and may explain the minor gold in stream sediments here.

The Owen Conglomerate scree and patchy glacial deposits on the west slopes of Mt. Huxley present a formidable barrier to the evaluation of the anomalous gold in the streams draining this area. It appears that neither soil nor bedrock geochemistry is capable of seeing through this cover. Similarly geological mapping and sampling is severely hampered by these deposits. At present the source of this gold remains unexplained.

9.3.4 Dipole-Dipole I.P. Survey

Following recognition of the highly prospective altered and mineralized volcanic sequence west of the Owen Conglomerate contact it was decided to carry out a geophysical survey to identify possible drill targets, particularly within areas covered by extensive fluvio-glacial and talus deposits. A dipole-dipole IP survey was chosen because Ag-Pb-Zn mineralization had already been identified in the area and it was felt that the results from such a survey would be less ambiguous than from an EM survey.

Ten lines from 1N to 15.5S extending from up to 1200m west to 400m east of the volcanic-

conglomerate contact were covered by the survey during January 1985 by Scintrex Pty. Ltd. The dipole spacing was 50m and an IPR 11 receiver was used reading to n=5. J.R. Bishop (Mitre Geophysics) has interpreted the results from this survey and prepared a report (see Appendix G). This is accompanied by an interpretation map and averaged chargeability, resistivity and metal factor contoured plots (see Figures 70-73).

Although the survey has failed to locate any possible massive sulphide bodies the results are still quite encouraging. Bishop has identified 3 zones, highlighted by the geological interpretation and the geochemical results, as having significant IP responses (Zones 1-3, Figure 70). He also identified a fourth zone (Zone 4) with a significant IP response over an area covered by glacial moraine but adjacent to elevated base metal geochemical values. Bishop modelled the responses over Zones 1, 2 and 3 as well as on line 00 which shows the affects of topography (see Figures 74-77). Details of the modelling method are given in Appendix H.

Geophysically, only the Zone 2 response is indicative of a relatively large body of disseminated sulphide mineralization. The model for this anomaly, centred at 275W on line 6S (Island Ridge), shows discrete chargeable bodies which may define a zone of alteration/mineralization. The other 3 anomaly zones may indicate relatively small chargeable bodies close to the surface, although the "single-sided" IP responses are considered to be geophysically unfavourable. The very limited Ag-Pb-Zn mineralization mapped adjacent to the Great Lyell Fault between lines 00 and 1N and forming the Zone 1 response may be typical of the sources for Zones 3 and 4.

It is clear that if any of the 4 zones contain a potentially economic massive sulphide deposit then it must lie beneath the depth of penetration of the IP survey (up to 100m). Based on this premise Bishop has suggested a drill target on the Zone 2 response 200m below 6S/275W.

The only other prominent features to come from this IP survey are the contact lines of resistivity and chargeability which divide higher values (for both parameters) to the east from lower values to the west. These lines closely follow the trace of the Great Lyell Fault and indicate that the Owen Conglomerate is more resistive and also more chargeable than the volcanics. The "regional" chargeability in the conglomerate may be due to the pervasive haematitic mineralization within this formation. In order to better define the petro-physical parameters of the main lithological units and alteration/mineralization types, 5 rock samples were collected in May 1985 for IP determinations. The results from this work are unavailable at this time.

9.4 Conclusions and Recommendations

A dipole-dipole IP survey over the Huxley grid did not locate any massive sulphide mineralization. However, the survey has outlined significant responses close to prospective zones previously identified by geological mapping and geochemical sampling. Modelling of these responses indicates that only the IP anomaly near Island Ridge is likely to be due to a relatively large body of disseminated mineralization. This area is covered by a thin veneer of glacial moraine. However, mapping and sampling of bedrock exposed in a window through the cover on the adjacent Island Ridge has identified favourable alteration and mineralization which may be peripheral to a massive sulphide body. It is recommended that this target is tested with a diamond drill

hole designed to intersect an area 200m below the surface at 275W on line 6S. This drilling should be accompanied by a down-hole EM survey to test for any off-hole conductors.

A stream sediment geochemical survey, designed to in-fill the previous coverage, has outlined 4 areas with significant gold values. A reconnaissance grid was cut to cover parts of 3 of these areas, namely West Diorite Creek, Mt. Ellen and West Mt. Huxley. Soil and bedrock sampling along this grid failed to detect any anomalous gold or base metal mineralization. Geological mapping, which accompanied these geochemical investigations, did not locate any definite bedrock sources for the gold-in-drainage mineralization. The investigation suggested that any potential gold mineralization is likely to be quite restricted in extent and further exploration for this target must be a low priority. The fourth moderately anomalous gold drainage area, in the headwaters of the Toft, warrants a similar low key program of bedrock sampling along reconnaissance grid lines before further, more detailed, exploration is carried out. It is recommended that this work is completed early during the 1985-86 program.

10. SNAKE SPUR (C.F.D. Pease)

10.1 Introduction

The Snake Spur area lies within the south-western section of EL 9/66 (see Figure 1). The 1983-84 field season identified the Snake Spur area, which is a ridge of Owen Conglomerate flanked by altered Mt. Read Volcanics, to be prospective for base metal and gold mineralization. This year extensive ground surveys were undertaken to investigate this potential.

10.2 Previous Exploration

The Snake Spur area was examined by the old prospectors who located weak pyrite-chalcopyrite mineralization in altered volcanics on the western flank of Snake Spur. Several trenches were reported to have been cut during this period, one of which (the Snake Spur Costean) was sampled during a ridge-and-spur soil sampling program undertaken by Mt. Lyell geologists during the 1977-78 field season. Assaying of the costean samples averaged at 0.96% Cu over 8m. Apart from the ridge-and-spur sampling, and a small stream sediment sampling program, the area was essentially unexplored.

In 1982-83 the Review Team proposed a three-year program to investigate the south-west section of EL 9/66, and in 1983-84 a six week helicopter supported program of mapping and sampling was undertaken by R. Poltock. This identified the Snake Spur area as prospective, and a season of grid based ground surveys was proposed.

10.3 Work Completed 1984/85

An intensive helicopter supported program of gridding, mapping, bedrock sampling and EM surveying was undertaken in the area during January-February this year.

10.3.1 Gridding

A 1.5 km baseline was cut along the Thomas Currie Rivulet from which grid lines totalling 11.7 km were cut in a north-easterly direction. Seven lines from 600-1200m in length were spaced at 200m intervals between 1400N and 2600N, with additional lines at 1000N, 3100N and 3300N. Several lines had to be cut short and one line abandoned due to extremely rough topography and time constraints. All lines were pegged at 25m slope corrected intervals and have been surveyed by tape and compass. Two rectangular loops (approx. 600x300m) were cut to the south-west of the grid for the UTEM transmitting loops.

10.3.2 Geological Mapping

Mapping was undertaken along the grid by A. Cartwright to detail the previous mapping in the area by R. Poltock. Exposure was limited and the mapping did not alter the overall geological picture significantly. Interpreted geology is also presented sectionally, together with the grid geochemistry and geophysics, on Composite Line Profiles (Figures 91-100).

Cartwright identified three major geological blocks within the area:

(a) Owen Conglomerate
(b) Mt. Read Volcanics on the north-eastern side of Snake Spur
(c) Mt. Read Volcanics on the south-western side of Snake Spur.

(a) Owen Conglomerate

The Owen Conglomerate forms the central block of the area flanked by Mt. Read Volcanics to the north east and south west. The western contact with the volcanics is well defined and at 2600N appears to be "kinked-in", a feature observed locally along the Volcanics/Owen contact in the Mt. Lyell area. The Owen along the western margin is characterized by coarse grained sandstone beds and lenses which are commonly hematitic and quartz veined. The bedding is overturned, dipping west at 70-80° but facing to the east. To the east the Owen is dominantly made up of pebble conglomerates, with minor sandstone beds and lenses. Bedding away from the western contact turns back through the vertical, to dip east at progressively shallower dips, until, east of Tony's Creek, westerly dips occur, with a synclinal axis inferred through the centre of the Owen block underneath the glacials north of line 2000N. This Owen syncline is flanked to the NE and and SW by Mt. Read Volcanics.

(b) North-Eastern Volcanics

The Mt. Read Volcanics on the north-eastern flank rarely outcrop due to extensive glacial cover north of line 2000N and east of Tony's Creek. Mapping indicated that the Owen-Volcanics contact on this flank is further east than originally previously interpreted. Where exposed the volcanics have been mapped as fine grained volcaniclastics which give way to the central lava sequence to the south and east.

(c) South-Western Volcanics

The volcanics on the south western flanks of Snake Spur are comparatively well exposed and consist of medium to coarse grained, massive volcaniclastics, often quartz-feldspar phyric and probably of pyroclastic origin. In the south-western corner of the grid these are intercalated with massive, fine grained felsic lavas. Minor breccias and cherty epiclastics have been observed elsewhere on the grid and in general they are seritic and locally weakly pyritic. Approaching the Owen contact the volcanics become more foliated, and even fissile, and chlorite-hematite-silica alteration is commonly observed. In the Snake Spur costean weak pyrite-chalcopyrite mineralization is developed in a cherty epiclastic-rich volcaniclastic sequence. It is these volcanics adjacent to the Owen Conglomerate contact that form the main target at Snake Spur.

10.3.3 Bedrock Geochemistry

The portable percussion ("Wacker") bedrock sampling program was almost entirely confined to the south-western volcanics with lines 1000-2600N being sampled at 25m intervals from the Owen contact out into the volcanics for several hundred metres. Several significant anomalies were defined by this program and all appear to be linear and parallel/sub-parallel to the Owen-Volcanics contact and are open beyond the present grid coverage.

The most significant anomaly occurs on the southern-most line, 1000N, where a broad (150m) Au-Pb-Zn

anomalous zone was delineated 200 metres from the contact. The best results from this anomaly were 0.26 g/t Au, 1300 ppm Zn and 250 ppm Pb. To the north-east the anomaly persists but the signature changes to Cu-Pb-Zn. Several generally moderate Au-Cu anomalies are also observed, both along the Owen/Volcanics contact and further away from it, between lines 2200N and 2600N. Anomalous Pb and Zn values form linear trends on the grid. Low levels of arsenic and silver occur only locally. Assay results for Au, Cu, Pb and Zn from this program are presented on Figures 86-89, and on the line profiles (Figures 91-100).

10.3.4 UTEM Survey

Lamontagne Geophysics carried out a UTEM III survey over the grid using two transmitting loops on the south western side of the grid, with readings being taken every 25m along the grid lines.

The results of the survey were examined by Mitre Geophysics, their report being appended to this report (Appendix H). This concluded that all responses obtained, being in the early channels, were likely to be superficial in origin. The most prominent anomalies defined (see Figure 90) lay over the Owen Conglomerate and are interpreted as indicating conductive clay horizons at the base of the glacial cover. The strongest response (Anomaly B) occurs towards the thickest end of the glacials and may be due to the presence of transported weathered Gordon limestone, now black carbonaceous pug, which probably occurs along the axis of the syncline beneath the glacials in the northern half of the gridded area.

10.3.5 Stream Sediment and Rock Chip Sampling

Panned concentrate, stream sediment and rock chip sampling was undertaken by R. Poltock during this season to supplement the previous year's program. His report is attached to this report (Appendix D). Several of the drainages sampled contained anomalous gold confirming the gold prospectivity of the area south west of Snake Spur. This year Poltock was able to locate the old Sailor Jack's Workings where old prospectors appear to have exploited gold in quartz veining in the Owen Conglomerate adjacent to a sheared contact with the volcanics. The prospect is located in a "window" within the glacial cover. Results of this and the previous year's sampling are presented on Figures 81-84.

10.4 Conclusions and Recommendations

The tenor and distribution of the gold and base metal anomalies in the altered Mt. Read Volcanics at Snake Spur are particularly encouraging. The anomalies may indicate the presence of two styles of mineralization in the area. The Pb-Zn-(Au) signature is a good indicator for possible volcanogenic massive sulphide mineralization. In general terms these anomalies occur some distance from the Owen-Volcanics contact. Closer to the contact, and sometimes on it, the Cu-Au anomalies tend to occur. The geochemical signature, the structural/stratigraphic setting and the presence of hematite-barite in the Owen Conglomerate all have obvious analogies with the Mt.Lyell epigenetic mineralization. The presence of geochemical anomalies consistent with two styles of mineralization known to occur in the Mt. Read Volcanics is clearly encouraging. However, the lack of any significant UTEM response is a cause for concern.
It is possible that the primary sources for the geochemical anomalies lie either too deep for the UTEM to detect, or are outside the grid area.

Clearly the grid must be extended to close off the anomalies before the potential of the area can be evaluated and drill targets generated.

Very little information exists over the north-eastern volcanics and their contact with the Owen Conglomerate, but again the lack of a UTEM response is discouraging. It is recommended that exploration in the coming year is concentrated on the definition and drilling of targets in the south-western volcanics.

11. GARFIELD-FLANNIGANS (C.F.D. Pease)

11.1 Introduction

As part of the south-western section of EL 9/66, the Garfield and Flannigans Valleys were considered in 1982-83 to be under-explored, a result of the rugged, thickly vegetated and inaccessible terrain of the area. After two seasons of a three year integrated exploration program two areas have been identified as prospective, viz the Snake Spur, discussed in the previous chapter, and the Flannigans Valley.

11.2 Previous Exploration

Modern exploration of the area commenced in 1974, when E.Z. and Mt. Lyell undertook Ag-Pb-Zn orientated searches in the Clark and Garfield Valleys. These programs consisted of stream sediment, soil and rock chip sampling. This work was generally incomplete and in 1982-83 the Review Team proposed a three-year integrated exploration program to evaluate the potential of the area.

In 1983-84 R. Poltock undertook a program of geological mapping, stream sediment and rock chip sampling on behalf of GFEL. Several targets were outlined in this program, one being the Snake Spur area. The other areas required additional stream sediment and rock chip sampling before their gold prospectivity could be fully evaluated.

11.3 Work Completed 1984-85

A program of stream sediment and rock chip sampling and geological mapping was carried out by R. Poltock to define gold prospective areas within the drainages of this section of the EL, during a 2 week helicopter supported program in February 1985. The results of this program indicated potential for gold mineralization

west of Flannigans Rivulet and a possible source for the Flannigans Flat alluvial workings. This area was investigated during May 1985 by an orientation bedrock and soil sampling program along a reconnaissance grid. This work was also helicopter supported.

11.3.1 Stream Sediment - Rock Chip Sampling

The stream sediment and rock chip sampling program initiated last year was extended this season to in-fill the previous coverage. In addition to -80 mesh stream sediment samples, panned concentrates were collected to assist in interpretation of the source of gold in anomalous areas. The samples were assayed for Au, Ag, Cu, Pb, Zn, As and W, the results of which are presented on Figures 104-107. Other elements variably assayed for were Sb, Te, Tl, Ba and Fe, these results being shown on Figures 106-107.

The program delineated gold in several drainages, the two most significant being in the Garfield and Flannigans Valleys. The gold anomalous Garfield Valley stream sediment and panned concentrate samples commonly had associated anomalous copper and tungsten levels, and abundant hematite-magnetite rich rhyolite cobbles were noted by Poltock at all but a few sample sites. The gold-copper-tungsten association and the rhyolitic cobbles indicate that the sediment is primarily derived from copper bearing hematite-magnetite veined rhyolites forming the Mt. Darwin massif, which lies outside the EL. This is supported by the generally coarse grain size of the detected gold which indicates a source some distance from the sample site. Thus, the anomaly is not considered to warrant further investigation at this stage.

Many of the samples collected in the creeks

draining the western side of the Flannigans Valley contained low but anomalous levels of gold. The consistent presence of fine grained gold up to the volcanics/sandstone contact is considered to be favourable for potential economic mineralization. Gold from these drainages may in part account for the significant gold accumulations at the Flannigans Flat alluvial gold workings near the confluence of the Flannigans and Garfield rivers.

Other minor anomalous drainages in the south-west section of EL 9/66 are not considered prospective at this present stage.

11.3.2 Geological Mapping

Geological mapping of the drainages was undertaken in parallel with the sampling program. The geology of much of the area was reported in Poltock 1984, and only minor additions and amendments were made as a result of this year's work. In this section only the geology of the Flannigans Valley will be summarised, being the only major addition to last year's work. The Fact and Interpreted Geology of this section of EL 9/66 are presented on Figures 101-103.

The stratigraphy of the Flannigans Valley can be correlated with the Snake Spur-Garfield Valley sequence detailed in Poltock, 1984. It consists of a sequence of Cambrian volcaniclastics overlain to the east and west by medium-coarse grained quartzose sediments.

(a) Cambrian Volcaniclastics

The volcaniclastics are medium-coarse grained and frequently contain vitric shards and

fine grained siltstone-chert horizons. Both ignimbrites and epiclastics are described within this sequence of coarse clastics. The volcanics lie in a belt 500-800m in width, and appear to form the core of an anticline which strikes N-S. They are locally sericitised and silicified with associated minor pyrite. This alteration is patchy and in some cases is localised adjacent to chalcedonic fracture-filling. Rock chip sampling of this altered material produced a best assay of 0.12 ppm Au, but samples commonly yielded values below detection limit.

(b) Eastern Sediments

The volcaniclastics are overlain to the east by pebbly sandstones and grits which are commonly hematitic and calcareous. The nature of the contact is uncertain but may well be a fault. These quartzose sediments are confidently correlated with the Owen Conglomerate and are interpreted as having a synclinal structure trending N-S. In the Flannigans Flat area at the north end of the valley black carbonaceous pug occurs which has been interpreted as possible Gordon Limestone forming the core of the syncline.

(c) Western Sediments

Unlike the Eastern Sediments, the sediments that abutt the Cambrian volcanics to the west cannot be reliably correlated with either the Owen Conglomerate or the Eldon Group and as such they are interpreted only as post-Cambrian quartzose sediments.

A major fault has been mapped along the contact betwen the sediments and the volcanics. The sediments consist of a sequence of locally silicified-pyritic micaceous sandstones and sheared siltstones with minor conglomerate lenses. Assaying of the pyritic sandstones yielded only trace gold content (maximum 0.04 ppm Au). This unit is interpreted as being a calcareous sandstone in which sulphide-silica replacement has taken place adjacent to faulting. The sulphide content drops sharply away from the contact with the volcanics.

11.3.3 Gridding

Although low levels of gold had been found in rock chip samples of both the volcaniclastics and the overlying sediments that abutt them to the west, no clear target existed for the source of gold detected in the stream sediments. The distribution of gold in the drainages suggested the source was a north-south trending feature. To delineate the source of gold, an orientation grid was set up over the area in late April, using helicopter support. Three east-west lines up to 550m in length were planned, using an old logging track for access. These lines, 1400N, 2600N and 3400N, covered 2 km strike length of the Flannigans Valley volcanics and extended from the river west across the contact with the Western sediments. A total of 1540m were cut and pegged at 10m slope corrected intervals along these lines.

11.3.4 Soil-Bedrock Sampling

A dual program of sampling along the lines using

a hand auger (soil samples) and portable-percussion rig (bedrock samples) was undertaken to delineate the mineralization source and to determine the most cost-effective geochemical sampling technique. A total of 81 hand-auger samples were collected at 10m intervals along lines 2600N and 3400N, and 114 "Wacker" bedrock samples were taken at the same interval along all 3 lines. The soil samples were sieved to -80 mesh and submitted along with the bedrock samples for assay of Au, Ag, As, Cu, Pb, Zn and Ba, the results being attached in Appendix I. Plots of the Au, Cu, Pb, Zn and Ba results are presented on Figures 109-113.

Bedrock sampling indicated the presence of wide-spread low level gold anomalism on all three lines. On lines 1400N and 2600N clearly defined broad peaks occur between 250-320E on 1400N (maximum value 0.1 g/t Au) and 380E-500E on 2600N (maxumum value 0.46 g/t Au). The results from 3400N are less clearly defined but show similar low levels of gold in this area. Base metal and silver results were generally very low and the minor elevated values appear to be unrelated to the gold anomalism. Arsenic values were also very low but seemed to peak with the gold suggestinga tenuous Au-As association. This may indicate that the mineralization is related to a structure possibly the fault between the volcanics and the overlying sediments.

Soil sampling results were very poor, with only two significant gold values obtained from the two lines sampled. These coincided with the Au in the bedrock peak on line 2600N, which is the strongest anomaly defined in the area. The results from the dual sampling program suggest that hand-auger soil sampling is not an effective exploration technique in this area. The gold

anomalies identified on lines 2600N and 1400N both lie within the Cambrian volcanics close to the faulted contact with the western sediments.

11.4 Conclusions and Recommendations

Stream sediment sampling and mapping has identified anomalous gold levels in the drainages west of the Flannigans Rivulet. Follow-up bedrock geochemistry indicates broad scale low level gold anomalism in the volcanics in the area, within which a zone of elevated gold values occurs (maximum 0.46 g/t Au). Base metals and silver do not appear to be associated with the gold and are, in all but a few samples, at regular levels. There is a tenuous evidence for an arsenic association with the gold. These two factors may indicate that the mineralization is related to structure, possibly the major fault between the volcanics and the western sediments. It is considered that this gold occurrence may be, in part, the primary source of the gold in the Flannigans Flat alluvial deposits near the confluence of the Flannigans and Garfield Rivers.

It is recommended that the gridding and bedrock sampling programs be extended to better define the anomalous zone between lines 1400N and 2600N, and delineate its limits to the north and south. The anomaly can then be fully evaluated and if the results are sufficiently encouraging, possible targets for diamond drill testing can be identified.

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...RATION PTY. LIMITED

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DEPT. OF MINES
REF. No. 8418/85

APPENDIX A

EXPENDITURE DETAILS 1984/85

(12 months to June, 1985)

OPEN FILE

GOLD FIELDS EXPLORATION PTY. LIMITED

113099

GEOLOGY	- Salaries	88,744	
	Salary on-costs	6,317	
	Transport	11,396	
	Miscellaneous	246	
	Outside contractors	9,837	
	Travel	1,915	
	Stores	7,802	126,257
GEOPHYSICS	- Transport	6,000	
	Outside Contractors	44,829	
	Travel	1,069	51,898
GEOCHEMISTRY	- Transport	8,388	
	Assays	29,446	
	Outside contractors	35,574	
	Stores	11	73,419
DRILLING	- Transport	189	
	Miscellaneous	119	
	Assays	13,547	
	Outside contractors	182,700	
	Stores	9,004	205,559
LAND ACQUISITION	-Miscellaneous	80	80
SITE PREPARATION	-Transport	8,992	
	Miscellaneous	32	
	Outside contractors	34,590	43,614
SURVEYING	- Outside contractors		5,041
G.F.E.L. STAFF SERVICES FEES			400
LABORATORY COSTS			17,299
INDIRECT MOTOR VEHICLE EXPENSES			11,163
ADMINISTRATION COSTS			24,759
TOTAL			$559,489

APPENDIX B

DIAMOND DRILL LOGS

HOLES HFZ1-6, HFZ9-12, HP1-6, RE1 and BL5

100

113101

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO. : HFZ 1
STATE : TASMANIA

ULV. PRESS

PROJECT	TYNDALL
DESIGNED BY	K. WELLS
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	4-11-73
COMPLETED	15-11-73

PURPOSE

To test co-incident I.P. & Geochem. anomalies on Line 63N HFZ.

LOG SUMMARY / GENERAL COMMENTS

Rock Type: Epiclastics with pink lava fragments in places and possibly some original limestone/carbonate later remobilised during alteration.

Alteration: Mainly chlorite-carbonate-sericite with minor silicification.

Sulphides: Weak to rare py with a zone of mod-weak cp-py

ASSAY SUMMARY

INTERVAL From	INTERVAL To													COMMENTS

LOCATION

NORTHING	5 366 659
EASTING	380 883
R.L.	709.9
GRID	A.M.G.
LENGTH	208.2

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0-79.2
BQ	79.2-208.2

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition
149.4	159.7	Fault Zone

HOLE CONDITIONS AFTER COMPLETION

10.4m of N casing left in hole.

SURVEY DATA (Note Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	276	35.0	0.0	15.3	15.3	8.8	701.1	12.5	12.5
30.5	276	35.5	15.3	45.8	30.5	17.7	683.4	24.8	37.3
61.0	276	33.5	45.8	76.3	30.5	16.8	666.6	25.4	62.7
91.5	276	32.0	76.3	106.8	30.5	16.2	650.4	25.9	88.6
122.0	273	28.5	106.8	137.3	30.5	14.6	635.8	26.8	115.4
152.5	275	26.0	137.3	158.6	21.3	9.3	626.5	19.1	134.5
164.6	276	25.0	158.6	208.2	49.6	21.0	605.5	45.0	179.5

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

GOLD FIELDS EXPLORATION PTY. LIMITED

113102 101

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ1 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (all ppm.) Sample No	From	To	Rec. %	Au(ppb)	Cu	Pb	Zn	Ag
0.0	12.2	12.2		EPICLASTIC, CHLORITE ALTERATION, RARE SULPHIDES. WEATHERED. Weathered, brown-green, medium-fine grained volcaniclastic-epiclastic with rare sulphides. Moderately fractured, with common limonite and a colluvial cover.	11766	15·2	16·7		<0·01	6	<1	100	0·1
12.2	68.6	56.4		EPICLASTIC, CHLORITE-CARBONATE ALTERATION, RARE SULPHIDES. Green, fine grained epiclastic. Strongly chloritic, very weakly sericitic with rare sulphides and quartz. Moderate carbonate (this may be possibly primary). Weak to moderate shearing and fracturing. Also, semi-brecciated, soft sediment style of deformation occurs, with sandstone blocks in a thin silty cement (in cracks). Small sheared zones occur, with carbonate as thin veinlets parallel to the shearing and as veins (secondary remobilisation?), cross-cutting (irregularly) the shearing. Minor quartz veins occur; - these have disseminated quartz and sulphides in silicic zones, 5-10cm wide within the chloritic rock. A few minor coarser grained sediment lenses occur. The alteration is remarkably consistent overall. A few large quartz-carbonate-(sulphide) veins (metamorphic?) exist.	7	18·3	19·8		"	34	1	130	<0·1
					8	21·3	22·8		"	10	3	135	"
					9	24·4	25·9		"	7	1	125	0·1
					11770	27·4	28·9		"	5	<1	115	0·1
					1	30·5	32·0		"	3	"	110	<0·1
					2	33·5	35·0		"	110	2	96	0·1
					3	36·6	38·1		"	6	<1	125	<0·1
					4	39·6	41·1		"	9	3	"	0·1
68.6	75.6	7.0		EPICLASTIC, CHLORITE-CARBONATE ALTERATION, WEAK SULPHIDES. Identical to above, except for an increased quartz-carbonate development, predominantly as thick anastamosing veins, pods, veinlets and lesser, coarse disseminations. An increase in the sulphide content also occurs - as small blebs within some of the veins.	5	42·7	44·2		"	8	1	110	<0·1
					6	45·7	47·2		"	7	2	130	"
					7	48·8	50·3		"	"	"	150	"
75.6	94.5	18.9		EPICLASTIC, CHLORITE-CARBONATE-SERICITE ALTERATION, WEAK-MODERATE SULPHIDES. Same as above, except lime green sericite veinlets also occur. Below 78.9, small splashes of cp-py with quartz occur also. Pink (altered lavas?) often occur.	8	51·8	53·3		"	6	<1	140	"
					9	54·9	56·4		"	"	1	135	"
					11780	57·9	59·4		"	14	4	"	"
94.5	99.1	4.6		EPICLASTIC?, SILICIC-VEINED CHLORITE-CARBONATE ALTERED, WEAK-MODERATE SULPHIDES.	1	61·0	62·5		"	4	2	125	"
					11782	64·0	65·5		"	16	1	130	"

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ1 Page: 2

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au (ppb)	Cu	Pb	Zn	Ag	MT. LYELL ASSAY (1973) Cu (wt. %)
				A sheared-silicified zone. Sheared, chlorite altered epiclastic	11783	67·1	68·6		<0·01	14	<1	200	<0·1	
				is strongly veined with quartz-cp-py and carbonate veins.										
					4	70·1	71·6		"	15	"	185	"	
99.1	149.4	50.3		EPICLASTIC, CHLORITE-CARBONATE-SERICITE ALTERATION, WEAK SULPHIDES										
				Cp-py-qtz veins and weakly developed shear zones continue as	5	73·2	74·7		"	195	6	195	"	
				above-with pink lava fragments? in the epiclastic, to 115.2,										
				where the cp disappears. Weak sulphides occur below this depth.	6	76·2	77·7		"	125	2	120	"	0·01
				Carbonate is strongly developed.		77·7	79·3							0·20
					7	79·3	80·8		"	290	3	165	"	0·05
149.4	159.7	10.3		FAULT ZONE. HIGHLY SHEARED AND SHATTERED EPICLASTICS AS ABOVE.		80·8	82·3							<0·01
				WEAK SULPHIDES.	8	82·3	83·8		"	105	1	150	"	0·02
				A highly deformed zone with a small 10cm pug on a sharp lower		83·8	85·4							0·03
				contact. The deformation grades upwards into the previous unit.	9	85·4	86·9		"	80	4	146	"	0·04
				Blocks of unfractured material occur within a highly sheared,		86·9	88·4							0·16
				greasy chlorite-sericite altered rock. Very weak sulphides are	11790	88·4	89·9		"	23	20	105	0·3	0·04
				developed.		89·9	91·5							0·20
					1	91·5	93·0		"	28	<1	190	<0·1	0·15
159.7	208.2	48.5		EPICLASTIC, CHLORITE-CARBONATE-SERICITE ALTERATION, RARE SULPHIDES.		93·0	94·5							0·15
				A similar rock to that occuring on the other side of the fault,	2	94·5	96·0		"	600	"	210	"	0·07
				but with a greater carbonate and less sulphide content.		96·0	97·6							0·19
					3	97·6	99·1		"	1350	2	160	0·2	0·30
						99·1	100·6							0·04
					4	100·6	102·1		"	"	"	210	"	0·18
						102·1	103·7							0·60
					5	103·7	105·2		"	50	3	200	<0·1	0·10
						105·2	106·7							0·15
					6	106·7	108·2		"	1650	2	165	0·2	0·17
						108·2	109·8							0·30
					7	109·8	111·3		"	1300	1	135	0·2	0·14
						111·3	112·8							0·26
					8	112·8	114·3		"	4600	2	145	0·7	0·13
						114·3	115·9							0·10
					9	115·9	117·4		"	82	<1	150	<0·1	0·10
						117·4	118·9							0·04
					11800	118·9	120·4		"	49	"	130	"	0·03
						120·4	122·0							0·17

GOLD FIELDS EXPLORATION PTY. LIMITED

113104

103

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 1

Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	ASSAY DATA (all p.p.m) Au(AAS)	Cu	Pb	Zn	Ag	MT. LYELL ASSAY (1973) Cu (wt%)
					11801	122·0	123·5		<0·01	185	2	155	<0·1	0·04
						123·5	125·0							0·13
					2	125·0	126·5		"	780	1	180	0·1	0·07
						126·5	128·1							0·13
					3	128·1	129·6		"	200	1	145	<0·1	0·06
						129·6	131·1							0·08
					4	131·1	132·6		"	480	4	125	"	0·04
						132·6	134·2							0·03
					5	134·2	135·7		"	34	<1	175	<0·1	0·02
						135·7	137·2							0·02
					6	137·2	138·7		"	15	2	165	"	0·04
						138·7	140·3							0·10
					7	140·3	141·8		"	480	4	160	0·2	0·06
						141·8	143·3							0·17
					8	143·3	144·8		"	370	11	165	0·1	0·06
						144·8	146·4							0·02
					9	146·4	147·9		"	135	7	125	<0·1	0·28
						147·9	149·4							0·05
					11810	149·4	150·9		"	54	6	185	"	0·03
						150·9	152·5							0·04
					1	152·5	154·0		"	21	2	145	"	
					2	155·5	157·0		"	10	<1	155	"	
					3	158·6	160·1		"	6	3	92	0·1	
					4	161·6	163·1		"	7	3	82	<0·1	
					5	164·7	166·2		"	10	2	52	"	
					6	167·7	169·2		"	5	<1	60	"	
					7	170·8	172·3		"	<1	"	105	"	
					11818	173·8	175·3		"	3	"	125	"	

113105 104

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 1 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (all p.p.m) Sample No.	From	To	Rec. %	Au(AAS)	Cu	Pb	Zn	Ag
					11819	176·9	178·4		<0·01	6	1	62	<0·1
					11820	179·9	181·4		"	5	7	98	0·1
					1	183·0	184·5		"	6	<1	130	<0·1
					2	186·0	187·5		"	15	"	110	0·1
					3	189·1	190·6		"	13	19	105	<0·1
					4	192·1	193·6		"	43	<1	105	"
					5	195·2	196·7		"	5	"	110	"
					6	198·2	199·7		"	14	"	125	"
					7	201·3	202·8		"	42	"	125	"
					8	204·3	205·8		"	2	"	135	"
					11829	207·4	208·2		"	10	5	64	"

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

113106

HOLE NO.:	HFZ 2
STATE :	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	K. WELLS
LOGGED BY	A.J.CARTWRIGHT
COMMENCED	18-11-73
COMPLETED	30-11-73

PURPOSE

To test a coincident I.P. and Geochem anomaly on Line 65N H.F.Z.

LOG SUMMARY / GENERAL COMMENTS

Lithologies:- Epiclastics with minor limestones and abundant autobrecciated lavas.

Alteration:- Weak to moderate chlorite-carbonate.

Sulphides:- Overall no sulphides apart from a small zone of weakly developed pyrite.

ASSAY SUMMARY

INTERVAL From	INTERVAL To													COMMENTS

LOCATION

NORTHING	5,367,040
EASTING	381,044
R.L.	712.3
GRID	A.M.G.
LENGTH	308.8

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0.0-66.1
BQ	66.1-308.8

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition

HOLE CONDITIONS AFTER COMPLETION

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total
0.0	278	40.0	0.0	15.3	15.3	9.8	702.5	11.7	11.7
30.5	-	40.0	15.3	45.8	30.5	19.6	682.9	23.4	35.1
61.0	-	38.5	45.8	76.3	30.5	19.0	663.9	23.9	59.0
91.5	278	37.0	76.3	106.8	30.5	18.4	645.5	24.4	83.4
122.0	280	33.5	106.8	137.3	30.5	16.8	628.7	25.4	108.8
152.5	280	28.0	137.3	167.6	30.3	14.2	614.5	26.8	135.6
182.9	280	25.5	167.6	201.2	33.6	14.5	600.0	30.3	165.9
219.5	280	23.0	201.2	308.8	107.6	42.0	558.0	99.1	265.0

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

DLV PRESS

PROJECT: TYNDALL

HOLE NUMBER: HFZ 2

Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0.0	70.1	70.1		EPICLASTIC, CHLORITE-CARBONATE ALTERATION, NO SULPHIDES. Pale green, fine-medium grained volcaniclastics-epiclastics. Strong chlorite-carbonate alteration consisting of white carbonate veins and horizons in a chloritic rock. No quartz or sulphides are present. Moderate to weakly fractured-with greasy surfaces. Primary features such as bedding seen in places - the carbonate could be primary also. Between 25.9 and 28.0, a few quartz veins occur. Also the rock is slightly coarser grained and carbonate is less common. Then back as before. Small metamorphic deformations occur-with small offsetting faults - some alteration features could be metamorphic. Between 59.4 and 61.6 another coarse grained, chloritic, weak carbonate zone occurs.
70.1	74.1	4.0		EPICLASTIC WITH LAVA FRAGMENTS, CHLORITE-CARBONATE ALTERATION, NO SULPHIDES. Pale green, weakly altered, very fine grained epiclastic with lavas. Soft sediment fracturing in the lava with a dark green chloritic sediment matrix. Weak-moderate carbonate occurs as veins and intergrowths. No sulphides occur. The fine grained silicic lava is pale pink in places. This unit is gradational above and below.
74.1	109.7	35.6		EPICLASTIC WITH MINOR LIMESTONE, CHLORITE-CARBONATE ALTERATION, NO SULPHIDES. Green chlorite-carbonate altered volcaniclastic-epiclastics as before. No sulphides and a weak fracture is developed. This unit also contains the following. 80.2-82.3 a 2.1m thick almost pure limestone with a gradational lower contact into a fine grained cherty horizon, then into the unit as before. 91.4-108.8, 17.4m of a semi gritty - coarse grained volcaniclastic which is chlorite but has no carbonate. It becomes slightly grittier with depth.

ASSAY DATA Sample No.	From	To	Rec. %

113108

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 2

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	ASSAY DATA (p.p.m.) Cu	Pb	Zn	As		Au (ppb)	Ag			
109.7	118.3	8.6		EPICLASTIC, CHLORITE-CARBONATE ALTERATION, VERY WEAKLY SULPHIDES.	13167	111·3	112·8		56	2	100	25		<0·01	<0·1			
				This unit is the same as the majority of the above unit, except	8		114·3		14	2	89	25		"	"			
				that weakly developed sulphide (py) occurs, predominantly as	9		115·8		13	1	72	15		"	"			
				small blebs.	13170		117·4		25	2	98	5		"	"			
					1		118·9		30	25	170	35		"	"			
118.3	143.3	25.0		SILICIC RHYODACITIC LAVA, WEAK CHLORITE-SILICA ALTERATION, NO	13172	118·9	120·4		4	14	40	15		"	"			
				SULPHIDES.														
				Pink, hard silicic lava, unfractured and weakly altered. Probably														
				a rhyodacite which has a poorly brecciated and veined upper														
				contact. Several interbedded zones with chloritic brecciated,														
				bedded cherty epiclastics occur. No sulphides are present.														
143.3	308.8	165.5		AUTOBRECCIATED LAVA AND EPICLASTICS, WEAK CHLORITE-CARBONATE														
				ALTERATION, NO SULPHIDES.														
				In general, the epiclastics are more abundant, with the lava's														
				occuring as either thin, autobrecciated lenses or as small angular														
				fragments within the sediments. Large, thick, metamorphic quartz-														
				carbonate veins occur. A few calcite cemented breccia zones														
				(nO sulphides present) also occur. The proportion of lavas														
				does increase locally. Cherty sediments are common. The alteration														
				is weak chlorite-carbonate, the latter as veins and segregations.														
				A few quartz veins also occur. Gritty, coarser grained sediments														
				with numerous, small lava fragments become very common with														
				depth.														

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

113109

HOLE NO.	HFZ 3
STATE	TASMANIA

DLV. PRESS

PROJECT	TYNDALL E.L. 9/66
DESIGNED BY	K. WELLS (1973)
LOGGED BY	P.W. ENGLISH'82
COMMENCED	7-12-73
COMPLETED	15-1-74

PURPOSE

To test coincident I.P. and geochemical anomalies on Line 43N at 250'E

LOG SUMMARY	Andesite lava and rhyolitic ash-flow tuffs in upper part of hole, passing to bedded tuff-shales and volcaniclastics. Possible 'Host Sequence' 365'-430', but only minor sulphides.
GENERAL COMMENTS	N.B.: ALL ASSAY INTERVALS ARE IN FEET.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	FeS_2	Ba								COMMENTS
395'	405'	1150	100	100	3.75%	600								As thin stringers and beds of sulphides in cherty tuff.

LOCATION

NORTHING	5362917.8
EASTING	379797.5
R.L.	547.3 M
GRID	AMG
LENGTH	552'

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0-170'
BQ	170-552'

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0	36'	85
235'	264'	45
291'	295'	60
339'	355'	40
382'	415'	40

POOR GROUND CONDITION ZONES From	To	Condition

HOLE CONDITIONS AFTER COMPLETION

40' NX casing left in hole.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0	102° AMG	-55°							
40'		-56°							
80'		-56°							
120'		-55.5°							
140'		-55°							
180'		-54.5°							
200'		-54°							
220'		-53.5°							
260'		-53°							
280'	106° A	-53°							
320'	106° A	-52°							
380'	106° A	51 5°							

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
420'	105° A	-51.5°							
460'	103° A	-51°							
500'	103° A	-49°							
520'	102° A	-48.5°							
540'	101° A	-48°							

HOLE NO. **HFZ 3**

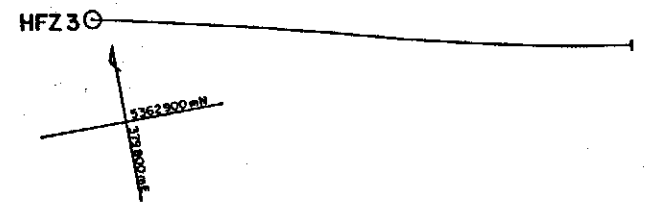
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DIAMOND DRILL HOLE PLOT

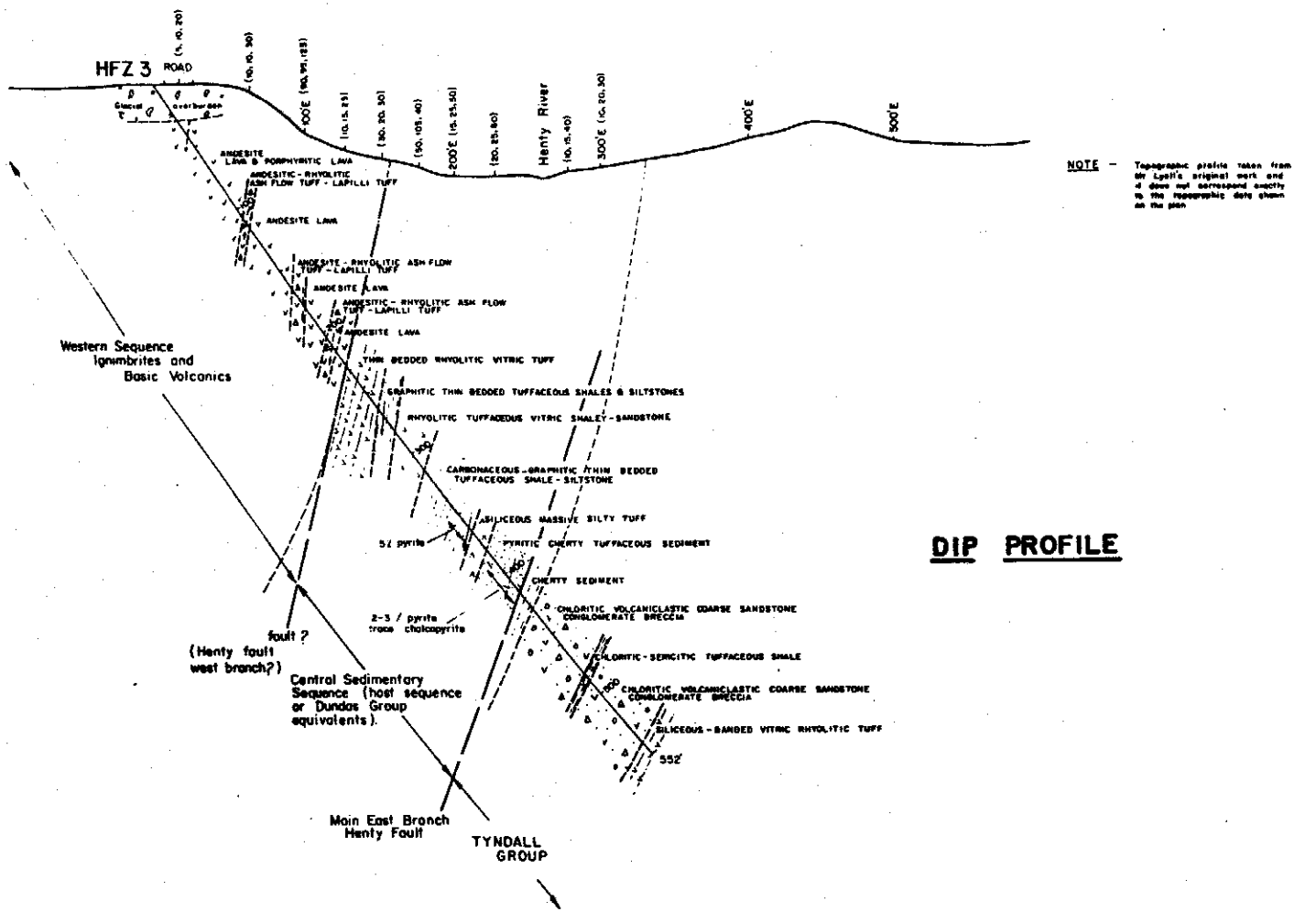
SCALE 1:1000 — 80 0 80 40 METRES

5 cm

PLAN VIEW



DIP PROFILE



NOTE – Topographic profile taken from Mr Lyall's original work and it does not correspond exactly to the topographic data shown on the plan

GOLD FIELDS EXPLORATION PTY. LIMITED

113111

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 3

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0'	38'			Unconsolidated sands and gravels
38'	40'			ANDESITE LAVA - Dark green, fine grained weakly banded andesite lava- core is badly broken due to drilling technique; and not the ground. Remarks: Minor limonite and manganese.
40'	45'			ANDESITIC-RHYOLITIC ASHFLOW TUFF - LAVA - Pink-red, grey-green, mixed zone with rhyolitic fragments in a chloritic ground mass. Fragments are subrounded to angular and 2-20mm in diameter. Primary layering at 41' is 40°/LCA.
45'	108'			ANDESITE LAVA WITH PORPHYRITIC ZONES - Dark green fine to coarse grained andesite lava with minor tuff. Some coarse porphyritic zones e.g. 65'-70' and 80'-90'. The lava areas are generally massive and magnetic , the tuff areas are non-magnetic well layered. Calcite is disseminated and veined in the lavas. Some sections are highly fractured and contain minor epidote. Primary layering at 51' is 30°/LCA. Remarks: Traces of fine grained pyrite. Limonite staining on joint faces.
108'	114'			ANDESITE WITH RHYOLITIC ASH FLOW TUFF - LAPILLI TUFF - Dark green chloritic and in part siliceous ground mass, with pink-green ash flow tuff- lapilli tuff fragments as zenoliths. Fragments are 2-30mm and show a strong primary layering. They are either rounded when small or angular and mostly flattened when large. Primary layering at 109' is 45°/LCA. Remarks: Trace of fine grained disseminated pyrite. Joints are limonite stained.
114'	163'			ANDESITE LAVA - Dark green, mainly fine grained massive andesite lava, weakly to strongly magnetic.. There are some feldspar porphyritic zones which have abundant calcite veins 2-10mm wide. Calcite is also abundant in the groundmass in places. Minor quartz veins

ASSAY DATA Sample No.	From	To	Rec. %

113112

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 3

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Remarks: Trace of pyrite disseminated.
163'	178'			ANDESITE WITH RHYOLITIC ASH FLOW TUFF - LAPILLI TUFF - Similar to the zone between 108' to 114', except primary layering at 176' is 35°/LCA.
				Remarks: Trace of pyrite.
178'	195'			ANDESITE LAVA - Dark green fine grained massive andesitic lava, weakly magnetic, with porphyritic zones with 1-4mm feldspar phenocrysts. Moderate amount of calcite in groundmass and veinlets 2-10mm wide.
				Remarks: Trace of pyrite.
195'	199'			ANDESITE WITH RHYOLITIC ASH FLOW TUFF-LAPILLI TUFF - Similar to the zone between 108' and 114', except primary layering at 197' is 35°/LCA.
				Remarks: Trace of pyrite.
199'	205'			ANDESITE LAVA - Dark green, fine grained massive andesitic lava moderately to strongly magnetic. Minor calcite in ground mass and in 2-10mm wide veinlets.
				Remarks: Trace of pyrite.
205'	214'			ANDESITE WITH RHYOLITIC ASH FLOW TUFF-LAPILLI TUFF - Similar to the zone between 108' and 114', except the primary layering at 210' is 45°/LCA.
215'	219'			ANDESITE LAVA - Same as the lava between 199' and 205'.
				- MAJOR CHANGE -
219'	231'			CONTACT BETWEEN ANDESITIC LAVAS AND RHYOLITIC VITRIC TUFFS - Top section is essentially andesitic with pink rhyolitic lithic tuff and lapilli tuff fragments. Buff coloured thin bedded quartz sericitic vitric tuff enter the sequence and become more dominant at the base. Schistosity which is parallel to primary

ASSAY DATA Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

113113

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 3

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				layering becomes stronger towards the base and the sericitic alteration also becomes moderate to strong. Primary layering at 231' is 45°/LCA. From 233' to 234' there is a 300mm wide milky quartz vein.
231'	264'			THIN BEDDED RHYOLITIC VITRIC TUFF - Buff to orange, fine to medium grained, thinly bedded vitric tuff. Bedding on average is 2-5mm thick and in places is highly contorted suggesting original slumping of a water laid tuff, e.g. at 262.5'. This unit also contains three graphitic bands, 40, 80 and 120mm thick at 249', 250' and 252' respectively. There is moderate to strong alteration throughout and schistosity is parallel to primary bedding.
64'	281'			GRAPHITIC THIN BEDDED TUFFACEOUS SHALES AND SILTSTONES - Black to dark green, shaley to fine sandy texture, with well laminated sections. Has varying amount of carbonaceous matter which is now graphitic - possibly some chlorite alteration. Bedding at 268' is 40°/LCA. Remarks: Trace of pyrite.
281'	314'			RHYOLITIC TUFFACEOUS VITRIC SHALEY-SANDSTONE - Buff-grey green, shaley to sandy tuff, generally massive, but does have some weakly bedded sections. Some thin 2-20mm graphitic shale lenses. Weakly schistose, parallel to primary bedding. Weak sericite and chlorite alteration. Remarks: Trace of pyrite.
314'	365'			CARBONACEOUS - GRAPHITIC THIN BEDDED TUFFACEOUS SHALE - SILTSTONE - Black-grey, carbonaceous with quartzose silty bands 1-5mm thick. Bedding is very regular, with only minor evidence of slumping. Strong shistosity has developed and in places the carbonaceous matter becomes graphitic. The section between 350'-365' is well bedded 50°/LCA and the carbonaceous beds become wispy and the overall composition more quartzose. This section also contains 1-8mm thick pyrite beds, giving a total pyrite

ASSAY DATA (ppm)

Sample No	From	To	Rec. %	Cu	Pb	Zn	FeS_2	Ag	Au	Ba	Ca	Mn
	265'	270'		25	< 10	100		< 1				
	270'	275'		10	< 10	100		< 1				
	275'	280'		20	< 10	100		< 1				
	280'	285'		60	15	80		< 1				
	285'	290'		50	25	130		< 1				
	290'	295'		30	10	75		< 1				
	295'	300'		45	15	125		< 1				
	300'	305'		45	25	85		< 1				
	305'	310'		25	50	155		< 1				
	310'	315'		60	35	110		< 1				
	315'	320'		60	15	65		< 1				
	320'	325'		55	15	65		< 1				
	325'	330'		50	15	80		< 1				
	330'	335'		70	< 10	75		<				

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 3

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No	From	To	Rec. %	Cu	Pb	Zn	FeS_2	Ag	Au	Ba	Ca	Mn	S%
				content in the section of 5-10%.		335'	340'		70	530	820		1					
				Remarks: Trace to 10% pyrite disseminated and in thin beds.		340'	345'		140	85	210		1	<0.01				
						345'	350'		100	35	200		1	<0.01				
365'	380'			SILICEOUS MASSIVE SILTY TUFF - Grey white, highly siliceous fine		350'	355'		150	55	185		1	<0.01				
				grained silty tuff with little or no bedding. There are 1-2mm		355'	360'		225	25	150		2	<0.01				
				pink specks, ?siderite, disseminated throughout. Few quartz		360'	365'		200	55	320		1	<0.01				
				and carbonate veins 2-10mm wide.		365'	370'		60	50	360		1	<0.01				
				Remarks: Trace of pyrite.		370'	375'		55	35	230		1	<0.01				
						375'	380'		105	30	130		1	<0.01				
380'	416'			PYRITIC CHERTY TUFFACEOUS SEDIMENT - Cream buff, highly siliceous		380'	385'		700	100	100	3.1%	<0.1	<0.01	300	4.2%	1100	
				thin bedded cherty tuff with thin stringers and beds of pyrite		385'	390'		700	<100	100	2.3%	<0.1	<0.01	300	4.3%	1300	
				and minor chalcopyrite. Contains bright green mineral, which		390'	395'		700	<100	100	1.6%	<0.1	<0.01	300	6.3%	1500	
				in this case is possibly a ?copper-iron silicate. Some sections		395'	400'		1000	100	<100	4.1%	<0.1	<0.01	600	3.8%	1100	
				are highly schistose, with strong sericite, and minor carbonate		400'	405'		1300	100	100	3.4%	<0.1	0.02	600	3.0%	1000	
				and chlorite alteration. Bedding at 402' is 55°/LCA.		405'	410'		400	<100	<100	1.9%	0.2	<0.01	400	2.8%	900	
				Remarks: 2-7% pyrite throughout. 1-2% chalcopyrite in places.		410'	416'		500	100	<100	2.4%	0.3	<0.01	300	2.4%	800	
					3910	416'	423'3"		160	20	30		<2	< 0.1				0.2
416'	430'			CHERTY SEDIMENT - Pink-grey, highly siliceous zone, probably	3911	423'3"	430'6"		50	20	30		<2	< 0.1				0.2
				a cherty tuffaceous sediment, with no bedding, but is moderately	3912	430'6"	440'10"		40	20	80		<2	< 0.1				0.4
				to highly fractured. Has minor schistosity in places with moderate	3913	440'10"	450'		170	10	40	As	<2	< 0.1				0.2
				sericite alteration.	13173	450'	455'		280	15	56	10	<0.1	<0.01				
				Remarks: Trace to 2% pyrite. Trace chalcopyrite.	4	460'	465'		115	15	36	5	"	"				
					5	470'	475'		58	3	41	5	"	"				
430'	450'			SILICEOUS "PINK" VOLCANICLASTIC SANDSTONE - GRADATIONAL CHANGE	6	480'	485'		10	6	53	5	"	"				
				TO VOLCANICLASTICS - Pink, highly siliceous and sericitic,	7	490'	495'		6	4	54	<5	"	"				
				altered, sandy volcaniclastic. Original texture very difficult	8	500'	505'		10	3	66	<5	"	"				
				to distinguish because of the overprinting of alteration. Minor	9	510'	515'		23	5	59	<5	"	"				
				chlorite blebs and veins.	13180	520'	525'		14	7	52	5	"	"				
					1	530'	535'		14	5	88	<5	"	"				
					2	540'	545'		82	2	82	5	"	"				
450'	486'			CHLORITIC - SILICEOUS VOLCANICLASTIC COARSE SANDSTONE - CONGLOMER-	13183	550'	552'		10	7	23	<5	"	"				
				ATE BRECCIA - Dark green-grey moderately to highly chloritic,														
				weakly layered, coarse sandy-conglomerate texture. Clasts are														
				mostly sub rounded to angular and are mostly rhyolitic (grey														
				to pink) and constitute 60-80% of the total rock. The matrix														
				is siliceous with fine grained sericite and chlorite. This unit														

GOLD FIELDS EXPLORATION PTY. LIMITED

DLY. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 3

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No	From	To	Rec. %
				does not have well developed primary layering.				
				Remarks: Trace of disseminated pyrite.				
486'	490'			CHLORITIC SERICITIC TUFFACEOUS SHALE, Dark green-grey massive vitric shale - with moderately developed schistosity moderate to weak chlorite and sericite alteration.				
				Remarks: Trace of pyrite.				
490'	544'			CHLORITIC SILICEOUS VOLCANICLASTIC COARSE SANDSTONE - CONGLOMERATE BRECCIA - Same as for 450'-486'.				
544'	552'			SILICEOUS BANDED VITRIC RHYOLITIC TUFF - Pink-grey banded fine grained rhyolitic and highly siliceous tuff - brecciated in places some parts highly sericite altered, indicating a vitric component. Primary layering at 548' is 55°/LCA.				
				Remarks: Trace of pyrite.				
				E.O.H.				

11631

REPORT CMS 82/8/21

Petrological Descriptions

1201
HFZ 3 125'

(T.S. 43177) K-stain negative.
This rock is an altered and mildly sheared microgabbro representing a minor basic intrusive or, alternately, and dependant on field relationships, the core of a relatively thick flow.

The rock consists essentially of weakly epidote-chlorite ("saussurite")-stained albite pseudomorphs of plagioclase laths and epidote-chlorite semi-pseudomorphs of lath-like to subophitic pyroxene. A sparse chloritic mesostasis is present, and incipiently leucoxenised primary Ti-magnetite is evenly disseminated throughout. Accessories include traces of quartz in ill-defined amygdales (mean 250 μ), rare pyrite subhedra and minor traces of calcite.

The relict fabric is incipiently feldspar-porphyritic "doleritic" (subophitic) with a mean sizing about 100 μ. A weak but penetrative slaty cleavage postdates minor epidote-chlorite veinlets and reflects a low-greenschist facies regional event more or less isograde with the ?deuteric alteration assemblage.

1203
HFZ 3 110'

(T.S. 43179) K-stain positive.
This rock can be categorised as a glomeroporphyritic felsic pitchstone of sodi-potassice trachytic composition.

Frequent single to clustered feldspar phenocrysts (to 2 mm) are compositionally sanidine with subordinate albite. These include composite types and represent inverted/exsolved sanidine-anorthoclase. These features are more or less evenly disseminated throughout a weakly but pervasively chlorite-stained, cryptocrystalline to microfelsitic (partly devitrified)

HOLE NO. : HFZ 4
STATE : TASMANIA

GOLD FIELDS EXPLORATION PTY LIMITED
DRILL CORE RECORD

DEV. PRESS

PROJECT	TYNDALL E.L. 9/66
DESIGNED BY	K. WELLS 1974
LOGGED BY	P.W. ENGLISH '82
COMMENCED	24-1-74
COMPLETED	16-2-74

PURPOSE

To test the coincident I.P. and geochem. anomaly on the eastern sides of Lines 42-43N.

LOG SUMMARY

0-343' Mixed andesite lava and rhyolitic ash-flow tuff.
343'-633' Graphitic tuff-shales.
633'-644' Pyritic cherty sediments (Host sequence?)
644'-708' Volcaniclastics

GENERAL COMMENTS

Core misplaced since '74 when it was transferred to new boxes. Particularly bad 315'-340' & 630'-640'.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag									COMMENTS
525'	535'	35	280	890	< 1									Trace of pyrite in graphitic shale.

LOCATION

NORTHING	5362717.2
EASTING	379710.4
R.L.	546/5 M
GRID	A.M.G.
LENGTH	708'

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0-255'
BQ	255'-708'

SIGNIFICANT CORE LOSS INTERVALS

From	To	% Lost
534'	544'	25

POOR GROUND CONDITION ZONES

From	To	Condition
360'		Cave in.
626'	633'	Sericitic clay (Henty Fault?).

HOLE CONDITIONS AFTER COMPLETION

Hole collapsed at 360' prior to downhole survey.

[redacted]

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0'	102° AMG	-60°							
40'		-60°							
80'		-60°							
120'		-60°							
160'		-60°							
200'		-59.5°							
240'		-59.5°							
280'	104° A	-59°							
320'	101° A	-58°							
340'	101° A	-57°							

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

1113-1

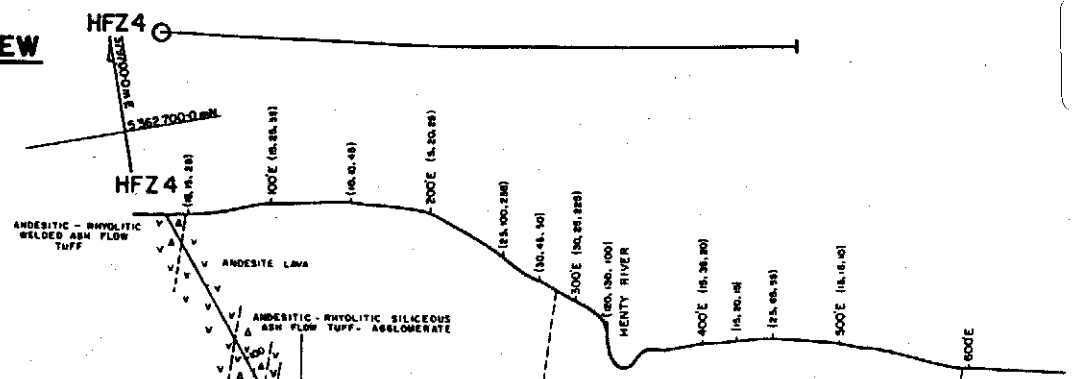
HOLE NO. **HFZ 4**

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

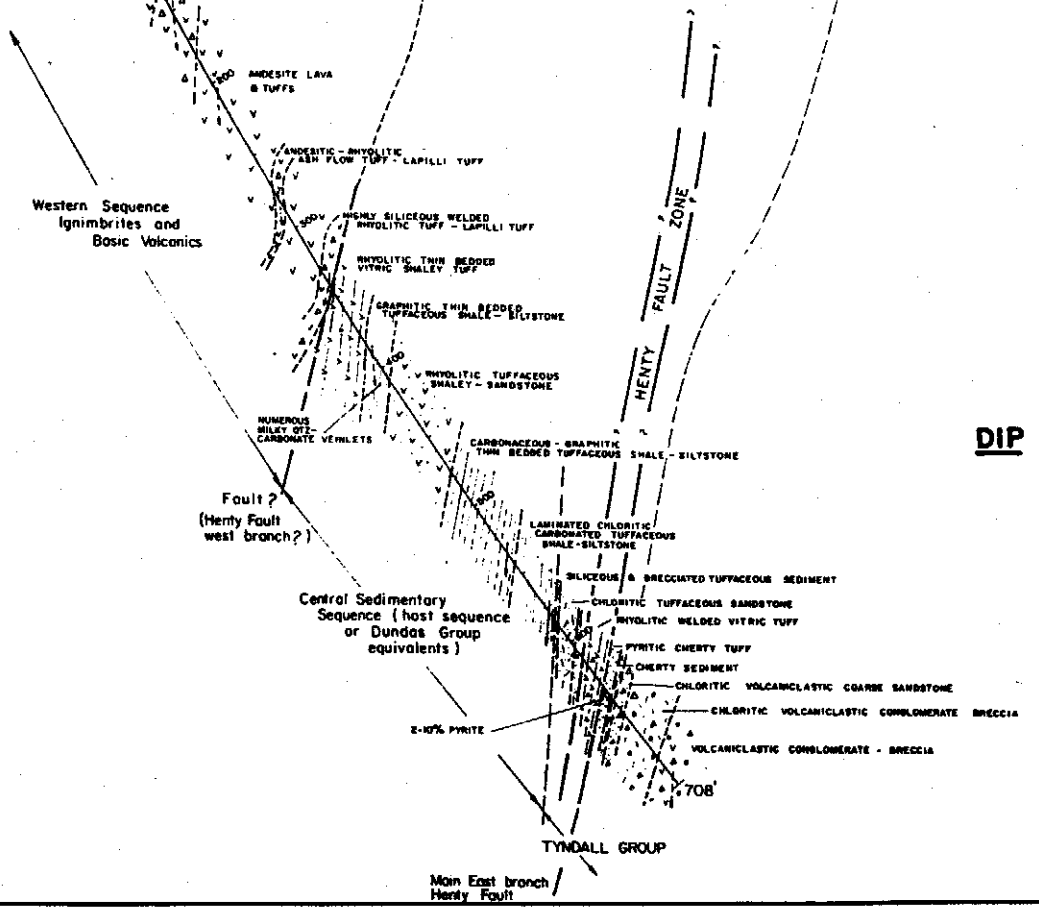
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PLAN VIEW



NOTE – Topographic profile taken from Mt. Lyell's original work and it does not correspond exactly to the topographic data shown on the plan.

DIP PROFILE



113118

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 4

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No	From	To	Rec. %
0'	18'			ANDESITIC - RHYOLITIC WELDED ASH FLOW TUFF - LAPILLI TUFF - Weathered, pink-green tuffaceous to lapilli tuff texture with subrounded rhyolitic fragments in a siliceous chloritic matrix. Remarks: Limonite stained.				
18'	84'			ANDESITE LAVA - Dark green, fine grained lava to feldspar porphyritic lava. The fine grained lava is slightly magnetic and massive, while the porphyritic zones are non magnetic and weakly to strongly banded. Minor calcite in veinlets 2-10mm wide and in the groundmass.				
84'	122'			ANDESITIC - RHYOLITIC ASH FLOW TUFF - AGGLOMERATE - Red-green, highly siliceous, tuff through to agglomerate texture with fragments 2-4mm rounded and 10-50mm angular, rhyolitic ash flow tuff - some with quartz and feldspar phenocrysts. The larger fragments tend to be elongated parallel with primary layering which at 119' is 35°/LCA. Few 2-10mm wide quartz veinlets Remarks: Trace of disseminated pyrite.				
122'	132'			ANDESITE LAVA - Dark green, fine grained andesite lava, weakly magnetic. Has 1-3mm wide veinlets of epidote and calcite. Epidote also occurs as blebs in the matrix, while calcite is more finely disseminated in the matrix. Remarks: Trace of fine grained pyrite.				
132'	180'			ANDESITIC- RHYOLITIC ASH FLOW TUFF - AGGLOMERATES - Pink, red-green, highly siliceous tuff to agglomerate texture, with fragments both rounded and angular consist of feldspar porphyritic ash flow tuff - lava. The larger fragments tend to be elongated parallel to primary layering which at 150' is 25°/LCA and at 175' is 30°/LCA. Some of the larger fragments are rounded and up to 30mm in diameter. Minor quartz veining throughout, with veinlets 2-20mm wide.				
180'	203'			ANDESITE LAVA - Dark green, fine grained andesite lava, weakly [illegible] veined with calcite				

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GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

ULV. PRESS

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HOLE NUMBER: HFZ 4

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				with minor chlorite and epidote associated with the veins. Calcite is throughout the matrix.				
203'	209'			ANDESITIC - RHYOLITIC ASH FLOW TUFF - LAPILLI TUFF - Green pink, siliceous lithic tuff to lapilli tuff texture, fragments of ash flow tuff and feldspar porphyritic lavas in a siliceous chloritic matrix. Primary layering at 206' is 25°/LCA. Very minor 1-3mm wide quartz and calcite veinlets throughout.				
209'	274'			ANDESITE LAVA - Dark green mainly fine grained andesitic lava, with several zones, e.g. at 250' and 263', of porphyritic lava with feldspar crystals which have eroded and altered crystal edges, giving a mottled texture. This lava has weak chlorite and epidote alteration, with abundant secondary calcite in the matrix and in 2-15mm wide veinlets. The calcite veining becomes stronger over the lower section. The finer grained zones are weakly to moderately magnetic, while the coarser porphyritic zones are non-magnetic. Remarks: Trace of fine grained pyrite disseminated throughout.				
274'	288'			ANDESITIC - RHYOLITIC ASH FLOW TUFF - LAPILLI TUFF - Same as the interval 203'-209' with primary layering at 279' of 25°/LCA. Remarks: Trace of pyrite, associated with quartz-chlorite veins.				
288'	329'			ANDESITE LAVA AND TUFF - Dark green, fine grained massive (lava) and bedded (tuff), weakly magnetic. Between 297' to 307' there are 8 30-60mm wide milky quartz-calcite-chlorite veins, with the calcite filling vugs or voids in the quartz veins. Primary layering at 292' in 50°/LCA and at 301' is 60°/LCA. The primary layering between 293'-295' is highly contorted suggesting sedimentary slumping.				
329'	343'			SILICEOUS WELDED RHYOLITIC TUFF - LAPILLI TUFF - Red-buff, tuff to lapilli tuff texture, highly siliceous, with rhyolitic fragments which are flattened and are in a siliceous matrix with minor chlorite. Primary layering at 339' is 40 /LCA				

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GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 4

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au ppm
				N.B. The core between 316.5' to 340' has been mixed up by ?dropping tray or when core was tranferred to new core tray.									
				CHANGE									
343'	382'			RHYOLITIC THIN BEDDED VITRIC SHALEY TUFF - Buff, fine-grained shaley tuff, well bedded, with beds 1-5mm thick, schistose and has moderate sericite alteration. Some wispy thin quartz beds. Bedding at 375' is 30°/LCA. Remarks: Trace of disseminated pyrite.									
382'	409'			GRAPHITIC THIN BEDDED TUFFACEOUS SHALE - SILTSTONE - Black shaley silty tuff with varying amount of carbonaceous matter, which is now graphitic. Beds are 1-5mm thick. Bedding at 390' is 30°/LCA. Numerous milky quartz-calcite veinlets 2-10mm both crosscutting and parallel to the bedding.									
409'	474'			RHYOLITIC TUFFACEOUS SHALEY - SANDSTONE - Buff to light green generally massive, sandy tuff, with some 1-2mm feldspar crystals in a quartz-sericite-chloritic matrix. Quartz grains are 1-3mm in diameter. Between 413' - 414' there is a bright green mineral possibly a ?mica. This unit contains numerous quartz-carbonate veinlets 2-10mm wide - some of the carbonate is possible siderite. Remarks: Trace of pyrite.									
474'	541'			CARBONACEOUS- GRAPHITIC THIN BEDDED SHALE - SILTSTONE. Black-grey carbonaceous shale and quartzose silt beds 1-5mm thick. Bedding is highly contorted in places indicating sedimentary slumping. Black shale lenses become wispy in places, possibly eroded after deposition by coarse silty phase. Schistosity is parallel to bedding and where schistose the carbonaceous material becomes graphitic. Moderate amount of quartz-chlorite-carbonate veins 2-5mm thick cross cutting and parallel to bedding. Some of the white mineral in these veins is possibly ?barite indicated by S.G. of total core in its original state before splitting. Bedding at 535' is 40°/LCA and at 520' is 45°/LCA		475'	480'	5'	55	290	970	<1	
						480'	485'	5'	50	140	280	<1	<0.01
						485'	490'	4½'	40	170	470	<1	<0.01
						490'	495'	4'	30	170	590	<1	<0.01
						495'	501'	6'	45	35	150	<1	<0.01
						501'	513'	12'	25	65	260	<1	<0.01
						513'	520'	7'	30	130	480	<1	<0.01
						520'	525'	5'	25	15	85	<1	<0.01
						525'	530'	4'	40	250	930	<1	<0.01
						530'	535'	5'	30	310	850	<1	<0.01
						535'	540'	4'	80	60	105	<1	<0.01

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 4 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No	From	To	Rec. %	Cu	Pb	Zn	Ag	Au(FA)	S%
				Remarks: Trace to 0.5% fine grained pyrite.										
541'	583'			LAMINATED CHLORITIC CARBONATE TUFFACEOUS SHALE - SILTSTONE - Light to dark green, shaley silt texture, thin bedded with beds 2-10mm thick, moderately schistose with weak chlorite alteration. Carbonate is throughout the matrix indicating a possible carbonate environment of deposition. Trace to 2% fine grained pyrite, mainly aligned in thin 1-2mm laminae. Some of the carbonate is remobilised into 2-5mm veinlets. Primary bedding at 547' is 45°/LCA and at 578' is 40°/LCA.										
583'	586'			SILICEOUS BRECCIATED TUFFACEOUS SEDIMENT - Grey white, fine grained, originally probably a tuffaceous cherty sediment which has been brecciated and now rehealed along the fractures with silica, sericite and chlorite.										
586'	602'			CHLORITIC TUFFACEOUS SANDSTONE - Light grey fine to medium grained tuffaceous sandstone which has rounded to subangular quartz clasts in a siliceous chloritic matrix. Minor quartz-calcite veinlets 1-5mm wide.	2725	540'	550'						<0.1	0.5
					2726	550'	557'						<0.1	0.4
				Remarks: Trace of fine grained pyrite.	2727	557'	567'						<0.1	0.6
					2728	567'	576'						<0.1	0.5
602'	626'			RHYOLITIC WELDED VITRIC TUFF - Pink-red, moderately siliceous	2729	576'	587'						<0.1	0.6
				fine grained, mostly massive tuff, weakly schistose with weak	2730	587'	595'						<0.1	0.2
				to moderate sericite alteration. Weakly fractured filled with	2731	595'	600'6"						<0.1	0.2
				thin 1-2mm quartz veinlets.	2732	600'6"	610'						<0.1	<0.1
				Remarks: Trace of disseminated pyrite.	2733	610'	621'						<0.1	0.2
					2734	621'	627'6"						<0.1	<0.1
626'	633'			RHYOLITIC VITRIC TUFF SHEARED BY ?HENTY FAULT ZONE - Cream	3335	627'6"	632'6"		250	70	50	< 2	< 0.1	2.7
				to white clayey-sericitic matrix with rounded to angular siliceous fragments 2-10mm in size.										
				Remarks: Trace to 2% disseminated pyrite.										
													(A.A.S.)	
633'	640'			PYRITIC CHERTY TUFF - Grey, siliceous tuff with 2-10% fine grained pyrite, which is particularly strong at the top of the zone. (N.B. The core is now mixed up and can only go on previous	11062	632'6"	640'		65	50	60	< 1	< 0.01	

11312

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 4

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Cu	Pb	Zn	As		Au(ppb)	Ag			
				logging).														
					13153	640'	645'		6	1	88	<5		<0.01	<0.1			
640'	642'			RHYOLITIC WELDED VITRIC TUFF - Same as for 602' - 626'.	4		650'		4	2	155	"		"	"			
					5		655'		6	2	91	"		"	"			
642'	644'			CHERTY SEDIMENT - Grey-green fine grained, cherty, mostly massive	6		660'		5	2	59	"		"	"			
				sediment with some tuffaceous component.	7		665'		5	1	58	"		"	"			
					8		670'		4	1	40	"		"	"			
				MAJOR CHANGE	9		675'		7	2	42	"		"	"			
					13160		680'		6	1	64	"		"	"			
644'	651'			CHLORITIC VOLCANICLASTIC COARSE SANDSTONE - Dark green, highly	1		685'		6	1	63	"		"	"			
				chloritic, weakly layered, medium to coarse lithic sandstone.	2		690'		9	3	36	"		"	"			
				Clasts are mostly rounded and are set in a chloritic siliceous	3		695'		7	2	24	"		"	"			
				matrix. Clasts constitute 50-60% of total rock. Primary layering	4		700'		36	3	30	"		"	"			
				at 648' is 50°/LCA.	5		705'		12	2	37	"		"	"			
					6	705'	708'		7	2	38	"		"	"			
651'	689'			WEAKLY CHLORITIC VOLCANICLASTIC SANDSTONE - CONGLOMERATE BRECCIA -														
				Green grey pink, highly siliceous and weakly chloritic sandstone														
				to conglomerate- breccia texture. Clasts of angular to rounded														
				acid lavas and they make up 60-70% of the rock. Between 680' -														
				684' there is a ?large pink rhyolitic clast - previously logged														
				as lava.														
680'	701'			SILICEOUS VOLCANICLASTIC CONGLOMERATE - BRECCIA - Buff, highly														
				siliceous and weakly sericitic conglomerate - breccia. This														
				unit may represent some break in deposition. Clasts are rounded														
				to angular and they consist of acid lavas and white cherty sediments.														
701'	708'			VOLCANICLASTIC CONGLOMERATE - BRECCIA Pink green, moderately														
				to weakly siliceous, conglomerate - breccia with clasts of quartz														
				-feldspar porphyritic lavas, they are rounded to angular and														
				make up 70-90% of the total rock. They are in a siliceous-weak														
				chlorite matrix. Possible primary layering at 706' is 45°/LCA.														
				E.O.H.														

ASSAY DATA (p.p.m.)

11 12 13 23

123

1202
HFZ4 84'

(T.S. 43178) K-stain positive.
This is an altered and sheared fragmental of felsic intermediate affinities. Primary compositional detail is obscured, although general features are consistent with a leucocratic (i.e. ferromag silicate-deficient) trachyandesite. The broad term, keratophyre, is appropriate.

The sectioned area includes variously ill-defined lava clasts of sub- to fine millimetric dimensions, with irregular, mutually moulded shapes modified by a weak but penetrative slaty cleavage (sim. 1201). Texturally, the rock could be interpreted as a clastic lava (tuff lava) or a lithic (-crystal) tuff and, due to the effects of mild shearing, this distinction is tenuous, although an extrusive mode of origin is inferred.

Mineralogy comprises albitised/epidote-stained plagioclase (laths, phenocrysts, glomerophenocrysts), microcrystalline K-feldspar (groundmass of clasts, sparse ill-defined matrix), pervasive chlorite and accessory epidote-clinozoisite. Fine-grained pyrite is disseminated throughout along with leucoxenised primary opaques. The pyrite is locally concentrated into discontinuous pretectonic veinlets of epidote and/or chlorite. Quartz is a minor accessory alteration phase, and the overall alteration pattern is closely analogous to that in 1201.

potassic groundmass with microscopic patches (mean 50 μ) of felsitic quartz. The rock is flow-structured, weakly compositionally banded, and incipiently flow-brecciated.

Accessories include conspicuous fine leucoxenised opaques, minor traces of apatite and rare ill-defined, leucoxene-stained semi-pseudomorphs of ferromag silicate (?amphibole) microphenocrysts. Sericite is a minor accessory alteration phase, and minor traces of cloudy epidote are present. A weak but penetrative slaty cleavage essentially parallels the flow fabric.

1204
HFZ4 115'

(T.S. 43180) K-stain positive.
This is a devitrified, altered and sheared felsic intermediate lava (or pitchstone) with compositional affinities to 1202. The main contrast lies in the flow-banded, but relatively homogeneous fabric. Inferred primary composition is leuco-trachyandesitic.

The rock is porphyritic to weakly glomeroporphyritic, with sparsely disseminated to frequent weakly epidote-stained albite pseudomorphs of plagioclase (to 1 mm), minor silicified K-feldspar phenocrysts, and rare leucoxene-stained quartz pseudomorphs of amphibole. These features are enclosed in a variably epidote- and chlorite-stained felsitic groundmass reflecting a weak but more or less pervasive perlitic structure, variably obliterated by partial recrystallization/preferred orientation. Primary accessories are (leucoxenised) opaques and traces of apatite.

The groundmass reflects patchy pre-tectonic silicification, partly controlled by the perlitic structure and related to sporadic (sheared, recrystallized) comb-structured quartz veinlets, typically at a high angle to the flow fabric. These features exhibit mutually intersecting relationships with sparse concordant veinlets of epidote and chlorite. The sectioned area includes minor disseminations and crude spongy films of fine-grained pretectonic pyrite, and rare late (post-tectonic) crosscutting films of calcite.

113124

124

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	HFZ 5
STATE	TASMANIA

DLV. PRESS

PROJECT	TYNDALL E.L. 9/66
DESIGNED BY	K. WELLS 1974
LOGGED BY	P.W. ENGLISH '82
COMMENCED	8-3-74
COMPLETED	7-4-74

PURPOSE

To test the mineralisation exposed by costeaning the I.P. anomaly at 1400E Line 49N.

LOG SUMMARY

0-348' Mixed andesite lava and rhyolitic ash-flow tuff.
348'-442' Vitric tuff and chert- the latter weakly mineralised.
442'-678' Volcaniclastics.

GENERAL COMMENTS

N.B. ASSAY INTERVALS ARE IN FEET.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu (ppm)	Pb (ppm)	Zn (ppm)	FeS_2 (%)	Au (ppm)	Ag (ppm)						Width (m)	COMMENTS
404·0'	429.5'	1908	698	408	3·0	5·70	5·1						7·77	Disseminated pyrite, chalcopyrite galena and sphalerite
including:														in cherty tuffaceous sediment.
410·0'	425·0'	1433	1200	633	3·0	9·62	7·3						4·57	Au-Ag assays performed on ½ core.

LOCATION

NORTHING	5363923.8
EASTING	380038.7
R.L.	580.9 M
GRID	AMG
LENGTH	678'

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0-250'
BQ	250'-678'
NQ reamed to 412'.	

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0	54'	60
303'	390'	48

POOR GROUND CONDITION ZONES From	To	Condition
0	65'	Clayey, weathered.
287'	404'	Fractured and sheared due to
		Henty Fault at 370' - 404'.

HOLE CONDITIONS AFTER COMPLETION

57' NX casing & 74' NQ casing, left in hole. Small water flow. Hole now blocked by cave in at 20'.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0'	102° AMG	-55°	0	10	10	8.2	578.4	5.7	1.7
20'		-55.5°	10	50	40	33.0	568.3	22.7	8.7
80'		-54°	50	120	70	56.6	551.1	41.1	21.2
160'		-53°	120	190	70	55.9	534.1	42.1	34.0
220'		-52.5°	190	280	90	71.4	512.3	54.8	50.7
340'		-50°	280	370	90	68.9	491.3	57.9	68.4
400'		-48°	370	420	50	37.2	480.0	33.5	78.6
440'	102° A	-47.5°	420	450	30	22.1	473.2	20.3	84.8
460'	101° A	46.5°							
480'	090° A	-45.5°							
500'	103° A	-44.5°							

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
520'	103° A	-43°							
540'	102° A	-40°							
560'	103° A	-37°							
580'	101° A	-35°							
600'	101° A	-33°							
620'	104° A	-31°							
640'	103° A	31°							
660'	103° A	-30°							
670'	103° A	29°							

1131125

HOLE NO. **HFZ 5**

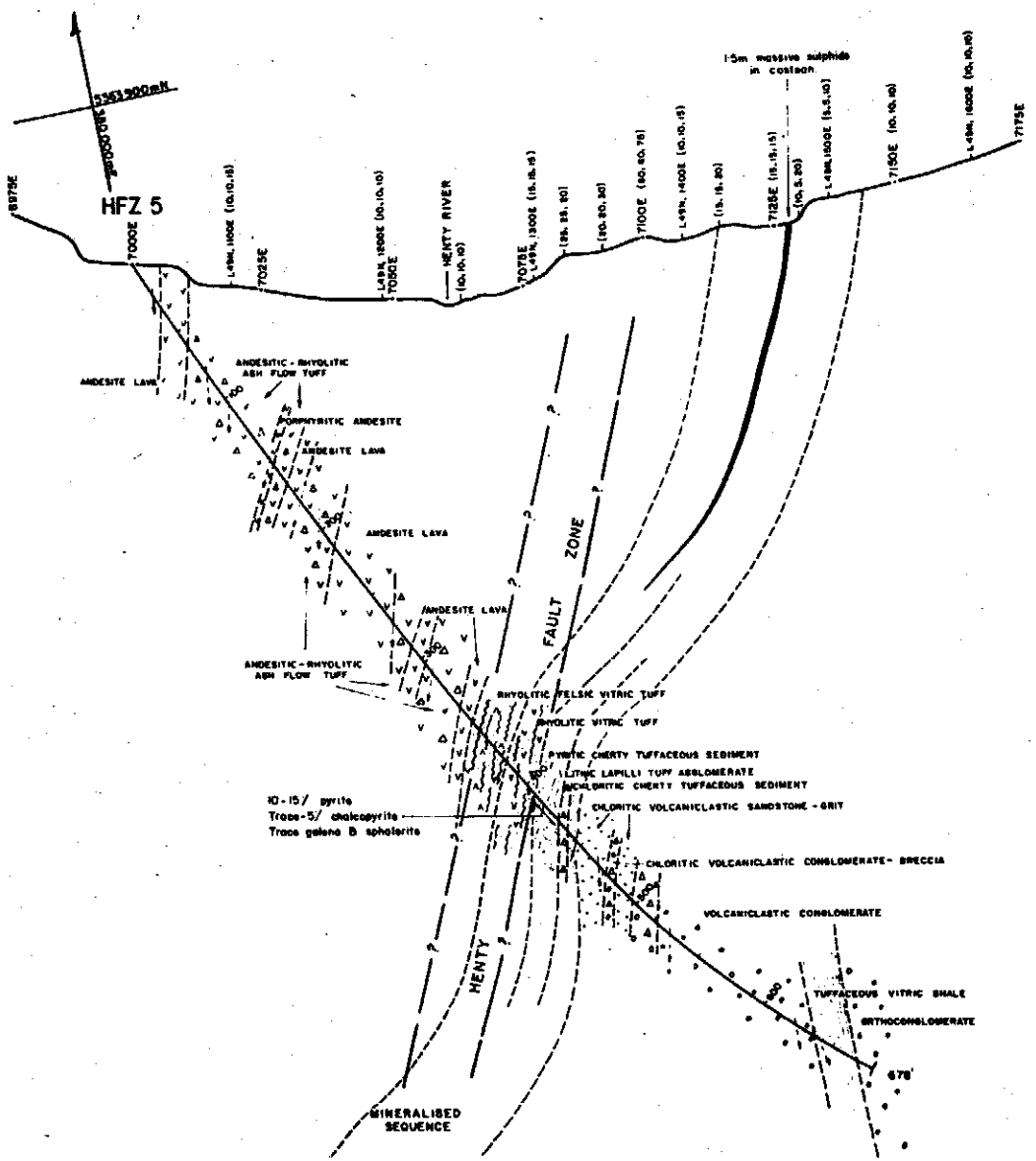
GOLD FIELDS EXPLORATION PTY. LIMITED
DIAMOND DRILL HOLE PLOT

SCALE 1:1000 — 20 10 0 20 40 METRES

5 cm

HFZ 5

PLAN VIEW



600m R.L.

550m R.L.

500m R.L.

450m R.L.

DIP PROFILE

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0'	31'			WEAKLY WELDED RHYOLITIC - DACITIC LAPILLI TUFF - Highly oxidised cream to light green moderately schistose,weakly welded lapilli tuff with fine feldspar phenocrysts. Fragments are rounded and elongated parallel with schistosity and the primary layering. Fragments are 5-20mm long. Moderate amount of quartz sericite alteration. At 22' primary layering is 30°/LCA. Remarks: Limonite and manganese staining on joints and fractures.
31'	60'			FINE GRAINED ANDESITE LAVA - Highly oxidised, brown to dark green fine grained andesite lava. Some evidence of primary layering, suggesting a lava texture, rather than intrusive. Remarks: Limonite and manganese staining on joints and fractures.
60'	144'			ANDESITIC - RHYOLITIC WELDED ASH FLOW TUFF - LAPILLI TUFF - Weakly oxidised, cream to pink and weakly schistose. Contains rhyolitic blocks fragments or rafts in a chloritic matrix which is now stretched and flattened and has a wispy appearance. The rhyolitic clasts of varying sizes have few feldspar phenocrysts and weak albite alteration. Some are vuggy which is possibly due to leaching of carbonate. Primary layering at 80' is 30°/LCA, at 103' is 35°/LCA, at 138' is 40°/LCA and at 143' is 50°/LCA. Remarks: Minor manganese staining on fracture surfaces.
144'	148'			PORPHYRITIC ANDESITE - Weakly weathered, dark green, medium grained porphyritic andesitic lava. White feldspar phenocrysts 1-3mm in fine grained matrix. Some evidence of primary layering which at 147' is 45°/LCA. Contact with surrounding units is very sharp. Remarks: Manganese staining on joint faces.
148'	161'			RHYOLITIC SILICEOUS WELDED ASH FLOW TUFF - Green to pink, completely welded ash flow, with little evidence of primary layering. Highly siliceous and has patches with abundant pink feldspar crystals 1-3mm. Few quartz veins 5-30mm wide. Last 0.3m is extremely brecciated and quartz veined.

ASSAY DATA Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L.9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
161'	176.5'			FINE GRAINED ANDESITE LAVA - Weakly weathered, dark green, generally massive fine grained andesite lava, but does have a few zones with feldspar phenocrysts. At 167' there is some fine banding which may indicate a tuffaceous component. This banding is 50°/LCA. Throughout the section there are vuggy patches indicating leaching of carbonate. The vugs are lined with brown limonite and minor manganese.
				Remarks: Minor limonite and manganese.
176.5	210'			ANDESITIC - RHYOLITIC ASH FLOW TUFF AND LAVA - Dark green to pinkish, banded mixed andestic and rhyolitic material. This zone probably represents an andesite lava containing fragments and blocks of rhyolitic material. The coarser welded rhyolitic ash flow fragments are elongated and flattened and are 50-70mm long and 5-10mm thick. Sharp contact at 178' is 35°/LCA. Layering in the rhyolite material at 180' is 35°/LCA and at 195' is 40°/LCA. Broken zone at 206'-209' consists of fragments of pink lava in an epidote silica matrix and has numerous thin 3-15mm quartz veinlets throughout.
210'	269'			ANDESITE LAVA - Dark green, generally fine grained and massive, with few zones of feldspar phenocrysts giving a slightly coarser texture. There are some minor zones e.g. at 245',251' and 255' with pink fine fragments of rhyolitic composition - probably tuffaceous. Throughout the section calcite occurs as disseminations and veinlets (2-20mm wide). The calcite is probably due to the alteration of plagioclase.
				Remarks: Minor pyrite and magnetite.
269'	290'			RHYOLITIC WELDED ASH FLOW TUFF AND LAVA - Dark green - pink dominantly ash flow tuff - but upper and lower contacts are mixed andesite - rhyolite. Central section is massive pink welded ash flow tuff - lava which is brecciated and veined by quartz. This may represent a large raft of this material caught up in the andesite flow. At the base of this section the schistosity is increasing indicating a minor increase in alteration.

ASSAY DATA Sample No	From	To	Rec. %

113128

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No	From	To	Rec. %	Cu	Pb	Zn	As		Au	Ag			
				At 273' primary layering is 40°/LCA.														
290 '	303 '			ANDESITE TUFF - LAVA - Light green essentially fine grained andesite lava with sections of tuffaceous material. The core is very broken and the increase in schistosity continues into this unit. Minor chlorite is associated with schistosity and calcite is both disseminated and in 2-5mm veinlets throughout.														
303 '	336 '			RHYOLITIC ASH FLOW TUFF - Pink to red, essentially fine grained, with some elongated lava fragments. 5mm x 40mm and possibly some flattened pumice. Has weak-moderate schistosity with weak sericite alteration and possibly had a slight vitric component in original rock. Some brecciation and 2-10mm quartz veining throughout. Remarks: Trace of fine grained disseminated pyrite.														
336'	348'			ANDESITE LAVA - Dark green, fine to medium grained massive lava, highly broken core. Calcite is disseminated in the matrix and in 2-10mm veinlets. Base of this section is slightly schistose indicating a minor increase in alteration. Remarks: Trace of pyrite.														
				-CHANGE-														
348'	370'			RHYOLITIC FELSIC VITRIC TUFF - Pink to red felsic tuff, with subrounded to angular fragments 2-4mm. Moderate to strong schistosity with moderate sericite alteration of original vitric component. Core is broken along schistosity which is parallel to primary layering in tuff. Primary layering at 311' is 50°/LCA. Remarks: Trace of disseminated pyrite.														
370 '	404'			RHYOLITIC VITRIC TUFF - SHEARED BY HENTY FAULT ZONE - Pale cream-light green, sericitic clay with rounded siliceous rock fragments. There is some relict thin banding at 382' which may indicate the original vitric tuffaceous nature of this zone.	11830	350'	355'		36	2	19	30		0·01	<0·1			
					1		360'		29	2	16	15		"	"			
					11832	360'	365'		13	3	29	25		"	"			

11129 129

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				There are three 50mm wide milky quartz veins, at 386', 387'
				and 389' respectively. Adjacent to the quartz veins there
				is an apple green coloured clay mineral, possibly a mica.
				A trace of pyrite is disseminated throughout, there are also
				some fine grained dark sulphides which may be minor Pb &
				Zn.
				Remarks: Trace of disseminated pyrite.
404'	429.5'			PYRITIC CHERTY TUFFACEOUS SEDIMENT - Pale grey to white,
				fine grained cherty tuffaceous sediment which has been brecciated
				after deposition and rehealed with silica. This unit contains
				varying amounts of sulphide throughout. Between 422.5 and
				425' there is 15% sulphide which is mainly pyrite with minor
				chalcopyrite, galena and sphalerite. Between 427' and 429'
				there is 5-10% pyrite and 2-4% chalcopyrite. In general
				this unit is massive, but between 427' and 429' there is
				possibly some primary bedding that is 45°/LCA.
				Remarks: Total sulphide varies between 2-30%. Sulphides:
				pyrite, chalcopyrite, galena and sphalerite.
429.5'	434'			LITHIC LAPILLI TUFF - AGGLOMERATE - Grey-green lapilli-
				tuff-agglomerate with angular to subrounded fragments which
				vary in size from 2mm x 5mm to 10mm x 40mm. Fragments are
				all rhyolitic to dacitic composition and mixed. Fragments
				constitute 50-70% while the matrix is minor and contains 1-
				3mm feldspars and sericite. Weak schistosity is developed
				parallel to its primary layering which at 430' is 45°/LCA.
				Remarks: 1-2% disseminated pyrite.
434'	442'			CHERTY TUFFACEOUS SEDIMENT - White - grey, fine grained
				cherty tuffaceous sediment which is generally massive but
				possibly some primary bedding at 436' which is 45°/LCA. Moderate
				to strong chlorite alteration, along and filling fracture
				zones. Few milky quartz veins 2-5mm wide. Trace to 0.5%
				disseminated pyrite in the coarser layered sections.

ASSAY DATA (p.p.m.)

Sample No.	From	To	Rec. %	Cu	Pb	Zn	As	FeS_2	Au	Ag	Au (R.A.)	Ag (R.A.)	Au (F.A.)
11833	365'	370'		18	6	42	25		0.02	<0.1			
4		375'		11	5	58	25		<0.01	"			
5		380'		10	3	26	10		"	"			
6		385'		9	3	48	5		0.01	"			
7		390'		43	32	140	5		<0.01	"			
8		395'		300	9	66	10		0.02	"			
9		400'		68	7	72	15		<0.01	"			
11840		404'		70	13	100	25		"	"			
11049	404'	410'	6'	100	<100	<100		0.9%	<0.01	0.5			<0.1
11050	410'	415'	5'	Tr	200	100		1.3%	9.50	3.2	9.40	2.9	10.0
11051	415'	420'	5'	1500	200	200		1.1%	1.12	1.1	1.12	0.9	0.9
11052	420'	425'	5'	2800	3200	1600		6.6%	18.00	19.5	17.50	16.0	19.0
11053	425'	429.5'	4.5'	5900	400	200		5.8%	0.85	3.8	0.78	3.3	0.8
11054	429.5'	435'	5.5'	500	<100	100		0.4%	<0.01	0.3			<0.1
11841	435'	440'	5'	100	Tr	<100	25	0.4%	"	<0.1			
2	440'	445'	5'	100	Tr	100	25	0.6%	"	"			
3	445'	450'	5'	400	Tr	100	20	0.6%	"	"			
4	450'	455'	5'	300	<100	200	20	0.2%	"	"			
5	455'	460'	5'	100	Tr	100	25	0.4%	"	0.3			
6	460'	465'	5'	200	<100	100	20	0.2%	"	<0.1			
7	465'	471'	6'	200	Tr	100	20	0.4%	"	"			
8	471'	475'		6	2	44	20		0.03	"			
11849	475'	480'		7	2	60	15		<0.01	"			
11877		485'		115	500	660	35		0.04	1.0			
8		490'		8	4	94	15		<0.01	<0.1			
9		495'		5	9	98	20		"	"			
11880		500'		5	2	46	20		"	"			
1	500'	505'		3	4	18	20		0.01	"			
2	510'	515'		3	2	21	15		<0.01	"			
3	520'	525'		3	2	25	20		"	"			
4	530'	535'		2	3	31	15		"	"			
5	540'	545'		5	7	36	15		"	"			
6	550'	555'		3	4	40	15		"	"			
7	560'	565'		3	2	48	25		"	"			
8	570'	575'		3	2	46	20		"	"			
11889	580'	585'		3	6	32	15		"	"			

11131130

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Remarks: Trace to 0.5% disseminated pyrite.
				-CHANGE-
442'	444'			CHLORITIC VOLCANICLASTIC SANDSTONE - GRIT - Grey green with coarse sand to granular texture, clasts are mainly rounded and make up 80% of total rock. Clasts consist of pink acid lavas and green andesitic lavas. Upper contact shows an erosional boundary. Slight schistosity with moderate chlorite alteration and only minor sericite. Primary layering at 443.5' is 55°/LCA.
				Remarks: Trace of pyrite disseminated throughout.
444'	459'			CHLORITIC AND SILICEOUS FINE GRAINED TUFFACEOUS SEDIMENT - Generally grey- with minor white zones, generally massive fine grained tuffaceous sediment. It is autobrecciated and rehealed by silicification and has moderate to strong chlorite alteration filling fracture voids. Brecciation probably due to mass movement or slumping. Minor calcite in some of the fractures.
				Remarks: Trace to 1% disseminated pyrite.
459'	471'			CHLORITIC VOLCANICLASTIC SANDSTONE - Grey green, fine to coarse sandy texture, with mainly rounded clasts few angular and they constitute 80% of total rock. Clasts consist of mainly andesite, with minor rhyolite and cherty component. Moderate chlorite alteration and few 1-3mm wide quartz veinlets. Primary layering at 468' is 40°/LCA.
				Remarks: Trace of disseminated pyrite.
471'	481'			CHLORITIC VOLCANICLASTIC CONGLOMERATE - BRECCIA - Grey-green, clasts are mainly rounded with some angular, they are generally 10-30mm, while at 471' and 476' acid lava fragments are 300-400mm in diameter. Clasts are nearly all pink acid lavas some of which are porphyritic, with a minor andesitic clast component. Clasts make up 60-80% of total rock. Chlorite alteration is moderate in the fine grained matrix.

ASSAY DATA (p.p.m.)

Sample No	From	To	Rec. %	Cu	Pb	Zn	As		Au	Ag
11890	590'	595'		2	3	54	15		<0.01	<0.1
1	600'	605'		3	2	48	15		"	"
2	610'	615'		3	3	41	15		"	"
3	620'	625'		5	4	80	20		"	"
4	630'	635'		5	7	42	15		"	"
5	640'	645'		4	3	94	15		"	"
6	650'	655'		3	4	82	15		"	"
7	660'	665'		2	14	78	10		0.05	"
11898	670'	675'		4	9	47	15		<0.01	"

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Remarks: Trace of pyrite in matrix.
481'	495'			CHLORITIC VOLCANICLASTIC SANDSTONE - GRIT - Grey-green, fine to coarse sand to granular texture very similar to the interval 459' - 471'. Has the same brecciated texture with moderate chlorite alteration. Few very thin quartz veinlets throughout, with one at 493.5' which is 20mm wide. Primary layering at 489' is 40°/LCA.
				Remarks: Trace of pyrite.
495'	517'			CHLORITIC VOLCANICLASTIC CONGLOMERATE - BRECCIA - Grey green, clasts are both rounded and angular and mainly range between 10-80mm, at 502' there is an pink acid lava clast 300mm in diameter. Clasts are mainly pink acid lavas, with some dark green dacitic-andesitic. Chlorite alteration is weak to moderate and there is minor quartz veining.
517'	634.5'			VOLCANICLASTIC CONGLOMERATE - Grey buff, layered volcanic conglomerate with clasts mainly consisting of red-pink acid lavas and ash flow tuffs with minor andesite. The clasts are mainly rounded, with few subangular and elongated parallel with primary layering. Clasts range in size from 5 to 20mm with the majority 5-10mm. In the lower section of this interval there are several grey tuffaceous shale lenses which are 50-200mm thick. Throughout the total section there are minor fractures fill with chlorite. Primary layering over this interval is as follows: at 528' is 50°/LCA, at 561' is 50°/LCA, and at 621' is 50°/LCA.
				Remarks: Trace of pyrite.
634.5'	666'			TUFFACEOUS SHALE - Green-dark grey, generally massive shale with minor sections with thin bedding. Slight schistosity with weak sericite and chlorite alteration. Probably derived from a vitric volcanic. Primary bedding at 640' is 40°/LCA.

ASSAY DATA Sample No.	From	To	Rec. %

1 1 3 1 3 2

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No	From	To	Rec. %
666'	678'			ORTHOCONGLOMERATE - Grey-white, siliceous orthoconglomerate with mainly rounded white quartz - ?chert clasts and minor buff-grey clasts of fine grained volcanics and tuffs. Clasts are mainly 20-30mm in diameter and are set in grey siliceous matrix which constitute ∠5% of total. There are several patches, e.g. at 674', of black siliceous carbonaceous?material. Note: The clasts in this unit are greatly different from those in the previous volcaniclastic unit.				
				E.O.H.				

11311333

1212 (T.S. 43188) K-stain negative.
HFZ5 420' This is a recrystallized dolomitic chert, consisting of microgranular quartz with disseminated dolomite rhombs and thinly disseminated sub- to euhedral (recrystallized, syngenetic) pyrite. The sulphide is weakly bedded in an otherwise homogeneous rock.

Sporadic fractures are healed with discontinuous veinlets of calcite grading into relatively wide quartz-calcite veins. These include occasional quartz-intergranular blebs and spongy films of chalcopyrite in addition to traces of pyrite, and are texturally late (post-recrystallization) features, although mildly stressed and thus conceivably predating the weak regional metamorphism.

1213 (T.S. 43189) K-stain negative.
HFZ5 436' A sericitic pelitic ash, this rock is essentially similar to 1210. The rock is weakly laminated and includes sporadic interbeds (to 3.5 mm) of arkosic silty (mildly reworked tuffaceous) fine sandstone. The bulk consists of sericite-stained microcrystalline quartz and sericitised, closely intergrown feldspar (?albite). Vague, but diagnostic shardy microtextures are more or less pervasive and, on the basis of relict shapes, appear to reflect mild reworking. Angular to subangular silt-sizec clastic quartz is thinly disseminated throughout. The sandy interbeds have a devitrified/ sericitic ashy matrix and include thinly disseminated leucoxenice semi-opaques and zircons. Finer compositional detail is obscured, although in common with 1210, the rock is of broadly dacitic character.

An incipient slaty cleavage postdates sporadic sericite films and veinlets, locally including accessory ankeritic carbonate, and not uncommonly discontinuous films of chlorite. The host rock is weakly stained with rhombs of dolomite-ankerite. Minor late crosscutting fractures are healed with veinlets of calcite and cloudy sideritic carbonate.

1214 (T.S. 43190) K-stain negative.
HFZ5 444' This is a weakly sericitised arkosic siltstone. Finer details are partly obscured by recrystallization and a weak, but penetrative slaty cleavage although the rock is of reworked ashy tuffaceous character.

Major constituents are variably recrystallized silt-sized clastic splintery to subangular quartz and albite and an ill-defined micro-crystalline matrix of similar composition. Sporadic fine to medium sand-sized quartz and albite grains are thinly disseminated throughout with a semi-banded distribution enhancing faint bedding laminations on a sub- to fine millimetric scale. Accessory detrital components include very thinly disseminated zircons, leucoxenic semi-opaques and rare muscovite flakes.

Incomparison with the finer-grained and distinctly pelitic vitric ashy 1210 and 1213, this rock is relatively siliceous. Sericite is pervasive in trace amounts, but the main alteration features are frequent veinlets of quartz, albite and dolomite-ankerite of "diagenetic" character and including rare, fine-grained pyrite disseminations. These features are variably recrystallized in response to the weak slaty cleavage and predate sporadic late (syn- or post-tectonic) straight-walled veinlets of sideritic carbonate.

1205 (T.S. 43181) K-stain positive.
HFZ5 144' This "leuco-trachyandesite" is essentially quite similar to 1204, the main contrasts reflecting variations in the fabric and alteration pattern.

Frequent epidote-stained/albitised plagioclase phenocrysts are accompanied by relatively rare adularia pseudomorphs of K-feldspar (?sanidine) and isolated ill-defined epidote semi-pseudomorphs of phenocrystal amphibole. These are embedded in a partly recrystallized and orientated felsitic (devitrified) groundmass which reflects patchy albitisation and minor silicification and is pervaded by a network of epidote-chlorite-healed microfractures. These features disrupt the weakly flow-banded groundmass and give the rock a weaklylithic fragmental aspect in hand specimen.

In common with the associated altered volcanics, a weak but penetrative slaty cleavage postdates the alteration as reflected, for example, in sheared epidote films and rare, similarly sheared microveinlets of quartz, albite and adularia. Accessoryleucoxenic semi-opaques and sparse apatite are present. There is no detectable pyrite.

1131134

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.: HFZS
STATE :

REPORT CMS 84/6/35

Six small samples of quartered drill core from a drill hole in the Henty Fault Zone were received for petrological and mineragraphic examination. Representative thin-sections were prepared and, in view of the small sample size, thin-sectional offcuts were used to prepare polished sections. Attached composite descriptions summarise the microscopic data, with some samples described in relative detail and others partly by analogy.

Summary

All six rocks are essentially similar and may be categorised broadly as fine-grained quartz ± sericite-carbonate rocks. Relict features, in the form of pseudomorphed feldspar grains, sporadic relict phenocrystal quartz grains, vague microtextural features, and more or less ubiquitous leucoxenic semi-opaques, define these rocks as alrered ("silicified") acid fragmental volcanics. Obliteration of the critical textural detail, problematically, negates definition of the specific mode of origin. On the basis of relict features, there is little to choose between clastic lavas and strictly pyroclastic rocks.

Silicification is marked to the degree that, with the exception of sample 11142, which reflects selective sericitic argillisation, these rocks consist largely of secondary microcrystalline quartz. Impure (low R.I.) sideritic carbonate and pyrite disseminations are more or less ubiquitous accessories to silicification. Associated veinlets consist variously of (recrystallized) chalcedonic quartz, quartz and carbonate, massive carbonate, and, white mica-quartz(-carbonate) in apparent sequential order of development. Chalcedonic and late quartz-mica veinlets appear relatively base metal sulphide-mineralised, although the six samples examined reflect inconsistencies in this pattern. The base metal sulphide assemblage comprises chalcopyrite, galena and ultrafine exsolution chalcopyrite-stained sphalerite and is consistent throughout the disseminated and veinlet-hosted pyritic assemblages.

Gold was detected only in sample 11137 where it is specifically concentrated in a pyritic mica-quartz vein. In that sample 11138 includes an essentially similar but gold-barren (in the optically detectable sense) veinlet, the distribution of gold in this zone appears "spotty" or erratic. An alternate explanation is that there is a certain pyrite-hosted submicroscopic component to the mineralisation that is modified to a particulate pyrite-hosted mode by the late semi-penetrative but rather variable stress effects evident in these rocks.

Silver was detected in two forms, notably ultrafine but particulate native silver in galena and as extremely fine inclusions of Ag sulphosalt (?pearceite) in pyrite. No doubt a certain proportion of total Ag is represented by the gold.

D. Cowan, B. Sc.

REPORT CMS 84/6/35

Petrological/Mineragraphic Descriptions

11137 (424'6" - T.S., P.S. 50728)
This rock may be classified as a pyritic quartz-carbonate rock. The rock is breccia-like, with irregular millimetric-scale clasts interspersed with a quartz (± carbonate) matrix. Finer detail is confused by frequent quartz-carbonate veinlets.

"Clasts" consist of cherty microcrystalline quartz with accessory sideritic carbonate, thinly disseminated fine to ultrafine pyrite and, locally, a little sericitic white mica. The majority are texturally featureless, but a few exhibit vague relict felsitic and/or perlitic microtextures consistent with an altered acid volcanic paragenesis. Whether this rock was primarily fragmental or, alternately, reflects brecciation, however, is not clear. Rare clasts of recrystallized chalcedonic quartz are present.

The matrix and variably continuous irregular veinlets consist of mildly stressed, medium-grained, vein-type quartz with varying proportions of granular to sparry siderite, concentrated in the veins. Fine-grained pyrite is disseminated throughout and is similarly concentrated in the veins.

The thin band of "massive" pyrite is strictly a temporally late vein of fine-grained muscovite, quartz, and pyrite with accessory carbonate and galena. This vein transects quartz-carbonate veinlets and is mildly stressed.

Polished section examination reveals the disseminated and vein-sulphide assemblages to be essentially identical, with pyrite accompanied by minor included and intergranular galena, pyrite- and silicate-intergranular chalcopyrite, and a little silicate-intergranular sphalerite. Chalcopyrite and sphalerite occur partly as composite blebs. Silicate-intergranular chalcopyrite ranges to 500 μ diameter, but the base metal sulphides in general are fine-grained (typically < 50 μ).

The sericitic pyritic vein is relatively base metal sulphide-mineralised in comparison with the host rock. Pyrite is sub- to euhedral, semi-evenly sized (mean 200-250 μ), weakly poikilitic and mildly micro-fractured.

Several microscopic particles of gold were detected within this pyritic vein. The majority appear as inclusions, or rarely partial inclusions in pyrite. This mode is supplemented by relatively minor pyrite- and quartz-intergranular particles and discontinuous microfilms. Modal overall sizing is circa 5-8 μ in an observed range of < 1 μ to a maximum of 16x24 μ.

Rare < 10 μ diameter particles of native silver were detected as inclusions in pyrite-intergranular galena. Presence of these features suggests the Ag distribution is bimodal (i.e. partly alloyed with gold, partly as a discrete native silver component).

11137

GOLD FIELDS EXPLORATION PTY. LIMITED
DRILL CORE RECORD

HOLE NO: HFZ5
STATE :

11138 (424'9" - T.S., P.S. 50729)
This rock is similar to 11137. In contrast, the fabric is relatively homogeneous, comprising essentially an interbanding of cherty microcrystalline and medium-grained subradiating (crystallized chalcedonic) quartz on a millimetric scale. The coarser-grained zones are mineralised with microscale spongy networks of quartz-intergranular sulphide. Fine pyrite is thinly disseminated throughout the rock as a whole. Concentrations of pyrite also appear in association with late discontinuous sericitic quartz veinlets. These features transect a network of intersecting carbonate (siderite) veinlets with thin siliceous selvedges.

Polished section examination confirms the relatively conspicuous "disseminated" sulphide assemblage as galena, chalcopyrite and sphalerite in varying but overall near-equant proportions, with accessory associated pyrite.

Sphalerite is pervasively clouded with ultrafine (submicron-sized) chalcopyrite exsolution blebs, which impart the dark submetallic characteristics in hand specimen. Grainsizings are ubiquitously fine, consistent with the quartz-intergranular habit.

The discontinuous sericitic pyritic quartz veinlets appear close analogous to that noted in 11137 and require little special comment, except to note that these features (similarly the rock as a whole) are devoid of optically detectable gold.

11139 (422'9" - T.S., P.S. 50730)
This sample may be classified as a pyritic quartz-sericite rock and represents an altered acid volcanic. Major features comprise conspicuous more or less evenly disseminated sericite pseudomorphs after feldspar crystals and crystal fragments (mean 200 μ), and a matrix of sericite-stained microcrystalline quartz with disseminated fine to ultrafine pyrite. The sericitised feldspar crystals are moderately flow-orientated. The matrix is generally featureless, but locally exhibits vague relict "shardy" microtextures. This rock is thus interpreted as a silicified and sericitised vitric-crystal tuff of dacitic affinities.

Disseminations of pyrite and base metal sulphides are associated with temporally early, weakly sideritic-sericitic quartz veinlets. These features are stressed and segmented, and appear largely as intraclasts within subsequent sub- to millimetric-scale veinlets of quartz and siderite. Sporadic temporally late films of sideritic carbonate are displaced by sericitic microfractures.

Polished section examination reveals a disseminated to segmented quartz-carbonate veinlet-hosted sulphide assemblage of sphalerite and chalcopyrite with interspersed clusters of fine-grained, variably granulated pyrite and accessory traces of galena. The total assemblage is analogous to that in 11137 and 11138, with sphalerite similarly

pervasively stained with ultrafine chalcopyrite exsolution blebs. Gold was not detected. Randomly disseminated fine (mean 40 μ) subhedral pyrite grains in the host rock, however, locally carry microscopic (< 10 μ, typically < 5 μ) inclusions of an indeterminate sulphosalt (probably pearceite), rarely accompanied by ultrafine particles of native silver.

11140 (420'6" - T.S., P.S. 50731)
This rock consists largely of microcrystalline quartz with accessory clots and discontinuous films of carbonate and thinly disseminated fine-grained pyrite. Vague relict fragmental microtextures are supplemented by isolated stressed relics of "phenocrystal" quartz, disseminated fine-grained quartz (± carbonate) pseudomorphed feldspar crystals and conspicuous leucoxenic semi-opaques. These features define the rock as a thoroughly silicified acid fragmental, although there is little to chose between a clastic lava ("tuff lava") and a strictly pyroclastic (lithic-crystal tuff) rock on relict textural grounds.

Frequent discontinuous veinlets and microscopic films of quartz and sideritic carbonate are present, with minor associated disseminations of pyrite. This rock is mildly stressed, with vein-carbonate locally partly recrystallized and crudely schistose.

Polished section examination confirms a simple, thinly disseminated pyrite assemblage with minor associated traces of chalcopyrite and galena. Pyrite is relatively euhedral and rarely exhibits micro-inclusions (< 10 μ) of chalcopyrite. Close examination revealed no detectable gold.

11141 (421'6" - T.S., P.S. 50732)
This rock is very similar to 11140. *Major features comprise more or* less massive, weakly carbonate-stained microcrystalline quartz aggregates with thinly disseminated relict primary "phenocrystal" quartz grains, minor ill-defined quartz-pseudomorphed feldspar grains, and thinly disseminated amygdales of quartz and carbonate, grading locally into relatively coarse zones of crystallized chalcedonic quartz similar to those appearing as clasts in 11137. Accessory, more or less evenly disseminated leucoxenised opaques enhance the altered (silicified) volcanic aspect. As in 11140, however, there is little to choose between lava, and pyroclastic modes of origin.

Fine-grained pyrite is thinly disseminated throughout. Microscale, *weakly pyritic carbonate-quartz veinlets supplement* the amygdales, but are relatively inconspicuous in comparison with 11140.

Polished section examination reveals more or less evenly disseminated fine-grained pyrite euhedra throughout the rock. These features appear closely analogous to those noted in 11140, but are relatively abundant and slightly coarser-grained. Minor traces of galena and chalcopyrite are present, partly as micro-inclusions in pyrite. Close inspection revealed no optically detectable gold.

11138 11139 11140 11141

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO:	HF2 5
STATE	:

11142 (423'9" - T.S., P.S. 50733)
This rock may be classified as a pyritic sericite-quartz rock. The relict fabric is vaguely fragmental and essentially similar to 11140, although finer details are relatively obscured by a weak but penetrative slaty cleavage.

Relatively conspicuous fine-grained pyrite is more or less evenly disseminated with associated incipient sericitic pressure shadows.

Sporadic sub- to millimetric-scale quartz veinlets are stressed and contorted to mildly boudinaged by the slaty cleavage. These features carry accessory traces of sideritic carbonate and locally conspicuous "lacy" quartz-intergranular films of chalcopyrite.

Polished section examination confirms a simple major pyrite/accessory chalcopyrite assemblage. Pyrite is sized in the 20-250 μ range, with a mean about 75 μ and is relatively euhedral. Individual grains may exhibit ultrafine (< 5 μ) inclusions of pyrrhotite. Minor traces of galena appear as randomly disseminated microscopic blebs. Close examination revealed no detectable gold.

D. Cowan, B. Sc.

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	HFZ 6
STATE	TASMANIA

DLV. PRESS

PROJECT	TYNDALL E.L.9/66
DESIGNED BY	K. WELLS 1974
LOGGED BY	P.W. ENGLISH '82
COMMENCED	20-4-74
COMPLETED	15-4-74

PURPOSE

To test the I.P. Anomaly centred at 1500'E, Line 48N.

LOG SUMMARY

0 -283.5'	Mixed andesite lava and rhyolitic ash flow tuff.
283.5'-376'	Andesitic and rhyolitic tuff sheared by Henty Fault.
376'-378'	Massive Sulphide.
378'-467'	Cherty tuffs(host sequence)
467'-523'	Volcaniclastics.

GENERAL COMMENTS

0 -159' Core now missing.
N.B ALL ASSAY INTERVALS ARE IN FEET.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	S	g/t Ag	g/t Au							COMMENTS
376'	378'	1.11	4.0	7.0	15.7	85	2							Massive sulphide.
425'	435'	0.46	0.075	0.03	5.55	2.8	0.6							

LOCATION

NORTHING	5363801.2
EASTING	380030.5
R.L.	587.19
GRID	AMG
LENGTH	523'

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	60'-465'
BQ	465'-523'
Rollerbit	0 -60'

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
94'	104'	30%
330'	349'	65%
365.5'	375'	80%

POOR GROUND CONDITION ZONES From	To	Condition
295'	376'	Badly sheared and broken by Henty Fault Zone.

HOLE CONDITIONS AFTER COMPLETION

Hole collapsed at approx. 200'.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0	102° AMG	-60°	0	10					
20'		-60°	10	30					
40'		-60°	30	65	65	56.3	570.0	32.2	9.8
90'		-60.5°	65	115					
140'		-60.5°	115	165					
190'	(98)	-60.5°	165	215	150	130.6	530.2	73.9	32.3
240'	(98)	-60°	215	265	50	43.3	517.0	25.0	40.0
290'		-59°	265	315					
340'		-59°	315	365	100	85.7	490.9	51.5	55.7
390'		-58.5°	365	415	50	42.6	477.9	26.1	63.6
440'		-57.5°	415	465	50	42.1	465.1	26.9	71.8
490'	094° AMG	-55.5°	465	523	58	47.8	450.5	32.9	81.8

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

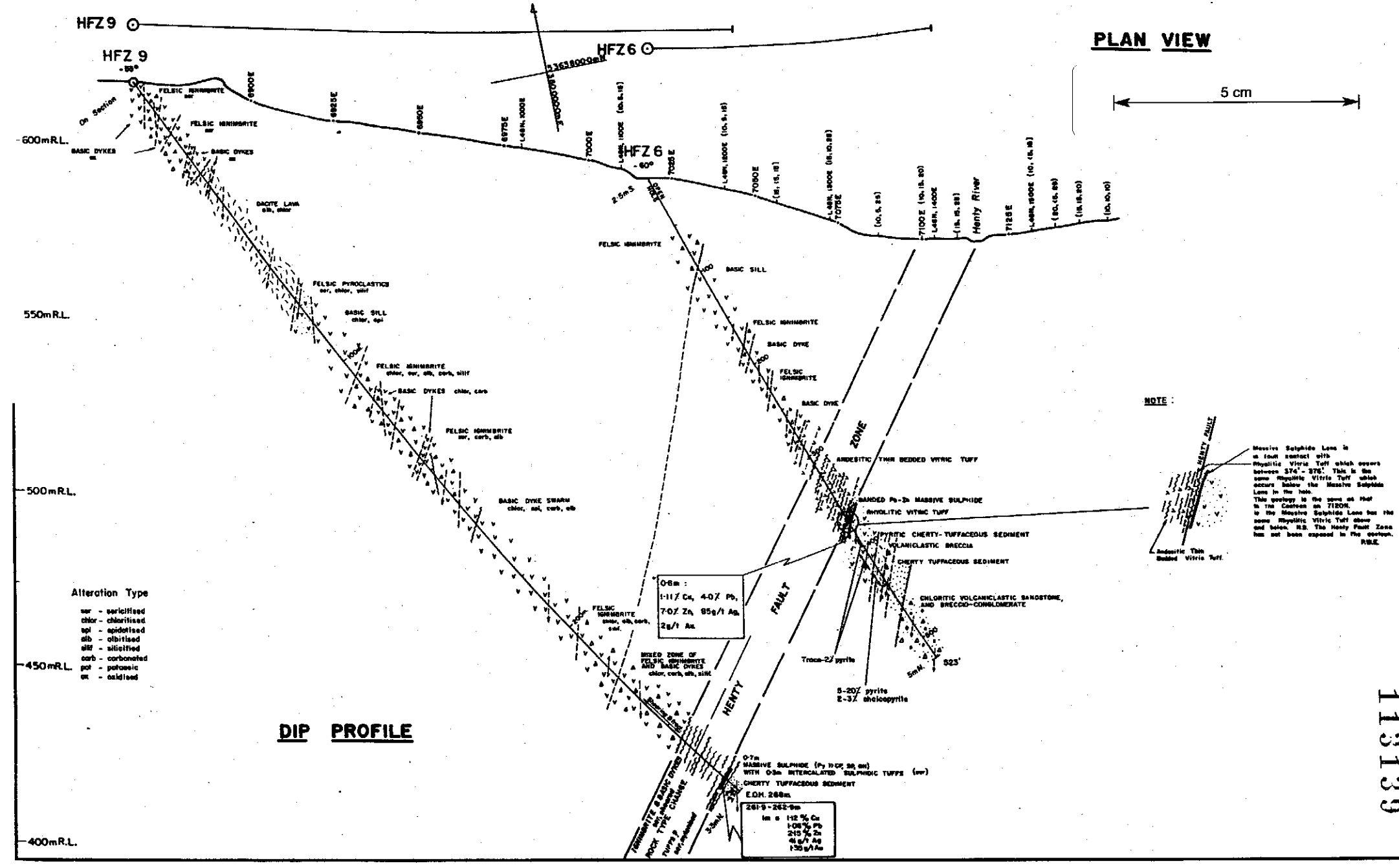
HFZ 6

HOLE NO. HFZ 9 & HFZ 6

GOLD FIELDS EXPLORATION PTY. LIMITED
DIAMOND DRILL HOLE PLOT

SCALE 1:1000 — 20 10 0 20 40 METRES

PLAN VIEW



Alteration Type

ser - sericitised
chlor - chloritised
epi - epidotised
alb - albitised
silf - silicified
carb - carbonated
pot - potassic
ox - oxidised

DIP PROFILE

NOTE :

113139

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 6 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0	159'			Core not available.
159'	170'			ANDESITE LAVA - TUFF - Highly weathered buff-brown, fine grained andesitic lava, some banding indicating layers of tuffaceous material. Many vugs and fractures which are lined with manganese and limonite. Primary layering at 161' is 35°/LCA.
170'	193'			ANDESITIC-RHYOLITIC WELDED ASH FLOW TUFF TO LAPILLI TUFF - Dark green - pink mixed zone of andesiticlava with fragments to rafts of rhyolitic welded ash flow tuff, these fragments are elongated parallel to primary layering and are generally 10-50mm. The central section is highly welded brecciated and veined with quartz and chlorite. Some fragments have a high calcite content. Primary layering at 191' is 40°/LCA.
193'	196.5'			ANDESITIC LAVA - Dark green, fine grained andesite lava with calcite blebs aligned with primary layering at 194' of 40°/LCA. Calcite is also in thin, 1-2mm veinlets. This lava is weakly magnetic.
196.5'	210'			RHYOLITIC WELDED ASH FLOW TUFF AND LAVA - Pink-red, fine grained siliceous lava with upper and lower transitional contacts between rhyolite and andesite. Some quartz veined areas, veinlets 2-10mm wide, minor chlorite. Primary layering in contact zones at 209' is 30°/LCA.
210'	216'			ANDESITE LAVA - Dark green, fine grained magnetic andesite lava with primary layering, possibly flow banding, e.g. at 215' which is 30°/LCA. This lava contains calcite in blebs (1-2mm), disseminated and in veinlets.
216'	222'			ANDESITIC- RHYOLITIC ASH FLOW TUFF TO LAVA - Similar to 196.5' - 210' with essentially an andesitic matrix and fragments of rhyolitic ash flow tuff - the latter being highly siliceous.

ASSAY DATA Sample No	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 6

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
222'	227'			ANDESITE LAVA - Dark green, fine grained strongly magnetic lava with well developed primary layering or flow banding which at 225' is 35°/LCA. Calcite is disseminated in 1-3mm blebs and is in veinlets throughout.
227'	272'			INTER MIXED ANDESITIC LAVA AND RHYOLITIC ASH FLOW TUFFS AND LAVAS - Grey green andesitic lavas with fragments of flattened rhyolitic ash flow tuffs, these fragments are 10-50mm long. The rhyolitic sections tend to be siliceous and highly veined with quartz-chlorite veins.e.g. between 266'-267' while the andesite contains disseminated blebs and veinlets of calcite. Primary layering at 260' is 35°/LCA.
272 '	282'			ANDESITE LAVA - Dark green fine grain andesitic lava, only weakly magnetic. Has abundant 2-3mm blebs of calcite and 2-5mm wide veinlets of calcite.
282'	283.5'			MIXED ANDESITE LAVA AND RHYOLITIC LAVAS - Same as for 227' - 272'.
				MAJOR CHANGE IN ROCK TYPE AND ALTERATION
283.5'	293 '			ANDESITIC THIN BEDDED VITRIC TUFF - Dark green - cream, fine grained thin bedded-beds 2-5mm thick, high schistose moderately altered sericitic andesitic vitric tuff. Bedding at 292' is 45°/LCA. Minor quartz veinlets 5-10mm thick.
293'	295'			RHYOLITIC- DACITIC THIN BEDDED VITRIC TUFF - Pink, fine grained thinly bedded highly schistose vitric tuff. Has moderate sericite alteration. Remarks: Trace of pyrite.
295 '	309 '			ANDESITIC THIN BEDDED VITRIC TUFF - Cream-green, fine grained, thin bedded vitric tuff with well developed schistosity, moderate to strong sericite alteration, some of the core (bedding) is broken by shearing associated with HFZ Remarks: Trace of fine grained disseminated pyrite

ASSAY DATA Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 6

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
309'	374'			ANDESITIC THIN BEDDED VITRIC TUFF SHEARED BY HENTY FAULT ZONE - Dark green - cream, fine grained, thin bedded vitric tuff, bedding has been broken up by HENTY FAULT, but some structures may in fact reflect original soft sediment slumping. This unit is strongly schistose with moderate to strong sericite alteration. Zone between 339'-359' has numerous milky quartz veins which vary in thickness 20mm-150mm. The most intense shearing of the Henty Fault Zone occurs between 340'-376'. Remarks: Trace to 2% disseminated pyrite.
374'	376'			RHYOLITIC VITRIC TUFF SHEARED BY HENTY FAULT ZONE - Pale cream, light green sericite clay with subrounded siliceous fragments (2-20mm diameter). There is little evidence left of original primary bedding. Remarks: Trace to 2% disseminated pyrite.
376'	378'			BANDED Pb-Zn MASSIVE SULPHIDE IN A QUARTZ-CARBONATE GANGUE - Dark grey-black, thin bedded (beds 2-5mm thick and at 35°/LCA), fine grained massive sulphide (50-75%) in a gangue of quartz and calcite. Sulphides consist of pyrite (80%), chalcopyrite (3%), galena (7%), and sphalerite (10%). At 377.5' there are some thin wisps and fragments of red-hematitic chert which occur in the same position in the surface exposure in the costean on Line 49N (now 7120N). The bedding has been slightly contorted, probably due to sedimentary slumping of the original sulphide mass. Remarks: 50-70% massive sulphide - pyrite, spalerite, galena and chalcopyrite.
378'	398'			RHYOLITIC VITRIC CRYSTAL TUFF - Pink-red, fine grained, highly siliceous vitric tuff with ?quartz phenocrysts (1-3mm) in a sericitic groundmass. Has strongly developed schistosity with strong sericite alteration. Primary layering ?bedding at 384' is 25°/LCA. Remarks: Trace to 1% disseminated & veinlet pyrite.

ASSAY DATA (ppm)

Sample No	From	To	Rec. %	Cu	Pb	Zn	S	Ag	Au
	376'	378'	2'	1.11%	4.0%	7.0%	15.7%	85	2
	378'	385'	7'	340	830	1220	7000		<0.1
	385'	390'	5'	100	110	200	7000		Nil
	390'	395'	5'	60	70	110	3000		Nil
	395'	400'	5'	90	20	100	2000		Nil
	400'	405'	5'	60	10	60	1%		Nil
	405'	408'	3'	40	10	10	1.9%		Nil
	408'	410'	2'	170	90	30	3%		<0.1
	410'	415'	5'	50	60	70	1.9%		Nil
	415'	420'	5'	80	70	50	2.9%		Nil
	420'	425'	5'	70	120	70	4%		<0.1
	425'	430'	5'	1290	190	80	4.7%	2.8	0.6
	430'	435'	5'	7900	1320	530	6.4%		

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 6

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	ASSAY DATA (p.p.m) Cu	Pb	Zn	S	Ag	Au	As
398'	410'			RHYOLITIC SILICEOUS PYRITIC BEDDED VITRIC TUFF - Grey, white fine grained highly siliceous and weakly schistose tuff similar to 378-398' except that it is more siliceous and this unit contains 2-10% disseminated and weakly bedded pyrite. Primary layering ?bedding at 406' is 40°/LCA. Remarks: 2-10% disseminated and bedded pyrite.											
410'	418'			RHYOLITIC WEAKLY BEDDED VITRIC TUFF - Pink grey, fine grained, highly schistose and broken zone with only minor silica. Poorly defined thin bedding. Remarks: Trace-2% pyrite.											
418'	435'			PYRITIC CHERTY - TUFFACEOUS SEDIMENT - Grey fine grained cherty tuffaceous sediment, contains a few lithic fragments (5-10mm wide) but these are very minor. It is weakly bedded and weakly schistose which is parallel to bedding, at 424' is 30°/LCA. This chert contains 5-20% disseminated and bedded pyrite. Between 430' and 435' there is also 2% chalcopyrite. Remarks: 5-20% pyrite. 2% chalcopyrite.		425'	435'		0.46%	0.08%	0.03%	5.6%	2.8g/t	0.6g/t	
					12159	435'	440'		10	3	46		<0.1	<0.01	< 5
					12160		445'		19	4	60		"	"	"
					1		450'		7	2	78		"	"	"
					2		455'		7	4	26		"	"	"
					3		460'		7	3	58		"	"	"
435'	448.5'			LITHIC LAPILLI TUFF - AGGLOMERATE - Grey-green, with lithic fragments which are mainly angular and 3-20mm in diameter. They consist of buff-grey acid lavas (note: no pink lavas) in fine grained chloritic matrix. Weak schistosity, parallel to primary layering which at 443' is 40°/LCA. Remarks: Trace of disseminated pyrite.	4		465'		5	3	19		"	"	"
					5		470'		9	2	61		"	"	"
					6		475'		10	2	53		"	"	"
					7		480'		4	1	64		"	"	"
					8		485'		7	1	72		"	"	"
					9		490'		37	1	74		"	"	"
					12170		495'		5	2	38		"	"	"
448.5'	453'			CHERTY TUFFACEOUS SEDIMENT - Pink grey, generally massive cherty rock with no apparent textures. Remarks: Trace of disseminated pyrite.	1		500'		8	2	71		"	"	"
					2		505		7	2	65		"	"	"
					3		510'		6	2	65		"	"	"
					4		515'		6	2	80		"	"	"
453'	458'			FINE GRAINED VITRIC TUFFACEOUS SEDIMENT - Grey green, fine grained tuffaceous sediment, generally massive with only minor bedding visible, has a slight brecciated appearance, this brecciation has some chlorite filling matrix. This unit is weakly schistose and also has weak to moderate sericite alteration.	5		520'		8	1	69		"	"	"
					6	520'	523'		7	2	66		"	"	"

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 6 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Primary layering at 457' is 40°/LCA.
458'	467'			RHYOLITIC CHERTY TUFF - Pink-red, fine grained, generally massive and highly siliceous tuff. Has several 5-20mm wide milky quartz veins. Remarks: Trace of pyrite.
467'	511'			CHLORITIC VOLCANICLASTIC SANDSTONE/CONGLOMERATE BRECCIA - Grey green-pink red, colour dependant on amount of matrix or clasts. Consists of a chloritic sandy matrix with clasts of rhyolitic-dacite lavas with quartz phenocrysts and minor cherty quartz. Clasts are generally rounded, but some are angular, they are mostly 5-20mm in diameter, but some are 50-100mm. Some clasts are elongated and parallel with the primary layering. Clasts make up 50-70% of total rock. Some sections are sandy with abundant chlorite. Primary layering at 483' is 45°/LCA and at 505' is 40°/LCA.
511'	520'			CHLORITIC VOLCANICLASTIC SANDSTONE - Grey green, fine to coarse sand, generally massive with no primary layering. Has undergone autobrecciation which is filled with chlorite. Clasts are mainly acid lava, but of more than one type. Remarks: Trace of pyrite.
520'	523'			VOLCANICLASTIC CONGLOMERATE - BRECCIA - Grey green, weakly layered volcanic conglomerate - breccia with 80% subangular to rounded clasts which are 5-20mm in diameter and consist of variable acid volcanics - minor chloritic matrix, with some rounded quartz clasts. Primary layering at 522' is 45°/LCA.
				E.O.H.

ASSAY DATA Sample No.	From	To	Rec. %

1163

1206
HFZ6 384'

(T.S. 43182) K-stain negative.
This is a relatively altered and sheared volcanic, interpreted on relict textural grounds, as a lithic tuff. Compositional features are obscured, although the rock is intermediate-acid (?dacitic) in contrast to the felsic intermediate types (i.e. 1202, 1203, 1204, 1205).

Mineralogy comprises microcrystalline quartz, sericite and dolomite-ankerite in varying proportions, with relatively minor poorly twinned albite, and disseminated leucoxenic semi-opaques. Texturally, the rock consists of poorly to moderately sorted, angular to irregular lithic clasts (< 1 - 5 mm diameter), comprising about 50 % of the area sectioned and partly flattened by a weak slaty cleavage, with a matrix of sericite and carbonate. Clasts are texturally homogeneous, consisting essentially of sericite- and dolomite-stained felsitic quartzofeldspathic material (devitrified obsidian, pitchstone). Sparse fine to medium sand-sized quartz grains and ill-defined quartz-carbonate-sericite-altered feldspar crystal fragments are a minor accessory clastic component. There are no detectable shards.

Sparse pretectonic carbonate-quartz veinlets are present and are locally displaced by a network of late carbonate-healed microfractures. Minor traces of fine-grained pyrite are disseminated throughout the matrix and lithic clasts. Finer textural detail is obscured by shearing effects and there is little to choose between subaerial and shallow subaqueous modes of deposition.

1207
HFZ6 407'

(T.S. 43183) K-stain negative.
This rock consists of abundant albitised phenocrystal feldspar laths and clusters (glomerophenocrysts, to 400 μ) in a sericite- and dolomite-stained crypto- to microcrystalline quartzofeldspathic matrix with disseminated, partly recrystallized quartz amygdales (mean 150 μ). A perlitic devitrification structure is defined by microfilms of sericite and carbonate and is partly obscured ("flattened") by a weak but penetrative slaty cleavage. The rock is weakly banded in terms of the distribution of phenocrysts, includes minor ill-defined lithic clasts texturally and compositionally similar to the matrix, and is interpreted as a broadly dacitic, weakly flow-brecciated lava (trend tuff lava).

Fine-grained pyrite is thinly disseminated throughout in crude spongy films along the weak tectonic cleavage. Accessory leucoxenic semi-opaques and rare apatite are present. Sporadic late syn- to post-tectonic carbonate films are analogous to those in 1206.

1208
HFZ6 425'

(T.S. 43184) K-stain negative.
This pyritic quartz-sericite phyllite represents a devitrified, altered and mildly sheared pumiceous acid fragmental. Major constituents are sericitised and silicified felsitic obsidian clasts and preferentially silicified pumice clasts. The fabric is confused by boudinaging of relatively silicified zones by the slaty cleavage, but clasts exhibit evidence of moulding consistent with a subaerial lithic tuff or a pumiceous lava flow breccia (tuff lava). Problematically, the finer critical textural detail is obscured by secondary features.

144

Quartz pseudomorphs of feldspar crystals and crystal fragments are thinly disseminated throughout and frequently include fine-grained pyrite disseminations. There is no evidence of phenocrystal or crystal quartz and, in common with 1206 and 1207, this rock is thus of dacitic rather than strictly rhyolitic character. Recognisable clastsare poorly sorted in the 250 μ to 4 mm range and exhibit marked orientation/flattening.

Fine-grained pyrite (max. 150 μ) is relatively quite conspicuous, comprising about 5 % of the area sectioned. The coarser grains are accompanied by incipient pressure shadows. Sporadic, relatively pyritic sericite films parallel the slaty cleavage.

Accessory traces of dolomitic carbonate and rare microscopic clots of barite are minor phases in the quartz-sericite-pyrite alteration assemblage. General features are consistent with "volcano-hydrothermal" alteration, although the sericitisation is no doubt enhanced by low-greenschist facies regional effects.

1209
HFZ6 451'

(T.S. 43185) K-stain weakly positive.
This rock can be classified as a psammopelitic ash and is more or less typical of blanket-type (subaerially transported) ashes. As such is may represent a useful marker horizon.

The rock consists largely of microcrystalline quartzofeldspathic material of microfelsitic character and probably representing devitrified microshards, although there is no positive microtextural evidence. Silt- to medium sand-sized, splintery to subangular, albitised/calcite-stained plagioclase and relatively minor quartz grains are disseminated throughout, comprising < 1 to about 30 % of the rock, with a banded(i.e. bedded) distribution. Accessories include silt-sized detrital white mica flakes, apatite, leucoxenic semi-opaques, and rare zircons.

Fine to ultrafine pyrite is thinly disseminated throughout, and traces are associated with microscale veinlets of quartz, albite and dolomitic carbonate of diagenetic character. These features predate a very incipient slaty cleavage. In common with 1206, 1207 and 1208, this rock is of (devitrified, albitised) broadly dacitic affinities.

1210
HFZ6 456'

(T.S. 43186) K-stain negative.
This is a relatively massive pelitic ash with affinities to 1209. It consists largely of sericite-stained, crypto- to microcrystalline quartz and albite with vague relict shardy microtextures. Silt-sized angular quartz and albite particles comprise 1-5 % of the rock, with a weakly bedded distribution, and are supplemented by rare fine to medium sand-sized angular quartz, sparse silt-sized leucoxenic semi-opaques, traces of apatite, and rare zircons.

Sporadic diagenetic quartz veinlets are intersected and displaced by frequent chloritic microfractures. These predate a weak slaty cleavage whichalso crenulates minor veinlets of cloudy dolomite-ankerite. Traces of extremely fine-grained pyrite are partly concentrated in the chloritic microfractures.

145

1211
HFZ 6 43%

(T.S. 43187) K-stain negative.
This rock is an altered and mildly sheared lithic sandstone. The sediment is moderately to well sorted in the fine to medium sand range and weakly bedded.

The detrital framework (65-70 % of area sectioned) consists of angular to subangular quartz (50 %) with subordinate ill-defined chert and silicified felsitic lava clasts (30 %) and sericite-carbonate-stained albite (20 %). Leucoxenic semi-opaques are disseminated throughout and, together with the ill-defined felsitic lava clasts, give the rock a certain reworked volcanic character. There are no definite primary tuffaceous features.

The matrix/cement consists of weakly sericite-stained cherty quartz with intergranular clots of cloudy dolomite-ankerite and minor interspersed aggregates of barite. There are no detectable sulphides.

113146

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	HFZ 9
STATE	TASMANIA

DLV. PRESS

PROJECT	HENTY FAULT ZONE
DESIGNED BY	J.G.PURVIS/PW.ENGLISH
LOGGED BY	J.G. PURVIS
COMMENCED	20-9-82
COMPLETED	6-10-82

PURPOSE

To test for continuation of massive sulphide beneath hole HFZ 6.

LOG SUMMARY

0 - 245.60 Predominantly felsic ignimbrite with thick dykes? and sills? of basic volcanics.
245.60- 261.90 Henty Fault Zone - mylonised volcanics.
261.90- 262.90 MASSIVE SULPHIDE with intercalations of sulphidic tuffs.
262.90- 268, Cherty tuffs (identical to host rock of the massive sulphide in the costean)

GENERAL COMMENTS

Hole terminated in host horizon due to squeezing in of Henty Fault Zone on rod string.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag	Au*	Sn							COMMENTS
261.9	262.9	1.12%	1.06%	2.15%	41	1.35	<10							Approx. 0.7m massive sulphide with intercalated 0.3m of sulphidic, sericitic graphitic tuffs.
						*Fire Assay								

LOCATION

NORTHING	363838.14
EASTING	379884.66
R.L.	616.92
GRID	AMG
LENGTH	268m

HOLE CONDITION

SIZE Hole Size	SIZE Depth
HQ	0-9
NQ	9-94
BQ	94-268
Later reamed NQ to 124m.	

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0	38	31%
50.3	73.7	24%
238.7	254	44%

POOR GROUND CONDITION ZONES From	To	Condition
0	32m	Soft clayey zones after oxidised volcanics.
230	251m	Shearing and shattering associated with Henty Fault Zone.
251	261.9	Clayey mylonite in HFZ- continually moved in on the hole

HOLE CONDITIONS AFTER COMPLETION

Electrode placed in hole to 203.5m - hole blocked at this depth by sludge (rod grease?).

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
123.2	102°	-52°	0.0	138.7	138.7	109.3	507.6	85.4	85.4
154.2	100°30	-49°	138.7	169.7	31.0	23.4	484.2	20.3	105.7
184.2	099°	-46°30'	169.7	199.2	29.5	21.4	462.8	20.3	126.0
214.2	100°	-45°	199.2	229.2	30.0	21.2	441.6	21.2	147.2
244.2	100°	-40°	229.2	268.0	38.8	24.9	416.7	29.7	176.9
Collar	102°	-53°							

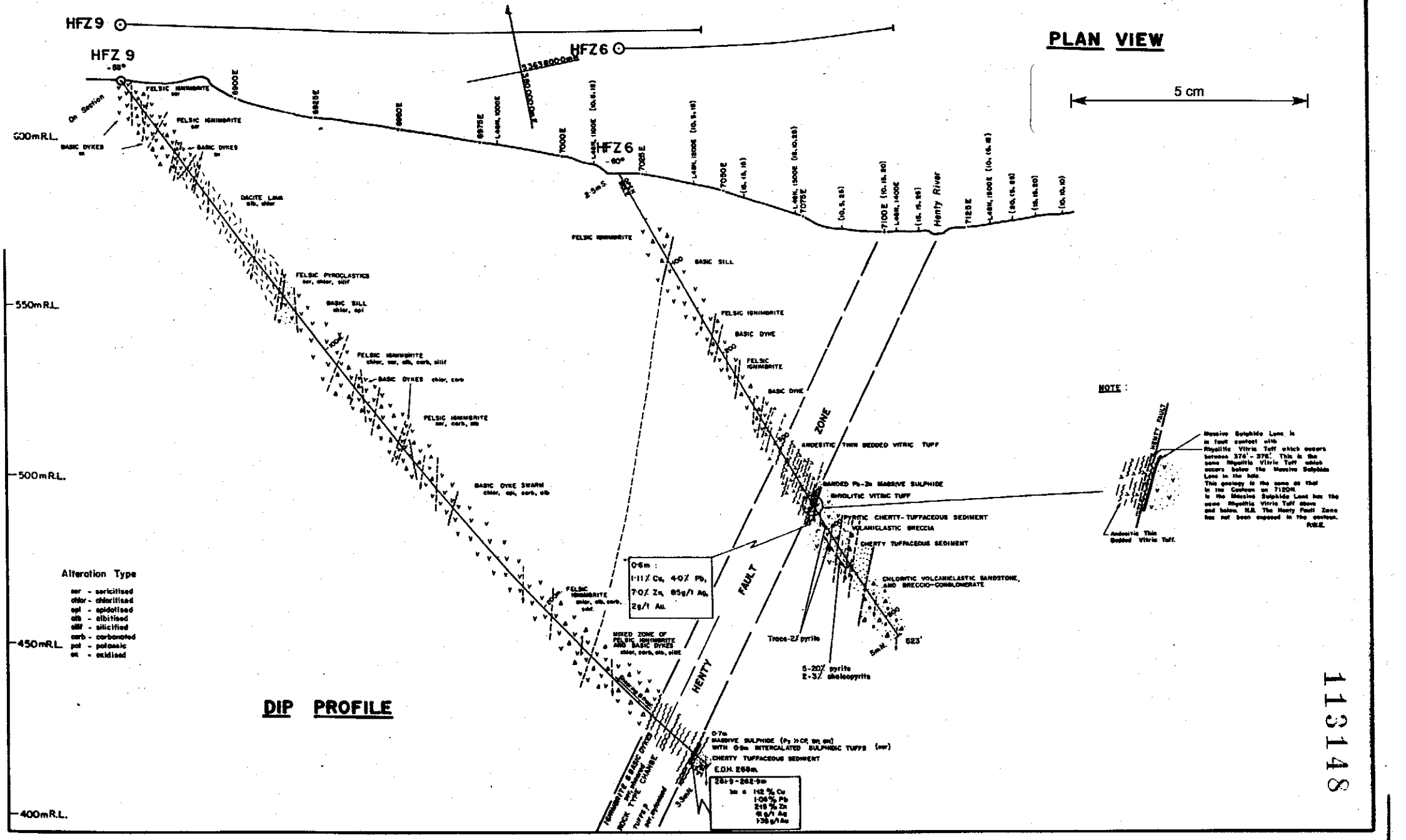
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HOLE NO. **HFZ 9 & HFZ 6**

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:1000 — 20 10 0 20 40 METRES



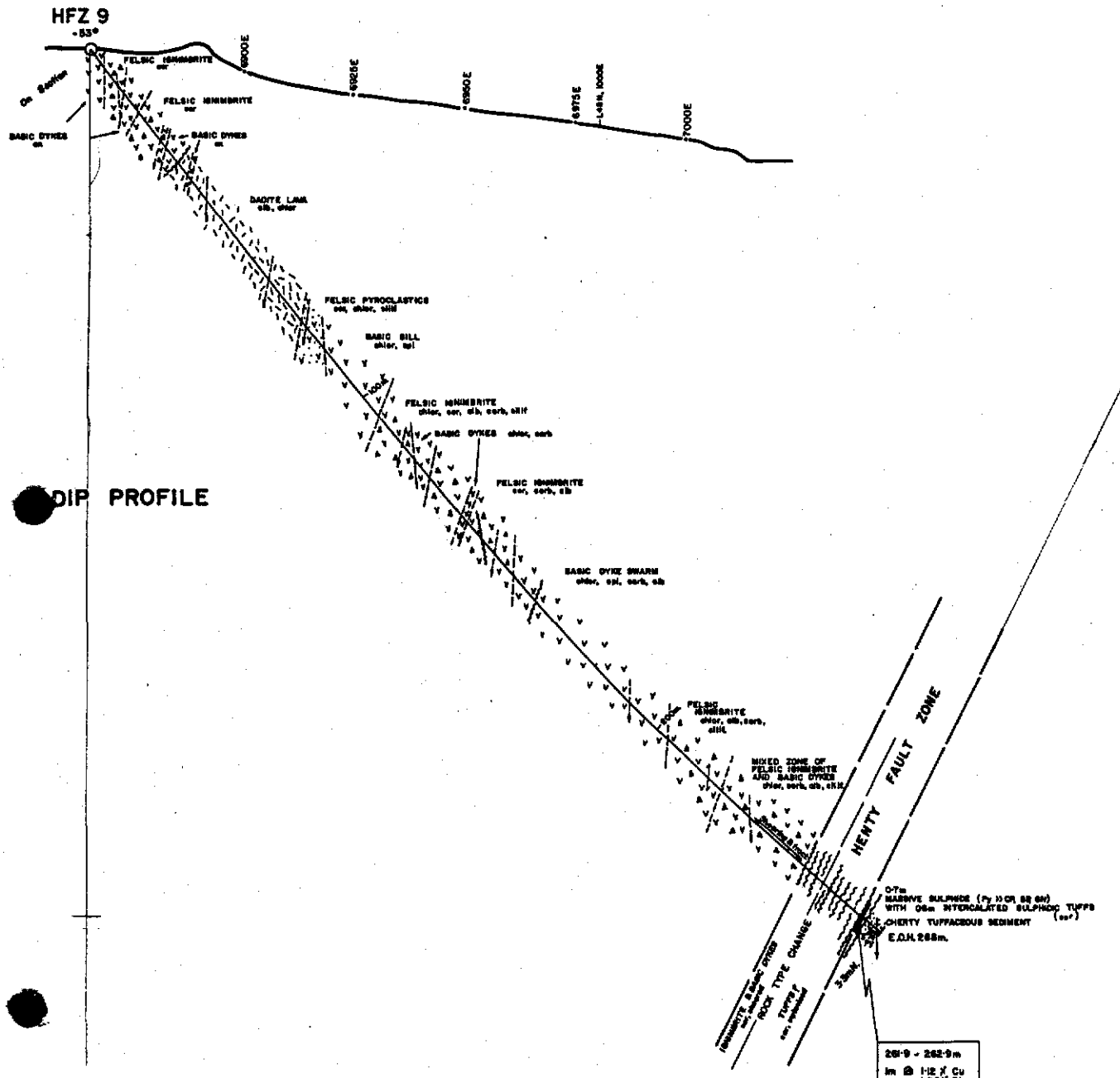
148

113149

HOLE NO. HFZ 9

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT



DIP PROFILE

PLAN



SCALE 1:1000

5 cm

METRES

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 9

Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
0	5.40	3.40	63	BROWN-RED CLAY AFTER BASIC VOLCANIC				
				Badly broken, soft. Sandy texture.				
5.40	12.50	5.50	77	FELSIC IGNIMBRITE				
				Green, pink and grey; banded and lensey volcanic with conspicuous				
				feldspar phenocrysts 1-2mm.				
				Bands and lenses are flattened pumice 33°/LCA @ 11m.				
				Moderately sericitic and schistose.				
				Badly broken and leached with clayey shears. Numerous regular				
				fractures 1-2mm, filled with limonite ± quartz.				
12.50	18.30	3.70	64	BASIC VOLCANIC				
				Highly oxidised to brown clay.				
				Massive, sandy textured.				
				Moderately magnetic.				
				Numerous fractures filled with Fe & Mn oxides, some clayey				
				shears. Intercalations of the felsic ignimbrite 16.4-16.6m				
				& 17.3-17.6m. Contact at 17.3m 65°/LCA, banding in ignimbrite				
				is 43°/LCA.				
18.30	28.20	7.60	77	FELSIC IGNIMBRITE				
				Pale grey-green to light brown.				
				Strongly lineated, highly vitric volcanic with feldspars (av 3mm)				
				in groundmass containing bands and lenses of flattened pumice				
				up to 50mm.				
				Moderately sericitic and schistose.				
				Lineation (probably 1° banding) 50°/LCA @ 26.25m.				
				Leached and oxidised, broken and slightly clayey.				
				Limonite and manganese on joints.				
				Brown clayey BASIC VOLCANICS (dykes?) at 21.85-22.05m, 27.5-				
				27.7m & 27.9-27.95m. All contacts//lineation in ignimbrite.				
28.20	32.00	1.60	42	BASIC VOLCANIC				
				Highly oxidised to brown clay. Broken, with Mn and Fe oxides				
				on joints.				
				Weakly magnetic				

11361

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 9

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Upper contact 50°/LCA. Shear at base 75°/LCA. Small inter-calations of fine grained schistose and sericitic, felsic ignimbrite.
32.00	78.10	39.15	85	MASSIVE FELSIC LAVA (DACITE?)
				Pinkish-fawn.
				Prominent euhedral feldspar phenos 1-5mm, in felsic groundmass.
				Some possible hornblende phenos esp. 50-60m.
				Generally no lineation, but strong 59-72m (flow banding?): 43m 40°/LCA, 56m 40°/LCA. 66m 50°/LCA, 78m 48°/LCA.
				Moderate alteration: mainly albitic, with very minor chlorite in patches and veinlets.
				Numerous fractures filled with limonite ± quartz ± chlorite ± Mn, at all angles.
				Slightly oxidised throughout. Numerous clayey shears below 59m, epecially 60-62m & 64.2-64.95m. 1-2% disseminated specular hematite - core weakly magnetic in places.
				BASIC VOLCANIC dykes (green, fine grained-medium grained, weakly magnetic, oxidised); 36-38.2, 53.5-54.6 (upper chilled unconformable contact 50°/LCA), 56.7-56.9, 57.95-58.8, 70.2-71m. most 40-50°/LCA & conformable.
				Basal contact of unit 48°/LCA.
78.1	86.85	7.75	91	VARIABLE FELSIC TUFFACEOUS PYROCLASTICS
				Dark pinkish-green or cream.
				Feldspars, glass, pumice and volcanic fragments in tuffaceous matrix. Becoming finer grained and more clearly layered with depth.
				Sericitic and schistose. Chlorite patchy. Moderately silicified at top.
				Bedding at 79.45m 46°/LCA.
				Moderately oxidised - limonite and Mn (±quartz) on joints. 1-2% hematite.
				Basic volcanic dykes(?) 80.4-81.75 & 86.35-86.40. Contacts sharp, semi-conformable, show chilling. Basal contact of unit 35°/LCA. conformable.

ASSAY DATA Sample No.	From	To	Rec. %

116151

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 9

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
86.85	105.55	17.25	92	BASIC VOLCANIC (SILL?)				
				Green, massive, hard.				
				Generally fine grained, composed of feldspar and ferromag minerals, some medium grained more-felsic zones with porphyritic feldspars up to 2mm. Feldspars sometimes albitised.				
				Chloritised, epidotised. Minor serpentinous veins especially 100-103m. Rare quartz veins.				
				Weakly magnetic.				
				Decreasing oxidation to 100.5m - Fe & Mn oxides on joints.				
				Banded silicified & chloritised zone 104.7-104.9 35°/LCA.				
				Minor py. Rare cp.				
				Upper contact shows chilling. Basal contact 60°/LCA.				
105.55	118.00	12.2	98	WELDED FELSIC IGNIMBRITE				
				Pale red and dark green. Blotchy appearance. Abundant porphyritc feldspars 2-4mm in glassy groundmass. Flattened clasts of pumice up to 30mm indicate welding below 110m.				
				Chloritisation, sericitisation, albitisation, strongly carbonated. Strong silification in places below 110m.				
				Numerous quartz-carbonate-chlorite veins.				
				1° lineation 106m 50°/LCA, 113.5m 50°/LCA. Very minor py. Rare cp. Minor hematite.				
				BASIC VOLCANIC dykes 106.55-106.8 (65°/LCA), 116.8-117.1 (55° LCA). Basal contact of unit conformable 35°/LCA.				
118.00	123,10	5.10	100	BASIC VOLCANIC (SILL?)				
				Green, fine-medium grained, even textured.				
				Composed of feldspars and ferromags. Compsitional banding 43°/LCA @ 122.9m.				
				Chloritised and highly carbonated. Trace epidote. Minor py & hematite. Trace cp.				
				Sharp basal contact 50°/LCA.				
123.10	152.45	29.35	100	WELDED FELSIC IGNIMBRITE				
				Grey-green and pale red.				

11131529

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 9

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				Highly felsic, with abundant porphyritic feldspars (some albit-				
				ised) 2-4mm, in vitric matrix.- now sericitised, carbonated,				
				albitised & schistose. Flattened felsic pumice average 25mm,				
				some larger than 70mm form bands around core. Some fiamme.				
				Pumice now highly sericitic & chloritic, or albitised and silic-				
				ified. Minor lithic volcanic clasts. Strong 1° lineation of				
				pumice: 50°/LCA @ 124m, 50°/LCA @146m.Chloritic fault zone				
				30°/LCA @141.65m. Trace py. Rare cp in BASIC VOLCANIC dykes				
				134.7-136.8m (60°/LCA-irregular, broadly conformable contacts).				
				Basal conformable contact of unit 43°/LCA.				
152.45	203.20	50.40	99	BASIC VOLCANIC (DYKE SWARM?)				
				Green, fine-medium grained, variably textured. More felsic				
				than before, especially 189-197.25m.				
				Weak-moderate chloritisation, patchy epidotisation. Strongly				
				carbonated. Patchy albitisation.				
				Intercalated zones of light red and green, silicified and				
				albitised felsic ignimbrite as before - appears basic volcanic				
				is mixing with and assimilating latter. Ignimbrite zones vary				
				from 0.45m to 1.55m wide. Contacts at variable angles to lineat-				
				ion in ignimbrite.				
				Basic volcanic generally weak-moderate magnetic.				
				Compositional banding @ 191m 45°/LCA.				
				Fault at 159.95 60°/LCA.				
				Very minor py throughout, locally 1% 177-187.3m. Rare trace				
				cp. Below 189m occ quartz veins to 100mm with carb-chlorite-				
				albite ± py, magnetite, cp.				
				Minor hematite throughout, prominent hematite veins below 198.5m.				
203.20	220.10	16.70	99	WELDED FELSIC IGNIMBRITE				
				Variable. Top contact irregular and sharp.				
				Grey-green at top, red and green at depth. Some fiamme 20-				
				30mm, other pumice fragments unflattened or only partly flattened.				
				Some lithic felsic volcanic clasts up to 25mm.				
				Abundant prophyritic feldspars 2-3mm.				

11315153

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: HENTY FAULT ZONE HOLE NUMBER: HFZ 9 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Several clasts of the basic volcanic up to 50mm at 209m. Intense chloritisation, albitisation and carbonation. Patchy strong silification.
				Schistosity (after 1°lineation?) medium-strong. 50°/LCA @ 205m, 53°/LCA @216m.
				Some hematite below 207m.
				Basal contact sharp 67°/LCA.
220.10	245.60	23.35	92	MIXED ZONE OF BASIC VOLCANIC (DYKES?) AND FELSIC IGNIMBRITE
				Basic volcanic as before-green, fine-medium grained chloritised, carbonated, albitised in places. Minor py, trace cp. Up to 2-3% hematite in veinlets. Ignimbrite very vitric, reddish, intensely albitised and chloritised with locally intense silification. Abundant porphyritic feldspars 2-4mm, pumice (many not flattened) up to 70mm av <10mm. Numerous lithic clasts of albitic volcanics, rare basic volcanic clasts. Minor py & hematite. Rock types are intimately mixed in places, but generally contacts sharp and parallel schistosity. Schistosity increasing with depth- affects basic volcanic also. Core broken below 230m, with strong fracturing and shearing below 239.5m. 1° layering in ignimbrite: 45°/LCA @229m, 50°/LCA @ 233.5m.
245.60	261.90	11.10	68	HENTY FAULT ZONE
				To 251m: Highly sheared sericitic volcanics - apparently the ignimbrite and basic volcanics as above. Green, soft and broken. Shearing 70°/LCA, 251-261.9m: Intensely mylonised clayey sericitic volcanics-possibly tuffs. Increasingly siliceous towards base. Rock soft and puggy. Much broken up barren quartz veining Several zones 2-50mm of dark grey pug with disseminated py - possibly after graphitic or chloritic tuff. Locally 1-2% py. overall <1%. Shearing 80°/LCA @ 256m.
261.9	262.9	0.75	75	MASSIVE SULPHIDE WITH INTERCALATED TUFFS
				261.9 -262: Sheared graphitic tuff with 5-10% disseminated py, and 2-3% cp in quartz.

ASSAY DATA (ppm) *= Fire Assay

Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au	Sn	S%	~~Ag*~~ Au*
11285	238·0	239·0		8	7	99	<0·1	<0·01			
6		240·0		12	7	20	"	"			
7		241·0		220	14	225	"	"			
8		242·0		54	3	185	"	"			
9		243·0		32	2	96	"	"			
10		244·0		4	2	11	"	"			
1		245·0		3	2	6	"	"			
2		248·0		19	3	32	"	"			
11293	248·0	251·0		100	7	43	"	"			
2867	251	253		100	40	80	< 2	< 0.1		0.8	< 0.1
2868	253	255		50	40	90	< 2	< 0.1		0.1	< 0.1
2869	255	257		90	40	100	< 2	< 0.1		0.2	< 0.1
2870	257	259		40	30	60	< 2	< 0.1		0.4	< 0.1
2871	259	260.5		80	40	40	< 2	< 0.1		0.5	< 0.1
2872	260.5	261.9		60	50	60	< 2	< 0.1		0.4	0.1
1112	261.9	262.9	75	1.12%	1.06%	2.15%	41	1.35	<10		
2873	262.9	265.1		100	20	50	< 2	< 0.1		0.2	< 0.1
2874	265.1	266.5		70	10	20	< 2	< 0.1		0.6	0.1
2875	266.5	268.		60	10	40	< 2	< 0.1			

11315A

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 9

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				262 - 262.9: Sheared and shattered massive fine grained py with minor cp,sp and gn, in quartz-carb matrix. Small intercalations (totalling 0.2m) of dark sericitic and siliceous tuffs with 5-10% disseminated py.
262.9	263.3	0.40	100	SERICITIC SHEAR ZONE Creamy sericitic clay and volcanic rock fragments. Several %py in some rock fragments.
263.3	265.10	1.80	100	CHERT Light creamy-grey, massive, extremely hard. Textureless. Minor disseminated py.
265.10	268	2.90	100	CHERTY TUFFACEOUS SEDIMENT Creamy-grey. Fine grained, vitric. Moderately hard. A breccio-conglomerate in places due to soft-sediment(?) disruption of chert layers. 2% disseminated py. Bedding @ 266.5m 47°/LCA.
				END OF HOLE

ASSAY DATA

Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	HFZ 10
STATE	TASMANIA

DLV. PRESS

PROJECT	HENTY FAULT ZONE
DESIGNED BY	JG PURVIS/PW ENGLISH
LOGGED BY	J.G. PURVIS
COMMENCED	9-10-82
COMPLETED	22-10-82

PURPOSE

To test southern continuation of massive sulphide intersected in HFZ 6.

LOG SUMMARY

0 - 201.30m: FELSIC IGNIMBRITE CUT BY BASIC DYKES.
201.3 - 208.9m: HENTY FAULT ZONE.
208.9 - 209.55m: MASSIVE SULPHIDE (Mainly py with lesser gn-sp-cp)
209.55 - 243.60m: CHERTY TUFFS WITH SULPHIDES.
243.60 - 250.20m: VOLCANICLASTIC BRECCIAS. (TYNDALL GROUP?)

GENERAL COMMENTS

Massive sulphide of same thickness as in HFZ 6.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag	Au *	Sn	Ba	S%					COMMENTS
208.90	209.55	3.75%	1.3%	5600	126	7.0	300	<100	37					Massive sulphide.
242.05	243.60	4500	500	1000	7	5.1	<100	300	4					5% py & 1-2% cp in chert.
242.05	243.6(1.55)	0,43%	0.05%	0.09%	5.8	4.4								Re-assay Averages
						* Fire Assay								

LOCATION

NORTHING	363725.72
EASTING	379918.96
R.L.	594.97
GRID	A.M.G.
LENGTH	250.20m

HOLE CONDITION

SIZE Hole Size	Depth
HQ	0-9m
NQ	9-237m
BQ	237-250.2m

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
7.50	68 m	49
incl:		
9	40 m	76
197.7	205.7m	33

POOR GROUND CONDITION ZONES From	To	Condition
0	68	Oxidised,clayey & broken.
155	201.30	Numerous shears & broken zones.
201.30	208.90	Henty Fault Zone-intense mylonisation.
208.90	248.00	Some badly broken zones.

HOLE CONDITIONS AFTER COMPLETION

Electrode placed at 191m. Hole blocked at this depth.
3M NW casing left in top of hole.

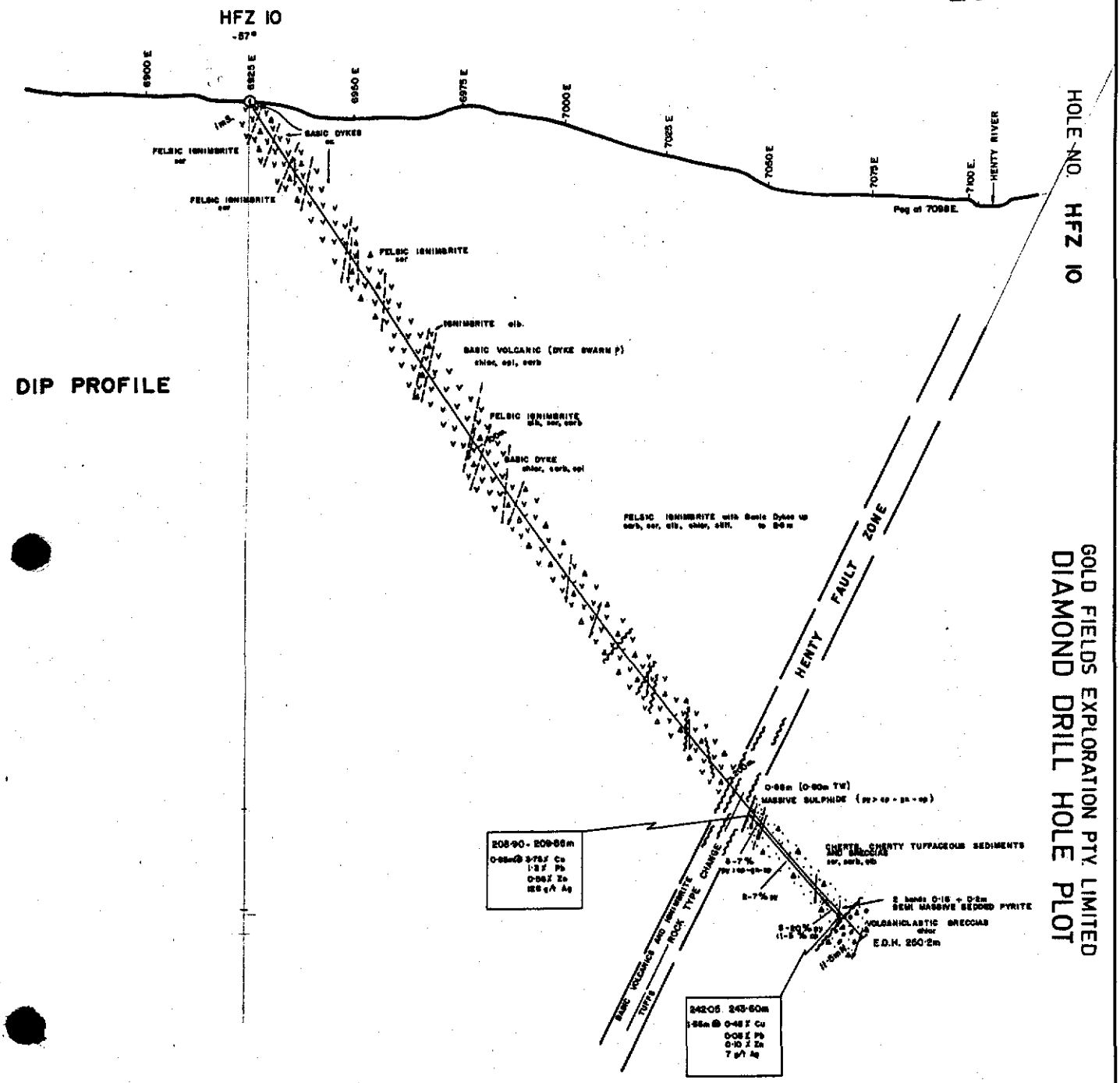
SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D. Sin. Dip	R.L.	HORIZONTAL D. Cos. Dip	Prog. Total
COLLAR	102°AMG	-57°	0.0	27.6	27.6	23.1	571.9	15.0	15.0
55.2m	099°	-57°	27.6	70.2	42.4	35.6	536.3	23.1	38.1
85.2m	098°30'	-57°	70.2	100.2	30.0	25.2	511.1	16.3	54.4
115.2m	097°	-56°	100.2	130.2	30.0	24.9	486.2	16.8	71.2
145.2m	096°	-54°	130.2	159.7	29.5	23.9	462.3	17.3	88.5
174.2m	095°30'	-53°	159.7	189.2	29.5	23.6	438.7	17.8	106.3
204.2m	095°	-51°	189.2	219.2	30.0	233	415.4	18.9	125.2
234.2m	094°	-49°	219.2	250.2	31.0	23.4	392.0	15.4	140.6

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D. Sin. Dip	R.L.	HORIZONTAL D. Cos. Dip	Prog. Total

156

113157



DIP PROFILE

PLAN

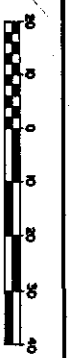


HOLE NO. HFZ 10

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:1000



5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 10

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0	3.90	3.55	91	BROWN CLAYEY ROCK AFTER BASIC VOLCANIC.
				Sandy textured. Mod magnetic. Numerous joints with Fe & Mn
				oxides ± quartz, up to 5mm.
3.90	11.00	5.60	79	WELDED FELSIC IGNIMBRITE
				Creamy-grey.
				Highly felsic vitric rock with glassy bands and fiamme 5-
				15mm. Porphyritic feldspars up to 7mm, average 1-2mm. Some
				possible lithic clasts towards base.
				Mod-strong sericitic and schistose (47°/LCA @ 8.4m). Patchy
				strong silicification 9.5-11m.
				Highly oxidised and leached. Badly broken. Abundant Fe &
				Mn oxides esp. on joints.
				Minor hematite throughout.
11.00	18.20	3.45	48	RED AND BROWN CLAYEY ROCK AFTER BASIC VOLCANIC
				Soft, clayey and broken. Minor Fe & Mn oxides on joints.
18.20	25.00	2.95	43	WELDED FELSIC IGNIMBRITE
				Creamy-grey.
				As before - vitric felsic volcanic with flattened pumice
				5-10mm and some larger glassy bands. Porphyritic feldspars
				av. 2-3mm.
				Highly schistose and sericitic (schistosity 35°/LCA @ 20m).
				Oxidised and badly broken. Fe & Mn oxides on joints.
				Trace hematite.
				50mm Basic Volcanic dyke at 19.3m.
25.00	42.50	3.20	18	CLAYEY OXIDISED ROCK AFTER BASIC VOLCANIC
				Yellow-brown. Minor Fe & Mn oxides on joints.
				Rock almost unidentifiable.
				Small zone of oxidised ignimbritic rock 40-40.25m.
42.50	58.70	12.80	79	WELDED FELSIC IGNIMBRITE
				Pale pink and green.

ASSAY DATA Sample No.	From	To	Rec. %

113158

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 10

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				As before-becoming more massive and pumiceous below 46m.
				Porphyritic feldspars 2-3mm. Rare qtz. phenos 1mm.
				Numerous fiamme, and bands of glass 10-15mm wide right around
				core - possibly after large flattened pumice clasts. Some
				angular lithic? clasts of felsic volcanics and pumice, up
				to 15mm.
				1° lineation of clasts: 40°/LCA @ 44.5m, 35°/LCA @ 48m.
				Mod-strongly sericitic and schistose-decreasing with depth.
				Weak albitisation.
				Leached, with minor Mn & Fe oxides ± qtz. on joints. Mod
				broken up.
				Trace hematite.
				Sharp,broken up basal contact.
58.70	96.85	35.05	92	BASIC VOLCANICS-DYKE SWARM?
				Green, fine-med grained, massive.
				Composed of feldspar and ferromags (amphiboles & pyroxenes).
				Minor zones containing incipiently albitised porphyritic
				feldspars 2-3mm.
				Chloritised, epidotised, carbonated. Weak-moderately magnetic.
				Oxidised-brown, clayey and broken, - to 67m, thereafter
				oxidation only on joints and rare below 90m. Core badly
				broken, less so below 79m, with Fe & Mn oxides on joints.
				Vuggy due to leaching of carbonate patches & veinlets. Some
				serpentinous material in veinlets.
				Minor dissem py. Below 78m several qtz-carb-chlor veins <5mm
				with trace py-cp-gn.
				Basal contact sharp 45°/LCA.
				Thin intermixed zones of albitised felsic ignimbrite 0.1-
				0.3m, with complex zones of intermixing with basic volcanics
				75.3-77.7m & 94.95-95.75m.(latter has contacts @45°/LCA
				with basic volcanic).

ASSAY DATA Sample No.	From	To	Rec. %

11213

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 10

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
96.85	101.70	4.85	100	WELDED FELSIC IGNIMBRITE
				Pink.
				Porphyritic feldspars up to 3mm in albitised and sericitised
				vitric groundmass. Feldspars strongly carbonated.
				Numerous flattened choritic and felsic pumice clasts up to
				70mm.
				Strongly schistose 50°/LCA @ 98m
				Patchy silicification associated with strongest albitisation.
				Minor py.
				Basal contact transitional.
101.70	111.70	10	100	BASIC VOLCANIC
				Green, as before.
				Fine-medium grained, generally even-textured.
				Strongly chloritic and carbonated. Mod-strong epidotisation.
				Rare incipient albitisation in places.
				Unbroken-few fractures.
				Moderately magnetic due to several % dissem hematite > magnetite.
				Minor py. Locally 1%. Trace cp.
				Basal contact (possibly chilled) 40°/LCA.
111.70	201.30	86.90	97	WELDED FELSIC IGNIMBRITE WITH BASIC VOLCANIC DYKES
				Pink and greyish-green.
				Pumiceous, more siliceous than before. Small 1mm qtz phenos
				in places. Porphyritic feldspars up to 3mm abundant.
				Much flattened chloritic pumice up to 60mmx5mm, sometimes
				larger-forming bands round core. Numerous angular lithic
				clasts of albitised felsic volcanics up to 40mm, av 10mm.
				Strongly altered and schistose-extremely carbonated, strongly
				sericitised, albitised, chloritised Patchy silicification associated
				with albitisation and quartz-carb-chlorite veining.
				1° lineation of clasts: 53°/LCA @ 116.2m, 42°/LCA @ 138.3m.
				Schistosity: 55°/LCA @ 150m, 47°/LCA @ 169.5m, 38°/LCA @ 186m.
				Shears: 112-114m (// lineation), 158.55m (75°/LCA), 168.5m
				(65°/LCA), 171.4m (48°/LCA), 184.4m (42°/LCA), 193.60 (25°/LCA).

ASSAY DATA Sample No.	From	To	Rec. %

113160

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 10

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au *	Ag*	S%	Sn	Ba	Au*
				Core increasingly broken below 196.4m.														
				Very minor py (locally 1% in Basic Volcanics). Minor hematite.														
				BASIC VOLCANIC dykes throughout. 0.3m-2.8m wide, average approx.														
				1.5m. Contacts sharp, generally sub parallel to 1°lineation														
				in ignimbrite. Some show chilling.														
201.30	208.90	5.50	72	HENTY FAULT ZONE														
				201.3-205.7m: Highly shattered BASIC VOLCANIC with minor														
				zones of shattered IGNIMBRITE. Some sericitic shears. Very														
				strong schistosity.														
				Few rock fragments larger than 25mm. Most shears 65°/LCA.	11169	200·0	201·3	100	20	1	125	<0·1	<0·01				
				Rare py. 205.7-208.90: Creamy highly mylonised sericitic volcan-	70		202·3	100	41	<1	74	"	"				
				ics. Fragments of qtz-carb veins. Some bands 5-40mm, of	1		203·3	100	165	2	125	"	"				
				black graphitic tuff @ 207.75, 208 and 208.75m. 1% py below	2		204·3	100	16	<1	150	"	"				
				207.50m.	11173		205·7	100	11	3	37	"	"				
				Basal contact sharp 53°/LCA.	2876	205.7	207.3	100	50	20	30	<2	<0.1	<0.1	0.2			
					2877	207.3	208.9	100	140	60	90	<2	<0.1	0.2	0.5			
208.90	209.55	0.65	100	MASSIVE SULPHIDE	1113	208.90	209.55	100	3.75%	1.3%	5600	126	7.0	120	37	300	<100	7·3
				Sl. fractured-generally massive, hard and heavy.														
				80% sulphides (mainly py with lesser gn-sp-cp) in qtz-carb gangue.														
				Wispy banding after bedding 40-63°/LCA av 60°/LCA. Some bands														
				are of gn-sp or cp.														
				Basal contact sharp 75°/LCA.														
209.55	213.00	3.25	94	CHERT														
				Very hard, massive, white or pink. Badly broken up.	1114	209.55	211.00	100	300	<100	100	3	<0.1	1.5	0.7	<100	200	
				Bedding 55°/LCA @ 210m.	1115	211.00	213.00	90	200	100	100	7	0.2	4.7	2.5	<100	<100	
				Contains 2-3% disseminated py-cp-gn-sp.	2878	213.0	215.0	100	30	30	10	<2	<0.1	<0.1	0.8			
				Intercalations (up to 0.25m, av 0.1m) of sericitic sulphidic	2879	215.0	217.0	100	40	10	30	<2	<0.1	<0.1	0.2			
				tuffs with clasts of chert.	2880	217.0	219.0	100	70	100	260	<2	<0.1	<0.1	0.5			
				Tuffs contain bedded semi-massive sulphides (20-50% py with	2881	219.0	221.0	100	40	180	300	<2	<0.1	<0.1	0.7			
				lesser sp-gn-cp).	2882	221.0	223.0	100	40	190	280	<2	<0.1	<0.1	1.0			
				Overall 5-7% sulphides.	2883	223.0	225.0	100	30	100	170	<2	<0.1	<0.1	2.0			
					2884	225.0	227.0	100	40	200	380	<2	<0.1	0.2	2.1			
213.00	243.60	29.85	98	CHERTS, CHERTY TUFFACEOUS SEDIMENTS AND BRECCIAS	2885	227.0	229.0	100	40	150	290	<2	<0.1	0.2	2.4			
					2886	229.0	231.0	100	20	140	280	<2	<0.1	<0.1	2.3			

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 10 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au *	Ag *	S %	Sn	Ba	Au*
									ASSAY DATA (ppm) * = Fire Assays									
				Pale pinkish-grey and pale grey. Extremely hard in places.	1116	238.00	240.60	92	600	100	200	5	0.2	3.1	3.1	100	<100	
				Bedded sequence of: chert (beds up to 4.7m); cherty vitric tuffs	1117	240.60	242.05	93	200	300	400	11	0.5	8.1	10	<100	500	
				(sericitised, schistose, mod carbonated, weakly albitic) some-	1118**	242.05	243.60	94	4500	500	1000	7	5.1	5.6	4	<100	300	4.0
				times with qtz phenocrysts up to 2mm; and breccias formed from	11174	243.6	244.6		20	3	77	<0.1	<0.01					
				the above rock types by soft sediment disruption and/or hyrothermal	5		245.6		4	2	74	"	"					
				explosion. Clasts angular to subangular, irregular, up to	6		246.6		3	2	96	"	"					
				100mm, av 10-30mm. Partly deformed by schistosity.	7		247.6		3	3	68	"	"					
				Bedding: 60°/LCA @ 214m, 47°/LCA @ 233.3m, 45°/LCA @ 241.5m.	8		248.6		2	<1	80	"	"					
				Sulphides disseminated throughout, -py with minor sp-gn-cp.	11179	248.6	250.2		3	<1	66	"	"					
				Increasing steadily from 2-3% at 213m to 5-7% at 238m. 238-	2887	231.0	233.0	100	30	60	80	<2	<0.1	0.2	2.4			
				239.8m: 10-15% py, minor cp-sp-gn.	2888	233.0	235.0	95	60	60	40	<2	<0.1	0.2	2.9			
				239.8-240.6m: 5% py, 1% cp. Minor sp-gn.	2889	235.0	236.5	95	20	40	40	<2	<0.1	0.2	2.9			
				240.6-242.05m: 20% fine dissem py not including two bedded	2890	236.5	238.0	95	60	30	40	<2	<0.1	0.1	2.4			
				zones of SEMI-MASSIVE (40-50%) PY with minor sp-gn-cp @ 241.6 -														
				241.75m. and 241.85-242.05.														
				242.05-243.60m: 5% py + 1-2% cp > sp-gn (incl 3-5% cp > sp-														
				gn in quartz 243.3-243.60)														
						17-9-84												
243.60	250.20	6.30	95	VOLCANICLASTIC BRECCIAS (TYNDALL GROUP?)	** 1118	AAS Repeats:			Au	Ag	As	Bi	Cu	Pb	Zn	Mo	Te	Hg
				Upper contact a strong shear @ 80°/LCA.	(all p.p.m.)				3.85	5.0	65	24	4200	470	920	8	5	0.06
				Green and red. Weak-mod chloritised.					4.54	5.5	55	23	4200	460	940	6	5	0.02
				Angular to sub-angular clasts up to 150mm, av 5-25mm, of red														
				albitised and silicified qtz-porphyry, lavas, cherts and tuffs					also:	Sb	< 1							
				in sericitic and cherty matrix containing qtz phenocrysts.					and	WO_3	< 2							
				Bedding: 60°/LCA @ 249.5m. Generally poorly developed.						Tl	< 1							
				Badly broken up to 248m.														
				Very minor py.														
				END OF HOLE														

11311692

HOLE NO.: HFZ 11
STATE : TASMANIA

GOLD FIELDS EXPLORATION PTY. LIMITED
DRILL CORE RECORD

DLV. PRESS

PROJECT	HENTY FAULT ZONE
DESIGNED BY	PW ENGLISH/JG PURVIS
LOGGED BY	J.G. PURVIS
COMMENCED	24-10-82
COMPLETED	26-10-82

PURPOSE

To test Northern continuation of massive sulphide in the costean.

LOG SUMMARY

0 - 48.45m: FELSIC IGNIMBRITE.
48.45 - 68.25m: HENTY FAULT ZONE.
68.25 - 75.50m: CHERT WITH MINOR PYRITE.
75.50 - 88.20m: VOLCANICLASTIC BRECCIA AND CHERT ('TYNDALL GROUP'?)

GENERAL COMMENTS

HOST HORIZON TO THE MASSIVE SULPHIDE PRESENT IN HOLE BUT NO SIGNIFICANT MINERALISATION

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag	Au	S%							COMMENTS
62.5	64.5	50	230	250	<2	<0.1	0.3							Best interval.

LOCATION

NORTHING	363990.25
EASTING	380108.02
R.L.	585.61
GRID	A.M.G.
LENGTH	88.20m

HOLE CONDITION

SIZE Hole Size	SIZE Depth
HQ	0-3m
NQ	3-77m
BQ	77-88.2m

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0	11m	22
52.55	59m	20
68.30	77m	25

POOR GROUND CONDITION ZONES From	To	Condition
0	6m	Badly fractured.
38.05	75.50	Broken and sheared due to influence of Henty Fault. Especially bad from 48.45-68.25m.

HOLE CONDITIONS AFTER COMPLETION

3M HQ ROD LEFT IN TOP OF HOLE.
ELECTRODE PLACED IN HOLE TO 71M
- HOLE BLOCKED AT THIS DEPTH.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total	SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
Collar	102°AMG	-63°	0.00	11.6	11.6	10.3	575.3	5.3	5.3										
23.2m	098°	-60°	11.6	38.2	26.6	23.0	552.3	13.3	18.6										
53.2m	097°	-58°30'	38.2	66.6	28.4	24.2	528.1	14.8	33.4										
84m	098°30'	-57°	66.6	88.2	21.6	18.1	510.0	11.8	45.2										

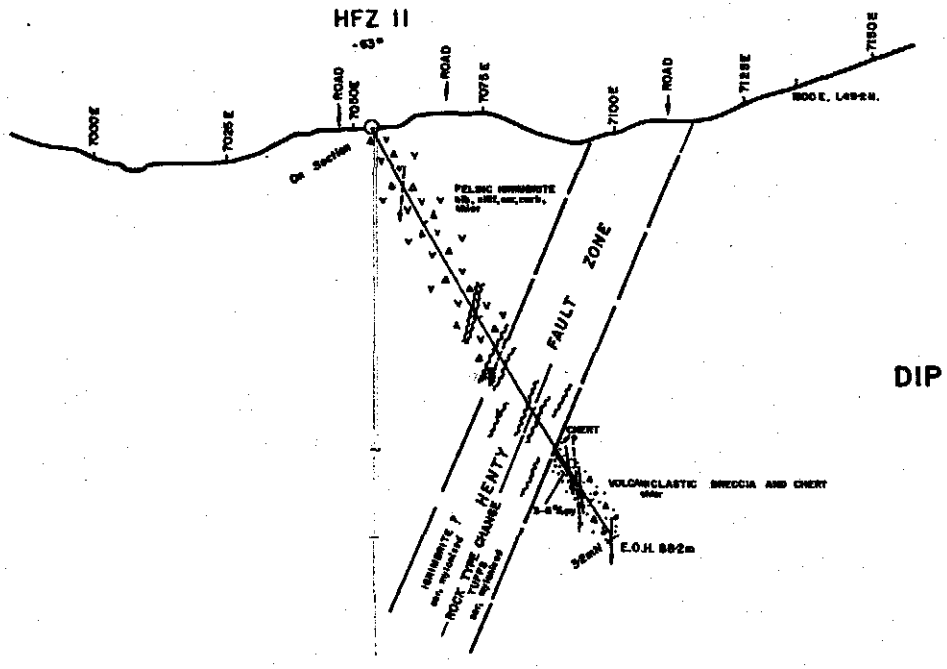
11316 3

HOLE NO. HFZ II

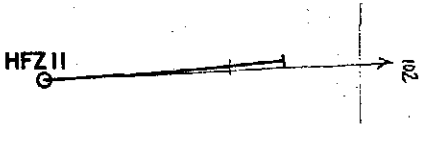
GOLD FIELDS EXPLORATION PTY. LIMITED
DIAMOND DRILL HOLE PLOT

SCALE 1:1000 — METRES

5 cm



DIP PROFILE



PLAN

113164

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.F.Z.11 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au*	Ag*	S%	
					ASSAY DATA (ppm) * = Fire Assay, or AAS											
0	48.45	45.45	94	FELSIC IGNIMBRITE												
				Pink and greyish-green.												
				Flattened clasts of felsic pumice, some lithic volcanics												
				also. Abundant porphyritic feldspars to 3mm. Minor small												
				quartz phenocrysts.												
				Albitised (intense in places), silicified (intense in places)												
				sericitised, carbonated, chloritised. Rock texture largely												
				obliterated by alteration. Schistose in places. 1° layering												
				35°/LCA @ 12.5m, 48°/LCA @16m, 48°/LCA @ 48.45m.	11143	45·1	46·1		3	3	20	<0·1	<0·01			
				Quartz veins (some dog-tooth) ± alb± carb. Barren.	4		47·1		2	3	13	"	"			
				Oxidation on joints down to 11m. Broken to 6m, and again	5		48·1		1	4	34	"	"			
				below 38.05. Sericitic shears: 38.05 45°/LCA, 39.25 45°/LCA,	6		49·3		3	2	42	"	"			
				46.5m 55°/LCA.	7		50·3		2	2	44	"	"			
				Minor py, except 21.9-22.1 10%py. Rare trace gn-sp in	8		51·3		5	2	32	"	"			
				carb veinlets below 30m.	9		52·8		3	5	38	"	"			
				BASIC DYKES: 27.7 - 27.95 (1-2%py), 34.6 - 34.9m.	50		54·0		6	7	41	"	"			
					1		55·0		4	29	44	"	"			
48.45	68.25	18.40	93	HENTY FAULT ZONE	2		56·6		5	29	38	"	"			
				48.45-60.70: Highly fractured and shattered, strongly schistose	3		57·7		6	31	48	"	0·07			
				and sheared, deformed volcanic - IGNIMBRITE?	4		58·7		12	24	63	"	<0·01			
				Mylonised in places. Deformation increasing with depth.	5		59·7		4	4	87	"	"			
				Rock banded, pale pink to creamy green in colour due to	11156		60·7		18	8	54	"	"			
				leaching. Sericitic.	2891	60.7	62.1	100	20	130	170	<2	<0.1	0.1	<0.1	FIRE ASSAY
				Abundant shattered quartz-carb veins.	1124	62.1	62.5	100	50	250	160	2	NIL		1.8	
				Minor py. Rare trace gn-cp.	2892	62.5	64.5	100	50	230	250	<2	<0.1	0.2	0.3	
				Shearing: 55°/LCA @50.5m, 50°/LCA @ 58.7m	2893	64.5	66.5	100	20	70	140	<2	<0.1	<0.1	0.3	
				60.70-68.25: Fault breccia in intensely sheared and milled,	2894	66.5	68.25	95	80	140	100	<2	<0.1	0.2	0.3	
				sericitic, clayey TUFFS.	1125	68.25	70.5	80	40	40	30	1	NIL		1.0	
				Some black carbonaceous tuffs, some bands up to 100mm of	1126	70.5	73.0	80	40	30	30	1	NIL		1.5	
				greyish-white chert, now completely broken up.	1127	73.0	75.5	60	50	40	60	1	NIL		1.5	
				Shearing 55°/LCA @ 62m.	11157		76·5		4	3	40	<0·1	<0·01			
				1% dissem py except; 62.1-62.5: 5-10% py trace gn-cp,	8		77·5		4	2	33	"	"			
				and 68.1-68.25 2-3% py.	9		78·5		8	1	62	"	"			
68.25	75.50	5.25	72	CHERT	60		79·5		54	1	105	"	"			
				Pale grey. Hard, massive. Badly shattered.	1		80·5		6	2	31	"	"			
					11162		81·5		3	<1	120	"	"			

11131 65

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: HENTY FAULT ZONE

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 11

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Minor intercalations of sheared sericitic tuff.
				In places chert vaguely brecciated- probable soft-sediment feature.
				Bedding 25°/LCA at 73.5m.
				3-5% dissem py.
75.50	88.20	11.75	93	INTERBEDDED VOLCANICLASTIC BRECCIA AND CHERT
				Interbedded massive creamy-white CHERT containing quartz pheno-crysts, and: green or pink VOLCANICLASTIC BRECCIA with angular to sub-rounded clasts (<5-30mm) of lithic volcanics-chert, tuffs, albitic quartz-phyric lavas(?), and quartz, in chloritic partly cherty, ashy matrix.
				Alteration is weak-chloritisation, sericitisation, albitisation.
				Bedding: 30°/LCA @ 77.5m, 32°/LCA @87.5m.
				Rock is unbroken.
				Locally 1% py. Trace cp.
				END OF HOLE

ASSAY DATA (p.p.m) Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au (ppb)
11163	81·5	82·5		2	3	82	<0·1	<0·01
4		83·7		2	2	79	"	"
5		84·8		2	1	30	"	"
6		86·3		3	8	28	"	"
7		87·3		3	3	23	"	"
11168	87·3	88·2		2	2	25	"	"

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO. : HFZ 12
STATE : TASMANIA

DLV. PRESS

PROJECT	TYNDALL E.L. 9/66
DESIGNED BY	J.G. PURVIS
LOGGED BY	J.G. PURVIS
COMMENCED	10-1-84
COMPLETED	5-2-84

PURPOSE

To test southern extent of gold mineralization intersected in HFZ10.

LOG SUMMARY

0 - 288m Vitric felsic volcanic (ignimbrite or lava flow) intruded by basic dykes.
288 - 327m Henty Fault Zone.
327 - 458m MINERALIZED ZONE - silicified pyritic volcaniclastic sediments with minor basemetal sulphides.
458 - 470m Intensely silicified barren volcaniclastic sediments.

GENERAL COMMENTS

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag	Au	Ba							COMMENTS
367.55	368.00	1.9%	2.4%	0.8%	51	0.39	200							Semi-massive sulphides in tuffaceous sediments.
451.50	457.80	3040	980	715	6	0.63	260							Silicified sulphidic volcaniclastic sediments.
incl: 451.5	452.5	1.2%	0.43%	0.32%	23	0.98	250							Semi-massive sulphides in volcaniclastic grit.

LOCATION

NORTHING	5363504.3
EASTING	379810.0
R.L.	587.2m
GRID	A.M.G.
LENGTH	469.5m

HOLE CONDITION

SIZE Hole Size	SIZE Depth
HQtricone	0-51m
(NQ run 39.5-47m, later reamed out)	
NQ	51-389.25m
BQ	389.25-469.5m

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
39.5	55.5	17
170	177.3	16
261	264	27
292.4	297	43
331.2	339	26

POOR GROUND CONDITION ZONES From	To	Condition
0	56	Highly oxidised and broken
128.5	144.2	Broken.
259.6	268.9	Broken by joint set par. LCA.
288.45	323.5	HFZ:Schistose, leached,gen unbroken.
323.5	327.2	HFZ:Clayey,crushed and milled.
327.2	339.6	Extremely badly broken.

HOLE CONDITIONS AFTER COMPLETION

Hole collapsed at collar.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
Collar	102°	-75°	0	30	30	28.98	558.2	7.76	7.76
60m	103°	-75°30'	30	74.5	44.5	43.08	515.1	11.14	18.90
99m	104°	-75°	74.5	114	39.5	38.15	476.95	10.22	29.12
129m	102°	-74°	114	168	54	51.91	425.04	14.88	44.00
207m	107°	-72°	168	264.5	96.5	91.78	333.26	29.82	73.82
322m	117°	-71°30'	264.5	354.5	90	85.35	247.91	28.56	102.38
387m	114°30'	-70°30'	354.5	417.5	63	59.39	188.52	21.03	123.41
448m	113	-69°	417.5	469.5	52	48.55	139.97	18.64	142.05

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

11316.1

167

HOLE NO. **HFZ 12**

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:1000

20 10 0 20 40

METRES

5 cm

PLAN VIEW

HFZ 12

5363 500 mN

379 800 mE

HFZ 12

-75°

600 m R.L.

550 m R.L.

500 m R.L.

450 m R.L.

400 m R.L.

350 m R.L.

300 m R.L.

250 m R.L.

200 m R.L.

150 m R.L.

25 W

1·5 m N

00

25 E.

50 E

75 E.

100 E.

125 E.

150 E

175 E.

200 E.

225 E.

250 E.

no o/c

Tricone - no core

HENTY RIVER

Limonitic seep

VITRIC FELSIC VOLCANIC (IGNIMBRITE OR LAVA) silif - pot - ser - chlor - carb

BASIC DYKE ox

100m.

BASIC DYKE OR SILL carb, chlor

VITRIC FELSIC VOLCANIC silif - pot - ser - chlor - carb.

BASIC DYKE SWARM carb, chlor

VITRIC FELSIC VOLCANIC silif - pot - ser - chlor - carb

200m.

BASIC DYKES

BASIC DYKE OR SILL carb - chlor

VITRIC FELSIC VOLCANIC strongly deformed and broken

BASIC DYKE OR SILL chlor - epi - carb

INTENSELY DEFORMED VITRIC FELSIC VOLCANIC AND MINOR BASIC DYKES Leached, bleached, foliated, brecciated, sheared

300m.

Batchelorite

INTENSELY DEFORMED SULPHIDIC TUFFACEOUS SEDIMENTS clayey - crushed - milled

CHERT fractured and broken

5-10% py

TYPE - CHANGE

SULPHIDIC SILICEOUS BRECCIA ser, broken

2-5% gn-sp-cp

10-20% py

ROCK

SULPHIDIC VOLCANICLASTIC SEDIMENTS incl. semi - massive pyritic "mud" silif - ser

5% py

25% py

3% cp-sp-gn

10-20% py

QUARTZ - PORPHYRITIC VOLCANIC (SILICEOUS BRECCIA ?) silif - ser - pot

400m.

SULPHIDIC VOLCANICLASTIC SEDIMENTS silif - ser - carb

3% py

10-15% py

0·45m semi massive sulphides

GRITTY VOLCANICLASTIC SEDIMENTS silif - ser - carb

40py, 10% cp)sp-gn

10-20% py

18m S

E.O.H. 469·5m

HENTY FAULT ZONE

367·55 - 368 m:
0·45m @ 1·9% Cu
2·4% Pb
0·8% Zn
51 g/t Ag
0·39 g/t Au

451·5 - 457·8m:
6·3m @ 0·3% Cu
6 g/t Ag
0·63 g/t Au

Alteration Type

ser - sericitised
chlor - chloritised
epi - epidotised
alb - albitised
silif - silicified
carb - carbonated
pot - potassic
ox - oxidised

DIP PROFILE

113168

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0	39.5			Triconed-no core.
39.5	119.0	72.55	96	ALTERED, LINEATED, HIGHLY VITRIC FELSIC VOLCANIC (IGNIMBRITE OR LAVA FLOW).
				A patchwork of greenish-grey and pink. Yellow-brown where oxidised.
				Med gr. Porph pink carbonatised felds throughout, to 5mm av 2mm.
				Rock comprises vitric streaks, lenses and irreg bands (pumice?), alt to dark green sericite and chlorite; in matrix now characterised by pink, banded and blotchy, silicification-potassic (K-feld + albite)-ser-carb alt. Small veins and 'knots' of qtz.
				Overall alteration is very strong and has largely oblit orig rock text.
				Lineation, poss due to 1° flow text, now overprinted by strong schistosity.
				Schistosity 25°/LCA @ 57m, 74m, 96m, & 113.5m, 35°/LCA @ 82.5m & 106m.
				Badly oxidised and broken to 56m. Fe and Mn ox persist on joints to base.
				Rare trace py.
				Fault 46-47m (20°/LCA?). Shear 61.2-61.6m (10°/LCA).
				BASIC DYKES: Eight from 0.1m-4.9m. Those + 0.5m: 43.4-44.2m, 76.75-81.65m (contacts 40° & 45°/LCA), 97.75-98.35m (35° & 40°).
				Dark green, fine-med gr, gen badly ox and broken. Very strong carb, weak chlor, gen non-magnetic, minor py in some. Chilled contacts. On margins of some dykes basic material appears to have partly replaced matrix of the felsic volcanic for 100-200mm. Dykes parallel to schistosity and appear undeformed by it.
119.0	144.2	25.2	100	BASIC DYKE OR SILL
				Green, fine-med gr. Massive, non-schistose.
				Composed of equigranular feld and ferromags. In central section (123.5-137.5m), creamy-green aggregates of zeolite? to 3mm.
				Very strong carb, weak chlor. Carb sl bleaches rock. Minor epidotisation.
				Badly broken with leaching and oxidation on fracts, 128.5-base.

ASSAY DATA Sample No.	From	To	Rec. %

1131169

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Fault 140.8m.
				Trace hem, rare cp & py. Gen non-magnetic.
				Upper contact, chilled, 45°/LCA. Lower broken-fault.
144.2	164.45	19.75	98	STRONGLY ALTERED VITRIC FELSIC VOLCANIC AS BEFORE
				Pink and grey-green.
				Prominent euhedral pink feld laths to 5mm, av 2-3mm, plus minor
				qtz xyls < 1mm, in lineated highly vitric matrix now alt by v.
				strong to intense (below 152.5m) blotchy silif-pot>ser-chlor-carb.
				In most places orig rock text is almost completely oblit.
				Numerous qtz-carb±chlor veins up to 20mm at high ∠ to schistosity,
				mainly in the intensely silif zones.
				Schistosity 30°/LCA @ 147.5m. Core badly broken (esp. 144.2-156.5m)
				by joints parallel to LCA cut by cross-fractures.
				Rare trace py.
				BASIC DYKE: 146.05-146.95m. Upper contact broken, lower 45°/LCA.
164.45	182.55	16.95	94	BASIC DYKE SWARM INTRUDING FELSIC VOLCANIC
				Felsic volcanic as before.
				Eight BASIC DYKES (as before), ranging from 0.2-3.9m, totalling
				12.15m (67% of interval). Some show irreg contacts with felsic
				volc with some replacement of matrix of latter by basic material?
				Dykes partly ox and gen badly broken due to joint set parallel
				to LCA. Faults: 170.3m, 180.3m. Shear 178.35m 35°/LCA.
				Dykes + 1m : 164.45-168.35m (trace py, mod mag), 170.75-172.20m
				(non-mag), 172.75-174m (upper contact 13°/LCA), 175.8-177.9m (lower
				contact 60°/LCA, non-mag, trace py), 180.35-182.2m (lower contact
				35°/LCA, trace py).
182.55	225.05	42.35	100	ALTERED VITRIC AND FELSIC VOLCANIC AS BEFORE (IGNIMBRITE?)
				Light red and greenish grey.
				Texture and alteration as before. Small qtz < 2mm. Much of the silif
				in most intense zones is now of white chalcedonic type.
				Some variations in grain size and text suggest orig volcanic may
				have been clastic (ignimbrite?).

ASSAY DATA Sample No.	From	To	Rec. %

11631170

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12 Page:3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				Schistosity : 25°/LCA @ 198.5m, 30°/LCA @ 220m.				
				Below 209m qtz ± chlor ± carb veins up to 70mm.				
				4mm vein of py @ 206.6m, otherwise none.				
				BASIC DYKES: 214.15-216.7m (upper 20°/LCA, lower 50°/LCA, trace				
				py, non-mag); 217.4-217.8m (40°/LCA), 219.5-219.9m (40° & 30°, minor				
				py & cp).				
225.05	259.6	34.55	100	BASIC DYKE OR SILL				
				Green, fi-med gr. Some variations in grain size-multiple intrus-				
				ion?				
				Creamy zeolite? aggregates to 10mm. In places there are pink feld				
				phenos 2-3mm of the same type as in the felsic volcanic-these assoc				
				with weak patches of pink 'pot' alt (ie: 2° k-feld and/or albit-				
				isation).				
				Mod-carb, weak-mod chlor, weak epi.				
				Persistent minor cp py. Trace hem. Non-magnetic. Minor gn-sp-				
				cp assoc with carb in shear 50°/LCA@258.7-258.9m.				
				Upper contact irreg 40°/LCA, lower 35°/LCA.				
259.6	268.9	8.35	90	MIXED BROKEN ZONE - FELSIC VOLCANIC INTRUDED BY BASIC DYKES				
				Rock types and alteration as before.				
				Broken up by series of strong shears and joint set parallel to LCA.				
				Strongest shears: 55°/LCA @ 261.4m, 35°/LCA @ 261.75m, 262.2m,				
				264m, 25°/LCA @ 265.9m.				
				Schistosity v. strong in both rock types - produces prominent				
				banding. (Deformation much stronger than before).				
				Trace py-mainly in dykes.				
				BASIC DYKES: 262.3-263.4, 266.35-266.5m (35°/LCA), 267.65-268m				
				(65° & 40°/LCA).				
268.9	288.45	19.55	100	BASIC DYKE OR SILL				
				As before. Changes in grain size above 278m suggest multiple				
				intrusion .				
				Mod chlor-epi-carb alt. Weak silif ± pot alt in places to 271m.				
				Numerous thin veins of qtz-carb-chlor±hem.				

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au(AAS)	Au(FA)	Au(FA)	Au(FA)	Ba
				Below 271m mod magnetic with few % dissem mag + hem. Minor py & cp throughout.													
				Rock gen unbroken and undeformed.													
				Upper contact 40°/LCA, lower (sheared) 35°/LCA.													
288.45	323.5	32.84	94	HENTY FAULT ZONE - IN FELSIC VOLCANIC CUT BY BASIC DYKES													
				Zone of intense deformation.													
				Creamy light green, highly leached and bleached.													
				Originally : predom the alt felsic volcanic as before with minor basic dykes (none below 302m).													
				Now: a fine gr, highly schistose, layered (layers of qtz and clayey sericitic material), reconstituted rock with much brecciation, contortion of schistosity and shearing.													
				Gen unbroken. Worst broken zone and core loss 288.45-297.5m.													
				Schistosity: 35°/LCA @ 303m, 40°/LCA @ 311m.													
				Bright green batchelorite hydromica 310m-base, inc with depth - common below 320m.													
				Minor py, inc with depth (1% 309-313m). 20mm massive py @ 294.6m.													
				Trace gn-sp, gen assoc with carb.													
323.5	327.2	3.5	95	HENTY FAULT ZONE - IN SULPHIDIC TUFFACEOUS SEDIMENTS?	12023	323.5	326		200	510	130	2	<0.05				610
				Rock type change.	12024	326	328		460	430	210	2	0.20	0.16			440
				Dark grey, soft, highly clayey, crushed and milled.	12025	328	330		18	48	90	1	<0.05				
				Sequence appears to have included dark grey pyritic shales and	12026	330	332		10	14	42	1	<0.05				
				sulphidic siliceous bands. Some non-sulphidic clayey rock similar	12027	332	334		10	6	90	<1	<0.05				
				to that above 323.5m.	12028	334	336		8	8	60	<1	<0.05				
				Overall 5-10% py, minor cp (2% in silicic band 326.6-326.8m).	12029	336	338		12	8	40	1	<0.05				
					12030	338	340		12	16	44	1	<0.05				
327.2	339.6	9.85	79	CHERT	12031	340	342		16	60	34	2	0.15	0.10			270
				Creamy-grey or pink,	12032	342	344		670	3100	420	3	0.20	0.17			230
				Fi gr, composed largely of qtz and lesser carbonate. Phenocrysts	12033	344	346		900	3500	6200	4	0.25	0.25			250
				of qtz 1-2mm, in places.	12034	346	348		42	400	34	3	<0.05				
				Intercalated mod chlor volcaniclastic lithic-xyl grit unit 331.2-	12035	348	350		75	75	32	1	<0.05				
				335m (bedding parallel to LCA @ 334.3m). Elsewhere, thin inter-	12036	350	352		24	10	30	1	<0.05				
				calations of grey sulphidic shales (now sericitic schist).	12037	352	354		18	22	28	1	<0.05				
					[redacted]												

11317

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Extremely fractured and broken. Schistosity 25°/LCA @ 337.1m.
				372.2-329.2m : 5-10% py, trace sp-gn-cp.
				329.2-337.4m : minor py.
				337.4-339.6m : 5% py in thin stringers parallel to LCA.
339.6	349.3	9.7	100	HIGHLY SULPHIDIC SILICEOUS BRECCIA
				Creamy grey.
				Siliceous clasts (angular to subrounded) to 30mm, av<10mm, in
				sericitic siliceous and sulphidic matrix. Some sulphides in clasts,
				which also incl other varieties of volcanics eg. feld porph.
				Disrupted beds of chert @ 345.2m 20°/LCA. Badly broken in places
				by schistosity 15°/LCA.
				Py av 10-20%. 2-5% gn-sp-cp 342-345.7m.
349.3	378.5	28.9	99	SILICIFIED SULPHIDIC VOLCANICLASTIC SEDIMENTS-BRECCIAS, CHERTS,
				TUFFACEOUS SEDIMENTS
				Creamy pink and grey.
				Much disruption and brecciation of soft-sediment type.
				Abundant lithic volc clasts, angular to subrounded, up to 100mm
				av<20mm.Clasts gen siliceous-cherts and tuffaceous seds-similar
				to adjacent beds, but some variations eg: qtz porph or feld porph.
				Matrix composed of grains and xyls of qtz, small lithics , glass
				and sulphides.
				Beds of chert, waterworked sandy volcaniclastics and tuffaceous
				sulphidic siltstone. Some semi-massive pyritic 'mud' of syngenetic
				origin.
				Qtz phenos, euhedral to rounded, throughout, to 4mm av<1mm. Some
				feld xyls to 4mm, av 1-2mm.
				Very strong chalcedonic silicification-prob of hydrothermal origin.
				Strong carb (-some massive-limestone?), strong ser, weak chlor.
				Bedding: 10°/LCA @ 350.2m, 10°/LCA @ 361.7m, 30°/LCA @ 369m.
				Badly broken in places to 361m.
				349.3-365.55m : 5% dissem py, minor cp (locally 1%), trace gn-sp.
				365.55-367.65m: 20% py, minor cp. Zones of finely banded sulphidic
				'mud' 25°/LCA.

ASSAY DATA

Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au(AAS)	Au(FA)	Au(FA)	Au(FA)	Ba	
12038	354	356		240	18	120	<1	<0.05				240	
12039	356	358		100	18	80	<1	<0.05				200	
12040	358	360		200	38	80	1	<0.05				240	
12041	360	362		70	22	85	<1	<0.05					
12042	362	364		100	16	80	1	<0.05					
12043	364	366		18	34	80	2	<0.05					
12044	366	367.55		70	50	40	2	<0.05					
12045	367.55	368		1.90%	2.40%	8000	51	0.60	0.40	0.39	0.38	200	
12046	368	370		42	200	60	6	<0.05					
12047	370	372		32	90	48	2	<0.05					
12048	372	374		14	18	26	1	<0.05					
12049	374	376		16	44	30	1	<0.05					
12050	376	378		16	46	18	5	<0.05				880	
12051	378	380		12	16	38	3	<0.05					
12052	380	382		10	14	32	1	<0.05					
12053	382	384		10	16	24	<1	<0.05					
12054	384	386		10	38	70	<1	<0.05					
12055	386	388		8	12	24	<1	<0.05				540	
12056	388	389.25		6	6	16	<1	<0.05					
12057	389.25	390.5		8	14	20	<1	<0.05					
12058	390.5	392		8	16	36	<1	<0.05					
12059	392	394		10	16	155	<1	<0.05					
12060	394	396		16	12	32	<1	<0.05				290	
12061	396	398		12	20	44	<1	<0.05					
12062	398	400		200	30	44	<1	<0.05				340	
12063	400	402		32	16	22	<1	<0.05					
12064	402	404		70	10	34	<1	<0.05					
12065	404	406		120	16	65	<1	<0.05					
12066	406	408		100	10	50	<1	<0.05					
12067	408	410		18	12	22	<1	<0.05					
12068	410	412		420	6	30	<1	<0.05				480	
12069	412	414		210	12	32	<1	<0.05					
12070	414	416		170	12	46	<1	<0.05					
12071	416	418		280	8	44	<1	<0.05					
12072	418	420		1300	12	95	<1	<0.05				410	

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				367.65-368.05m : 40% py, 10% cp-sp-gn. Semi-massive sulphides banded 20°/LCA.
				368.05-378.5m : 10-20% py. Minor cp. Some sulphide mud; rest in breccia matrix.
378.5	433.5	55.0	100	SILICIFIED QUARTZ PORPHYRITIC VOLCANIC (SILICEOUS BRECCIA?)
				Light red to creamy-grey.
				Evenly distributed porph qtz (to 4mm, av < 1mm, mostly euhedral) and pink feld (to 4mm, av 1-2mm), in massive siliceous rock. Below 422m some of the porph qtz is rounded or fragmented.
				Mostly massive, with indistinct breccia text in places. Some zones of sedimentary breccia with lithic volcanic clasts.-bedding in one of these 35°/LCA @ 385.5m.
				V. strong silif, strong ser and pot, mod patchy chlor-latter in stockwork of thin veinlets and in matrix of breccia zones, inc below 415m. Silif grey and white chalcedonic type. Py patchy up to 3%, av 1%. Minor cp, gen assoc with chlor.
				418-424m: 1% cp>py. 424-433.5m: 1% cp=py.
433.5	457.8	24.3	100	SILICIFIED SULPHIDIC VOLCANICLASTIC SEDIMENTS -BRECCIAS, CHERTS, TUFFACEOUS SEDIMENTS
				Transitional change from above.
				Grey and cream.
				Alt has oblit rock text to large degree. Variable rock types : xyl-lithic sed breccias (fi gr silic clasts av 5mm), cherts, tuffaceous siltst, qtzose tuffaceous sst, also qtz-porph volcanic as above. All units variably sulphidic (see below).
				Silif v. strong to intense - grey and white chalcedonic type.
				Strong ser, patchy carb.
				Bedding: 438.5m 25°/LCA, 450m 20°/LCA, 457m 25°/LCA.
				433.5-439.3m : 2-3% py, rare cp-sp-gn (excl. 435.5-435.75m : fi gr sulph tuff 20°/LCA 40% py).
				439.3-451.6m : 5-20% py, inc with depth. Av 10-15%. Dissem.
				451.6-452.05m : Semi-massive py (40%) + 10% cp> gn-sp in grit.
				452.05-454.5m : 10-20% py, 2-3% cp=sp-gn. Batchelorite @ 453.7m.

ASSAY DATA Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au(AAS)	Au(FA)	Au(FA)	Au(FA)	Ba	
12073	420	422		520	10	60	<1	<0.05				500	
12074	422	424		1100	16	110	1	<0.05				440	
12075	424	426		200	14	60	<1	<0.05					
12076	426	428		75	12	42	<1	<0.05					
12077	428	430		250	14	44	<1	<0.05					
12078	430	432		170	12	55	1	<0.05					
12079	432	434		190	10	42	<1	<0.05					
12080	434	436		22	22	75	<1	<0.05				310	
12081	436	438		20	12	20	<1	<0.05					
12082	438	440		10	10	24	<1	<0.05					
12083	440	442		8	14	70	<1	<0.05					
12084	442	444		6	8	26	<1	<0.05					
12085	444	446		8	12	110	<1	<0.05					
12086	446	448		6	10	100	1	<0.05					
12087	448	450		18	44	60	5	<0.05					
12088	450	451.5		90	160	46	3	<0.05					
12089	451.5	452.5		1.20%	4300	3200	23	1.10	1.37	0.73	0.85	250	0.01 0.85
12090	452.5	454		4100	870	790	5	0.60	0.53	0.49	0.52	430	0.54
12091	454	456		210	80	28	1	0.85	0.76	0.87	0.72	195	0.80
12092	456	457.8		310	230	34	2	0.20	0.38			195	0.29
12093	457.8	460		34	6	38	<1	<0.05					
12094	460	462		16	8	38	<1	<0.05					
12095	462	464		2	4	20	<1	<0.05					
12096	464	466		65	12	20	<1	<0.05					
12097	466	468		140	6	16	1	<0.05				65	
12098	468	469.5		60	< 4	20	<1	<0.05					

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: HFZ 12 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				454.5-455.8m : 2% py.
				455.8-457.8m : 20% dissem py, minor cp-gn-sp. Disrupted beds of
				massive py to 40mm in basal 0.25m.
				Basal contact 25°/LCA.
457.8	469.5	11.7	100	INTENSELY SILICIFIED GRITTY VOLCANICLASTIC SEDIMENT
				Creamy white with small pink and green sections.
				Text almost entirely oblit by alt.
				Intensely silif, extremely hard massive rock in which occ. qtz
				grains < 1mm are visible, and rare lithic frags to 3mm.
				Interbeds of gritty xyl-lithic seds (lithics to 10mm, av 4mm, xyls
				of feld & qtz to 4mm, av < 2mm).
				Some ser, carb and minor patchy pot & chlor.
				Trace dissem py, rare cp.
				END OF HOLE.

ASSAY DATA

Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	H.P. 1
STATE	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	29-8-84
COMPLETED	15-9-84

PURPOSE

To test for the possibility of an at depth extension of the Au mineralised interval intersected in HFZ5.

LOG SUMMARY / GENERAL COMMENTS

Two sulphide zones were intersected on the footwall side of a 23.8m thick Henty Fault. The first zone (Zone A) was wider and more sulphidic, and can be correlated with the massive sulphide zones in earlier HFZ drillholes. The second, deeper zone (Zone B) is correlatable with the gold zone in the HFZ drillholes. Significant assays from the two zones are given below.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Width	Au	Ag	As	Bi	-all ppm	Cu	Pb	Zn	Fe	-all wt.%		COMMENTS
298.0	313.0	15.0m	0.32	9.0	84			0.08	0.19	0.04				Zone A.
326.0	330.0	4.0m	1.63	2.3	33	16		0.26	0.02	0.01	3.13			Zone B.
including														
327.0	328.0	1.0m	3.81	1.5	20	8		0.09	0.01	<0.01	1.35			

LOCATION

NORTHING	5363975
EASTING	379879
R.L.	622.9
GRID	AMG
LENGTH	349.0

HOLE CONDITION

SIZE Hole Size	Depth
TRICONE	0 -51.0
NQ	-313.4
BQ	-349.0

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition
266.4	298.0	Highly sheared and shattered sericitic rock in the Henty Fault.

HOLE CONDITIONS AFTER COMPLETION

3.0m HQ rod left in top of hole. Hole open to 349.0m.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total
0.0	112	53.0	0.0	28.0	28.0	22.4	600.5	16.9	16.9
56.0	106	52.0	28.0	75.5	47.5	37.4	563.1	29.2	46.1
95.0	107	51.0	75.5	115.0	39.5	30.7	532.4	24.9	71.0
135.0	106	49.0	115.0	153.5	38.5	29.1	503.3	25.3	96.3
172.0	106	46.5	153.5	192.0	38.5	27.9	475.4	26.5	122.8
212.0	-	43.0	192.0	231.0	39.0	26.6	448.8	28.5	151.3
250.0	-	42.0	231.0	270.0	39.0	26.1	422.7	29.0	180.3
290.0	104	40.0	270.0	319.0	49.0	31.5	391.2	37.5	217.8
349.0	107	38.0	319.0	349.0	30.0	18.5	372.7	23.6	241.4

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total

HOLE NO. HP1

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:1000

113177

PLAN VIEW

5 cm

HP 1

112° AMG
53° DIP HP 1 622·9m R.L.

DIP PROFILE

Limit of ox

MAFIC DYKE

IGNIMBRITES, MARE EPICLASTICS & NUMEROUS THIN MAFIC DYKES

Alteration Type

STRONGLY FRACTURED carb. veining

MAFIC DYKE

HENTY FAULT

ROCK TYPE UNKNOWN FINE GRAINED VOLCANICLASTICS

IGNIMBRITES, BASIC DYKES

VOLCANICLASTICS WITH AUTOBRECCIATED LAVAS & LAVA FRAGMENTS

VOLCANICLASTIC GRITS, EPICLASTICS & BRECCIAS

425·3m R.L. (FAULT H.W.)

405·3m R.L. (FAULT F.W.)

398·6m R.L. (ZONE A)

384·8m R.L. (ZONE B)

374·0m R.L. (E.O.H.)

ZONE A
298·0 – 313·0m
15·0m @ 0·32 g/t Au
9·0g/t Ag
0·08% Cu
0·19% Pb
0·04% Zn

ZONE B
326·0 – 330·0m
4·0m @ 1·63 g/t Au
23 g/t Ag
0·26 % Cu

10–15% py (ccp–gn–sl)

1–2% py

5–10% py (ccp)

0–1% py

E.O.H. 349·0m

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 1

Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				SUMMARISED LOG
0.0	266.4	266.4		MASSIVE, PINK-GREEN VOLCANICS, POSSIBLY LAVAS OR IGNIMBRITES, INTRUDED BY NUMEROUS PALE GREEN MAFIC DYKES.
266.4	298.0	23.8		HIGHLY FRACTURED, FOLIATED AND SHATTERED ROCK WITH MINOR QUARTZ-CALCITE VEINS. A ROCK TYPE CHANGE FROM THAT DESCRIBED ABOVE TO THAT DESCRIBED BELOW OCCURS AT 290.2m. THE HENTY FAULT.
298.0	331.2	32.5		AUTOBRECCIATED LAVAS AND LAVA FRAGMENTS IN A FINE GRAINED VOLCANICLASTIC MATRIX. STRONGLY ALTERED WITH PARTICULARLY WELL DEVELOPED SILICIFICATION AND PYRITISATION IN A SERIES OF ZONES.
331.2	349.0	17.8		CHLORITIC, GRITTY VOLCANICLASTIC MADE UP OF PINK LAVA CHIPS IN A VERY FINE GRAINED EPICLASTIC.
				DETAILED LOG
				0.0-266.4 MASSIVE. GREEN-PINK VOLCANICS WITH NUMEROUS PALE GREEN MAFIC DYKES.
0.0	51.0			Tricone. No core recovered.
51.0	68.5	17.5	100	Pale pink-brown, weathered felsic volcanic. Limonite is pervasive as fracture coatings and throughout the rock. Small white phenocrysts are common in a pink siliceous matrix. Weakly altered and moderately fractured.
68.5	85.5	17.0	100	Green and pale brown, fine grained basic dyke. Again moderately-strongly weathered-obscuring contact relationships. The rock is weakly altered, massive and blockily fractured.
85.5	266.4	180.9	100	Back to green-pink blotchy coloured volcanic. Below 94.5, this unit becomes unweathered. The volcanic unit is very weakly altered Numerous green mafic dykes occur throughout the volcanic unit

ASSAY DATA Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 1 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				from 0.8m to 3.0m wide. The volcanics are weakly sheared (the dykes massive) and both units are veined; the volcanics with thick quartz-albite veins, the basic dykes with thin calcite veinlets. In places the volcanic unit includes bands of sediment.
				Between 117.0 and 125.0 a thick basic dyke occurs. Below 136.0, the volcanic unit predominates and is quite strongly foliated (the pink and green alternating/lensoid colouration highlighting this feature). Below 153.0, the basic dykes often contain pale green and cream coloured veinlets and horizons of sericite. Strongly sheared and fractured zones also occur (e.g. 166.7 to 169.0).
				Between 226.0 and 263.9 the core is badly fractured. Calcite veinlets are common in the basic dykes and dark grey ash deposits with small pink lava fragments occur within the volcanic unit.
				At 263.9, a 3.0m green mafic dyke occurs. The last 0.5m of this dyke is included in the fault below.
				266.4-298.0 HIGHLY FRACTURED, FOLIATED AND DISRUPTED VOLCANICS WITH MINOR QUARTZ-CALCITE VEINING.
266.4	290.2	23.8	100	Pale cream-greenish volcanics in abrupt contact with the unit above. Intensely sheared and foliated with many crumbly fracture zones. Overall highly incompetent rock, with sericite strongly developed. A "massive" unit of thinly segregated rock, with a sericitic (pale cream) layers between the pale green and pink volcanics. Crenulations are strongly developed.
				Below 277.0, several, thin quartz-calcite veins and veinlets are developed, -all irregular attitudes, often across the foliation which occurs at 60° CA.
				Small folds are common, developed in rock that appears to be thin bedded, fine grained sediments.
				Between 287.0 and 288.1, large quartz-chlorite-sericite veins occur, fractured but relatively unsheared.
				The chloritic sericitic, green 'volcanic rock' is the only rock type below about 280.0.

ASSAY DATA Sample No.	From	To	Rec. %

11361

113180

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 1 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au* (F.A)	Au* (MS)	Ag	As	Cu	Pb	Zn	Bi	Fe (%)	
					ASSAY DATA (p.p.m)													
290.2	298.0	7.8	100	The unit is still strongly fractured and sheared, but there appears to be a change in the original rock type here; to a very pale green rock. In places this is sheared out quartz and sericite (pale brown-green). Quartz-calcite veins occur as above. Brown and green sericite is well developed, especially below 293.2, where the rock is fractured but unsheared. Between 294.0 and 295.5, a highly sheared and shattered zone of dark grey fine grained chloritic-sericitic rock. Quartz 'eyes' and pods, although fractured are unsheared. Between 295.5 and 298.0, the pale green highly sericitic rock returns. This is only weakly sheared but is so shattered and crumbly to be almost soil-pug like. A dark shaley unit occurs on the lower 10cm of this unit. Strong faulting, shearing and shattering ceases abruptly at 298.0. Pyrite is absent or extremely rare throughout the fault zone.													
				298.0-331.2 TWO STRONGLY DEVELOPED SULPHIDE ZONES EITHER SIDE OF A SILICIFIED VOLCANIC BRECCIA.													
298.0	298.5	0.5	100	Grey, sericitic quartz and volcanics. Pods and lenses of quartz and grey, pyritic silicified volcanics in a pale green-brown sericitic zone.	13421	297.0	298.0	100		<0.01	1.1	25	62	290	80			
					2		299.0			0.49	7.2	40	340	3100	970			
					3		300.0			0.68	7.0	45	400	2900	410			
					4		301.0			0.20	8.5	60	640	2900	270			
298.5	313.0	14.5	100	Pale grey silicified, pyritic, quartzose volcanics. Large, rounded quartz grains and pebbles occur in a weakly foliated, weakly sericitised, very fine grained, pyritic matrix. Within this unit, 'splashes' (up to 2-3cm wide) of base metal and copper sulphides (very fine grained) occur. Quartz-calcite veining is weakly developed. Quartz-sericite intergrown zones (up to 20cm wide) also occur. Zones of brecciation are apparent, with silicified volcanic clasts (containing no sulphides) surrounded by a pyritic rich matrix. Lenses of almost solid pyrite-quartz-sericite are abundant. A few galena and chalcopyrite pods (approx 5cm) are observed.	5		302.0			0.42	7.6	45	440	2300	320			
					6		303.0			0.17	7.0	90	720	2100	1700			
					7		304.0			0.13	6.0	180	820	1800	100			
					8		305.0			0.11	8.3	90	570	3100	220			
					9		306.0			0.11	8.8	85	960	3200	700			Zone A
					13430		307.0			0.10	7.8	100	2550	2400	600			
					1		308.0			0.18	10.5	95	1150	1350	38			
					2		309.0			0.11	8.0	95	750	2000	34			
					3		310.0			0.95	21.0	115	1250	380	20			
					4		311.0			0.05	3.6	65	130	220	17			
					5		312.0			0.04	1.5	40	125	74	25			
					13436	312.0	313.0		1.14	0.91	22.0	120	800	730	45	140	6.29	

* higher values are averages of several repeats

113181

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 1

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au* (F.A.)	Au* (A.A.S.)	Ag	As	Cu	Pb	Zn	Bi	Fe (%)	
				At 308.5 and 309.1, large (15cm) pink, fractured volcanic clasts occur. These are highly silicified, hematised blocks fractured and sealed with pyrite-chalcopyrite-silica. Below 309.0, several much smaller clasts of this pink material (around 0.5cm) became frequent. At 312.3, a large 10cm band of massive pyrite-silica. From 311.2 to 312.0, a larger silicified brecciated volcanic clast occurs-sealed by silica with little sulphide development. Overall this unit contains semi-massive pyrite, with very fine grained base metal sulphides throughout and as coarser grained segregations amd clots. An abrupt contact with the unit below occurs.													
313.0	317.4	4.5	100	White, intensely silicified rock, becoming reddish-pink with increasing depth (due to hematite). Weakly fractured with extremely thin sericite coatings on some fractures. The unit is 'silica flooded' with the original rock being totally replaced by silica. A few remnants of original rock remain, indicating it was once a breccia of volcanic fragments in a fine grained matrix. Sulphides are absent.	13437	313.0	314.0	100		<0.01	0.1	<5	65	8	11	<1	0.57	
					8		315.0			"	<0.1	"	11	6	7	"	0.53	
					9		316.0			"	"	"	8	4	8	"	0.44	
					13440		317.0	91		"	0.1	"	10	7	8	"	0.49	
					1		318.0			0.02	"	15	12	11	25	"	1.48	
					2		319.0			<0.01	"	10	28	22	60	"	1.32	
					3		320.0			"	"	"	12	20	50	"	1.19	
					4		321.0			0.02	0.2	20	14	19	22	"	2.10	
317.4	325.9	7.7	91	Pale grey-pink volcanics. Appears to consist of brecciated or auto-brecciated 'lumps' of pink, silic lava in a fine grained, very weakly chloritic matrix. The rock is weakly foliated and contains abundant fine stringers and fractures sealed with calcite. Quartz veining is rare and the rock overall is un-silicified. Fine grained sulphides occur but are not abundant.	6		322.0			0.03	"	25	14	26	18	3	1.91	
					7		323.0			<0.01	"	20	12	17	26	1	1.96	
					8		324.0			0.03	"	10	12	18	28	2	1.91	
					9		325.0			0.06	"	35	22	35	32	3	2.84	
					13450		326.0	100		"	0.3	20	68	100	160	2	3.70	
					1		327.0		1.26	1.01	3.7	45	4000	180	140	21	6.00	
					2		328.0		3.84	3.77	1.5	20	900	120	96	8	1.35	Zone B
325.9	331.2	5.3	100	The top 0.7m of this unit is characterised by increased foliation, quartz veining and fine grained pyrite development. Also the lava clasts are not hematitic (pink) but retain the pale grey colour of the matrix. They are still siliceous however. Below 326.6m, larger diffuse segregations and lenses of silica or strongly silicified lava clasts (white) are present and the matrix is also more silicified. Thin sericitic (brown) fracture	3		329.0		0.20	0.21	1.0	30	400	140	54	14	2.69	
					5		330.0		1.41	1.32	2.8	35	5000	260	230	20	2.47	
					13456	330.0	331.0			0.13	1.4	50	155	95	102	14	2.64	

* higher values are averaged repeats

113182

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 1 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	Fe (%)
				coatings are more common, as is pyrite development. Chalcopyrite					ASSAY DATA (all ppm)							
				is also well developed-mainly as small splashes. Overall the												
				sulphides are not as abundant as the previous zone. Calcite												
				is well developed as above.												
				Between 327.0 and the end of this zone, two 1.0 and 0.5m patches												
				of pale pink coloured rock occur. Pyrite is almost absent from												
				these patches but small elenses rich in chalcopyrite are included												
				occasionally.												
				At 330.0, a 0.6m sheared and shattered fracture zone occurs in												
				the pyritic volcanics.												
				331.2-349.0 CHLORITIC VOLCANICLASTIC (GRIT) WITH ABUNDANT PINK	13457	331.0	332.0	100	<0.01	0.2	10	68	15	155	<1	4.55
				LAVA FRAGMENTS.	8		333.0		"	<0.1	<5	8	2	195	"	5.00
					9		334.0		"	"	"	10	5	125	"	3.05
331.2	349.0	17.8	100	Dark grey-green, chloritic medium-coarse grained volcaniclastic.	13460		335.0		"	"	"	10	9	76	"	1.94
				Massive, with numerous, small pink, lava chips and darker green	1		336.0		"	"	5	4	12	180	"	4.50
				chloritic chips. Becomes coarser with depth overall - a grit.	2		337.0		"	"	10	8	8	130	"	3.29
				Small, thin fractures are calcite filled and the top 3.0m of this	3	337.0	338.0		"	"	<5	9	6	140	"	3.67
				unit contains minor, coarse, framboid-like pyrite grains. Variat-					"							
				ions in grain size occur, with very fine grained bands and	5	338.0	339.0	100	"	"	"	8	3	110	"	2.45
				gritty bands. Also a few large clasts (10-20cm) of pink hematitic	6		340.0		"	"	"	8	4	100	"	2.29
				coarse quartz sandstone, angular, exist. The gritty lenses are at	7		341.0		"	"	"	9	6	85	"	1.98
				60°CA, the same angle as the weak foliation. A few thin fractured	8		342.0		"	"	"	8	8	94	"	1.38
				clayey zones occur.	9		343.0		"	"	"	8	2	58	"	1.70
				Below 343.0, the pink chips suddenly become very abundant,	13470		344.0		"	"	"	6	7	88	"	2.32
				making the rock matrix poor. A few large pink siliceous lava	1		345.0		"	"	"	6	<1	92	"	2.28
				clasts also occur.	2		346.0		"	"	"	6	"	115	"	2.66
					3		347.0		"	"	"	6	"	105	"	2.50
				END OF HOLE 349.0	4	347.0	348.0		"	"	5	8	"	135	"	3.37
					13476	348.0	349.0	100	"	"	<5	6	"	115	"	2.41

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

113183

HOLE NO.: H.P. 2
STATE : TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	17-9-84
COMPLETED	23-10-84

PURPOSE

To test for the possibility of an at depth extension of the Au mineralised interval intersected in HFZ 5 and 10.

LOG SUMMARY / GENERAL COMMENTS

The two zones (A and B) encountered in H.P. 1 were again intersected in this hole. Zone A however, is included in the Henty Fault here and Zone B gave poor Au values. A wedge hole H.P. 2A confirmed the poor Zone B assays.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Width	Au	Ag	As	Bi	W	-all ppm	Cu	Pb	Zn	Fe	-all wt.%	COMMENTS
459.0	461.0	2.0m	4.47	12.5	13	25	<2		0.07	0.39	0.38	0.76		Zone A. (Poss B.)
519.0	520.0	1.0m	0.30	2.0	40	11	2		0.08	0.04	0.09	3.38		Zone B. (Poss C.)

LOCATION

NORTHING	5363831
EASTING	379706
R.L.	651.6
GRID	A.M.G.
LENGTH	586.0

HOLE CONDITION

SIZE Hole Size	SIZE Depth
TRICONE	0.0-6.0
NQ	-464.0
BQ	-586.0

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition
444.0	463.5	Completely shattered and sheared sericitic clays. Henty Fault.

HOLE CONDITIONS AFTER COMPLETION

H.P. 2 blocked below 492m as a Van Ruth Plug was placed at this depth. Wedge for H.P. 2A at this point. NQ casing left in hole from 287 to 464m. (N.B. live explosive and detonator still in casing). 3.0m HQ rod left in top of hole. Hole open to 287m where casing is damaged.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	124	57.0	0.0	20.0	20.0	16.8	634.8	10.9	10.9
40.0	121	56.0	20.0	60.0	40.0	33.2	601.6	22.4	33.3
80.0	122	54.0	60.0	100.0	40.0	32.4	569.2	23.5	56.8
120.0	123	53.0	100.0	140.0	40.0	31.9	537.3	24.1	80.9
160.0	122	52.0	140.0	180.0	40.0	31.5	505.8	24.6	105.5
200.0	124	50.0	180.0	220.0	40.0	30.6	475.2	25.7	131.2
240.0	124	51.0	220.0	262.5	42.5	33.0	442.2	26.7	157.9
285.0	122	48.0	262.5	305.0	42.5	31.6	410.6	28.4	186.3
325.0	126	46.0	305.0	342.5	37.5	27.0	383.6	26.0	212.3
360.0	122	42.0	342.5	380.0	37.5	25.1	358.5	27.9	240.2
400.0	121	38.0	380.0	420.0	40.0	24.6	333.9	31.6	271.7

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
440.0	-	37.5	420.0	460.0	40.0	24.4	309.5	31.7	303.4
480.0	122	34.5	460.0	497.5	37.5	21.2	288.2	30.9	334.3
515.0	-	35.0	497.5	531.0	33.5	19.2	269.0	27.4	361.7
547.0	124	29.0	531.0	566.0	35.0	17.0	252.0	30.6	392.3
585.0	124	24.5	566.0	586.0	20.0	8.3	243.7	18.2	410.6

HOLE NO. HP 2 & HP 2A

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:2000

METRES

5 cm

PLAN VIEW

HP 2 124° AMG 57° Dip

651·6m R.L.

DIP PROFILE

IGNIMBRITES & EPICLASTICS WITH NUMEROUS MAFIC DYKES

STRONGLY FRACTURED

HENTY FAULT

ROCK TYPE CHANGE

AUTOBRECCIATED LAVAS & OTHER VOLCANICLASTICS

VOLCANICLASTICS, GRITS & BRECCIAS

E.O.H. 586·0m

Alteration Type

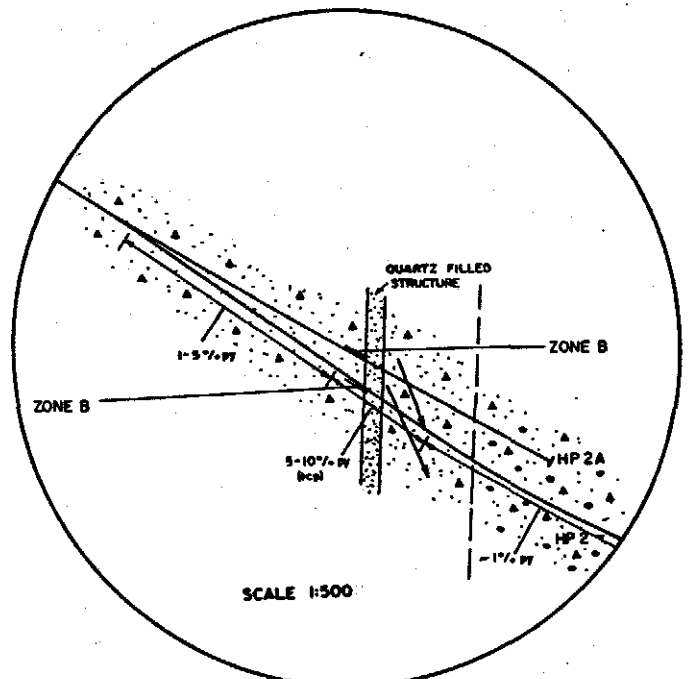
ser - sericitised
chlor - chloritised
epi - epidotised
alb - albitised
silf - silicified
carb - carbonated
pot - potassic
ox - oxidised

ZONE A
468·0 - 481·0m
2·0m @ 4·47 g/t Au
12·5 g/t Ag
0·07 %·Cu
0·39 %·Pb
0·36 %·Zn

ZONE B (HP 2)
519·0 - 520·0m
1·0m @ 0·30 g/t Au
2·0 g/t Ag
0·08 %·Cu
0·09 %·Zn

ZONE B (HP 2A)
516·0 - 517·0m
1·0m @ 0·10 g/t Au
0·8 g/t Ag
< 0·01 %·Cu

318·3m R.L. (Fault H.W.)
310·0m R.L. (Zone A)
307·0m R.L. (FAULT F.W.)
281·5m R.L. (ZONE B HP 2A)
277·8m R.L. (ZONE B HP 2)
245·7m R.L. (E.O.H.)



113184

GOLD FIELDS EXPLORATION PTY. LIMITED

113185 184

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				SUMMARISED LOG
0.0	444.0	444.0		MASSIVE PINK-GREEN VOLCANICS, PROBABLY IGNIMBRITES, WITH MINOR GREEN FINE GRAINED EPICLASTIC UNITS, INTRUDED BY GREEN, VERY FINE GRAINED MAFIC DYKES.
444.0	463.5	18.6		HENTY FAULT. STRONGLY FOLIATED, SHEARED, ALTERED ROCK (BOTH ABOVE AND BELOW ROCK TYPES). SERICITIC WITH MANY CRUMBLY SOIL-LIKE ZONES SULPHIDIC, ESPECIALLY TOWARDS THE FOOTWALL.
463.5	531.7	68.2		VOLCANICLASTIC BRECCIAS AND AUTOBRECCIATED, QUARTZ-PHYRIC DACITIC LAVAS WITH ZONES OF INTENSE SILICIFICATION AND ALTERATION. TWO PYRITIC ZONES OCCUR (ONE IS A CONTINUATION OF THE ZONE INCLUDED IN THE FAULT ABOVE).
531.7	586.0	54.3		VOLCANICLASTIC GRITS WITH NUMEROUS, LARGE LAVA FRAGMENTS. VERY WEAKLY ALTERED (CHLORITIC).
				DETAILED LOG.
				0.0-444.0 PINK-GREEN, MASSIVE VOLCANICS WITH MINOR GREEN, FINE GRAINED VOLCANICLASTICS, INTRUDED BY MAFIC DYKES.
0.0	6.0			Tricone, no core recovered.
6.0	82.0	76.0	100	Brown-green, moderately to strongly weathered volcanics. Massive, with pink-white phenocrysts or clasts up to 0.5cm wide in a fine grained green chloritic matrix. The rock is limonitic both pervasively and on fracture coatings. Overall the core is moderately fractured. Pale green mafic dykes, (2-3m wide) intrude the volcanics. Below 42.7, the limonite becomes rare but the rock is still vuggy, fractured and weathered. The volcanics are green-grey with the white phenocrysts of quartz and minor calcite probably pseudomorphing feldspars.

ASSAY DATA Sample No.	From	To	Rec. %

GOLD FIELDS EXPLORATION PTY. LIMITED

113186 185

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				At 49.0, pyrite (coarse grained) occurs on limonitic fractures in a mafic dyke.				
				Between 48.8 and 60.0, the dykes are particularly thick (5-6m) and frequent (volcanics only approx. 0.5m thick). This zone is relatively unweathered.				
				Below this zone, incipiently weathered, massive pale green volcanics with a few clasts and chips occur. These are predominantly darker green chloritic fragments. Pale green sericit e fracture coatings occur.				
				Betwen 77.3 and 82.0, a zone of limonitic fracture coatings.				
82.0	105.6	22.1	94	This zone is the same as above, but without the weathering apart from a few minor zones. This rock is only very weakly altered. Green, weakly chloritic (metamorphic chlorite) volcaniclastics - fine grained, are the predominant rock type. These contain a few blocks (10-20cm) of porphyritic lava. Metamorphic quartz-albite-chlorite-talc veins are common. A few very thin pale green sericite veinlets also occur.				
95.1-97.3, 1.6m lost)				Between 95.1 and 97.3, the core is fractured with dark brown limonite strongly developed.				
				Another weathered zone occurs between 99.0 and 103.0. This follows a highly fractured metamoprhic quartz-albite vein and the limonite continues into the lava below.				
				Between 100.8 and 104.9 a large zone of porphyritic lava occurs.				
105.6	129.0	23.4	100	Massive pink-grey/green lavas/ignimbrite. Hard siliceous pink patches in a dark green-grey matrix-possibly a result of albitisation. Moderately fractured, with limonite coatings persisting down to 111.0m. The pink colouration is intense in some patches and off-white in others. Mafic dykes/volcaniclastic lenses are rare and thin (20-30cm). A few thick (10-20cm) quartz-calcite veins occur with large euredral quartz crystals enclosed by amorphous calcite.				
129.0	164.0	35.0	100	Porphyritic lava/ignimbrite with calcite and quartz pseudomorphing				

GOLD FIELDS EXPLORATION PTY. LIMITED

113187 186

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				either phenocrysts or crystal fragments in a hard, dark green, very fine grained matrix/groundmass. Minor calcite veinlets are developed and metamorphic quartz±calcite±chlorite±albite veins are also present. Moderately fractured with a few pinkish zones. Below 133.0, fracturing increases slightly, with limonite coatings, to 135.0. Below 137.0, the pink 'blotches' return; small patches of pink ?albite alteration/metamorphism overprinting the chloritisation,- moderately developed. The metamorphic veining appears to be more intense at these patches of albitisation. Brown limonite still thinly coats many joint surfaces. Between 147.4 and 159.0, two mafic dykes seperated by 0.5m of volcanics occur. The dykes are strongly weathered fractured and limonitic. They are green, fine grained and massive. Below 159.0, the volcanics contain pink clasts, up to 10cm wide, as well as pink phenocrysts.				
164.0	181.2	17.2	100	An apparent mafic green dyke. The contact here however is well exposed and is so gradational (in grain size reduction) and the 'dyke' itself appears so much like a volcaniclastic, to indicate that it could be a co-ignimbrite ash deposit. The intimately mixed relationship between the so-called dyke and volcanic (ignimbritic?) rocks is seen in this unit. Both rock type are chloritic-a deep green colour. Calcite veining is moderately to strongly developed.				
181.2	247.8	66.6	100	The pink-red colouration due to albitisation (metamorphism?) returns. The basic rock type is still ignimbritic? and ashy intercalated unit with a chloritic and red-pink silica-albite overprinting. Between 182.0 and 186.0, a heavily fractured zone occurs, with limonite well developed. Definite pink clasts or fragments are contained in this unit- perhaps lava fragments. At 195.0, another green 'mafic dyke' occurs, with a very sharp contact zone. This is probably a true 'mafic dyke'-very fine grained				

GOLD FIELDS EXPLORATION PTY. LIMITED

113188

187

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				no phenocrysts, massive and structureless, as opposed to the green volcaniclastic units encountered up the hole. The dyke contains several calcite and dark green chloritic veins. A similar, sharp, angular contact occurs at the base of the dyke at 209.3.				
				The ignimbritic? volcanic returns past the dyke. Further dyke-like rocks occur at 224.0.				
				At 229.0, the volcanics are strongly banded at approx. 50° CA- these are more due to foliation/cleavage rather than bedding, although lenses of pink siliceous lava are also at this attitude. Traces of pyrite occur also, below 230.0. The volcanics here contain many pink siliceous lava fragments, and crystal fragments-is possibly a basal layer of an ignimbrite or ash flow unit.				
				Another dyke unit at 240.8. At 247.8, the dyke unit ends.				
247.8	316.0	68.2	100	Grey-green, pale brown and pink beds or bands of fine grained rock. Gradual and sharp contacts exist between the various units. Variably altered and metamorphosed volcaniclastic layers (predominantly epiclastics). Quartz-calcite veining is common. Moderately fractured, with a foliation developed parallel to bedding at 38-52° CA, average approx. 45°. Green mafic dykes also intrude this unit.				
				At 262.4, a mafic dyke occurs - 9.8m thick. The volcanics below this dyke are still foliated and banded, but are predominantly pink and silice ous. The core is moderately fractured with a few sericitic, sheared, fractured zones.				
				At 289.9, another mafic dyke, 10.1m thick. It also contains a small lense of chloritic volcanics which is highly fractured and shattered between 195.0 and 196.0.				
				Below 299.0, thin dark green mafic dykes intrude green, chloritic, fine grained volcaniclastics with white quartz and calcite pseudomorphing crystal fragments. Thin sericitic veinlets are common, as are fractured zones and quartz-calcite veins. With depth the dykes decrease in frequency rapidly.				
316.0	374.0	58.0	100	Below 316.0, the ?ignimbritic volcanic unit returns. Also,				

GOLD FIELDS EXPLORATION PTY. LIMITED

113189

188

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2

Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (all ppm) Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)	Au (FA)
				the pink-red intense albitisation pervades the rock. A massive, unit with pseudomorphed crystal fragments. A mafic dyke occurs at 346.0, 2.8m thick, otherwise these dykes are rare. The rock is only weakly fractured. At 370.0, a 1.0m thick zone of intense pink silicification occurs. Small pink lava chips occur randomly throughout and zones of more foliated, fine grained material-usually with more chlorite are seen.													
374.0	444.0	70.0	100	This unit is similar to that described immediately above; the more foliated, finer grained porphyritic volcanic with abundant chlorite. (Perhaps co-ignimbritic ash units). Mafic dykes are more common than above. This unit also contains more fractured zones. The fracturing increases with depth, and below 407.0, the core is moderately to strongly fractured (blockily). At 409.0 an 18.6m thick mafic dyke occurs. At 437.7, quartz-calcite-chlorite-hematite stockworks occur in the rock. The hematite is particularly noticeable.													
				444.0-463.5 STRONGLY SHEARED, FRACTURED AND FOLIATED SERICITIC ROCK WITH MANY SOIL-LIKE PUGGY ZONES. A CONTACT AT 459.0m.													
444.0	459.0	14.3	95	Pale green-cream, highly sheared clay. Soil-like puggy zones, highly foliated, sericite clay zones and zones of crumbly rock fragments. A few pyrite grains can be seen in the sericite clays, also thin pyritic horizons. Distorted and convoluted shearing and foliation are common features. At 444.7, a particularly wide (0.4m) zone of soil. Fine, sericitic fragments of rock, completely unconsolidated.	13498	456.0	457.0	95	<0.01	<0.1	<5	16	3	26	<1	<2	3.70	<0.005
					9		458.0		"	"	5	<1	4	4	"	"	0.41	0.005
					13500		459.0		0.09	0.4	20	56	180	125	"	"	3.20	0.035
					1	459.0	460.0	zone	5.34	11.0	20	740	2400	840	26	"	1.65	5.040
					2	460.0	461.0	&	3.59	14.0	5	600	5400	6800	23	"	0.87	3.565
459.0	463.5	4.3	95	Contact with underlying rock. Still faulted as above, but a medium grey colour, more clayey (puggy) deformed rock. Pyrite is at 1-2% overall, but small clasts of sulphide-rich material appear. More competent, rock fragments and pieces become more abundant with depth. The lower 1-2m are also quite strongly pyritic in	3		462.0		0.11	5.4	40	580	2700	200	16	"	3.00	0.167
					4	462.0	462.4		0.14	4.2	20	280	3100	3100	10	"	1.45	0.175
					13505	462.4	463.2		0.05	4.6	70	220	2300	1950	13	"	3.40	0.082

*higher values are averaged repeats

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au(fa)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)	Au(F.A.)
				places:- very fine grained pyrite approx 5% vol.	13506	463.2	464.0	100	<0.01	1.7	25	250	2100	1400	7	<2	1.45	<0.005
					7		465.0		"	3.1	20	140	140	21	5	"	1.90	0.030
				463.5-531.7 VARIABLY BUT STRONGLY ALTERED AND SILICIFIED VOLCAN-	8		466.0		"	1.6	25	9	60	11	<1	"	2.10	0.025
				ICLASTIC BRECCIAS WITH TWO MAIN SULPHIDE ZONES.	9		467.0		"	0.1	10	3	8	8	"	"	0.66	
					13510		468.0		"	<0.1	<5	3	14	13	"	"	0.45	
463.5	466.0	2.5	100	Pale cream and grey silicified and sheared pyritic volcanics.	1		469.0		"	"	"	9	18	10	"	"	0.58	
				The original rock type is obscured by zones of silicification	2		470.0		"	"	55	5	17	22	"	"	0.75	
				and pyritisation with minor sericit e. Pale pink silicified zones	3		471.0		"	0.2	170	7	56	39	"	"	1.75	
				occur. No carbonates are present and the pyrite occurs mainly	4		472.0		"	<0.1	35	9	18	16	"	"	0.60	
				as a very fine grained dissemination and as thin stringers. Pyrite	5		473.0		"	"	45	15	32	19	"	"	0.79	
				content is 10-15% vol. This unit is also included in the latter	6		474.0		"	"	30	8	18	12	"	"	0.71	
				part of the fault.	7		475.0		"	"	15	7	20	14	"	"	0.73	
					8		476.0		"	"	15	3	17	12	"	"	0.72	
466.0	477.2	11.2	100	Pale pink and green silicified volcanics. Weakly pyritic, approx	9		477.0		"	"	20	6	14	26	"	"	0.87	
				1-5% vol. with pieces of silicified volcanics (possibly quartz	13520	477.0	478.0		"	"	<5	4	13	10	"	"	0.59	
				phyric) cemented with silica and minor sericite and pyrite. Massive														
				and relatively unfractured. Base metal sulphides may be present-														
				very fine grained.														
477.2	487.4	10.2	100	Reddish pink and grey, variably silicified volcaniclastics. A														
				breccia unit consisting of pink, silicified lava or ignimbrite														
				fragments (pebble sized and smaller) in a dark grey-green chloritic														
				fine grained matrix, which is very weakly silicified. Zones of														
				more massive lavas (up to 0.8m wide) also occur. A few patches	14201	486.0	487.0	100	<0.01	0.2	30	16	14	32	28	<2	0.89	
				of very intense silicification are present throughout this unit.	2		488.0		"	0.1	15	"	16	16	1	"	1.05	
				No sulphides apparent.	3		489.0		"	"	15	10	19	14	3	"	0.95	
					4		490.0		0.03	"	15	19	26	30	2	"	1.07	
487.4	493.0	5.6	100	Pale green-grey silicified volcaniclastic breccia as described	5		491.0		0.04	0.2	20	20	37	22	"	"	0.11	
				above, except the pink colouration is absent. The basic rock type	6		492.0		<0.01	"	20	9	23	15	"	"	0.98	
				is the same and the silicification/alteration features are also	7		493.0		"	0.1	10	13	18	32	"	"	1.40	
				similar. The volcanics are quartz phyric and calcite is present	8		494.0		"	<0.1	<5	7	12	70	<1	"	2.10	
				as an alteration product. Very fine grained pyrite occurs - as	14209	494.0	495.0		"	0.3	"	84	11	39	"	"	1.36	
				disseminations. At 491.4, the pink colouration returns.														
493.0	516.0	23.0	100	Pale-pink purple and green volcanics-predominantly lavas (or														

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113191

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au* (AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)	Au (FA)
									ASSAY DATA (all ppm)									
				ignimbrites), which contain brecciated zones. Weakly silicified,	14210	495.0	496.0	100	<0.01	0.1	<5	17	11	43	<1	<2	1.61	
				chloritic when green, with weak pyrite development. Minor chal-	1		497.0		0.03	0.4	15	19	35	78	4	"	2.52	
				copyrite occurs. Calcite (secondary) is pervasive throughout.	2		498.0		"	0.3	10	12	28	41	3	"	1.98	
				Overall the sulphide content is low, 1-5% by vol. The unit is	3		499.0		<0.01	"	"	13	39	40	8	"	2.18	
				chloritic between 493.0 and 496.5m. A few quartz-calcite veinlets	4		500.0		0.04	"	5	13	19	140	4	"	1.66	
				are present and the core is only weakly fractured.	5		501.0		<0.01	0.2	"	15	24	28	<1	"	1.57	
					6		502.0		0.05	0.3	10	18	34	50	"	"	1.56	
516.0	526.5	10.5	100	Grey volcanics, mainly lavas as above with very fine grained,	7		503.0		0.04	"	"	13	36	25	2	"	1.98	
				epiclastics. The unit is pyritic, calcite/sericitic and siliceous	8		504.0		0.03	"	"	16	27	23	"	"	2.21	
				The pyrite is quite strongly developed, in many places 5-10% by	9		505.0		0.04	"	"	8	34	16	4	"	1.42	
				vol. A major massive silica-calcite-(pyrite-chalcopyrite) zone	14220		506.0		0.03	"	"	10	28	17	3	"	1.84	
				2.0m wide, occurs at 519.5m. This resembles a large quartz vein,	1		507.0		<0.01	0.2	20	18	26	31	"	"	2.22	
				with the sulphides particularly strongly developed either side.	2		508.0		<0.01	0.3	10	14	25	23	1	"	2.00	
				The bedding occurs at 32° CA.	3		509.0		0.05	0.7	35	18	56	60	3	"	3.90	
					4		510.0		0.03	0.4	20	"	39	24	"	"	2.89	
526.5	531.7	5.2	100	Pale pink and grey volcaniclastics with brecciated lava fragments	5		511.0		<0.01	0.3	10	"	32	47	1	"	2.51	
				in a fine grained matrix. Pale pink, quartz phyric lava clasts	6		512.0		"	"	5	16	23	95	"	"	3.37	
				are clearly outlined against a dark, chloritic background. A very	7		513.0		"	0.2	"	15	"	105	"	"	3.88	
				weakly altered unit. Rare sulphides.	8		514.0		"	0.1	"	14	24	150	<1	"	4.78	
					9		515.0		0.04	"	"	20	"	76	"	"	3.71	0.017
				531.7-586.0 PINK-GREEN GRITTY VOLCANICLASTICS WITH NUMEROUS,	14230		516.0		0.07	0.4	35	140	96	140	2	"	4.76	0.058
				LARGE, PINK LAVA FRAGMENTS.	1		517.0		0.09	1.2	20	34	70	70	6	"	3.31	0.108
					2		518.0		0.12	1.5	"	31	94	29	8	"	3.47	0.125
531.7	568.1	36.4	100	Pink volcaniclastic grit. Together with larger, pink, lava fragments	3		519.0		0.15	2.6	50	84	290	29	15	"	4.04	0.175
				(up to 20cm wide) this unit consists of numerous pink-red grit	4		520.0	ZONE B or C	0.30	2.0	40	800	440	860	11	2	3.38	0.500
				sized lava chips in a dark grey siliceous matrix. Anhedral quartz	5		521.0		<0.01	<0.1	<5	25	16	94	<1	2	0.58	0.008
				grains are also present. A few, coarse grained pyrite crystals	6		522.0		0.03	"	5	7	18	98	7	"	3.08	0.025
				occur.	7		523.0		"	"	"	10	15	80	"	"	2.25	
				Below 539.0, a few zones of pale pink silica and white silica-	8		524.0		<0.01	"	"	7	8	74	5	"	2.37	
				intergrown in a mosaic texture, overprint the original rock. These	9		525.0		"	"	"	16	17	72	7	"	2.44	
				are much less common below 561.2.	14240		526.0		"	"	"	170	20	240	5	"	2.47	
				The grainsize of the gritty rock increases in places, to become	1		527.0		"	"	"	64	13	82	2	"	2.67	
				almost a conglomerate.	2		528.0		"	"	"	170	16	88	1	"	3.37	
					3		529.0		"	"	10	140	2	62	2	"	1.86	
568.1	586.0	17.9	100	Intergrown/interbedded fine grained volcaniclastics and gritty	4		530.0		"	"	<5	175	<1	115	<1	"	3.58	
					5	530.0	531.0		"	"	"	1100	1	52	1	2	1.41	

* higher values are averaged intervals

GOLD FIELDS EXPLORATION PTY. LIMITED

113192 191

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2 Page: 8.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				volcaniclastics. Both units contain large lava clasts, the gritty
				units are the same as those described above. A few, thin (0.3m
				wide) pale cream silicified zones begin to occur below 575.0.
				A few small stringers of calcite are also present.
				Below 579.0, the gritty, chlor tic volcaniclastic predominates.
				Overall the unit is unfractured and massive.
				END OF HOLE 586.0

ASSAY DATA (all ppm)

Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)
14246	531.0	532.0	100	<0.01	<0.1	<5	58	2	66	<1	<2	1.71
7		533.0		"	"	"	100	1	86	"	2	2.03
14248	533.0	534.0		"	"	"	220	<1	90	"	<2	1.98

192

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

113193

HOLE NO: H.P. 2A
STATE : TASMANIA

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	27-10-84
COMPLETED	30-10-84

PURPOSE

Additional sample wedge run off from H.P. 2 at 492m.

LOG SUMMARY / GENERAL COMMENTS

Wedge hole through Zone B. Encountered similar lithologies to H.P. 2. Assay results are recorded below.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Width(m)	Au	Ag	As	Cu	Pb	Zn	Bi	all ppm	Fe	wt%		COMMENTS
516.0	517.0	1.0	0.10	0.8	20	38	72	82	5		3.64			Zone B.

OCATION

NORTHING	5363831
EASTING	379706
R.L.	651.6
GRID	AMG
LENGTH	45.5

HOLE CONDITION

SIZE Hole Size	SIZE Depth
BQ	492.0-
	537.5

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition

HOLE CONDITIONS AFTER COMPLETION

As for H.P. 2

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
From H.P. 2							281.7		343.6
508.0	122	30.0	492.0	522.0	30.0	15.0	266.7	26.0	369.6
536.0	-	29.0	522.0	537.5	15.5	7.5	259.2	13.6	383.2

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

GOLD FIELDS EXPLORATION PTY. LIMITED

113194

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2A

Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)	
					ASSAY DATA (all ppm)													
				SUMMARISED LOG	14249	492·0	493·0	100	<0·01	<0·1	10	34	20	68	1	<2	1·88	
					50		494·0		"	"	<5	10	3	66	"	"	2·08	
492.0	529.5	37.5		VOLCANICLASTIC BRECCIAS, EPICLASTICS AND AUTOBRECCIATED LAVAS.	1		495·0		"	"	5	"	10	21	"	"	0·92	
				MODERATELY ALTERED WITH A ZONE OF INTENSE SILICIFICATION	2		496·0		"	"	<5	9	8	44	"	"	1·80	
				SURROUNDED BY A SULPHIDIC HALO (ZONE B).	3		497·0		0·04	0·1	10	"	12	58	2	"	2·25	
					4		498·0		0·05	0·3	20	8	31	45	4	"	2·24	
529.5	537.5	8.0		WEAKLY ALTERED (CHLORITIC) VOLCANICLASTIC GRITS, CONTAINING	5		499·0		0·03	0·2	5	10	21	36	5	"	1·87	
				PINK LAVA CHIPS, WHITE QUARTZ GRAINS AND A FEW ZONES OF	7		500·0		<0·01	0·1	<5	16	17	33	4	"	1·85	
				AUTOBRECCIATED LAVAS AND EPICLASTICS.	8		501·0		"	0·2	10	15	22	26	"	"	1·56	
					9		502·0		"	0·3	"	7	41	20	"	"	1·73	
				DETAILED LOG	14260		503·0		"	0·2	20	21	42	33	3	"	2·14	
					1		504·0		"	<0·1	15	7	21	15	2	"	1·42	
				492.0-529.5 GREY, FINE GRAINED VOLCANICLASTICS WITH BRECCIATED	2		505·0		"	0·3	"	8	41	60	4	"	1·64	
				LAVAS. VARIABLY SILICIFIED AND PYRITIC.	4		506·0		"	"	"	17	21	56	3	"	2·24	
					5		507·0		"	0·1	10	13	19	35	2	"	2·01	
492.0	516.0	24.0	100	Pale purple-grey, moderately silicified fine grained volcaniclas-	6		508·0		"	0·3	25	16	37	45	"	"	3·00	
				tics and brecciated fine grained lavas (or ignimbrites).	7		509·0		0·07	1·1	10	14	46	56	"	"	3·34	
				Silicification and calcite are pervasive throughout. Fine	8		510·0		<0·01	0·1	"	16	26	64	1	"	3·08	
				grained pyrite occurs randomly. Zones of brecciated lava	14269		511·0		"	<0·1	<5	7	12	58	2	"	2·01	
				and large lava fragments are common. The lava fragments	14271		512·0		"	0·3	10	14	26	140	<1	"	5·06	
				are pink and often contain thin calcite filled fractures.	2		513·0		"	0·2	"	17	43	"	1	"	5·69	
				The volcaniclastics are dark grey-green, weakly chloritic	3		514·0		"	0·1	5	8	25	50	1	"	2·11	
				and sericitic, and are also slightly foliated. Overall	4		515·0		"	0·2	10	15	54	82	2	"	2·74	
				the core is unfractured and the pyrite content is 1-5%	5		516·0		"	"	15	17	50	110	"	"	3·85	
				by vol.	6		517·0		0·10	0·8	20	38	72	82	5	"	3·64	Zone B ore
					8		518·0		0·06	"	30	50	84	130	9	"	3·50	
516.0	526.0	10.0	100	Grey volcanics, predominantly very fine grained epiclastics	9		519·0		<0·01	0·2	10	14	180	"	4	"	1·68	
				with minor brecciated lavas or ignimbrites. This unit is	14280		520·0		"	<0·1	<5	10	8	21	<1	"	0·64	
				both more foliated and more pyritic (5-10% by vol.) than	1		521·0		"	"	5	7	22	92	8	"	2·44	
				the unit above. Silicification and sericitisation are also	2		522·0		"	"	10	8	14	100	7	"	2·88	
				more strongly developed.	3		523·0		"	"	"	5	11	86	6	2	2·60	
				At 518.2, a 2.1m zone of massive, granular, intergrown	4		524·0		"	0·2	"	7	20	72	10	<2	1·91	
				quartz and calcite occurs. This zone resembles a single	6		525·0		"	0·1	20	50	36	88	5	"	3·06	
				large vein (containing various phase of silica deposition)	7		526·0		"	"	15	185	29	105	2	"	3·49	
				with only very minor sulphide development.	14288	526·0	527·0		"	<0·1	5	430	8	66	1	"	1·74	

GOLD FIELDS EXPLORATION PTY. LIMITED

113195

DEV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 2A Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				At 525.0, bedded epiclastics occur; bedding at 40° CA.
526.0	529.5	3.5	100	Grey fine grained volcaniclastics with numerous white and colourless quartz grains. (Grit sized). Alteration is weakly chloritic, moderately siliceous and weakly pyritic. A few zones of brecciated lava clasts (pink) and increased silicification occur. Between 527.0 and 527.5, a quartz vein similar to the one described in the previous unit ocurs. Overall pyrite is 1-2% by vol. with a few 'splashes' of chalcopyrite.
				529.5-537.5 CHLORITIC, GRITTY VOLCANICLASTIC CONTAINING PINK LAVA CHIPS AND WHITE QUARTZ GRAINS.
529.5	537.5	8.0	100	Dark green and pink volcaniclastic grit. A few larger (up to 10cm wide) fragments of pink lava occur. The unit mainly consists of abundant pink-red grit sized lava chips in a fine grained chloritic matrix. A few patches of volcaniclastics rich-chip poor rock occur. The unit is weakly fractured and poorly sulphidic (approx. 1% by vol.). As well as the pink chips, small (grit sized) white, anhedral quartz fragments are also present.
				END OF HOLE 537.5

ASSAY DATA (all ppm)

Sample No.	From	To	Rec. %	Au(Ms)	Ag	As	Cu	Pb	Zn	Bi	W	Fe (%)
14289	527.0	528.0	100	<0.01	<0.1	<5	19	8	52	3	<2	1.70
90		529.0		"	"	"	260	7	74	2	"	2.22
1		530.0		"	"	5	1500	12	41	<1	"	1.18
3		531.0		"	0.1	<5	880	7	62	"	"	1.58
4		532.0		"	<0.1	"	200	6	84	1	"	2.10
5		533.0		"	"	"	155	"	72	<1	"	1.70
6		534.0		"	"	"	520	"	80	"	"	2.00
7		535.0		"	"	"	210	"	66	1	"	1.71
8		536.0		"	"	"	180	"	86	"	"	2.00
9		537.0		"	"	"	11	"	68	<1	"	1.62
14300		537.5		"	"	"	7	5	84	"	"	1.94

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

113196

HOLE NO. : HP3 &HP3A

STATE : TASMANIA

ULV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	22-1-84
COMPLETED	17-1-85

PURPOSE

To test for a possible northern extension of the mineralisation encountered in H.P. 1 and H.F.Z.5.

LOG SUMMARY / GENERAL COMMENTS

A Van Ruth plug and wedge were placed at 234.0m, to deviate around a snapped NQ rod and bit blocking the hole (H.P. 3) at 250.0m. This second hole (H.P.3A) stopped at 267.0m when drilling conditions in the fault became extremely difficult. A second plug and wedge were placed at 170.0m but the attempt to drill off this was unsuccessful. The hole was abandoned with NQ casing left in HP3 between 204.0m and 231.0m. This casing was blasted, blocking the hole at 204.0m. The hole is also blocked with

ASSAY SUMMARY

INTERVAL From	INTERVAL To													COMMENTS

LOCATION

NORTHING	5364163
EASTING	379988
R.L.	592.9
GRID	A.M.G.
LENGTH	267.0

HOLE CONDITION

SIZE	
Hole Size	Depth
HP3,TRI	0.0-2.0
HP3,NQ	2.0-250.0
HP3A,BQ	234-267.0

SIGNIFICANT CORE LOSS INTERVALS		
From	To	% Lost
227.0	250.0(HP3)	31
234.0	267.0(HP3A)	47

POOR GROUND CONDITION ZONES		
From	To	Condition
227.0	267.0	HENTY FAULT. Highly shattered
		and sheared sericitic clay-
		rock and puggy, soil-like
		zones.

HOLE CONDITIONS AFTER COMPLETION

debris at the surface. H.P. 3 encountered the Henty Fault hangingwall contact at 227.0m and due to the drilling difficulties experienced, never reached the footwall contact. No assays have been undertaken.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

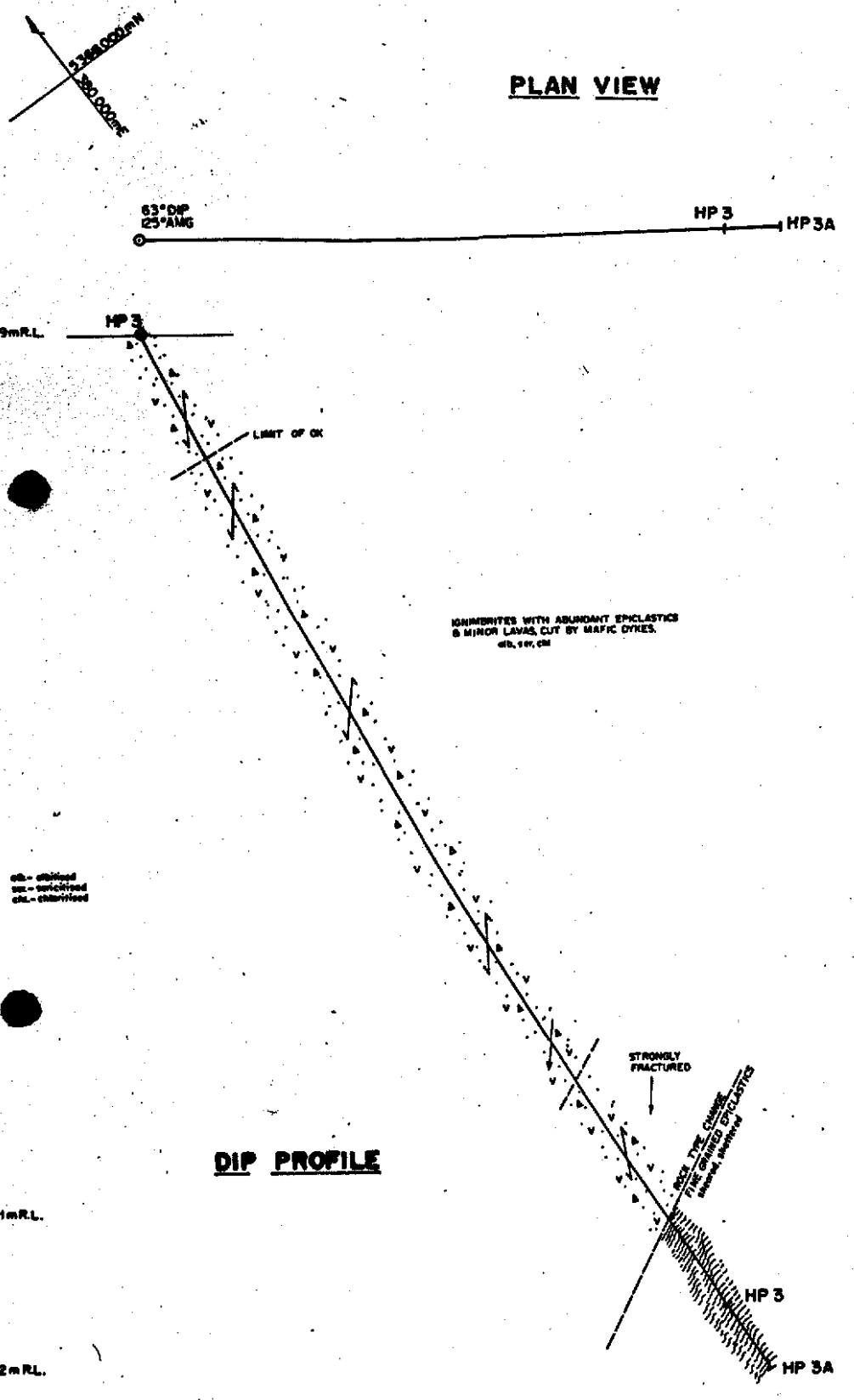
SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	125	63.0	0.0	15.0	15.0	13.4	579.5	6.8	6.8
30.0	127	62.0	15.0	50.0	35.0	30.9	548.6	16.4	23.2
70.0	127	61.0	50.0	89.5	39.5	34.6	514.0	19.2	42.4
109.0	127	60.0	89.5	128.5	39.0	33.8	480.2	19.5	61.9
148.0	125	59.0	128.5	164.5	36.0	30.9	449.3	18.5	80.4
181.0	125	57.0	164.5	200.5	36.0	30.2	419.1	19.6	100.0
220.0	125	56.0	200.5	243.0	42.5	35.2	383.9	23.8	123.8
266.0	125	55.0	243.0	267.0	24.0	19.7	364.2	13.8	137.6

ASSUMED SURVEY DATA

HOLE NO. HP3. & H.P. 3A

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT



SCALE 1:1000

5 cm

METRES

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 3 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				SUMMARISED LOG
0.0	227.0	221.5		WEAKLY ALTERED, METAMORPHOSED VOLCANICLASTICS CONSISTING OF PYROCLASTIC BRECCIAS AND CONGLOMERATES WITH MINOR EPICLASTICS AND LAVAS. THE SEQUENCE IS CUT BY MAFIC DYKES.
227.0	250.0	15.9	and	HENTY FAULT. PALE COLOURED FINE GRAINED E PICLASTICS COMPLETELY
234.0	267.0	17.6	(HP3A)	ALTERED TO SERICIT E. HIGHLY DEFORMED AND SHATTERED WITH NUMEROUS PUGGY AND SOIL-LIKE ZONES.
				DETAILED LOG
				0.0-227.0 WEAKLY ALTERED FELSIC VOLCANICLASTICS CONSISTING OF GRITTY BRECCIAS WITH MINOR EPICLASTICS. MINOR LAVAS OCCUR ALSO.
0.0	2.0			Tricone, no core recovered.
2.0	31.0	26.5	91	Moderately weathered, and fractured, brown-grey-green volcanic intruded by green, mafic dykes. The latter are particularly weathered to limonitic clays, whereas the volcanics are usually only weakly altered. They consist of medium coarse grained, massive unsorted ignimbrites with the clasts consisting of pink and white siliceous fragments. In places the rock is strongly foliated at 23° CA. Thick (10-20cm) quartz, metamorphic veins also occur.
31.0	227.0	195.0	99	Pink-grey-green ignimbrites and minor epiclastics with mafic dykes. The same unit as above, but relatively unweathered. The dykes are cut by many thin calcite veins. Below 40.0, the core shows evidence of stronger metamorphism, with quartz-ablite (pink) zones developed. The core is still foliated at 29° CA and a few strongly sericitic crush zones are also present. Metamorphic quartz veins are quite common. Dykes are quite rare in this massive metamorphosed unit.

ASSAY DATA Sample No.	From	To	Rec. %

11369

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P.3 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				At 90.0, a zone of epiclastic-rich rock occurs. This is still metamorphosed as above, but is sheared and chloritic. A fine grained e piclastic with pink grit sized chips. The unit is intruded by dykes and is quite fractured. The epiclastics are massive and bedding is difficult to discern, the foliation being at 35°CA. Thin calcite veinlets are common.				
				Below 98.0, the rock is almost exclusively a dyke-epiclastic sequence, with a large dyke sequence predominating.				
				At 135.5, the rock is strongly metamorphosed iqnimbrite? as before. The dykes and epiclastics are only very minor. Large metamorphic quartz veins occur.				
				A few moderately fractured epiclastic zones occur between 140.0 and 149.0.				
				Rare, thin sericite filled fractures occur also. These parallel the foliation at 30°CA, where developed.				
				At 178.0, the epiclastic units re-occur. Bedding? in these is at 37° CA. Foliation also runs at this attitude. Very fine grained, pale green sericitic 'beds' are present. The core is moderately fractured and veined. A few, pink, massive lava-like, siliceous, fine grained zones also occur. They are intercalated with the epiclastics.				
(187.7	to 190.6,	1.9m	rec.)	At 191.0, the core becomes quite highly fractured; blocky, into lengths up to 20cm. This continues to 194.0. Below this the rock is red-pink, probably brecciated lava-massive, siliceous, weakly veined and fractured. The veins are mainly calcite, and pale green sericite is weakly pervasive. This lasts to 200.0, where a sheared, foliated volcaniclastic occurs. The fragments are grit sized and pink. Green epiclastics lenses also occur. These volcaniclastic/epiclastics are richer in sericite, with many narrow, fractured-sericitic zones present. Lenses of epiclastics and foliation are parallel, at 23° CA. Fine grained mafic dykes cut these sequences.				
				At 212.8, two, 10cm thick bands of pale brown siltstone occur, with 1mm thick horizons of pyrite running through them.				

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 3 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Between 216.5 and 218.5, a zone rich in metamorphic quartz with minor chlorite veins, occurs. This veining continues to a lesser degree of intensity, below this zone.
				227.0-250.0 HENTY FAULT. HIGHLY FRACTURED AND SHATTERED, SERICITIC EPICLASTICS.
227.0	250.0	15.9	69	Highly shattered and sheared, sericitic, fine grained e piclastics. Fractured into incompetent gravels and clays. Below 229.0, the disturbance of the core is more intense, with many zones of crumbly , clayey, sericitic rock and zones of pug:- grit and clay, totally unconsolidated. The original rock type is obscured by the sericitisation and fracturing, but was probably a fine grained e piclastic- a different rock type to those in the hangingwall. At 242.0, the crushed, crumbly zones are absent, with more solid clay-rock occuring. This is highly foliated, with a second phase of folding distorting the original foliation. At 247.6, the crushed zone returns. Sheared and shattered in-situ, foliated clay-rock.
				END OF HP3, 250.0m
				H.P.3A
				234.0-267.0 HENTY FAULT. HIGHLY FRACTURED AND SHATTERED, SERICITIC EPICLASTICS.
234.0	267.0	17.6	53	Pale cream-green, strongly sericitic rock. Highly crumbly and fractured. Shattered and foliated, with large zones of incompetent soil-like clay-rock. Pug zones are also present. Patches of intact rock occur. These are very clayey and very foliated with re-folded foliation common. The original was probably a fine grained eipiclastic. Between 261.0 and 262.0, 1.7m of crumbly soil occurs. This is cave material from higher up the hole.
				END OF H.P.3A, 267.0m

ASSAY DATA

Sample No.	From	To	Rec. %

11320

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	H.P. 4
STATE	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	21-1-85
COMPLETED	11-2-85

PURPOSE

To test for possible northern extensions of the mineralisation (Zones A and B) encountered in H.P.1 and H.F.Z. 5.

LOG SUMMARY / GENERAL COMMENTS

Three Au-bearing zones (Zones A, B and C - see assays below) were intersected by this hole. The rock surrounding and including Zones A and B is particularly sulphidic and auriferous. A new zone, Zone C occurs in weaker mineralised rock, in the underlying gritty volcaniclastics. The rock type change in the Henty Fault occurs on the hangingwall in this hole

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Width (m)	Au	Ag	As	Cu	Pb	Zn	Bi	W	- all ppm			COMMENTS
232.0	239.0	7.0	7.86	36.0	85.0	1500	3450	1550	138	2				N.B. Au values quoted
including: 235.0	237.0	2.0	26.11	111.5	100.0	4050	6900	4500	420	3	- ZONE	A		are averages of
245.0	263.0	18.0	2.93	2.9	37.0	1700	400	100	9	3				Fire Assays only.
including: 256.0	260.0	4.0	10.95	4.2	20.0	2800	195	68	16	2	- ZONE	B		
334.0	335.0	1.0	5.00	9.6	135.0	1300	660	700	1	<2	- ZONE	C		

LOCATION

NORTHING	5364163
EASTING	379985
R.L.	592.7
GRID	A.M.G.
LENGTH	364.0

HOLE CONDITION

SIZE Hole Size	SIZE Depth
NQ	0.0-229.5
BQ	-364.0

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
200.3	218.0	76

POOR GROUND CONDITION ZONES From	To	Condition
200.3	229.2	Henty Fault. Strongly shattered and sheared, puggy sericitic clays and rock.

HOLE CONDITIONS AFTER COMPLETION

Hole blocked below 229.5 by a Van Ruth plug. Wedge for H.P. 4A placed at this point. Hole open to bottom of H.P. 4A from 180.0m (NQ casing from 180.0 to 229.5). Casing blasted free at 180.0 - hole probably blocked at this point.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	122	57.0	0.0	25.0	25.0	21.0	571.7	13.6	13.6
50.0	121	53.0	25.0	75.0	50.0	39.9	531.8	30.1	43.7
100.0	119	51.0	75.0	121.0	46.0	35.8	496.0	29.0	72.7
142.0	117	46.0	121.0	162.0	41.0	29.5	466.5	28.5	101.2
182.0	116	45.0	162.0	206.0	44.0	31.1	435.4	31.1	132.3
230.0	116	44.0	206.0	250.0	44.0	30.6	404.8	31.7	164.0
270.0	(123)*	43.0	250.0	292.5	42.5	29.0	375.8	31.1	195.1
315.0	114	41.0	292.5	335.0	42.5	27.9	347.9	32.1	227.2
355.0	118	39.0	335.0	364.0	29.0	18.3	329.6	22.5	249.7
* incorrect bearing									

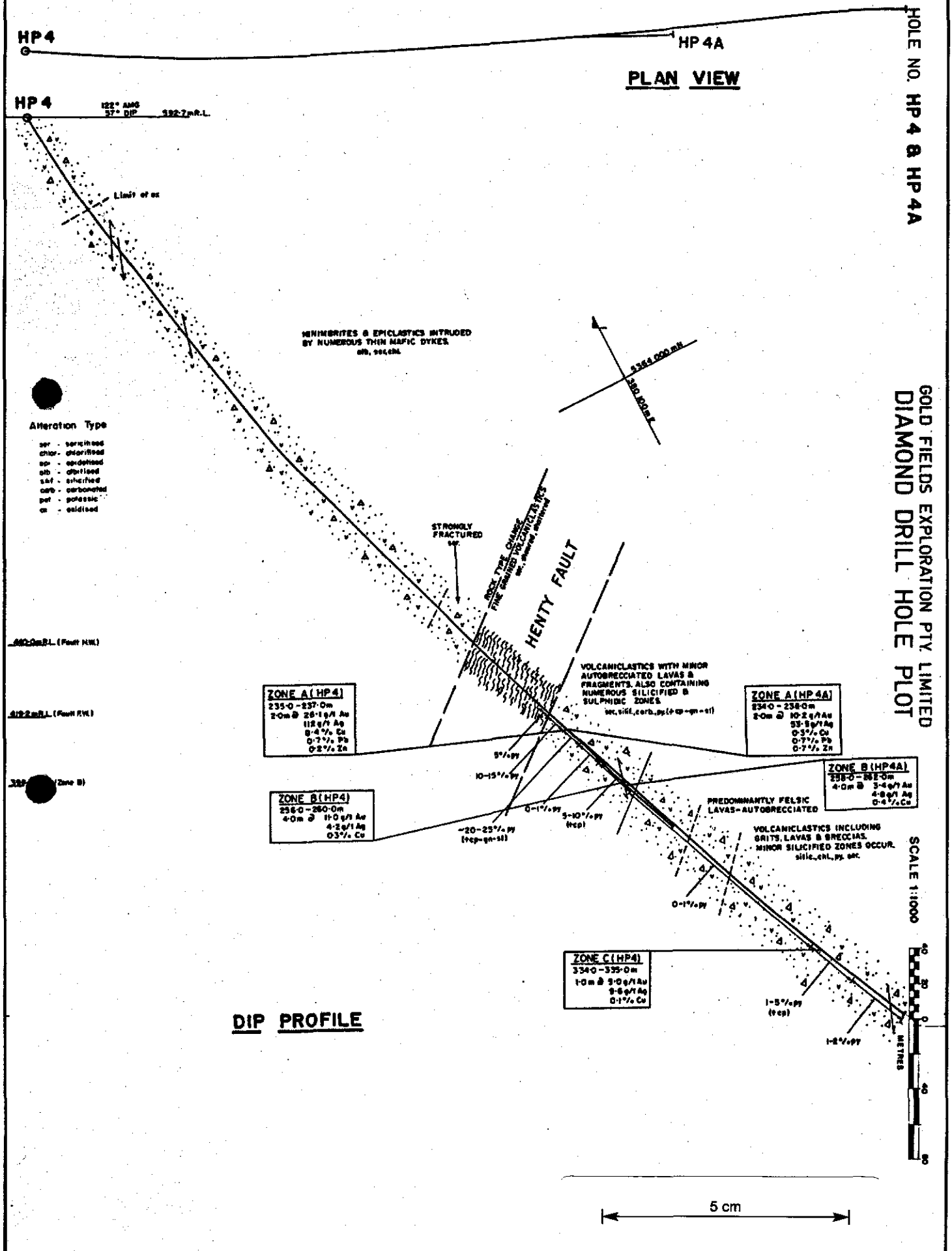
SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

113201

HOLE NO. HP 4 & HP 4A

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT



GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				SUMMARISED LOG
0.0	200.3	191.7		RED/PINK-GREEN QUARTZ PHYRIC IGNIMBRITES AND GREEN EIPICLASTICS INTRUDED BY NUMEROUS MAFIC DYKES. QUARTZ-CHLORITE-ALBITE-CALCITE METAMORPHISM IS WELL DEVELPED, ALTERATION IS WEAK, RESTRICTED TO A FEW SERICITIC ZONES.
200.3	229.2	14.1		HENTY FAULT. HIGHLY SHATTERED ROCK IN CONTACT WITH UNIT ABOVE, THAT CONTAINS A FEW SHALEY LENSES IN A FINE GRAINED EPICLASTIC? SEQUENCE. HIGHLY ALTERED TO SERICITE WITH MINOR SULPHIDES SHEARED AND FOLIATED NEAR THE HANGING WALL; BRECCIATED NEAR THE FOOTWALL.
229.2	263.8	33.6		STRONGLY DEVELOPED SILICIFIED AND SULPHIDIC ALTERATION ZONES, OVERPRINTING VOLCANICLASTIC BRECCIAS. TWO PARTICULARLY WELL DEVELOPED SULPHIDE ZONES OCCUR (ZONES A AND B).
263.8	364.0	100.8		VOLCANICLASTICS AND FELSIC LAVAS WITH A MODERATELY WELL DEVELOPED SILICIFIED-SULPHIDE ZONE (ZONE C). OVERALL, WEAKLY ALTERED.
				DETAILED LOG.
				0.0-200.3 IGNIMBRITES WITH MINOR FINE AND MEDIUM GRAINED ERI-CLASTICS INTRUDED BY NUMEROUS, THIN MAFIC DYKES.
0.0	31.0	25.5	82	Brown-pink weathered volcanics. Quite strongly foliated (at
(0.0-7	0, 5.0m	recovered)		40° to CA) and fractured with abundant, brown limonite. Overall a dark green weak chloritic matrix containing pink, sheared out clasts.
(10.0-13.0, 0.5m recovered)				Pink-green metamorphic veins are common, as are brown, completely weathered (limonitic) mafic dykes, 1-3m wide. In places the pink clasts are off-white and leached with small limonitic pits developed. These are crystals or clasts now pseudomorphed
(22.0-26.0, 3.0m recovered)				by quartz (and calcite-probably weathered out) in epiclastics and/ or ignimbrites without the pink albitic colouration.

ASSAY DATA Sample No.	From	To	Rec. %

11132903

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
31.0	200.3	166.2	98	Relatively unweathered, pink-green ignimbrites (or lavas). Massive hard, unfoliated, quartz phyric volcanics. A metamorphic chlorite-albite alteration is well developed, creating the pink-green colour. Weakly fractured with quartz and chlorite veinlets. Moderate silicification also occurs with the metamorphism. Green, finer grained epiclastics are present, mainly as horizons and lenses, some with large clasts of ignimbrite. These are weakly foliated at 35° CA.
				Between 44.0 and 46.0, a particularly well defined e piclastic sequence occurs, with bedding at 28°CA. This unit is very fine-grained and sericitic in places.
				Below this zone, all the volcanic unit are foliated at 35°CA. Mafic dykes (thin, 1-2m) occur below 48.0. These have sharp, often irregular contacts with the volcanic they intrude and are extremely fine grained with abundant calcite wispy veins developed. They are also usually weakly foliated.
(59.0-60.8, 1.0m recovered)				Below 55.0, the pink-green albite-chlorite metamorphism is abundant again. The thin (1-2m) mafic dykes still occur.
				Below 80.0, the pink colouration is rare, with numerous, green mafic dykes intruding green volcaniclastics. A few sheared, and shattered sericitic zones occur in the dykes at 27° CA. All this remains to 88.7, where the pink-red-green massive ignimbritic unit returns.
				Below 97.0, large, angular, red, silicified clasts of quartz phyric rock occur-or they are red due to metamorphism and/or alteration. Sharp contacts occur. Pale green-brown silicified zones and patches also are present. This lasts until 105.0, where combined pink-green metamorphism(albite-chlorite) occurs.
				Below 110.0, volcaniclastics (chloritic) with occasional large volcanic clasts predominate. At 118.0, the pink albitic patches return briefly, to 123.0. Mafic dykes become more aboundant below this depth. At 135.0, the intense pink colour becomes common again.
				At 144.5, the pink-green (albite-chlorite) metamorphism changes to a pink-grey colour. Al the original rock-type features remain

ASSAY DATA Sample No.	From	To	Rec. %

1132044

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				the same. Only minor, green chloritic patches occur in this hard, silicified volcanic. Below this depth, the pink-grey coloured silicified volcanics are common, alternating approximately every 10m with the dark green, mafic dyke rich volcaniclastics (predominantly gritty epiclastics).
				Softish, pale green sericitic epiclastics occur below 158.0 The core is also slightly to moderately fractured below this depth. Below 164.0, a few irregular calcite veins occur. Below 177.0, metamorphic (quartz-chlorite) vein are also common.
(186.3-189.3,	1.6m recovered)			At 186.3, the core becomes very strongly fractured -into short (5-10cm) blocky, sheared pieces. Zones of strongly developed
(191.5-194.2,	1.8m recovered)			sericitic clays occur - highly shattered and crumbly. Overall the rock becomes weakly sericitic - pervasively developed.
				200.3-229.2 STRONGLY SHATTERED AND SHEARED, PUGGY VOLCANICS, MODERATELY TO STRONGLY ALTERED TO SERICITE, CALCITE, QUARTZ AND SULPHIDES. HENTY FAULT.
200.3	218.0	4.3	24	Pale green, highly fractured, foliated and sheared volcanics. Now altered to sericite and clays. A few short lengths (approx. 10cm long) of core exist, otherwise the rock is so shattered as to be soil-like. Later crenulations have contorted the foliation developed.
				At 212.0, a bright green clay mineral occurs with minor sulphides.
				Below 212.0, approximately 4.0m of grey, high sheared shaley rock occurs. The shearing is at 18° CA.
218.0	226.2	7.1	87	Pale grey green highly fractured volcanics. The core is only very weakly foliated and sheared, but is extremely clayey and puggy with many fault breccias developed. The original rock type is totally obscured. A few rare grains of pyrite are present
226.3	229.2	2.7	90	Medium grey, moderately silicified, sericitic volcanics. Still highly fractured and shattered (in fault) rock, but slightly

ASSAY DATA

Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	W
16263	221.2	222.2	87	<0.01	0.5	10	79	135	82	<1	<2
4		223.2		"	0.8	25	41	1500	800	"	"
5		224.2		"	0.2	15	20	320	135	"	"
7		225.2		"	0.2	10	33	47	94	"	"
16268	225.2	226.3		0.01	0.3	<5	88	24	42	"	"

113205

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au(AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Au(F.A.)	
				more competent than above. Moderately pyritic with some chalcopyrite (around 5% by vol.). Original rock has been totally replaced	16269	226·3	227·0	90	0·09	1·4	5	27	92	94	<1	<2	0·20	
				Green sericite stockworked veinlets and rarer calcite veins	70		228·0		0·35	3·8	5	1500	480	68	10	"	0·43	
				are also present. As above, the rock is not foliated.	16271	228·0	229·0		0·69	8·0	15	280	1100	500	18	"	0·90	
				229.2-263.8 VOLCANICLASTIC BRECCIAS, MODERATELY TO STRONGLY ALTERED WITH SILICIFIED AND SULPHIDIC ZONES.														
229.2	238.2	9.0	100	Medium-dark grey, moderately silicified volcanics. Again original rock is almost obscured by alteration. Unlike above, this rock														
				is foliated (moderately) and competent. Very fine grained sulphides	16273	229·0	230·0	100	0·06	1·0	20	50	60	220	12	<2	0·09	
				are abundant (10-15% vol.) and minor calcite occurs. The original	4		231·0		0·01	2·2	35	146	84	130	5	"	0·07	
				rock where it can be seen is a fine grained volcaniclastic	5		232·0		<0·01	0·2	10	64	34	140	<1	"	0·02	
				with a few quartzose fragments-up to pebble sized (angular,	6		233·0		0·02	0·3	5	21	34	64	"	2	0·73	
				white fragments-possibly lava chips).	8		234·0		0·13	5·4	20	100	500	52	13	<2	0·80	
				Below 234.0, the intensity of sulphide development increases,	9		235·0		0·11	7·0	25	1100	5800	5000	7	"	0·42	
				with sulphides amounting to approx. 20-25% of the rock by vol.	16280		236·0		5·61	88·0	70	7000	8000	4000	360	4	30·82	ZONE A
				At 234.8, a 10cm long galena-sphalerite rich zone occurs and	1		237·0		14·63	135·0	130	1100	8700	1800	480	2	21·39	ZONE A
				a chalcopyrite rich patch occurs at 135.6. At 235.2, a 40cm	2		238·0		0·39	7·7	175	940	490	310	56	<2	0·58	
				zone of massive, fine grained pyrite and silica occurs. Between	3		239·0		0·23	8·4	170	260	580	230	50	4	0·27	
				237.0 and 238.2 several thin (approx 5cm) lenses of similar	5		240·0		<0·01	0·5	30	27	50	130	2	<2		
				massive pyrite (with chalcopyrite) are present.	16286	240·0	241·0		"	0·3	20	30	31	41	2	"		
				This sulphide rich phase ends very sharply against the rock below.														
											N.B. SAMPLES 16269-83 HAVE BEEN ASSAYED FOR Au A NUMBER OF TIMES AT DIFFERENT LABS. THE VALUES SHOWN HERE ARE AVERAGED; A FULL LIST OF ASSAYS APPEARS ON PAGE 9.							
238.2	239.6	1.4	100	Highly silicified and totally replaced pale grey-greenish white rock. Amorphous, grey silica-calcite-pale green sericite														
				brecciated and cut by white quartz veins and stockworks. No														
				sulphides are present and thin (5cm) sericite-rich fractured														
				zones occur.														
239.6	240.6	1.0	100	Moderately silicified and foliated volcaniclastic breccias.														
				Pale grey-white in colour, with silicified, white-grey volcanic														
				clasts in a foliated, weakly pyritic (1-5% py), grey, silicified,														
				fine grained matrix. Secondary calcite is also developed.														

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 4 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au(AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Au(FA)	
240.6	245.4	4.8	100	Pink-grey silicified volcaniclastic breccias. Pink and grey, sheared out clasts of lava and quartz, often with quartz-calcite veins in a very fine grained, pale grey matrix which is weakly silicified and sericitic. The rock is very weakly pyritic (0-1% by vol.). At 245.8, the lower contact of this unit, a thin (0.5cm) quartz-calcite-sericit e vein-fracture occurs at 58° CA.														
245.4	246.1	0.7	100	Medium grey silicified, moderately sulphidic volcanics. Probably still volcaniclastics as above, with approx.10% sulphides.	16287	241·0	242·0	100	<0·01	0·2	<5	12	27	72	1	<2		
					8		243·0		0·01	0·2	"	12	13	28	1	"		
246.1	263.8	17.7	100	Multi-coloured silicified volcanics. Medium-dark grey, sulphidic volcaniclastic breccias and pink, highly silicified and quartz-calcite stockworked rock, are common. Sulphides approx. 5% vol. Between 248.0 and 249.0, bright green flecks (clays) occur throughout a pale brown, fine grained rock. Below 251.0, sulphides are more regular - fine grained and - 5-10% by vol. Chalcopyrite is found throughout this unit. The rock is unfractured, only weakly foliated in the sulphidic volcaniclastics and clayey sericite zones are rare. Below 256.0, the strongly silicified zones are absent. Instead, very large clasts (fragments up to 20cm) of siliceous rock occur. These are often fractured and veined with silica and green sericite. Pale pink and white clasts are present. Thin, overprinting calcite and quartz veinlets are quite common and sulphides are approx. 10% by vol. Widespread, disseminated pyrite and chalcopyrite 'splashes' are the main sulphide phases. At 260.6, a 25cm thick zone of semi-massive pyrite with calcite and rare quartz and chalcopyrite occurs. The rock is foliated with most of the smaller quartzose clasts stretched and elongated at 35° CA. Overall the original rock type is relatively unobscured in this moderately-highly altered zone. It consists of breccias of lava fragments in a very fine grained e piclastic with minor	9		244·0		0·01	1·0	20	12	15	33	<1	"		
					16290		245·0		0·05	1·2	5	14	16	47	3	"		
					1		246·0		0·21	2·1	30	230	120	62	4	"	0·31	
					2		247·0		0·74	4·7	10	1450	58	72	5	"	0·87	
					3		248·0		1·39	2·7	25	135	120	66	6	"	1·75	
					5		249·0		0·31	0·9	25	1500	56	58	8	2	0·33	
					6		250·0		0·73	2·1	15	840	27	33	9	4	1·39	
					7		251·0		0·03	1·1	15	1600	70	41	5	4	0·44	
					8		252·0		0·06	0·6	10	48	31	27	2	2	0·22	
					9		253·0		0·15	2·4	40	1600	330	145	11	2	0·26	
					16300		254·0		0·09	1·9	20	2500	250	160	5	<2	0·25	
					16501		255·0		0·12	2·2	30	1350	4000	360	5	<2	0·30	
					2		256·0		0·12	1·3	15	700	270	37	6	"	0·19	
					4		257·0		9·14	4·2	5	2400	330	68	27	2	11·74	ZONE B
					5		258·0		1·26	2·4	25	2000	120	78	12	<2	1·67	ZONE B
					6		259·0		1·09	3·4	20	3900	140	56	14	2	1·13	ZONE B
					7		260·0		25·00	6·9	30	2800	180	70	11	2	29·24	
					16531		261·0		0·62	8·1	235	4600	530	380	20	2	1·10	
					2		262·0		0·91	3·7	95	2000	150	70	12	2	1·24	
					3		263·0		0·42	0·9	20	520	41	50	5	4	0·38	
					4		264·0		0·05	0·1	<5	24	9	35	3	2	0·05	
					5		265·0		0·03	<0·1	"	56	3	120	1	2	<0·01	
					7		266·0		<0·01	"	"	14	2	130	<1	<2		
					8		267·0		0·01	"	"	37	4	86	1	2		
					16539	267·0	268·0		<0·01	"	"	15	4	35	1	4		

N.B. Samples 16291-300 and 16501-7 have been assayed for Au a number of times at different labs. The values shown here are averaged; a full list of assays appears on page 9.

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 4 Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au(AAS)	Ag	As	Cu	Pb	Zn	Bi	W
				patches of epiclastic rich-lava fragment poor rock. Metamorphism	16540	268·0	269·0	100	0·01	<0·1	<5	7	13	32	3	6
				has albitised (pinkened) many of the fragments which are angular,	1		270·0		"	"	"	17	6	68	1	2
				unsorted and boulder to coarse sand sized.	16585		271·0		<0·01	"	"	6	4	140	<1	"
				Alteration consists of replacement by carbonates and sulphides	6		272·0		"	"	"	4	3	120	"	"
				and pervasive silica flooding, with later quartz-calcite-sulphide	7		273·0		"	"	"	6	4	105	"	4
				veining and stockworking.	8		274·0		"	"	"	5	5	120	"	4
				Below 262.4, the rock is particularly pink/red and silicified,	9		275·0		"	"	"	4	3	125	"	<2
				with no sulphides present.	16590		276·0		"	"	"	4	3	115	"	"
					1		277·0		"	"	"	4	3	130	"	"
				263.8-364.0 VARIABLY ALTERED VOLCANICLASTICS WITH FELSIC LAVAS.	2		278·0		"	"	"	3	4	120	"	"
				MODERATELY STRONGLY DEVELOPED SILICEOUS SULPHIDE ZONES.	3		279·0		"	"	"	3	3	125	"	4
					5		280·0		"	"	"	3	2	125	1	2
263.8	285.4	21.6	100	Grey, gritty volcaniclastics consisting of numerous angular	6		281·0		"	"	"	3	3	125	<1	<2
				grit sized, pink lava and white quartz fragment in a dark grey	7		282·0		"	"	"	2	2	125	"	"
				fine grained matrix. The unit is variably silicified, with	8		283·0		"	"	"	3	2	100	"	2
				many pale grey zones. Calcite veins cut the rock randomly.	9		284·0		"	"	"	8	2	82	"	<2
				The core is unfractured. The contact with the unit above is	16600		285·0		"	"	"	9	2	92	"	"
				sharp and appears to be at 40° CA.	1		286·0	97	"	"	"	14	3	100	"	"
				Below 270.0, the silicified zones are almost absent, the	3		287·0		0·02	"	10	39	3	110	"	"
				calcite veins are rare veinlets and interstitial infillings,	4		288·0		<0·01	"	<5	7	3	86	"	"
				and extremely thin, brown sericitie veinlets, parallelling	5		289·0		"	"	5	9	8	54	"	"
				an incipiently developed foliation occur at approx. 35° CA.	6		290·0		"	"	<5	8	4	80	"	"
				The grit is very clast rich and matrix poor. Sulphides are	7		291·0		"	"	"	15	2	42	"	2
				absent from this unit.	8		292·0		0·01	"	"	5	2	82	"	<2
				At 294.0, the last 1.4m of this unit consists of a few, large	9		293·0		<0·01	"	"	4	2	64	"	"
				(up to 0.5m), pink homogenous, siliceous lava fragments in	16611		294·0		"	"	"	43	4	68	"	"
				an extremely fine grained epiclastic (dark grey-green). Bedding	2		295·0		"	"	"	90	3	95	"	2
				appears to be at approx. 10° CA and the core is moderately	3		296·0		"	"	"	11	3	115	"	<2
				fractured.	4		297·0		"	"	"	3	2	78	"	"
					5		298·0		"	"	"	5	3	48	"	2
285.4	301.5	15.7	97	Massive, siliceous pink lava, with minor, pink volcaniclastics	6		299·0		"	"	"	29	2	30	"	<2
				rich in lava fragments. The unit appears to be autobrecciated.	7		300·0		"	"	"	35	2	54	"	"
				The lavas are extensively veined, with thick quartz and minor	9		301·0		"	"	"	140	3	64	"	"
				calcite veins.	16620		302·0		"	"	"	5	6	90	"	"
				At 292.0, a 1.0m volcaniclastic rich zone occurs and this	1		303·0	100	"	"	"	5	3	100	"	"
					16622	303·0	304·0		"	"	"	8	2	110	"	"

11320208

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER H.P. 4 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Pb	Zn	Bi	W	Au (FA)	
				is particularly sericitic, highly shattered and fractured.	16623	304·0	305·0	100	<0·01	<0·1	<5	2	2	115	<1	2		
				Other similar shattered zones also occur (usually only 30-	4		306·0		"	"	"	10	15	60	"	2		
				40cm wide).	5		307·0		"	"	"	4	10	23	"	<2		
				A few cubes of pyrite are seen below 295.0	6		308·0		"	"	"	4	1	80	"	"		
					8		309·0		"	0·5	5	400	4	53	"	"		
301.5	326.5	25.0	100	Predominantly dark green-grey gritty volcaniclastics, with	9		310·0		"	0·2	<5	660	5	98	"	"		
				pink lava and quartzose chips as described in unit before last.	16630		311·0		"	0·2	"	1300	2	80	"	2		
				Several, large, pink lava flows/fragments (up to 2.5m wide)	1		312·0		"	<0·1	"	170	2	58	"	<2		
				ealso occur. These are similar to those described in unit above.	2		313·0		"	"	"	58	3	58	"	"		
				At 314.4 a 15cm zone of soil. Fissile clayey rock fractured up	3		314·0		"	"	"	10	5	43	"	2		
				into small soil-like pieces.	4		315·0		"	"	"	66	6	31	"	<2		
				Below 315.0, the lavas are absent and the volcaniclastic becomes	5		316·0		"	"	"	43	7	31	"	"		
				coarser, with sub rounded clasts pebble sized rather than grit	7		317·0		"	"	"	7	3	35	"	2		
				sized. Many are elongated (weakly) to approx. 55° CA.	8		318·0		"	"	"	6	2	43	"	"		
					9		319·0		"	"	"	5	3	40	"	<2		
325.6	330.6	4.1	100	A sharp contact with the above unit into a silicified zone.	16640		320·0		"	"	"	4	3	27	"	2		
				Massive and white-pale grey, with cracks filled with sericite	1		321·0		"	"	"	5	3	23	"	"		
				and minor calcite development. Moderately fractured.	2		322·0		"	"	"	4	3	20	"	"		
					3		323·0		"	"	"	3	4	30	"	<2		
330.6	339.0	8.4	100	A return to the unit before the silicified zones. Volcaniclastic	5		324·0		"	"	"	3	4	20	"	4		
				with lava fragments of varying sizes and shapes in a fine	6		325·0		0·01	"	"	4	4	25	"	2		
				grained matrix. The unit is however weakly silicified and sericitic	7		326·0		<0·01	"	"	4	3	34	"	4		
				with moderately abundant carbonate veins and quartz veins.	8		327·0		"	"	10	9	5	58	"	<2		
				At 344.3, a 20cm zone of 5-10% pyrite 'splashed' through the	16643		328·0		"	0·1	15	7	6	155	1	"		
				rock.	4		329·0		0·02	<0·1	<5	7	6	52	<1	2		
				Below 346.3, the rock is pink coloured-due to albitisation.	5		330·0		<0·01	"	"	8	3	28	"	8		
					7		331·0		"	0·1	15	17	12	140	1	2		
339.0	345.9	6.9	100	Pale grey, weakly sericitic, weakly silicified volcaniclastics.	8		332·0		0·04	0·5	25	14	40	170	5	<2	0·03	
				Original rock types are obscured by this alteration which also	9		333·0		<0·01	<0·1	<5	5	4	58	<1	2	0·01	
				includes 1-5% sulphides; both pyrite and chalcopyrite. Irregular	16650		334·0		0·03	0·5	25	15	62	210	6	<2	0·06	
				calcite veinlets are developed. Unfractured, Chalcopyrite is	1		335·0		4·15	9·6	135	1300	660	700	195	"	5·00	ZONE C
				particularly noticeable at 345.7. A few pale pink and white	2		336·0		0·07	0·4	25	41	94	120	5	2	0·11	
				irregular shaped clasts can be discerned in this unit.	3		337·0		0·03	<0·1	<5	11	7	70	1	<2	0·05	
					4		338·0		<0·01	"	"	7	2	60	1	"		
345.9	364.0	18.1	100	Grey pink, moderately sericitic volcaniclastics containing	6		339·0		0·01	0·1	5	28	4	83	1	"		
					16657		340·0		<0·01	<0·1	<5	5	5	115	<1	"		

11363
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GOLD FIELDS EXPLORATION PTY. LIMITED

DULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 8.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				large lava fragments (cobble sized to grit sized), pink and siliceous. The matrix is fine grained and sericitic with bands and lenses of sericite (pale brown/green) at approx. 45°CA, parallel to a very weakly developed foliation. Weakly fractured with a few calcite and quartz veins. This unit is weakly sulphidic (1-2% by vol.).
				Below 360.0, pink albitisation increases along with silicification, as the lava fragments increase below this depth.
				END OF HOLE 364.0

ASSAY DATA

Sample No.	From	To	Rec. %	Au (AAS)	Ag	As	Cu	Zn	Pb	Bi	W
16558	340·0	341·0	100	<0·01	<0·1	5	6	155	25	1	<2
9		342·0		"	"	<5	9	110	12	3	"
16560		343·0		0·02	0·2	15	15	100	47	5	"
1		344·0		0·01	<0·1	<5	7	100	5	2	"
2		346·0		0·01	0·1	15	165	78	10	1	2
3		346·0		0·14	2·3	"	1350	100	96	4	<2
5		347·0		0·02	0·5	10	62	105	78	2	"
6		348·0		<0·01	0·2	"	11	64	30	"	"
7		349·0		"	"	<5	16	90	24	<1	"
8		350·0		"	0·1	5	7	74	9	"	"
9		351·0		"	0·2	15	12	92	25	2	"
16570		352·0		0·02	0·5	20	28	120	40	3	"
1		353·0		<0·01	0·3	10	76	90	25	"	"
3		354·0		"	<0·1	<5	80	66	4	<1	"
4		355·0		"	"	"	50	58	2	"	"
5		356·0		"	"	"	14	49	"	"	"
6		357·0		"	0·8	5	170	64	9	"	"
7		358·0		"	0·3	"	11	47	20	2	"
8		359·0		"	0·4	15	33	41	20	5	"
9		360·0		"	0·3	20	15	56	13	2	"
16581		361·0		"	0·1	5	340	92	7	<1	2
2		362·0		"	0·1	<5	340	46	3	"	<2
3		363·0		"	<0·1	5	220	28	2	"	"
16584	363·0	364·0		"	"	<5	110	37	"	"	"

113210

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4 Page: 9.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Sample No.	From	To	Rec. %	Au ASSAY DATA GENALYSIS Au	Au-Rpl	Au-Rp2	ANALABS Au	S.G.S. Au(a)	Au(b)
							REPEATS:							
							METHOD:		B/AAS	B/AAS	B/AAS	F.A. (30g)	F.A. (MS)	F.A. (MB)
					16269	226.3	227.0		0.09			0.175	0.23	
					70		228.0		0.35			0.467	0.39	
					1		229.0		0.69			0.908	0.88	
					2	STD BBB =	2.00		0.70	1.64	1.40	2.000	4.16	3.86
					3	229.0	230.0		0.06			0.100	0.08	
					4		231.0		0.01			0.058	0.06	
					5		232.0		<0.01			0.017	0.03	
					6		233.0		0.02			0.025	1.44	
					7	A REPEAT OF	16281		16.00	15.00		19.800	19.30	17.10
					8	233.0	234.0		0.13			0.217	1.39	
					9		235.0		0.11			0.183	0.65	
					16280		236.0		1.34	8.70	6.80	28.330	38.30	
					1		237.0		14.00	13.50		19.200	20.70	36.00
					2		238.0		0.39			0.600	0.55	
					16283	238.0	239.0		0.23			0.283	0.25	
					16291	246.0	246.0		0.21			0.300	0.31	
					2		247.0		0.74			0.758	0.98	
					3		248.0		1.39	1.30		1.600	1.90	
					4	STD BBC =	4.00		1.03	1.39		2.750	3.94	4.72
					5	248.0	249.0		0.31			0.342	0.31	
					6		250.0		0.73			0.883	1.89	
					7		251.0		0.03			0.125	0.75	
					8		252.0		0.06			0.100	0.33	
					9		253.0		0.15			0.200	0.32	
					16300		254.0		0.09			0.167	0.33	
					16501		255.0		0.12			0.292	0.30	
					2		256.0		0.12			0.200	0.18	
					3	A REPEAT OF	16506		1.31	1.06		1.120	1.14	
					4	256.0	257.0		8.73	9.54		8.670	12.20	17.40
					5		258.0		1.22	1.30		1.490	1.85	
					6		259.0		1.00	0.99		0.867	1.37	
					16507	259.0	260.0		24.00	26.00		28.330	29.10	31.20

11321

GOLD FIELDS EXPLORATION PTY LIMITED

DRILL CORE RECORD

HOLE NO: HP4
STATE :

REPORT CMS 85/3/18

Petrological/Mineragraphic Descriptions

HP4 235·15m

16778 (T.S., P.S. 52900)
This rock may be classified broadly as a pyritic quartz-sericite phyllite. Major components comprise fine to microgranular quartz and fine to semi-sericitic muscovite with varying proportions of pyrite. Accessories include thinly disseminated sphalerite, minor films and clots of ankeritic carbonate and traces of apatite.

The rock is banded on a millimetric scale, with a concordant fine-grained phyllitic fabric reflecting a low-greenschist facies regional metamorphic overprint. Banding is largely a relict textural feature, but is enhanced by compositional variations. Typically, weakly sericitic bands of quartz-matrixed semi-massive pyrite alternate with weakly pyritic bands of sericite-quartz rock. Minor concordant lenses of medium-grained granular carbonate carry thinly disseminated weakly granulated sphalerite crystals, are accompanied by similarly mineralised discontinuous discordant films and represent recrystallized veinlets.

Pyritic bands are weakly phosphatic (apatitic) and consist essentially of fine-grained pyrite and variously semi-fibrous to directed-micro-granular quartz with semi-ubiquitous pressure-shadow fringe-type composites. Individual bands may be crudely lenticularly banded or exhibit vague relict "colloform" and "nodular" structures. These units are reasonably interpreted as representing a recrystallized pyritic impure chert facies of probable sinter-type "exhalative" origin.

In contrast, the interspersed (quartz-sericite) units exhibit fragmental relict textures. These are dominated by sub- to millimetric clasts of thoroughly silicified obsidian represented by weakly sericitic and ultrafinely pyrite-stained aggregates of fine to microcrystalline quartz with relict perlitic devitrification structures, defined partly by the distribution of sericite films. Subordinate clasts of stressed pyritic vein-type quartz with accessory apatite are present. The matrix consists of relatively pyritic/weakly siliceous sericite aggregates. Tbe fragmental aspects are enhanced by shear-induced boudinaging of veinlets, but these units are reasonably interpreted as primarily bands of psammitic rhyolitic lithic tuff. Minor leucoxenised opaques and rare zircons represent an accessory clastic heavy mineral component.

The polished section represents a band of semi-massive pyrite, comprising granular to sub- and euhedral crystals witha modal grainsize about 40 μ (range 10-150 μ). Rare relics of framboidal to micronodular pyrite are present. Thinly disseminated intergranular blebs of sphalerite, chalcopyrite and rarely galena range to 100 μ, with a mode about 25 μ. Pyrite-intergranular sphalerite exhibits pervasive sub-micron-sized chalcopyrite exsolution blebs.

Carbonate vein-hosted sphalerite crystals are essentially devoid of chalcopyrite exsolution. These features range to 250 μ diameter and grade into anhedral carbonate-intergranular patches (to 500 μ). Vein-marginal zones carry thinly disseminated galena, chalcopyrite and (tetrahedrite-)tennantite, with galena typically discrete and tennantite

usually loosely intergrown with chalcopyrite (composites to 175 μ). In this context, chalcopyrite carries rare submicron-sized inclusions of a metallic phase, probably bismuth (too fine for positive optical identification). Close examination revealed no detectable gold or optically specific silver phases.

HP4 235·4m
16779 (P.S. 52901)
This section represents a zone of "massive" pyrite, quartz-matrixed, with accessory mica, and texturally similar to the 16778 pyrite aggregates, although modally coarser-grained (mean 75 μ).

In comparison with 16778, this zone carries conspicuous pyrite-intergranular chalcopyrite. Galena is absent from the area sectioned and sphalerite is represented only in extremely rare microscopic blebs.

Intergranular chalcopyrite blebs and films grade into coarser irregular patches, to a few hundred microns in diameter, associated with poorly defined quartz veinlets. In this mode, chalcopyrite is frequently accompanied by blebs (10-125 μ) of tetrahedrite(-tennantite) which rarely include microscopic corroded relics of ?gudmundite.

"Tetrahedrite" is blue-grey in comparison with the greenish grey "tennantite" in 16778 and represents a possible locus of Ag. Close examination revealed no detectable gold.

HP4 235·6m
16780 (T.S., P.S. 52902)
This rock is essentially similar to 16778. In comparison, shearing effects are relatively marked, with enhanced secondary brecciation (boudinaging) effects; the rock approximating to a sericite phyllite-matrixed breccia.

Millimetric to centimetric, dimensionally orientated, platy to lensoid masses of sericite- and sericite-quartz-matrixed semi-massive pyrite aggregates are the major clast component. These are supplemented by variably pyritic quartz and sericitic quartz aggregates, partly recognisable as altered perlitic obsidian, and rarely including corroded quartz microphenocrysts in addition to thinly disseminated leucoxenised opaques. Minor intraclasts of recrystallized vein-type quartz are present, and some pyritic sericitic quartz aggregates with traces of apatite represent boudinaged veins.

The matrix consists of phyllitic white mica aggregates with pervasively disseminated fine-grained, pressure-shadowed pyrite and rare interspersed lenses of sphalerite. This corresponds with the sericite matrix in 16778. A relative abundance of sericite, both as matrix and as the major gangue component of pyrite aggregates may be correlated with the relatively marked shearing effects.

The polished section represents a zone of spongy semi-massive pyrite with interspersed irregular sub- to millimetric patches of chalcopyrite.

Pyrite is relatively coarse-grained, euhedral an of "metablastic" character with frequent microscopic inclusions, sometimes zonally arranged, of galena and chalcopyrite. Interstices comprise micaceous quartz aggregates with disseminations of chalcopyrite, galena and rarely sphalerite. Minor traces of tetrahedrite appear as microscopic blebs associated with chalcopyrite. The coarser chalcopyrite patches are studded with disseminated pyrite euhedra and carry traces of galena as intergranular blebs.

Close examination revealed a single 3x5 μ irregular particle of electrum enclosed in pyrite-intergranular galena.

HP4 259.35
16781

(T.S., P.S. 52903)
This rock represents a silicified-sericitised and sheared volcaniclastic sediment reasonably categorised as a rhyolitic lithic tuff with affinities to the altered clastic bands in 16778, although primary textural detail is partly obscured by secondary brecciation effects.

Major features comprise a poorly sorted framework (40-60 % of sectioned area) of variably sericitic and variably pyritic quartz aggregates and a phyllitic matrix of fine to semi-sericitic white mica with disseminated fine-grained pyrite.

Clasts are randomly sized in the sub- to millimetric range, with isolated centimetric types. The majority consist of fine to microcrystalline quartz, grading into sericitic quartz and sericite-quartz aggregates. Many exhibit faint relict perlitic devitrification structures and represent altered obsidian clasts. These are supplemented by clasts of vein-type quartz and the "megaclasts" consist of recrystallized vein-type quartz and ankeritic carbonate with a little pyrite and accessory muscovite. Accessory quartz grains represent crystal fragments in part. There are minor clasts of impure (sericitic-argillaceous) chert.

Clasts are sub- to rounded with subordinate angular types. Shapes are partly controlled by in-situ shear-induced boudinaging of perlitic-devitrified obsidian clasts. The boudinaged-intraclastic vein components are relatively angular.

The polished section is largely representative of a coarse clast of weakly micaceous quartz-carbonate vein material with disseminated quartz-intergranular blebs and spongy clots (to 1 mm) of chalcopyrite, a little fine pyrite, traces of sphalerite, and rare microscopic blebs of tetrahedrite.

This section exhibits conspicuous gold, disseminated throughout the quartz aggregates as single to clustered particles with no tendency to close spatial relationship with the disseminated sulphides. A total of approximately 60 particles were observed with equant to flaky and irregular shapes. Modal sizing is 10-15 μ in an observed range of 1-50 μ.

Clusters comprise from three to approximately 25 particles in areas of 300-500 μ diameter.

HP4 259.7m
16782

(P.S. 52904)
This section represents a banded pyritic phyllite with affinities to 16778.

Millimetric-scale bands and lenses of semi-massive quartz-matrixed pyrite carry semi-pervasively disseminated pyrite-intergranular chalcopyrite. Interspersed lensoid masses of quartz and carbonate grade into more or less massive carbonate lenses and include relatively conspicuous chalcopyrite, subordinate to minor pyrite and minor traces of pale sphalerite. These features represent boudinaged veinlets, at least in part, are distinctly carbonate-rich in comparison with the 16781 assemblage, and are devoid of detectable gold, at least in the area sectioned.

113213

213

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO. :	H.P. 4A
STATE :	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	A.J. CARTWRIGHT
COMMENCED	12-2-85
COMPLETED	14-2-85

PURPOSE

Additional sample wedges run off from H.P. 4A at 229.5m.

LOG SUMMARY / GENERAL COMMENTS

Wedge hole through Zones A and B. Encountered similar lithologies to H.P. 4. Assay results are recorded below.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Width (m)	Au	Ag	As	Cu	Pb	Zn	Bi	Fe (%)				COMMENTS
232·0	237·0	5·0	4·23	24·3	174·0	1500	3600	3700	94	6·87				N.B. Au values
including 234·0	236·0	2·0	10·17	53·5	285·0	2650	7000	7400	203	10·57	- ZONE	A		are averages of
														Fire Assays only.
245·0	262·0	17·0	1·25	2·7	62·0	1600	150	87	11	3·90				
including 258·0	262·0	4·0	3·43	4·8	120·0	4100	265	235	16	6·58	- ZONE	B		

LOCATION

NORTHING	5364163
EASTING	379985
R.L.	592.7
GRID	AMG
LENGTH	47.5

HOLE CONDITION

SIZE Hole Size	SIZE Depth
BQ	229.5-
	277.0

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost

POOR GROUND CONDITION ZONES From	To	Condition

HOLE CONDITIONS AFTER COMPLETION

As for H.P. 4.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D. Sin. Dip	VERTICAL R.L.	HORIZONTAL D. Cos. Dip	HORIZONTAL Prog. Total
From H.P. 4							419.2		149.2
233.0	118	45.0	229.5	253.5	24.0	17.0	402.2	17.0	166.2
274.0	119	42.0	253.5	277.0	23.5	15.7	386.5	17.5	183.7

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D. Sin. Dip	VERTICAL R.L.	HORIZONTAL D. Cos. Dip	HORIZONTAL Prog. Total

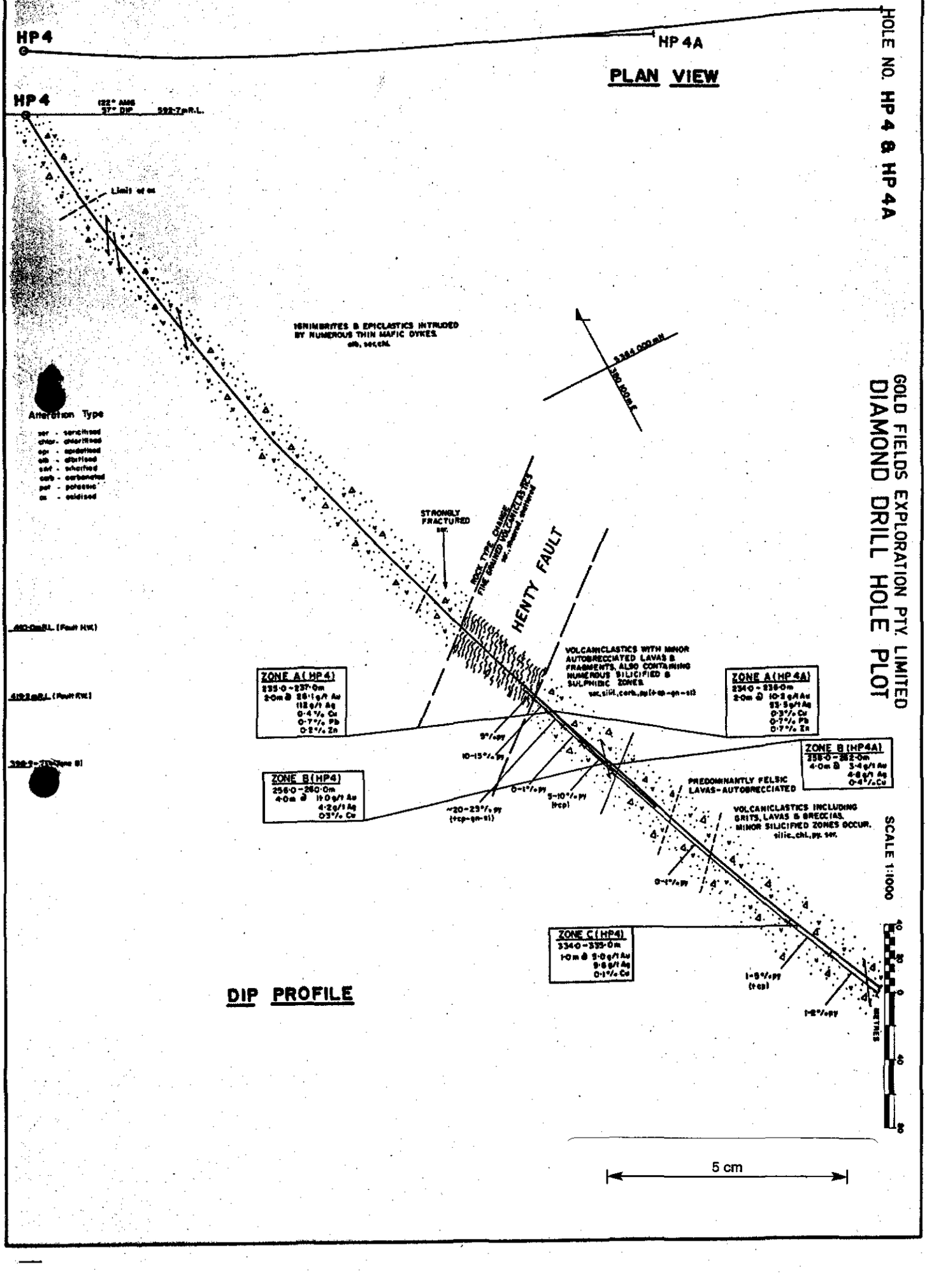
11621A

113215

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

HOLE NO. HP 4 & HP 4A



GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 4A Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (MS)	Ag	As	Cu	Pb	Zn	Bi	Fe	Au (F.A.)
				SUMMARISED LOG													
229.5	262.2	32.7		STRONGLY DEVELOPED SILICIFIED AND SULPHIDIC ALTERATION ZONES, OVER-PRINTING VOLCANICLASTIC BRECCIAS. TWO ZONES (A AND B) ARE WELL DEVELOPED.													
262.2	277.0	14.8		GRITTY VOLCANICLASTIC BRECCIAS WITH MINOR FELSIC LAVA FRAGMENTS. WEAKLY ALTERED.													
				DETAILED LOG.													
				229.5-262.2 VOLCANICLASTIC BRECCIAS, MODERATELY TO STRONGLY ALTERED WITH SILICIFIED AND SULPHIDIC ZONES.													
229.5	237.2	7.7	100	Dark grey silicified volcanics. Original rock type is obscured by the alteration although it appears to be a fine grained volcaniclastic													
				with pebble sized quartzose clasts. The rock is altered to	16649	229.5	230.0	100	0.04	1.2	85	72	150	220	8	4.25	0.05
				pervasive silica, fine grained sulphides, sericitie and calcite.	50		231.0		0.02	0.2	40	50	38	130	<1	2.89	0.02
				The rock is weakly foliated and incipiently fractured. Overall	1		232.0		0.02	0.2	25	19	34	50	"	2.34	0.03
				the sulphide content is 15-20% by vol, with random splashes	2		233.0		0.18	4.0	80	78	500	40	18	4.76	0.20
				of chalcopyrite the most visible base metal sulphide.	3		234.0		0.28	7.6	85	1900	4600	3500	13	4.93	0.36
				At 234.3, a 50cm zone of massive fine grained pyrite.	4		235.0		15.50	76.0	360	4000	9400	5800	320	14.00	17.50
				At 234.0, a 5cm zone of chalcopyrite mineralisation.	5		236.0		2.20	31.0	210	1300	3200	9000	86	6.54	2.83
				At 235.2 a 10cm patch rich in galena, sphalerite and chalcopyrite	6		237.0		0.20	3.1	135	250	210	115	33	4.10	0.26
				occurs.	8		238.0		0.10	1.9	75	270	150	250	18	1.94	0.08
				Overall, between 234.0 and 236.0, sulphides are rich, probably	9		239.0		0.04	0.2	30	12	27	115	3	1.10	0.02
				at approx. 25% by vol.	16660		240.0		0.03	0.1	55	70	18	46	<1	1.52	0.01
					1		241.0		0.06	0.1	20	10	12	25	1	1.44	0.01
237.2	239.6	2.4	100	Highly silicified, pale grey rock. Either totally replaced	2		242.0		0.03	0.1	10	11	11	18	2	2.67	<0.01
				rock or introduced silica with minor calcite and sericite;	3		243.0		0.04	0.4	25	12	16	40	2	2.02	0.02
				is brecciated and cut by veins and stockworks of quartz. Sulphides	4		244.0		0.06	0.9	35	15	14	22	2	3.67	0.05
				are absent.	16665	244.0	245.0		0.10	0.6	20	160	46	60	4		0.09
										FOR SAMPLES 16649 TO 16665, THE Au VALUES ARE							
239.6	245.1	5.5	100	Moderately silicified. Pale grey-pink-white volcaniclastic						AVERAGES OF A NUMBER OF ASSAYS. FOR A COMPLETE							
										LIST OF Au ASSAYS; SEE PAGE 3.							

11316

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 4A Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (ME)	Ag	As	Cu	Pb	Zn	Bi	Fe (%)	Au (FA)
				breccias. Large fragmented pieces of lava (up to 30cm) and lava	16666	245.0	246.0	100	0.34	4.2	35	500	150	62	7	1.92	0.42
				fragments (to coarse sand sized) in a fine grained matrix.	68		247.0		1.55	6.7	25	1000	170	165	7	1.43	1.83
				Weakly pyritic (1-2% by vol) with calcite-quartz veins developed.	9		248.0		0.29	1.6	65	320	80	44	7	3.50	0.30
				The unit is also weakly sericitic and foliated, at 35° CA.	16670		249.0		0.36	1.5	35	340	40	18	20	1.92	0.51
					1		250.0		1.47	4.1	50	580	58	32	15	2.73	1.67
245.1	262.2	17.1	100	Variably silicified volcanics. Medium to dark grey sulphidic	2		251.0		0.04	0.2	5	150	24	40	2	1.79	0.03
				(5-10% by vol) volcaniclastic breccias interbedded? with highly	3		252.0		0.22	1.4	30	96	60	86	7	2.55	0.23
				silicified coarse lava breccias - multicoloured (reds, pinks,	4		253.0		0.14	1.4	60	1600	145	85	8	5.00	0.16
				whites, greys and greens, and generally only very weakly sulphidic	5		254.0		0.08	0.6	20	1900	40	160	3	3.87	0.05
				(0-1% by vol.). The sulphides are fine grained disseminated	7		255.0		0.14	1.0	75	310	290	38	5	5.28	0.23
				pyrite with rarer, coarse grained splashes of chalcopyrite.	8		256.0		0.67	1.5	65	2000	210	105	13	3.70	0.88
				Weakly fractured and foliated. Quartz and calcite veins are	9		257.0		0.73	1.1	25	450	105	86	11	1.69	0.95
				present.	16680		258.0		0.27	2.0	85	1450	140	90	12	4.53	0.28
				Below 254.0, the volcaniclastic breccias dominate, with	1		259.0		4.63	5.2	65	7400	280	90	33	4.92	5.34
				several large silicified lava clasts instead of the silicified	2		260.0		8.50	4.6	115	2900	305	140	16	7.42	2.92
				zones. Also the sulphide content increases slightly - up to	3		261.0		0.86	6.9	260	3900	410	205	18	11.25	0.88
				approx. 10% by vol. overall. The relative amount of chalcopyrite	4		262.0		3.60	2.3	40	2100	58	33	5	2.73	4.58
				increases strongly.	6		263.0		0.03	<0.1	<5	32	9	54	<1	1.61	<0.01
				At 260.4 a 20cm zone of semi-massive pyrite occurs.	7		264.0		0.02	"	"	38	4	62	"	1.89	"
				At 261.5, a zone of pink silicification, with approx. 1-	8		265.0		<0.01	"	5	16	3	92	1	2.35	"
				5% by vol. sulphides occurs.	9		266.0		0.04	"	<5	72	2	120	<1	3.28	"
					16690		267.0		0.03	0.1	5	50	4	86	2	2.51	0.02
				262.2-277.0 GRITTY VOLCANICLASTICS, WEAKLY ALTERED AND UNFOLIATED.	1		268.0		0.04	<0.1	<5	8	3	47	<1	1.69	<0.01
					2		269.0		<0.01	"	5	7	4	23	2	0.98	
262.2	277.0	14.8	100	Dark grey-greenish volcaniclastics and epiclastics. Fragment-	4		270.0		"	"	<5	12	4	105	1	2.89	
				rich with angular, pink, grit-sized lava chips and white quartz	5		271.0		"	"	"	9	4	145	<1	4.07	
				being most abundant. Several, large (up to 10cm) pink, siliceous	6		272.0		"	"	"	3	3	100	1	3.01	
				lava fragments are also found as are zones of fragment-poor	7		273.0		"	"	5	6	2	100	<1	2.64	
				epiclastics. The unit is weakly silicified and moderately	8		274.0		"	"	<5	9	4	100	<1	2.72	
				sericitic, with no foliation developed. A few calcite splashes	9		275.0		"	"	"	9	4	100	1	2.66	
				occur and the sericite occurs as a network of fine crack infillings.	0		276.0		"	"	"	8	4	125	<1	3.19	
				The silicification is absent below 269.0.	16701	276.0	277.0		"	"	"	15	3	125	"	3.29	
				END OF HOLE 277.0						FOR SAMPLES 16666 TO 16691, THE Au VALUES ARE							
										AVERAGES OF A NUMBER OF ASSAYS. FOR A COMPLETE							
										LIST OF Au ASSAYS; SEE PAGE 3.							

11321

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4A Page:

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Au ASSAY DATA Sample No.	From	To	Rec. %	GENALYSIS Au	Au-Rp1	Au-Rp2		Au-1		ANALABS Au	ANALABS Au	
							REPEATS :		Au	Au-Rp1	Au-Rp2		Au-1		Au	Au	
							METHOD :		B/AAS	B/AAS	B/AAS		ROAST		F.A.(309)	F.A.(310)	
					16649	229·5	230·0		0·04						0·050		
					50		231·0		0·02						0·017		
					1		232·0		0·02						0·025		
					2		233·0		0·18				0·15		0·200		
					3		234·0		0·28	0·21			0·30		0·358		
					4		235·0		14·00				17·00		17·500		
					5		236·0		1·83	2·04			2·72		2·830		
					6		237·0		0·18	0·18			0·24		0·258		
					7	A REPEAT	OF 16653		0·71	0·90			1·24		0·883		
					8	237·0	238·0		0·10						0·092		
					9		239·0		0·04						0·017		
					16660		240·0		0·03						0·008		
					1		241·0		0·06						"		
					2		242·0		0·03						<0·008		
					3		243·0		0·04						0·017		
					4		244·0		0·06						0·050		
					5		245·0		0·10						0·090		
					6		246·0		0·35	0·32					0·417		
					7	STD N=	0·10		0·07						0·117		
					8	246·0	247·0		1·80	1·30	1·55				1·830		
					9		248·0		0·29						0·300		
					16670		249·0		0·36						0·508		
					1		250·0		1·53	1·41					1·670		
					2		251·0		0·04						0·032		
					3		252·0		0·22						0·225		
					4		253·0		0·14						0·158		
					5		254·0		0·08						0·050		
					6	STD CPB=	1·20		0·83	0·87					1·190		
					7	254·0	255·0		0·14						0·225		
					8		256·0		0·67	0·66					0·883		
					9		257·0		0·73	0·78					0·950		
					0		258·0		0·27	0·20					0·283		
					16681		259·0		4·63	4·15			4·45		5·500	5·17	

11321 8

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 4A Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	Au ASSAY DATA Sample No.	From	To	Rec. %	GENALYSIS Au	Au-Rp1	Au-Rp2		Au-1		ANALABS Au	Au
							REPEATS:		Au	Au-Rp1	Au-Rp2		Au-1		Au	Au
							METHOD:		B/AAS	B/AAS	B/AAS		ROAST		F.A. (309)	F.A. (310)
					16682	259·0	260·0		5·09				5·40		3·500	
					3		261·0		0·70	0·85			0·78		0·883	
					4		262·0		3·60	3·27					4·580	
					5	A REPEAT OF 16682.			2·80	5·35			9·00		2·330	
					6	262·0	263·0		0·03						<0·008	
					7		264·0		0·02						"	
					8		265·0		<0·01						"	
					9		266·0		0·04						"	
					16690		267·0		0·03						0·017	
					16691	267·0	268·0		0·04						<0·008	

113219

HF4A 259.25m
16783

(T.S., P.S. 52905)
This rock is closely analogous to 16781 and similarly represents an altered (silicified-sericitised), weakly pyritised and sheared rhyolitic lithic tuff. General features are similar to the degree that little special comment is warranted.

In comparison, this rock exhibits a modally slightly coarser-grained framework of altered perlitic to structureless obsidian clasts and a slightly enhanced content of recrystallized quartz crystals and crystal fragments. A few of the altered clasts include differentially sericitised or silicified plagioclase and K-feldspar microphenocrysts. Many exhibit irregular quartz veinlets carrying accessory Fe-carbonate, pyrite, and minor traces of apatite, chalcopyrite, and sphalerite. In common with 16781, this vein assemblage also appears as (boudinaged) clasts, and the matrix comprises phyllitic white mica aggregates with fine-grained, variably pressure-shadowed pyrite disseminations. Polished section examination revealed no detectable gold.

HF4A 259.42m
16784

(P.S. 52906)
This section represents a pyritic phyllite-matrixed breccia and, in terms of general characterisitcs, appears closely analogous to 16783. In comparison, the matrix and to a certain degree the altered clasts, are relatively pyritic and the rock as a whole exhibits a slightly enhanced chalcopyrite content.

The sectioned area includes minor quartz-carbonate-veined clasts and intraclasts of pyritic quartz-carbonate vein material. These features are relatively chalcopyritic and include minor traces of sphalerite. Close examination revealed no detectable gold.

HF4A 259.95m
16785

(P.S. 52907)
This pyritic phyllite-matrixed breccia is closely analogous to 16783 and 16784, with a typical composite of altered acid volcanic and subordinate vein components represented as clasts. The vein component is carbonate-rich. Minor clasts of quartz-chalcopyrite-matrixed semi-massive pyrite are present. The matrix is, typically, composed of phyllitic white mica aggregates with pervasive and conspicuous dimensionally orientated and pressure-shadowed pyrite disseminations.

Polished section examination reveals minor accessory traces of sphalerite, supplementing sparsely disseminated chalcopyrite. Close examination revealed no detectable gold.

HF4A 234.05m
16786

(T.S., P.S. 52908)
This rock is a relatively sulphide-rich sericitic phyllite, crudely lenticularly banded and texturally approximating to a pyritic sericite-matrixed breccia. Much primary detail is obscured by the relatively marked shearing effects but, in contrast to 16781 and 16783, clasts are largely recrystallized vein-type, sulphide-mineralised, variably sericitic quartz aggregates.

These features are boudinaged into elongate, angular to lensoid masses of millimetric to locally centimetric proportions within the phyllitic white mica matrix. Subordinate silicified and variably sericitic obsidian clasts are present, but due to the enhanced shearing effects are poorly resolvable and are locally defined only by included accessory leucoxenic semi-opaques.

The matrix is pervasively pyritic. The boudinaged vein component includes relatively conspicuous disseminations, films and irregular sub- to millimetric-scale semi-massive clots of base metal sulphides (colour-variable sphalerite, chalcopyrite, galena).

The polished section includes sulphide-mineralised vein-type and subordinate pyritic phyllite (matrix) components.

The siliceous vein-hosted assemblage comprises disseminated to locally spongy, semi-massive, ultrafinely exsolution chalcopyrite-stained sphalerite, disseminated to locally massive chalcopyrite, varying proportions of pyrite and of galena, which is variously intergrown with chalcopyrite, sphalerite, or forms pressure shadow "tails" on pyrite euhedra. Rare microscopic blebs of proustite-pyrargyrite appear intergranular to quartz.

In comparison, the matrix assemblage is distinctly pyritic, with accessory traces of galena, chalcopyrite and sphalerite. Close examination revealed no detectable gold.

HF4A 234.40m
16787

(P.S. 52909)
This section represents a zone of quartz-matrixed "massive" pyrite, analogous to those noted in 16778 and particularly 16779. Pyrite is generally fine but uneven-grained and variously spongy and granular to euhedral where relatively disseminated. Vague relict colloform and nodular textures persist in places, supplementing a mesoscopic millimetric-scale banding.

Pyrite and quartz aggregates carry more or less pervasively disseminated intergranular chalcopyrite blebs and accessory traces of sphalerite with rare associated blebs of tetrahedrite. Close examination revealed no detectable gold.

11329

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.: HP4A
STATE :

220

HP4A 234.45m
16788

(T.S., P.S. 52910)
This rock may be broadly classified as a pyritic phyllite-matrixed breccia, and reflects a composite of primary and secondary breccia features.

The sub- to millimetric-scale dimensionally orientated clasts are relatively variable, with boudinaged siliceous vein, silicified obsidian, and cherty sediment components recognisable in the sericitic quartz aggregates. Obsidian clasts include relict perlitic-textured types. The chert component is typically impure (sericitic), "grades" into cherty argillite, and is pervasively stained with ultrafine pyrite. Both types include sporadic irregular networks of disseminated sulphide-mineralised quartz veinlets analogous to those in 16786 and similarly appearing as clasts as a result of secondary (shearing-induced) brecciation. Relict features are consistent with a tuffaceous composite (volcanic- and chert-derived) sedimentary breccia, phyllosilicate (pyritic sericite-) matrixed, quartz-sulphide-veined, and subsequently sheared.

The phyllitic matrix carries ubiquitous dimensionally orientated fine-grained pyrite disseminations. Boudinaged siliceous vein-hosted sulphides comprise disseminated to spongy semi-massive pyrite with subordinate to minor sphalerite, a little chalcopyrite and traces of galena. Close examination revealed no detectable gold.

D. Cowan, B. Sc.

113221

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.	H.P. 5
STATE	TASMANIA

V.V. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	C.F.D. PEASE
COMMENCED	8-3-85
COMPLETED	24-3-85

PURPOSE

To test for Zones A and B at the 400 RL

LOG SUMMARY / GENERAL COMMENTS

Henty Fault footwall at 234.3m, with pyritic tuffaceous sediments from 234.3-274.4m, including very poorly developed possible Zones A and B correlates. Only trace precious metal and base metal mineralization observed. Silicification throughout to the end of hole.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Au g/t	Ag g/t	Cu %	Pb %	Zn %	Bi ppm	Fe %						COMMENTS
246.1	255.1	0.2	6.9	0.03	0.06	<0.01	20	2.98						Broad pyritic horizon. Possible Zone A correlate.
271.1	272.1	0.1	1.0	<0.01	<0.01	<0.01	7	2.25						Weakly pyritic zone. Possible Zone B correlate.

LOCATION

NORTHING	5364261
EASTING	379994
R.L.	589.9
GRID	A.M.G.
LENGTH	312.5

HOLE CONDITION

SIZE Hole Size	SIZE Depth
HQ	26
NQ	238
BQ	312.5

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0.0	16.4	39

POOR GROUND CONDITION ZONES From	To	Condition
192	210	BROKEN
210	234	CRUSHED/BROKEN (Henty Fault
234	275	BROKEN

HOLE CONDITIONS AFTER COMPLETION

See HP5A

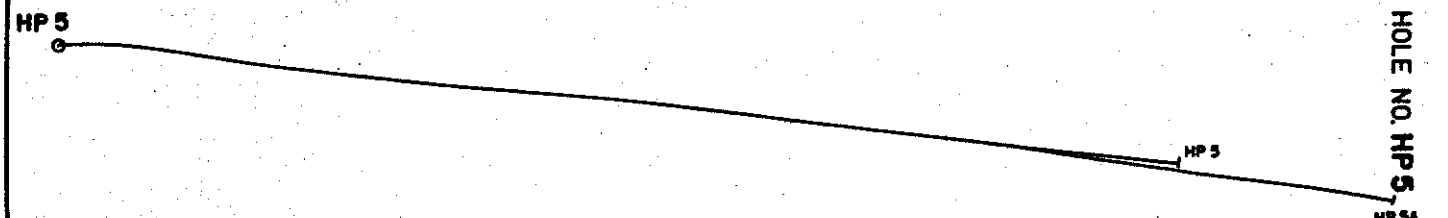
SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	092	53.0	0.0	20.0	20.0	16.0	573.9	12.0	12.0
40.0	099	52.5	20.0	63.0	43.0	34.1	539.8	26.2	38.2
36.0	096	51.0	63.0	104.0	41.0	31.9	507.9	25.8	64.0
122.0	095	50.0	104.0	139.5	35.5	27.2	480.7	22.8	86.8
157.0	096	49.0	139.5	176.3	36.8	27.8	452.9	24.1	110.9
195.5	097	48.0	176.3	218.8	42.5	31.6	421.3	28.4	139.3
242.0	098	46.0	218.8	259.5	40.7	29.3	392.0	28.3	167.6
277.0	097	43.0	259.5	294.0	34.5	23.5	368.5	25.2	192.8
311.0	098	41.5	294.0	312.5	18.5	12.3	356.2	13.9	206.7

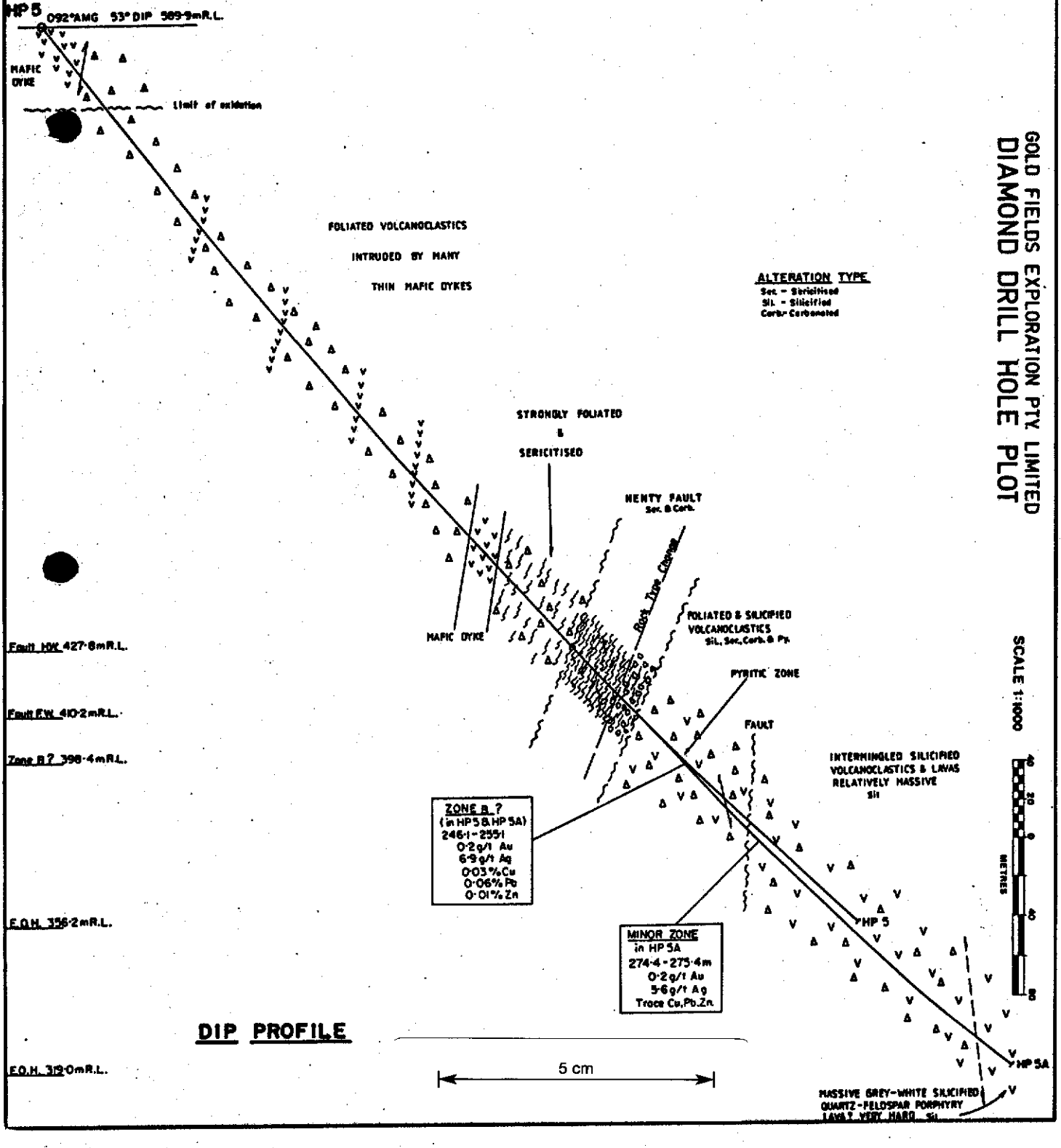
SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total

PLAN VIEW





HOLE NO. HP 5, HP 5A & HP 5A



DIP PROFILE

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

SCALE 1:1000

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 5 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
0.0	1.8	1.0	56	RUBBLE:- Section of blocks and fragments of bleached ignimbritic (?) material and minor quartz. Base sharp.				
1.8	16.4	9.0	62	WEATHERED MAFIC DYKE:- Strongly weathered fine crystalline relatively homogenous material, probably a mafic dyke. Weakly foliated at 40-50° to CA for much of unit. Stronlgy limonitic with manganese films-accretions in fractures and surface throughout. Very soft, broken and friable. Core loss throughout. Base gradational.				
16.4	26.3	8.2	83	VOLCANICLASTICS-MAFIC DYKES:- Zones of broken and locally weathered probable dyke material in horizon of relatively hard unit consisting of pinkish-red fragments (lava?) and possible feldspar crystals in greenish matrix-groundmass, probably an ignimbrite. Strongly weathered near top of unit but decreasing in intensity towards base, partly a response to roch changes. Foliated at 40-50° to ca. Some "plucking" of core. Some core loss. Base gradational.				
26.3	37.4	11.1	100	VOLCANICLASTIC:- "Blotchy" pink-green unit consisting of irregular patches (lithic fragments) of orange-pink material (lava?) in greenish matrix-groundmass. Fragments commonly poorly sorted up to several centimetres in length, but thin horizons of fairly well sorted finer grained angular clasts are observed. Appears to be welded (or altered) which "blurs" many fragment boundaries. Cut by few thin mafic dykes. Locally broken but unit generally competent. Trace stringers throughout. Base gradational.				
37.4	76.7	29.3	100	VOLCANICLASTIC-MAFIC DYKES:- Sequence of variable volcaniclastics (ignimbrites) cut by series of dark green finely crystalline generally homogenous mafic dykes up to 5m in width. Volcaniclastics are generally open framework with variably coarse-blocky to medium grained pink-orange-whitish				

113224

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 5 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				lava (?) clasts in green matrix. Coarser, poorly sorted horizons				
				"blotchy" due to welding(?). Clasts are variably angular-				
				rounded. Foliated at 40-55° to ca throughout. Cut by				
				trace quartz carbonate-chlorite stringers throughout.				
				Locally broken with "pitting" and limonitic surfaces				
				associated. Dykes commonly contain "sweat-outs" of carbonate-				
				chlorite. Pyrite aggregates observed locally in lava				
				fragments-blocks. Base gradational. Variably greenish				
				grey-pinkish grey to orangey pink in colour depending				
				on clast size and density-sorting.				
76.7	90.4	13.7	100	VOLCANICLASTIC-Fairly homogenous grey green massive				
				unit consisting of irregular whitish greenish well sorted				
				fragments generally 2mm in length and minor darker				
				green clasts of the same size in grey green fine grained				
				matrix (open framework). Almost total absence of lava				
				fragments as observed in previous unit. Locally weakly				
				foliated at 40-50° to ca. Few "sweat-out" lenses of				
				carbonate-quartz. Appears to be welded. Base gradational.				
				Unit competent.				
90.4	100.3	9.9	100	VOLCANICLASTICS-(MAFIC DYKES):- Section of variable				
				volcaniclastic cut by few dark green fine grained dykes				
				from 2 cm-2.5m in width. Volcaniclastics generally consist				
				of browny-pinkish fragments up to 5mm in length in light-				
				dark greenish matrix. Locally clasts angular but generally				
				appear lenticular-sub rounded. Towards base become strongly				
				foliated and welded in appearance. Local coarse lava				
				fragments. Broken near base of unit. Minor sulphide				
				in some clasts. Base gradational.				
100.3	113.0	12.7	100	VOLCANICLASTIC:- Well banded foliated pinkish green				
				becoming brownish unit consisting of pinkish orange				
				commonly lenticular fragments up to several centimetres				
				in length and dark green lenses and whisps in light				

113225

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				grey green fine grained matrix (open framework). Has welded appearance. Towards base foliation becomes weaker and unit more siliceous (silicified?) and brownish in colour with change in matrix 3. Generally foliated at 50-55° to ca. Local "sweat-out" stringers. Minor pyrite aggregates observed near base of unit which is gradational				
113.0	127.0	14.0	100	POSSIBLE LAVAS?:- Generally very poorly foliated brownish-reddish siliceous lithology containing pinkish-ornage crystals less than 2mm in length and generally sub-euhedral. Zones of groundmass variations where unit is more granular and green in colour, possibly due to sericitic alteration. Fractured and broken in first half of unit, competent towards base. "Sweat-out" lenses and stringers throughout. Base fairly sharp.				
127.0	147.0	20.0	100	LAVAS(?)-MAFIC DYKES:- Continuation of previous unit, with reddish-brownish siliceous, blocky lithology with orange-pink crystal component, but cut by three green-dark green fine-medium grained mafic dykes with sharp contacts at 30-40° to ca. "Sweat-out" stringers of quartz-carbonate-chlorite exist in lavas(?) locally with minor pyrite aggregates associated. Similar veining observed in dykes but no quartz component. Unit competent except near base, which is gradational.				
147.0	156.5	9.5	100	VOLCANICLASTICS:- Section of fairly well foliated gritty grey-green/reddish-pink unit with few larger clasts of pinkish lava throughout. Common grey-green irregular lenses locally. Local minor crystal component observed, but generally would appear to be ignimbrite consisting of lapilli-ash sized lithic fragments. Cut and pervaded by few "sweat-out" stringers. Trace fine grained pyrite observed. Foliated at 40-50° to ca. Unit competent. Base fairly sharp.				

113226

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 5 Page:4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
156.5	171.5	15.0	100	VOLCANICLASTICS-MAFIC DYKES:- Sequence of variably foliated greenish-reddish ignimbrites with few large lava blocks(?) but generally ash-lapilli size lithic fragments and moderate crystal component, cut by series of thin (1.40m) fine grained green mafic dykes. Broken with shear surfaces apparent, for much of unit. "Sweat-out" veinlets and patches throughout. Dykes at 30-50° to ca. Local pyrite aggregates observed. Base sharp.
171.5	182.0	10.5	100	MAFIC DYKE:- Light green fine grained homogenous unit, becoming dark green at base, believed to be large mafic dyke. Cut by network of irregular sericitic fractures and by few "sweat-out" stringers. Reddish brown fracture surfaces observed throughout. Sericitic network appears to be weaknesses along which alteration took place. Unit moderately competent but broken near both contacts with shearing(?) in evidence. Base sharp at 50° to ca. [redacted]
182.0	192.0	10.0	100	VOLCANICLASTICS-MAFIC DYKES:- Variably foliated fine-coarse lithic ignimbrite with minor crystal component cut by series of thin green fine grained mafic dykes. Ignimbrites greenish-pinkish in colour and foliated at 45-60° to ca. Fragments generally reddish lava(?) in greenish groundmass. Local pyrite-(chalcopyrite) in carbonate pervasions observed. Locally broken with apparent increasing shearing towards base of unit which is fairly sharp. [redacted]
192.0	210.0	18.0	100	ALTERED VOLCANICLASTICS-MAFIC DYKES:- Sequence of generally broken reddish-greenish strongly foliated ignimbritic material, which for the most part is sericitised, increasing in intensity towards base of unit, which is responsible for foliation at 50-65° to ca and broken ground. Alteration appears to effect groundmass-matrix to reddish lapilli

ASSAY DATA Sample No.	From	To	Rec. %

11392

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au(Fire)	Ag	As	Bi	Cu	Pb	Zn	Fe%
				first and as it increases in intesity attacks the clasts as well. Locally crush zones observed. Cut by few mafic dykes, those appearing relatively unaltered dark green fine grained, with abundant carbonate sweat-out stringers and lenses within. Some metamorphic quartz-carbonate veining in ignimbrite. Trace fine grained pyrite observed. Base gradational											
210.0	217.7	7.7	100	BROKEN-FOLIATED ALTERED VOLCANICLASTICS:- Continuation of previous unit but alteration (sericitic) of ignimbrite(?) is more intense, crush zones more abundant and foliation clearly disrupted with angles from sub-parallel to 80° noted. This appears to mark start of major Henty Fault. Unit grey-greenish-orange pink in colour. It appears that mafic dykes are also altered in this section to light green sericitic material. Base gradational.											
217.7	227.2	9.5	100	SERICITIC FAULT:- Zone of intense sericitisation of original rock type and severe disruption. Locally foliated at 50° to ca and relatively undisturbed but for most part strongly contourted with carbonate-quartz clasts in sericitic matrix. Few carbonate veinlets also observed. Local crush zones throughout. Unit soft and friable. Part of Henty Fault, apparently shearing and faulting of hanging-wall material. Base gradational(?).											
227.2	234.3	6.1	86	CRUSHED-FAULTED MATERIAL:- Continuation of fault zone, but much of unit now a fault crush zone with angular fragments in sericitic matrix. Also observed is a possible change in rock type with unit appearing to be more siliceous which may be in part responsible for different results in faulting from previous unit. Trace fine grained pyrite observed in more siliceous grey material. Foliated at 25-75° to ca. Unit very broken-soft and friable. Base gradational. Henty Fault, but possibly in footwall material.	16940	233.1	234.1		0.032	0.6	<5	<1	25	10	24	1.09

11323 8

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5 Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (Fire)	Ag	As	Bi	Cu	Pb	Zn	Fe %
				Possibly marks footwall of Henty Fault.												
234.3	239.2	4.6	94	BROKEN-SILICIFIED VOLCANICLASTICS:- Grey-dark grey-green unit	16941	234.1	235.1		0.267	5.1	10	2	37	15	22	1.64
				consisting of variably rounded-angular siliceous fragments	16942	235.1	236.1		0.050	1.4	10	3	24	16	13	1.68
				in silicified matrix which appears to have been sheared	16943	236.1	237.1		0.040	1.8	10	<1	38	22	24	3.01
				being broken and sericitic throughout. This may be concentrated	16944	237.1	238.1		0.083	4.1	10	<1	45	28	17	2.74
				in zones where silicification is less intense. Foliated	16946	238.1	239.1		0.133	5.9	25	<1	18	21	12	2.51
				at 45-55° to ca. Fragments grey-light grey in colour												
				in greenish matrix, and locally at least appear to be												
				up to 20cms in length. Fine grained pyrite disseminated												
				thrughout apparently concentrated in matrix. Varies												
				in appearance from silicified fault to silicified volcaniclastics.												
				Very broken throughout 3% sulphides. Base gradation.												
				Highly fractured silicified volcanics.												
239.2	247.1	7.9	100	SILICIFIED-BROKEN VOLCANICLASTICS:- Continuation of	16947	239.1	240.1		0.117	5.0	20	3	18	24	14	2.62
				previous unit but change in fragments. Volcaniclastics	16948	240.1	241.1		0.040	6.7	15	1	17	16	14	2.62
				now consist of pinkish lava(?) fragments generally moderately	16949	241.1	242.1		0.017	8.8	20	2	19	18	15	3.16
				rounded in variably siliceous-sericitic grey to green	16950	242.1	243.1		0.008	0.7	10	<1	12	11	33	2.34
				matrix foliated at 35-50° to ca. Very broken along sericitic	16951	243.1	244.1		0.017	7.5	5	<1	9	12	29	2.44
				planes. Locally zones with grey siliceous clasts occur,	16789	244.1	245.1		<0.008	0.5	10	1	10	16	24	1.73
				which tend to be finer grained and more sulphidic. In	16790	245.1	246.1		0.017	1.6	15	<1	21	58	35	2.62
				general though sulphides form 2%, and again concentrated	16791	246.1	247.1		0.117	7.3	25	3	68	44	27	3.09
				in matrix-groundmass. Locally foliation contourted.												
				Few carbonate stringers observed. Overal volcaniclastic												
				contains less fine grained material than previous unit												
				with high density of pink clasts up to 5cm in length.												
				Base fairly sharp.												
247.1	255.7	8.1	94	SILICIFIED-PYRITIC VOLCANICLASTICS:- Section of volcaniclastics	16793	247.1	248.1		0.280	6.7	60	20	105	380	15	3.87
				which have been silicified with relatively high sulphide	16794	248.1	249.1		0.210	6.9	70	17	90	450	17	3.88
				content associated. Volcaniclastics are variable in	16795	249.1	250.1		0.133	2.8	10	7	130	200	15	1.23
				appearance from fairly fine grained dark grey in colour	16796	250.1	251.1		0.400	9.6	40	12	500	3200	500	2.54
				at start and end of unit, to pink-orange coarse lithology	16797	251.1	252.1		0.167	2.1	45	7	240	130	105	2.64
				with high percentage lava fragments. The sulphides again												

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 5 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au(Fire)	Ag	As	Bi	Cu	Pb	Zn	Fe %
				appear to be concentrated in finer grained horizons, locally	16799	252·1	253·1		0·150	3·5	45	14	310	150	28	2·90
				almost completely replacing matrix-groundmass. Sericite	16800	253·1	254·1		0·258	14·0	90	62	640	540	28	3·42
				also present as alteration product. Sulphides,domininatly	16801	254·1	255·1		0·192	9·1	70	38	410	330	29	3·28
				pyrite with minor concentrations of base metals sulphides												
				locally, are mainly found towards start and end of unit,												
				with lower levels towards centre due to predominance												
				of lava clasts. Broken throughout notably in finer grained												
				horizons. Locally unit appears to be rehealed breccia.												
				Base fairly sharp. Possible Zone A?. Foliated dominantly												
				at approx. 40° to ca.	16802	255·1	256·1		0·058	1·7	25	9	370	140	23	1·39
					16803	256·1	257·1		0·008	0·2	<5	<1	12	50	30	0·51
255.7	273.7	17.5	97	BROKEN-SILICIFIED VOLCANICLASTICS:- Broad sequence of	16804	257·1	258·1		<0·008	0·1	5	<1	11	22	30	0·60
				moderately silicified and broken volcaniclstics consisting	16805	258·1	259·1		<0·008	<0·1	<5	<1	6	11	39	0·76
				of numberous pink-orange siliceous lava fragments, generally	16806	259·1	260·1		0·017	0·3	15	<1	11	14	27	2·08
				poorly sorted up to 20cms in length and finer grey quartzose	16807	260·1	261·1		0·025	0·4	15	<1	11	15	28	1·95
				clasts in grey-dark grey matrix . Clasts commonly well	16808	261·1	262·1		0·008	0·4	20	<1	10	16	52	2·54
				rounded and locally elongated in place of foliation.	16810	262·1	263·1		0·017	0·2	10	1	12	14	20	1·90
				Unit has appearance of both ignimbrite and epiclastics	16811	263·1	264·1		<0·008	0·1	5	<1	15	11	9	1·86
				throughout. Fine grained pyrite is disseminated through	16812	264·1	265·1		<0·008	0·1	5	<1	12	11	17	2·18
				silicifed matrix, and to very minor degree in lava fragments.	16813	265·1	266·1		<0·008	0·2	15	<1	11	16	26	1·29
				locally concentrated but generally at 1-2% sulphides.	16814	266·1	267·1		0·017	0·5	15	<1	11	11	22	1·92
				Local crush-broken zones indicate minor faulting. Foliated	16816	267·1	268·1		0·017	0·3	25	<1	22	47	150	2·54
				at highly variable angles but major trend at 50-55°	16817	268·1	269·1		<0·008	0·1	15	1	13	18	135	2·04
				to ca. Only local minor sericite development. Base sharp.	16818	269·1	270·1		0·017	0·2	20	<1	16	14	30	2·02
				Section of moderately silicified volcaniclastics.	16819	270·1	271·1		0·025	0·4	15	<1	12	16	25	1·80
					16820	271·1	272·1		0·067	1·0	60	7	24	47	21	2·25
273.7	274.4	0.6	86	FAULT ZONE:- Crushed broken zone of grey-dark grey fine	16821	272·1	273·1		0·017	0·3	15	1	12	13	18	1·60
				grained volcaniclastics with minor pyrite concentration	16822	273·1	274·1		0·017	0·4	15	1	18	24	16	2·28
				in immediate foot-and hanging-walls. Weak carbonate												
				stringers associated.												
274.4	287.5	13.1	100	SILICIFIED VOLCANICLASTICS:- Section of dominantly pink grey	16824	274·1	275·1		0·017	0·2	10	2	15	14	15	1·73
				volcaniclastics and possible lavas. Much of unit appears	16825	275·1	276·1		<0·008	0·1	<5	<1	50	12	23	0·89
				fragmented but some may be autobrecciation of lavas as opposed	16826	276·1	277·1		<0·008	0·1	5	<1	80	13	16	0·79
				to clastic material. Notable is relatively high crystal content												

C.R. 2230

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5 Page: 8.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (Fire)	Ag	As	Bi	Cu	Pb	Zn	Fe %
				observed in unit as fine grit-sized quartz and fine crystals	16827	277·1	278·1		0·008	0·4	10	8	31	38	17	1·25
				of creamy feldspar. Clasts generally pink to grey possible	16828	278·1	279·1		<0·008	0·1	10	6	33	20	21	1·10
				lava fragments, poorly sorted and generally angular in grey	16829	279·1	280·1		0·008	0·2	10	8	23	26	21	0·94
				to greenish groundmass-matrix. The ubiquitous distribution	16831	280·1	281·1		<0·008	<0·1	<5	<1	8	4	14	0·59
				of the feldspar laths in sections of this unit suggest that	16832	281·1	282·1		<0·008	<0·1	<5	<1	56	6	36	0·67
				portions of it are autobrecciated lava but these may be large	16833	282·1	283·1		<0·008	<0·1	<5	<1	13	6	26	0·66
				clasts within the unit itself. Overall trend from orangey	16834	283·1	284·1		<0·008	<0·1	<5	<1	68	17	39	0·70
				pink at start to greyish colour at base. Dominant foliation	16835	284·1	285·1		<0·008	<0·1	<5	<1	54	5	24	0·62
				at 30-40° to ca. Trace fine grained pyrite dissemination.	16836	285·1	286·1		<0·008	<0·1	<5	<1	20	15	23	0·56
				Very broken at top of unit but relatively competent elsewhere.	16837	286·1	287·1		<0·008	<0·1	<5	<1	8	5	22	0·41
				Base sharp.												
287.5	289.9	2.3	96	FAULT ZONE:- Crushed gritty pug zone (0.6m) with quartz veining	16838	287·1	288·1		<0·008	<0·1	<5	<1	7	10	115	0·68
				in wall rocks associated. Quartz milky white, with coarse	16839	288·1	289·1		<0·008	0·1	<5	<1	6	9	15	0·52
				carbonate patches, and local minor pyrite aggregates in micro-	16840	289·1	290·1		<0·008	0·1	45	<1	10	21	50	0·89
				fractures observed. Many have bleaching effect on wall rocks												
				as observed colour change in previous unit. No clear orientation												
				to structure. Ground broken. Base sharp.	16842	290·1	291·1		<0·008	0·1	<5	<1	8	25	48	0·55
					16843	291·1	292·1		<0·008	<0·1	<5	<1	9	12	18	0·40
289.9	312.5	23.6	100	SILICIFIED VOLCANICLASTICS:- Though for much of unit, intense	16844	292·1	293·1		<0·008	0·1	<5	<1	13	24	72	0·58
				silicification obsucres original rock type, it would appear	16845	293·1	294·1		<0·008	0·1	<5	<1	11	13	120	0·59
				that this is a broad section of volcaniclastics with notable	16846	294·1	295·1		<0·008	<0·1	<5	<1	7	8	29	0·33
				crystal component as well as pink-orange lithic lava clasts	16847	295·1	296·1		<0·008	<0·1	<5	<1	7	12	23	0·36
				and blocks. In less silicified sections lithic fragments	16848	296·1	297·1		<0·008	<0·1	<5	<1	7	16	33	0·56
				and crystals (generally grit sized quartz) appear moderately	16850	297·1	298·1		<0·008	0·1	45	<1	12	22	30	0·54
				rounded, suggesting epiclastic origin but poor sorting and	16851	298·1	299·1		<0·008	<0·1	<5	<1	5	9	36	0·51
				random distribution may infer pyroclastic origin. Dominant	16852	299·1	300·1		<0·008	<0·1	<5	<1	16	12	20	0·47
				component is lava lithics, as lapilli and few blocks. These	16853	300·1	301·1		<0·008	<0·1	<5	<1	7	15	26	0·39
				are very siliceous and along with rest of unit are commonly	16854	301·1	302·1		<0·008	<0·1	<5	<1	8	15	16	0·34
				microfractured with carbonate films developed along these.	16855	302·1	303·1		<0·008	<0·1	<5	<1	7	19	94	0·33
				Pyrite is also found in the microfractures and as small aggregates	16856	303·1	304·1		<0·008	<0·1	<5	<1	9	13	35	0·67
				and blebs, and in finer grained horizons, as dissemination	16857	304·1	305·1		<0·008	0·1	<5	<1	10	16	17	0·58
				in matrix. However, overall the sulphide content is low (0.5%).	16858	305·1	306·1		<0·008	0·1	<5	<1	13	20	18	0·67
				Locally thin broken zones with milky white quartz and minor	16859	306·1	307·1		<0·008	0·1	<5	<1	20	13	20	0·70
				sericite occur (minor faults). Locally unit light grey white	16860	307·1	308·1		<0·008	0·1	<5	<1	9	29	34	0·59

11 32 31

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5 Page: 9.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (Fire)	Ag	As	Bi	Cu	Pb	Zn	Fe %
				in colour suggesting almost total replacement(?) by silica.	16862	308·1	309·1		<0·008	0·2	<5	<1	10	29	22	0·51
				Would appear to be stronlgy silicified relatively crystal	16863	309·1	310·1		<0·008	0·1	<5	<1	24	24	105	0·48
				rich volcaniclastic. No clear foliation.	16864	310·1	311·1		<0·008	0·2	90	1	72	28	170	0·74
					16865	311·1	312·5		<0·008	0·1	10	<1	8	15	22	0·56
				End of Hole.												

11529 32

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

DLV. PRESS

HOLE NO.: H.P.5A
STATE : TASMANIA

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	C.F.D. PEASE
COMMENCED	25-3-85
COMPLETED	12-4-85

PURPOSE

To obtain additional sample of Zone A and further test silicified zone in Footwall of Henty Fault.

LOG SUMMARY / GENERAL COMMENTS

Intersected silicified zone from 242.8-353.9m, including pyritic tuffaceous sediments from 242.8-275.6. Only trace base metal, precious metal mineralization intersected within this horizon. Hole finished in albitised quartz-porphyry lavas (Tyndall Group?). More pyritic than parent hole. Possible Zones A and B correlates intersected (see below).

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Au g/t	Ag g/t	Cu %	Pb %	Zn %	Bi ppm	Fe %						COMMENTS
246.4	255.4	0.2	6.6	0.02	0.04	<0.01	11	3.22						Broad pyritic horizon. Possible Zone A correlate.
274.4	275.4	0.2	5.6	<0.01	<0.01	<0.01	9	5.95						Pyritic Zone. Possible Zone B correlate.

LOCATION

NORTHING	5364261
EASTING	379994
R.L.	589.9
GRID	A.M.G.
LENGTH	123.5

HOLE CONDITION

SIZE Hole Size	SIZE Depth
BQ	369m

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
258.7	263.0	47

POOR GROUND CONDITION ZONES From	To	Condition
242.6	280.2	BROKEN

HOLE CONDITIONS AFTER COMPLETION

BQ Withdrawn
NQ freed by blasting leaving fault cased off but must be considered inaccessible below 200 m. One length HQ cemented in at collar. Hole making a lot of water.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total
From HP5				242.8			403.5		155.4
247	98.5	-46	242.9	262.0	19.2	13.8	389.7	13.3	168.7
277	99.0	-45	262.0	296.0	34.0	24.0	365.7	24.0	192.7
315	In rods	-43	296.0	340.0	44.0	30.0	335.7	32.2	224.9
365	In rods	-39	340.0	366.0	26.6	16.7	319.0	20.7	245.6

SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total

1132333

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER N.P. 5A

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au Fire	Ag	As	Bi	Cu	Pb	Zn	Fe %
242.8	247.5	4.5	96	SILICIFIED VOLCANICLASTICS:- Section of moderately foliated	16952	242.8	243.4		0.017	1.1	20	<1	12	10	32	2.34
				epiclastics(?) with reddish-orange lava clasts, commonly	16953	243.4	244.4		0.008	0.5	10	<1	10	9	39	2.41
				rounded, with subordinate grey quartzose fragments in greenish-	16954	244.4	245.4		<0.008	1.2	10	<1	9	11	35	2.25
				grey matrix. Unit has been silicified, and minor sericite	16955	245.4	246.4		0.017	2.6	10	<1	13	41	43	2.92
				is observed throughout. Fine grained pyrite as dissemination	16956	246.4	247.4		0.150	11.5	25	<1	19	33	24	2.88
				is observed, dominantly in matrix. Broken notably towards												
				base of unit. Carbonate lenses and whisps observed locally.												
				Foliated at approx. 40° to ca. Base fairly sharp. Framework												
				variably open-closed.												
247.5	255.6	8.1	100	SILICIFIED-PYRITIC VOLCANICLASTICS:- Section of variable	16957	247.4	248.4		0.200	7.4	50	11	62	280	18	4.25
				volcaniclastics which have been strongly silicified with	16958	248.4	249.4		0.233	10.0	80	17	72	600	13	5.36
				significant sulphide mineralisation associated. At start	16959	249.4	250.4		0.167	3.0	10	6	41	120	11	2.04
				of unit, volcaniclastic consists of grey-dark grey quartzose	16960	250.4	251.4		0.575	9.0	40	10	430	1650	130	3.06
				clasts up to 3cms in length, but generally 1cm, and variably	16962	251.4	252.4		0.142	1.8	35	3	165	98	40	2.28
				rounded - sub angular, in greenish-grey fine grained matrix.	16963	252.4	253.4		0.158	2.5	30	<1	240	180	160	2.28
				Towards middle and end of unit, the volcaniclastic becomes	16964	253.4	254.4		0.217	5.4	50	20	460	260	44	2.89
				coarse with fragments and blocks of pink-orange lava increasing	16965	254.4	256.4		0.233	8.4	75	30	420	310	36	3.92
				in abundance. The sulphides, dominantly fine grained pyrite												
				with subordinate aggregates and splashes of chalcopyrite,												
				sphalerite and galena, are concentrated in matrix, locally												
				completely replacing it, notably near top of unit. Towards												
				base of unit, sulphide content decreases due to increase												
				of large lithics which contain only trace sulphides, and												
				thus sulphides restricted to finer grained zones between												
				the large lava blocks. Towards top of unit, several of greyish												
				clasts appear to be altered lava so colour change may be												
				response to alteration. Broken-very broken throughout notably												
				where significant sericite occurs. Some sulphides penetrate												
				clasts through microfractures. Some of unit may be re-healed												
				breccias. Base gradational. Variably foliated but trends at												
				35-40° to ca. Local minor carbonate lenses and whisps. Total												
				3-5% sulphides.												
255.6	258.7	3.0	97	SILICIFIED VOLCANICLASTIC:- Section of orange-pink lava fragment												

113234

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5A

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au Fire	Ag	As	Bi	Cu	Pb	Zn	Fe
				rich volcaniclastic with locally high crystal component (grit-	16966	255·4	256·4		0·050	1·7	30	4	290	78	33	1·57
				granule size quartz). Clast sized from blocks to 2mm, poorly	16967	256·4	257·4		0·008	0·1	5	<1	12	50	41	0·65
				sorted and variably angular-rounded in light grey-green matrix-	16968	257·4	258·4		0·017	0·1	30	<1	9	40	52	0·81
				groundmass. Unit has been silicified with local minor pyrite												
				associated, but generally only trace. Microfractured near												
				top of unit, with fill of carbonate, with pyrite-chalcopyrite												
				associated. Unit broken thorughout, notably where matrix												
				is sericitic. Foliated at 35° to ca. Base gradational.												
258.7	263.0	2.3	53	BROKEN-CRUSHED VOLCANICLASTICS:- Severely crushed and broken	16970	258·4	259·4		<0·008	<0·1	5	<1	7	17	36	0·88
				lava fragment-rich volcaniclastic with severe core loss associated.	16971	259·4	260·4		<0·008	<0·1	5	<1	8	37	60	
				Most material recovered is of closed framework unit, with	16972	260·4	261·4		0·050	0·4	15	<1	12	20	70	2·18
				pink-orange lava fragments in greyish matrix. Near base fragments	16973	261·4	262·4		0·017	0·2	15	<1	9	13	35	2·45
				are grey in colour and quartzose with minor fine grained	16974	262·4	263·4		0·025	0·2	15	<1	11	14	14	2·33
				pyrite in greyish matrix. Base gradational. Minor clay pug												
				throughout. Probable fault zone.												
263.0	274.1	11.1	100	SILICIFIED VOLCANICLASTICS:- Sequence of volcaniclastics that	16975	263·4	264·4		0·017	0·2	15	<1	13	12	12	2·59
				vary in appearance between pyroclastic and epiclastic material,	16976	264·4	265·4		0·008	0·1	15	<1	13	10	13	2·19
				but compositionally are similar, with orange-pink, pale orangey	16977	265·4	266·4		0·017	0·3	10	<1	11	18	52	1·89
				lava fragments and greyish quartzose clasts in dark-light	16979	266·4	267·4		0·040	1·0	15	<1	13	10	24	2·37
				green matrix, generally open framework. Clasts variably sorted	16980	267·4	268·4		0·017	0·1	15	<1	10	9	32	1·76
				up to 15cm in length but generally 2cm and locally appear	16981	268·4	269·4		0·017	<0·1	10	<1	10	9	29	1·77
				elongated in plane of foliation (pyroclastic?). However rounded	16982	269·4	270·4		0017	0·2	15	<1	12	10	49	1·91
				fragments and banding in places seem to infer epiclastic.	16983	270·4	271·4		0·032	0·6	10	<1	11	11	21	2·03
				Unit is silicified to varying degrees throughout and fine	16984	271·4	272·4		0·032	0·5	20	1	14	15	21	2·11
				grained pyrite is disseminated through matrix to a minor level,	16985	272·4	273·4		0·017	0·3	15	<1	11	12	14	1·53
				though locally becoming significant(towards base). Minor carbonate												
				lenses and whisps. Slightly broken throughout locally badly.												
				Base gradational. Foliated at 40-50° to ca.												
					16986	273·4	274·4		0·032	0·4	30	1	19	20	15	2·84
274.1	275.6	1.4	93	SILICIFIED-PYRITIC VOLCANICLASTICS:- Orange pink lava and	16988	274·4	275·4		0·192	5·6	40	9	44	38	15	5·95
				grey quartzose fragments 2cm in length in grey-green-dark												
				grey matrix. This has been silicified with locally high concent-												
				ration of fine grained pyrite associated. Some sections have												

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5A Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au Fire	Ag	As	Bi	Cu	Pb	Zn	Fe%	Ba
				appearance of re-healed fault breccia. It appears to have been re-faulted with locally broken ground and minor carbonate stringers associated. Where foliated (near top of unit) is at 50° to ca, but elsewhere is poorly foliated due to first faulting-brecciating phase. Base sharp.													
275.6	280.5	3.4	69	BROKEN (FAULTED) LAVA:- Section of very broken orange-pink siliceous lavas which has been pervaded by quartz-carbonate stringers and microfracture fills, locally with pyrite-chalcopyrite blebs associated. Sericitic pug also observed in severely broken section near middle of unit. Minor black-dark green componentwhich may be matrix to what is large lava blocks, as opposed to part of flow. Base fairly sharp. Core loss throughout.	16989	275.4	276.4		<0.008	0.1	5	<1	58	8	14	1.04	
					16990	276.4	277.4		<0.008	0.5	5	<1	660	16	82	1.01	
					16991	277.4	278.4		0.008	0.3	<5	<1	640	16	140	0.98	
					16992	278.4	279.4		0.017	0.1	15	<1	105	27	42	1.39	
					16993	279.4	280.4		0.017	0.3	15	3	450	24	32	1.41	
280.5	289.1	8.6	100	VOLCANICLASTICS?:- Section of orange-pink and greyish moderately foliated material, becoming lighter in colour (bleached?) near base of unit. Some zones consist of clearly fragmented material, with orange-pink and greyish clasts in grey-green matrix, but for much of length is more massive with dominantly greyish-pinkish material with notable creamy-pink crystal component, but moderately foliated, possibly being an ignimbrite. Has been moderately silicified which may obscure original texture to some extent. Slightly broken throughout. Trace fine grained pyrite locally. Foliated at 20-40° to ca. Base Sharp.	16994	280.4	281.4		<0.008	<0.1	<5	<1	10	3	19	0.95	
					16996	281.4	282.4		<0.008	<0.1	<5	<1	21	5	17	0.77	
					14095	282.4	285.5		<0.02	0.3	12		16	8	30	1.3	650
					14096	285.5	288.5		<0.02	<0.1	4		52	8	46	1.4	750
289.1	289.7	0.6	100	QUARTZ VEINING:- Coarse milky white quartz with creamy-pink coarse carbonate aggregates and minor pyrite concentrations in microfractures associated. May be in part responsible for bleaching of previous unit. Base sharp. No clear orientation.	14097	288.5	291.5		<0.02	<0.1	5		7	10	34	1.5	445
289.7	293.5	3.8	100	VOLCANICLASTICS:- Grey to orangey variably silicified volcaniclastic apparently consisting of orangey siliceous-silicified lithic fragments up to 15cm in length in grey-dark grey crystal-													

11 32 36

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5A Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au ppb	Ag	As	Bi	Cu	Pb	Zn	Fe%	Ba
				rich matrix. Crystals (quartz granules) are also observed in fragments, so orange lithics may in fact be response to severe alteration of greyish material but some contact between the two seem too sharp for this explanation. Quartz-(carbonate) net-veining observed in strongly silicified zones. Only trace pyrite observed. Greyish zones appear less silicified. Unit fairly competent. Unit only very poorly foliated. Base gradational.	14098	291.5	294.5		<0.02	<0.1	9		12	12	65	1.5	720
293.5	315.8	22.1	99	STRONGLY SILICIFIED VOLCANICLASTICS(?):- Broad zone of strongly silicified rock, the alteration obscuring original rock type for much of unit, but they would appear to be volcaniclastics. These consist of grey-white quartzose and light orangey pink lithic fragments, with minor crystal (quartz) component in silicified greyish pink-orangey matrix. In more intensely silicified zones rock has translucent light grey-orangey chert appearance. Also observed are zones where silicification is weak, and clastic nature of unit is well defined with orangey lithics and quartz crystals-granules in grey matrix. Locally highly siliceous material contains creamy feldspar laths which may indicate silicified lava blocks. Unit is cut by several milky white quartz veinlets up to 25cms in width, with coarse creamy carbonate patches and local pyrite aggregates associated. Quartz stringers-net veining is observed throughout, notably in more silicified sections. Pyrite mineralisation generally only trace. Unit broken locally and overall is slightly broken. Unit poorly foliated, but trends at 35-40° to ca. Base broken and gradational.	14100	294.5	297.5		<0.02	<0.1	9		8	12	33	1.2	450
					14101	297.5	300.5		<0.02	<0.1	6		7	11	47	0.8	435
					14102	300.5	303.5		<0.02	<0.1	5		6	8	23	0.7	435
					14103	303.5	306.5		<0.02	<0.1	4		6	10	34	0.8	530
					14104	306.5	309.5		<0.02	<0.1	3		5	7	26	0.8	375
					14106	309.5	312.5		<0.02	<0.1	10		17	26	69	1.0	385
					14107	312.5	315.5		<0.02	<0.1	12		12	21	26	1.0	400
315.8	321.9	6.1	100	STRONLGY SILICIFIED VOLCANICLASTICS(?):- A continuation of previous unit but appears to be even more strongly silcified with centre of zone being totally replaced by quartz. Overall is whitish grey in colour with orangey lithics being restricted to minor levels towards contacts, with "clasts" generally being white-green-grey quartzose. Minor carbonate fracture	14108	315.5	318.5		<0.02	<0.1	11		18	14	33	0.8	300
					14109	318.5	321.5		<0.02	<0.1	9		9	10	35	0.8	410

113237

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5A

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au ppb	Ag	As	Bi	Cu	Pb	Zn	Fe%	Ba	
				(micro) fills. Broken in first half of unit. Only trace pyrite observed locally. Base sharp.														
321.9	328.1	6.2	100	SILICIFIED VOLCANICLASTICS:- Marked change in colour and degree of silicification from previous unit. Consists of light orange-grey, greenish grey siliceous lithics in greenish-greyish matrix. Only minor crystal component observed locally. Unit has been silicified, locally with pyrite concentrations associated as replacement of matrix. Pyrite also observed as films in microfractures but overall is only at minor levels. Towards base of unit carbonate patches observed. Locally ground broken. Base gradation. Weakly foliated at 40° to ca.	14110	321·5	324·5		<0·02	<0·1	22		14	37	51	1·4	1000	
					14112	324·5	325·5		<0·02	<0·1	10		8	27	56	1·1	1300	
					14113	325·5	326·5		<0·02	<0·1	16		8	30	68	1·1	1050	
					14114	326·5	327·5		<0·02	0·2	1		29	29	64	1·1	1550	
					14115	327·5	328·5		<0·02	<0·1	22		7	26	60	1·3	850	
328.1	333.9	5.8	100	BROKEN SILCIFIED VOLCANICLASTICS:- silicification and breaking (faulting) of ground obscures much of original texture but would appear to consist of grey-white quartzose fragments in green-dark green matrix. Clasts may be silicified lava fragments. Local concentrations of pyrite observed in matrix. Some pieces have appearance of healed breccia but may be quartz flooded volcaniclastics. Unit has been faulted, with extensive broken ground. Strong water flow experienced from this zone during drilling. Only very minor carbonate observed in patches. Faulted-silicified zone with minor pyrite associated.	14116	328·5	329·5		<0·02	<0·1	15		49	48	158	1·5	1100	
					14117	329·5	330·5		<0·02	0·1	12		17	37	70	1·1	900	
					14118	330·5	331·5		<0·02	<0·1	11		8	8	28	1·2	1250	
					14120	331·5	332·5		0·04	0·1	34		11	16	245	1·7	1000	
					14121	332·5	333·5		<0·02	<0·1	20		9	27	28	1·6	1000	
333.9	350.0	16.1	100	STRONGLY SILICIFIED VOLCANICLASTICS: Very strongly silicified unit consisting of grey-white, pinkish and creamy green siliceous poorly sorted fragments, some possibly blocks, in grey-green, silicified matrix locally with minor pyrite concentrations associated. In general silicification appears to take form of pervasion-flooding but locally may brecciate original unit, but intensity of alteration obscures much of original textures. For most part however the unit is clearly fragmented. Local carbonate associated with silicification. Trace fine grained pyrite observed as matrix replacement. Few thin translucent quartz stringer observed throughout.	14122	333·5	334·5		<0·02	0·3	38		20	118	205	1·3	1300	
					14123	334·5	337·5		<0·02	0·2	19		7	20	37	1·4	1600	
					14124	337·5	340·5		<0·02	<0·1	15		7	17	47	1·5	1600	
					14125	340·5	343·5		<0·02	<0·1	24		9	16	41	1·6	1300	
					14126	343·5	346·5		<0·02	0·2	8		5	9	22	09	750	
					14127	346·5	349·5		<0·02	<0·1	31		6	8	20	1·3	650	

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 5A Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au ppb	Ag	As	Bi	Cu	Pb	Zn	Fe%	Ba
				Ground competent. Weakly foliated 40-60° to ca, but appears to be orientation of alteration and may not be original. Base gradational.													
350.0	353.9	3.9	100	SILICIFIED VOLCANICLASTICS:- Orange-pink lithic (lava) fragments and quartz crystal component in grey to pink-reddish matrix the colour may be a response to variable silicifi.cation. Towards end of unit, it becomes less clearly fragmented and creamy feldspar laths are observed, possibly indicating change to lava unit. Foliated at approx. 45° to ca. Some carbonate veining observed. Unit competent. Base gradational. Distinct colour change from previous and following units. Trace pyrite observed.	14129	349.5	352.5		<0.02	<0.1	7		4	3	20	1.3	435
353.9	366.0	12.1	100	SILICIFIED-SILICEOUS LAVA?:- White-grey locally greenish siliceous unit with quartz crystal-granules and creamy feldspar laths in quartz groundmass. Locally fragmented texture observed with green colour associated but generally is massive unit. Much of quartz may be result of intense silicification, but unit could be original quartz porphyry lava. Carbonate-sericite occurs as microfracture fills throughout. These locally have chalcopyrite aggregates associated as well. Fine grained pyrite (?) observed as trace componenet of possible lava. Extremely hard ground. Unit competent. NB. See Petrographic description 1450	14130	352.5	355.5		<0.02	<0.1	3		5	4	14	0.6	280
					14131	355.5	358.5		<0.02	<0.1	3		10	3	27	0.5	310
					14132	358.5	361.5		<0.02	<0.1	3		187	6	24	0.5	250
					14133	361.5	364.5		<0.02	<0.1	4		23	5	21	0.5	255
					14135	364.5	366.0		<0.02	<0.1	7		8	4	12	0.5	175
				END OF HOLE													

113239

HOLE NO: HP5A
STATE :

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

Sample Number : 14096

Identification : Foliated, completely sericitized, silicified and carbonated vitric crystal tuff

Description :

The sample is a small slab of drill core which displays light olive grey, schistose rock with many reddish orange and yellowish grey phenoclasts, about 0.2 to 3mm in size.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenoclasts and altered phenoclasts set in a finely sericitic, schistose matrix with many finely silicified structures with shapes suggestive of compressed formerly vitric shards, generally less than about 0.4mm long.

Most of the phenoclasts have tabular shapes suggestive of plagioclase, but they have been replaced by quartz and a dolomitic or ankeritic carbonate. A very few are simple quartz phenoclasts. The inferred vitric shards now consist of clouded very finely microcrystalline quartz.

Subhedral pyrite grains, up to 0.04mm, occur rarely within silicified feldspar clasts or within silicified shards.

An approximate mode is :

tr	quartz phenoclasts
10-15%	quartz-carbonate pseudomorphs of feldspar phenoclasts
50-60%	matrix sericite
30-35%	clouded, silicified pseudomorphs of inferred vitric shards
rare	pyrite

Comments and Interpretations :

Remnant textures are consistent with a vitric crystal tuff of leucocratic intermediate or possibly acid composition. The tuff has been subjected to complete hydrothermal alteration to a sericite-quartz-carbonate assemblage and a subsequent metamorphic foliation has been induced in the sericite. The carbonate is dolomite or ankerite rather than calcite.

Sulphide mineralization is confined to rare grains of fine pyrite in silicified clasts.

Sample Number : 14098

Identification : Foliated, variably silicified, intensely sericitized, mildly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays about 30mm of pale reddish orange altered volcanic rock in sharp contact with a regime which has many reddish orange, yellowish and grey clasts, smaller than about 3mm, set in foliated, olive grey sericite.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the reddish orange regime is seen to have abundantly porphyritic but hydrothermally altered volcanic textures. There are many corroded and embayed phenocrysts of quartz, about 0.4 to 2mm in size. Subhedral, twinned plagioclase phenocrysts, about 0.5 to 3mm in size carry sericite and some ankeritic or dolomitic carbonate; they are now albite. Inferred biotite phenocrysts have been replaced by pyrite-sericite-quartz. The groundmass consists of cherty quartz (0.02mm grainsize) and a foliated web of abundant sericite. An approximate mode is :

10-12%	quartz phenocrysts
20-25%	plagioclase phenocrysts with inclusions of sericite and less abundant carbonate
0.5-1%	pyrite-sericite-quartz aggregates after inferred biotite
30-35%	groundmass sericite
30-35%	groundmass quartz

The more obviously foliated and sericitic regime differs in having a less siliceous, more sericitic groundmass and in having some quartz-ankerite pseudomorphs of former subhedral plagioclase phenocrysts. The maximum abundance of carbonate is about 3%.

The reddish orange colour of the most siliceous regime seems to be attributable to ultra-fine pigmentation in the secondary quartz.

Comments and Interpretations :

It seems quite likely that this rock originated as an abundantly porphyritic acid lava, probably a dacite. It has undergone intense hydrothermal alteration involving broadly synchronous sericitization, silicification and production of minor ankeritic or dolomitic carbonate and pyrite. The pyrite occurs as aggregates selectively replacing inferred biotite. The albite composition of the plagioclase phenocrysts may not be original, but no interpretable information was gained.

The hand specimen gives an apparently false impression of a lithic tuff. Thin section features are more consistent with an altered lava in which a relatively rigid, silicified and moderately sericitized regime has been retained within a more sheared, more intensely sericitized regime.

113240

GOLD FIELDS EXPLORATION PTY. LIMITED

HOLE NO: HP5A

Sample Number : 14107

Identification : Foliated, intensely sericitized and silicified, weakly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays many small subhedral phenocrysts of transparent quartz and reddish orange and yellowish grey, altered feldspar set in a yellowish grey to light olive grey, finely crystalline groundmass. Numerous fine fractures delineate an incipient cleavage. There are subtle patches and streaks of very fine sulphide.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays abundant phenocrysts and altered phenocrysts, about 0.5 to 3mm in size, set in an altered, weakly foliated groundmass and cut by fissure veinlets.

Many of the phenocrysts are mildly strained, corroded and embayed quartz. Many others are twinned, unzoned albite carrying some sericite and commonly some dolomitic or ankeritic carbonate. Thick biotite flakes, commonly about 0.7mm long, have been pseudomorphed by coarse sericite and fine sphene. The groundmass consists of cherty quartz (0.02mm) and foliated fine sericite; there are some patchy variations in abundance.

Fine, subhedral pyrite is disseminated unevenly through the groundmass and also forms a few small aggregates in silicified phenocrysts. Grains range from about 0.01 to 0.1mm. Some pyrite is vaguely fracture controlled.

Irregular fine fissure veins (up to 0.2mm wide) cut the rock. Some consist of dolomitic or ankeritic carbonate and others, commonly later, carry quartz with and without traces of carbonate.

An approximate mode is :

7-8%	quartz phenocrysts
8-10%	albite phenocrysts, lightly sericitized and carbonated
0.5-1%	sericite-sphene pseudomorphs of biotite
40-45%	groundmass sericite
35-40%	groundmass quartz
0.3-0.4%	sulphides (mainly or wholly pyrite)
2-3%	vein quartz
0.5-1%	vein carbonate (dolomite or ankerite)

Comments and Interpretations :

It seems quite likely that this rock originated as a porphyritic acid lava (probably dacitic), similar to 14098. It has been intensely silicified and sericitized, moderately carbonated and weakly impregnated with pyrite, then mildly foliated. Plagioclase phenocrysts may have been albitized.

The paragenesis seems to involve sericitization and production of minor carbonate, then silicification with earlier or synchronous pyrite. Barren fissure veins of carbonate give way to barren quartz; such veins probably post-date the foliation.

Sample Number : 14109

Identification : Intensely silicified, heavily sericitized, weakly pyritic, dacitic pumiceous crystal tuff

Description :

The sample is a small slab of hard, light olive grey rock with many light grey, small phenocrysts or clasts. There are indications of mild deformation, but no pronounced schistosity.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many subhedral phenocrysts and some angular phenoclasts, about 0.1 to 2mm in size, set in a finely siliceous and sericitic matrix. Subtle textures indicate that the rock was tuffaceous and probably composed largely of uncompacted pumiceous or perlitic vitric clasts, about 1 to 6mm in size.

The phenocrysts and clasts are mainly quartz and twinned, unzoned albite. There are a few sericite-sphene pseudomorphs of inferred biotite. The inferred pumiceous or glassy components are now cherty quartz and locally foliated sericite.

Subhedral pyrite, about 0.01 to 0.1mm in size, occurs as small aggregates in association with sphene and sericite, probably after biotite.

There are disseminated anhedral small grains of dolomitic or ankeritic carbonate, a few replacement veinlets of sericite and rare fissure veinlets of quartz.

An approximate mode is :

10-12%	quartz phenocrysts and clasts
3-5%	albite phenocrysts and clasts
0.5-0.6%	sericite-sphene pseudomorphs of biotite
50-60%	matrix quartz
25-30%	matrix sericite
0.5-1%	carbonate (dolomite or ankerite)
0.3-0.4%	pyrite

Comments and Interpretations :

Remnant textures suggest that this rock was an uncompacted pumiceous crystal tuff of acid composition, probably dacitic. It has experienced intense silicification and heavy sericitization. Small patches of pyrite probably formed during sericitization of biotite. The observed plagioclase phenocrysts are now albite, but may well have been more calcic originally; they may have contributed calcium to the disseminated carbonate.

113241

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.: HP5A
STATE :

Sample Number : 14127

Identification : Weakly deformed, heavily quartz-veined, silicified, sericitized and weakly pyritized rhyolite or rhyodacite

Description :

The sample is a small slab of hard, yellowish grey, fine-grained rock with some patches of fine-grained sulphide, many irregular small veinlets of light grey quartz and a subparallel set of thicker, straight quartz veins, less than about 1.5mm thick.

A cobaltinitrite staining test revealed abundant fine K-feldspar in the host rock.

In thin section the host rock displays moderately abundant phenocrysts of embayed quartz (1 to 3mm) and a few of sericite after biotite (0.5mm) set in a sutured recrystallized groundmass of quartz (0.1 to 0.2mm), fine K-feldspar (0.01mm), sericite, irregularly disseminated subhedral pyrite (0.01 to 0.2mm) and minor finely granular sphene. The sericite is locally foliated. There are no feldspar phenocrysts but there are some quartz-sericite aggregates with shapes vaguely suggestive of former feldspar.

The numerous irregular veinlets (up to about 0.3mm wide) carry mildly strained quartz and traces of sericite; they are partly of replacement style and partly fissure veins. The thicker (up to 1.5mm) straighter veins are of fissure style and carry mildly strained quartz (0.03 to 2mm grainsize) and minor anhedral calcite of similar grainsize, commonly as cores to the veins.

An approximate mode is :

5-8%	quartz phenocrysts
0.1-0.3%	sericite-sphene pseudomorphs of biotite phenocrysts
35-40%	fine quartz
15-20%	fine K-feldspar
12-18%	fine sericite
0.2-0.3%	disseminated pyrite
8-12%	veinlets of fine quartz
10-15%	veins of coarser quartz with calcite

Comments and Interpretations :

Primary textures of this sample have been considerably modified by hydrothermal alteration, veining and mild deformation. It was probably a lava of rhyolitic or rhyodacitic chemistry, but it could have been a tuff.

Intense alteration has involved the production of sericite, sphene and pyrite, then extensive veining and replacement by quartz, then later fissure veining by coarser quartz with minor calcite. Weak deformation post-dated alteration.

Sample Number : 14135

Identification : Intensely albitized porphyritic acid lava

Description :

The sample is a small slab of drill core which displays very light grey to whitish, hard, intensely altered rock with some inconspicuous phenocrysts or clasts.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays numerous phenocrysts, about 0.5 to 3mm in size, set in a cherty groundmass with grainsizes of about 0.02 to 0.05mm.

The main phenocrysts are subhedral and embayed quartz; most are weakly strained and some are partly recrystallized. Less abundant, generally smaller phenocrysts are twinned, unzoned albite, variously clear of alteration or very lightly flecked with sericite. There are a few sericite-calcite-epidote pseudomorphs of small prismatic crystals which may have been amphibole or pyroxene. The groundmass seems to consist of faintly twinned and untwinned albite and an uncertain amount of quartz. There are a few specks of sphene and a few grains and small aggregates of subhedral pyrite (about 0.02mm grainsize). One end of the sample has subparallel wisps and stringers of sericite.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts, with traces of sericite
tr	sericite-calcite-epidote pseudomorphs of mafic phenocrysts
85-90%	groundmass albite and an uncertain amount of quartz
0.2-0.3%	sericite
tr	groundmass sphene
rare	pyrite

Comments and Interpretations :

Remnant textures suggest that this rock was a porphyritic acid lava. If not, then it was a tuff.

The rock has undergone intense albitization of its groundmass and its plagioclase phenocrysts. The resultant rock looks quite siliceous but it seems fairly certain that the bulk of the "cherty" groundmass is poorly twinned and untwinned albite. There are traces of sericite and sphene and rare fine grains of pyrite.

113242

242

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.:	H.P. 6
STATE :	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	C.F.D. PEASE
COMMENCED	14-4-85
COMPLETED	9-5-85

PURPOSE

To test for northern extension of zones A and B in footwall of Henty Fault under surface anomaly on line 51N

LOG SUMMARY / GENERAL COMMENTS

Hole failed to delineate Zone A correlate , but intersected moderately developed sericitised-silicified sulphidic zone, correlated with Zone B, in silicified pyritic tuffaceous sediments from Henty Fault FW (238.4) to Fault at 295.1m. Silicified-albitised lavas and volcaniclastics to approx. 350m where faulted contact with Owen Conglomerate intersected.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Au g/t	Ag g/t	Cu %	Pb %	Zn %	Bi ppm	Fe %						COMMENTS
273.8	276.8	4.2	5.8	0.11	0.53	0.18	15	1.63						Zone B Correlate

LOCATION

NORTHING	5364421
EASTING	380024
R.L.	604
GRID	A.M.G.
LENGTH	359.5m

HOLE CONDITION

SIZE Hole Size	Depth
HQ	15.0
NQ	239.5
BQ	359.5

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0	15	100
295.1	295.9	37
295.9	305.5	10

POOR GROUND CONDITION ZONES From	To	Condition
126.6	133.3	BROKEN AND SHEARED
191.3	207.0	BROKEN
231.2	232.2	CRUSHED-SERICITISED
232.2	249.8	BROKEN-SHEARED/FAULTED.
295.1	305.5	FAULT WITH BROKEN FOOTWALL
344.8	350.5	FAULT WITH BROKEN HANGINGWALL

HOLE CONDITIONS AFTER COMPLETION

BQ AND NQ WITHDRAWN SUCCESSFULLY.
ONE LENGTH HQ LEFT AT TOP OF HOLE.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

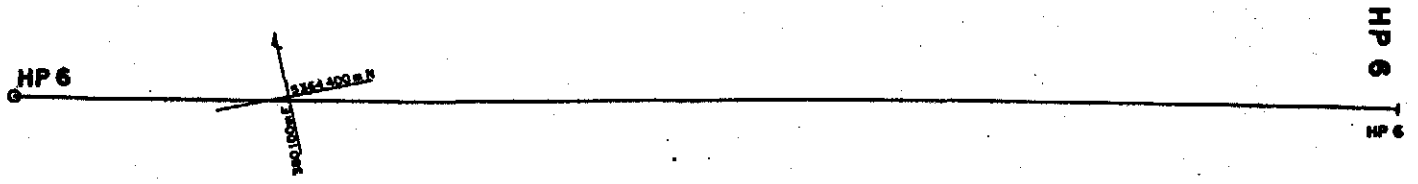
SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total	SURVEY Depth	Bearing	Dip	INTERVAL From	To	Distance	VERTICAL D.Sin.Dip	R.L.	HORIZONTAL D.Cos.Dip	Prog.Total
0.0	102°	51°	0.0	21.0	21.0	16.3	587.7	13.2	13.2										
42.0	101°	49.25°	21.0	57.0	36.0	27.3	560.4	23.5	36.7										
72.0	100.5°	49°	57.0	91.0	34.0	25.7	534.7	22.3	59.0										
110.0	101°	48.25°	91.0	130.0	39.0	29.1	505.6	26.0	85.0										
150.0	100°	46°	130.0	170.0	40.0	28.8	476.8	27.8	112.8										
190.0	100°	45°	170.0	210.0	40.0	28.3	448.5	28.3	141.1										
230.0	101°	44.25°	210.0	250.0	40.0	27.9	420.6	28.7	169.8										
270.0	101°	42.25°	250.0	287.5	37.5	25.2	395.4	27.8	197.6										
305.0	101.5°	38°	287.5	316.5	29.0	17.9	377.5	22.9	220.5										
328	101°	37°	316.5	343.0	26.5	15.9	361.6	21.2	241.7										
358	101°	34°	343.0	359.5	16.5	9.2	352.4	13.7	255.4										

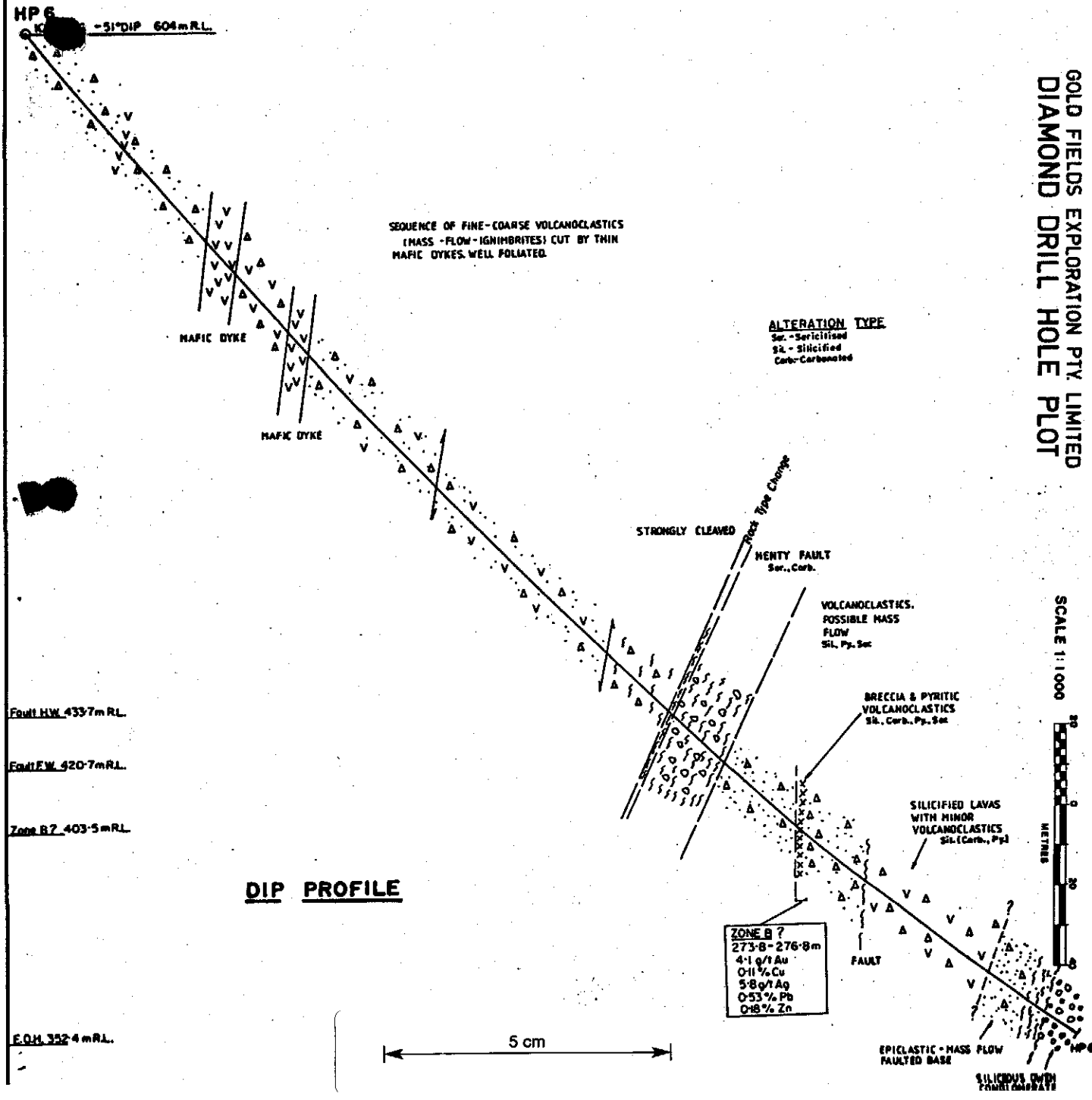
HOLE NO. HP 6

GOLD FIELDS EXPLORATION PTY. LIMITED

DIAMOND DRILL HOLE PLOT

PLAN VIEW





DIP PROFILE

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 6 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0.0	15.0	0	0	Triconed to 15.0m and cased off in HQ. No recovery.
15.0	30.8	12.8	81	WEATHERED VOLCANICLASTICS:- Light pinkish to greenish foliated unit appearing to consist of bleached pinkish lava fragments in greenish-grey bleached matrix, which is commonly limonitic. Locally broken with core loss associated. Appears to be cut by thin fine grained mafic dykes near top of unit. Relatively unweathered sections indicate unit to be ignimbrite foliated at 40-50° to ca. Base sharp. Limonitic fracture surface throughout.
30.8	42.0	7.5	67	WEATHERED MAFIC DYKES-VOLCANICLASTICS:- Section of brown limonitic weathered fine grained mafic dykes cutting weathered-bleached pinkish-greenish ignimbritic material. Commonly very broken with local degradation of mafic dykes to clay with resultant heavy core loss. Is a continuation of previous unit but marked increase in mafic dykes. Towards base weathering decreases in intensity to limonitic surfaces and dissolution of carbonate patches in mafic dykes. Ignimbrites(?) laminated at 40-50° to ca. Possible fault pug at 37.8m. Base gradational. Appears more strongly weathered than previous unit due to mafic dyke component and faulting.
42.0	67.5	25.5	100	VOLCANICLASTICS-MAFIC DYKES:- Continuation of previous unit but drop in mafic dyke content and sharp fall in weathering intensity. Volcaniclastics are variable but basically consist of pink, orange-red lava fragments and feldspar crystal component generally of lapilli size in greenish, dark grey-green and dark reddish brown matrix. Framework is variably open to closed and foliation weak-moderate. Generally unit does not appear to be ignimbritic. This is cut by few mafic fine grained dark green dykes. Towards top of unit this material is weakly limonitic with cavitites after carbonate dissolution but for most of unit dykes are fresh with abundant carbonate "sweat-out" patches and stringers. Contact of dykes are generally broken, but they appear to be orientated parallel to the foliation

ASSAY DATA Sample No.	From	To	Rec. %

11324 5

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 6 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				of volcaniclastics at 45-55° to ca. Fracture surfaces commonly limonitic in first half of unit but decreasing towards base. From approx. 57-58m volcaniclastics are vitric with sweat out quartz veinlet observed. Trace fine grained pyrite observed locally. Unit broken in patches with carbonate plucking associated. Base sharp. Possible mass flow deposit?				
67.5	77.6	10.1	100	MAFIC DYKE:- Light-dark grey green fine grained mafic dyke containing abundant carbonate sweat-out lenses and stringers. Locally appears sericitised(?) in patches and lace stringers. Local carbonate dissolution of carbonate with minor limonitic staining observed but generally fresh. Contacts broken. Inclusion - xenolith of volcaniclastic near base of unit which is sharp. Ground competent.				
77.6	97.9	20.3	100	VOLCANICLASTICS-(MAFIC DYKE):- Sequence of greyish volcaniclastics consisting of pinkish orange crystal (feldspar) component and local concentrations of reddish brown siliceous lava clasts in greenish and grey fine grained matrix. Zones of coarser crystal conponent exist where matrix is greenish (chloritic?) but contacts are ill-defined and irregular. Unit is weakly-moderately foliated at 45-55° to ca. Commonly seems to be gritty. Texture and composition are not consistent with ignimbrite, and unit may be mass flow/epiclastic. Cut by two thin mafic fine grained dykes towards base of unit. Near base, unit is broken with limonitic staining associated. This is also observed in broken zone associated with quartz-(chlorite-carbonate) veinlet near middle of unit. In first half of unit two irregular inclusions of blackish, locally pyritic shale-mudstone or very dark green mafic fine grained volcanics are observed. Overall is moderately sorted possible epiclastic-mass flow deposit. Base sharp.				
97.9	105.3	7.4	100	MAFIC DYKE:- Fine grained green mafic dyke with fairly sharp but indistinct contacts. Broad irregular sinuous-stringer				

113246

GOLD FIELDS EXPLORATION PTY. LIMITED

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PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				carbonate and sericite (or epidote?) patches and "sweat-outs" throughout. Few limonitic fractures observed but unit generally competent. Contacts and dominant foliation of unit parallel to that of host volcaniclastics.				
105.3	126.6	21.3	100	VOLCANICLASTICS-(MAFIC DYKES):- A continuation of unit from 77.6m, with dominantly greyish fine volcaniclastics consisting of pinkish feldspar crystals and local lava clasts in variably grey to green (chloritic?) matrix. Overall crystal component seems less but irregular zones of coarse crystal tuffaceous material are observed. Towards base of unit patches of more vitric, lava clast rich material are observed. Cut by few mafic green fine grained dykes with carbonate "sweat-outs" throughout. Foliated at 40-55° to ca. Towards base unit becomes fractured and broken with limonitic surfaces observed. Minor quartz stringers observed in this zone. Increasingly broken towards base which is obscured but sharp. Possible epiclastic (fine) - or mass flow? Does not appear to be ignimbritic.				
126.6	133.3	6.7	100	BROKEN VITRIC VOLCANICLASTICS-MAFIC DYKES:- Section of fractured broken and locally sheared ground. Notable is change to more siliceous vitric volcaniclastics, which consist of reddish-orange lithic fragments (and possible minor crystal component) in glassy dark grey to buff brown-orange matrix. Few larger blocks of lava also observed. Near top of unit is well foliated but more massive where lava lithics form closed framework clastic Strongly foliated near base due to shearing. Cut by dark green fine grained mafic dykes. Broken throughout with possible shear zone near base. Possible ignimbritic/pyroclastic deposits. Local pyrite aggregates.				
133.3	151.3	18.0	100	VOLCANICLASTICS-MAFIC DYKES:- Generally well-strongly foliated grey-orangey volcaniclastics consisting of orangey lava lithic fragments in greyish streaked-whispy matrix. Clasts generally fine (5mm in length) but occassional blocks up to 15cm in length.				

11324

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 6 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				Generally less vitric than previous unit. but more so the volcan-				
				iclastics before 126.6m. Imposed foliation (cleavage) strong				
				foliating fine grained green mafic dykes that cut volcaniclastics.				
				Where relatively un-cleaved lithic fragments appear moderately				
				rounded while in cleaved areas, they appear rounded - flattened.				
				Volcaniclastics can be split into zones and locally appear				
				bedded(?). Zones vary from well sorted, strongly foliated to				
				poorly sorted, poorly foliated. Framework open throughout.				
				Broken towards base of unit but otherwise competent. Contains				
				few quartz stringers in more silicic zones. Carbonate "sweat-				
				outs" in mafic dykes. Local trace fine grained pyrite. Though				
				appear ignimbritic locally, rounding of clasts and weak zoning				
				(bedding) seem to suggest epiclastic origin.				
151.3	168.9	17.6	100	VOLCANICLASTICS-MAFIC DYKE:- Section of fine grained greyish				
				volcaniclastics cut by green fine grained mafic dyke 3 metres				
				in width. Volcaniclastics variable but generally consist of				
				orangey lithics of fine lapilli size, and local concentrations				
				of pink feldspar crystals in greyish to greenish locally gritty				
				matrix. Zones of crystal-rich material give unit epiclastic				
				appearance but sections of more vitric material appear ignimbritic-				
				porphyritic. Moderately foliated at 45-50° to ca for most of				
				unit becoming strong near base of unit, with flattening of				
				lava lithics, at 60-70° to ca. indicating strong overprinting,				
				Locally slightly broken but generally competent. Cut by few				
				quartz-(carbonate) stringers throughout (metamorphic?). Trace				
				fine grained pyrite locally. Base gradational.				
168.9	191.3	22.4	100	VOLCANICLASTICS-MAFIC DYKES:- Broad section of strongly foliated				
				orangey-greenish grey volcaniclastics consisting dominantly				
				of orangey lava lithics and minor pinkish crystal component				
				in grey-green matrix. This has been strongly cleaved causing				
				flattening and elongation of lithics which are generally 2cm				
				in length and well sorted, at 45° - 60° to ca, locally being				
				kinked. Matrix locally midly sericitised. Slightly broken throughout				

11324 18

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

ULV. PRESS

PROJECT: TYNDALL

HOLE NUMBER: H.P. 6

INTERVAL		RECOVERY		DESCRIPTION	ASSAY DATA			
From	To	m	%		Sample No.	From	To	Rec. %
				and more broken in patches, notably where more sericitic and and foliation more strongly developed. Cut by several dark green fine grained mafic dykes parallel to foliation. Also cut by few quartz stringers and veinlets in more vitric sections of unit. Local variation in appearance of volcaniclastics observed but uncertain whether this is primary (possible bedding) or a response to varying degrees of cleavage-alteration. Base gradational.				
191.3	207.0	15.6	99	VOLCANICLASTICS-MAFIC DYKES:- Continuation of previous unit but broken throughout and overall volcaniclastics appear finer grained but still very strongly cleaved with fine lava lapilli and crystal component in greenish matrix. Only very minor zoning apparent in volcaniclastics. Locally minor sericitisation of matrix. Cut by few thin dark green fine grained mafic dykes. Foliation at 45-40° to ca and locally kinked. Broken due to strong cleavage and possible shearing. Few quartz-(carbonate) veinlets and stringers. Base gradational. Overall more orangey in colour than previous unit.				
207.0	226.2	19.0	99	VOLCANICLASTIC (LAVA?)-MAFIC DYKE:- Distinct change from previous unit to orangey-pink unit being a strongly cleaved fine grained volcaniclastic or porphyritic lava, with original texture being obscured by flattening-elongation of possible lithics (crystals). Observed throughout are asicular creamy laths, possibly being flattened primary crystal component. Locally matrix is greenish but in general is orangey pink in colour. Cut by few thin mafic dykes locally altered to light green colour. Small fault-crush zone at 213.5m, with sericitisation of wall rock associated. Varying degrees of sericitisation observed throughout. Strongly foliated at 50-66° to ca, locally flexured beyond this trend. Common quartz-carbonate sweat-out patches, throughout. Base fairly sharp marked by mafic dykes. Locally slightly broken.				

GOLD FIELDS EXPLORATION PTY. LIMITED

ULV. PRESS

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au (ppm)	Ag	As	Bi	Cu	Pb	Zn	Fe %
226.2	231.2	5.0	100	SERICITISED VOLCANICLASTICS:- Very strongly cleaved grey-green, becoming light green volcaniclastics (fine) with original texture being increasingly obscured by cleavage-shearing. Foliated at 55° to ca near top of unit but swinging to approx. 70° to ca towards base. Immediate hanging-wall of fault. Common carbonate patches and stringers. Broken locally. Base gradational.												
231.2	232.2	1.0	100	CRUSHED-SHEARED ROCK:- Intensely sericitised and sheared unit with local complete degradation of original rock. Light green-white in colour, yellow green near base. Foliated at 65-75° to ca. Crushed base. Hanging-wall side of Henty Fault. Base fairly sharp.												
232.2	238.4	6.0	97	FAULTED-BROKEN SILICEOUS ROCK:- Continuation of Henty Fault but sharp change in faulted lithology which now consists of grey-dark green siliceous-(silicified?) material which has been brecciated and broken with sericitic matrix to breccia. Locally appears to have been brecciated and re-healed by quartz-carbonate, and then re-faulted with sericitic phase associated. Strongly contourted. Several pugs throughout. Trace-minor fine grained pyrite disseminated throughout. Base gradational. Henty Fault in footwall rock. Very broken.	15948	237.4	239.5		<0.01	<.5	2	<1	30	360	1145	1.63
238.4	249.8	10.4	100	BRECCIATED-FAULTED SILICEOUS UNIT:- Continuation of previous unit with fragmented siliceous unit. general light grey, locally dark grey in colour, in sericitic matrix, but brecciation generally less intense than previous unit. Sections appear to be original fragmental unit (epiclastic?) with sericitised matrix. Locally clasts have orange-pink colour (possible lava lithics) tending to grey colour, possibly indicating grey siliceous unit is in part at least, silicified lava. Common carbonate in microfractures and may represent original re-healing phase. Local crush zones but generally only slightly broken. Trace fine grained pyrite throughout. Foliated at	15949	239.5	241.8		<0.01	<.5	2	<1	10	10	25	1.28
					15950	241.8	244.8		<0.01	4	2	<1	10	5	30	1.40
					15951	244.8	247.8		<0.01	<.5	3	<1	5	15	35	1.83

11320

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL HOLE NUMBER: H.P. 6 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au ppb	Ag	As	Bi	Cu	Pb	Zn	Fe %
				40-80° to ca. with no clear trend though pugs-crush zones appear to be at 50° to ca. Footwall zone of Henty Fault? Base fairly sharp.												
					15952	247.8	250.8		<0.01	<0.5	2	<1	40	15	95	3.38
249.8	255.6	5.8	100	VOLCANICLASTIC:- Poorly sorted variably silicified volcaniclastic	15953	250.8	251.8		<0.01	<0.5	<1	<1	15	5	40	2.24
				consisting of grey siliceous and orangey-pink lithic fragments	15954	251.8	252.8		<0.01	<0.5	6	<1	10	5	35	2.24
				and possible blocks in variably greenish sericitic, grey siliceous	15955	252.8	253.8		<0.01	<0.5	3	<1	5	10	35	1.76
				matrix. Moderately foliated at 30-40° to ca. Carbonate in	15956	253.8	254.8		<0.01	<0.5	1	<1	10	5	20	1.37
				microfractures throughout, notably in more siliceous sections.	15957	254.8	255.8		<0.01	<0.5	2	<1	10	5	55	2.51
				Minor shearing decreasing towards base of unit. Possible grey siliceous block approx. 80cms in length near middle of unit. Trace fine grained pyrite throughout concentrated in thin irregular bands (microfractures) in siliceous blocks. Immediate footwall of Henty Fault?												
255.6	258.1	2.5	100	VOLCANICLASTIC:- Fairly well sorted fine grained volcaniclastic,	15958	255.8	256.8		<0.01	<0.5	2	<1	15	5	120	4.26
				greenish-grey in colour consisting of grey-green to greyish	15959	256.8	257.8		<0.01	<0.5	7	<1	10	15	60	2.43
				quartzose and pinkish lava lithic generally of fine lapilli size, and flattened, in greenish grey matrix. Relatively un-silicified. Foliated at approx. 35° to ca. Appears to coarsen towards base of unit which is sharp. Slightly broken at top of unit. Possible epiclastic? Only minor carbonate.												
258.1	258.6	0.5	100	QUARTZ-PYRITE ZONE:- Thin zone of quartz pervading volcaniclastics	15960	257.8	258.8		0.02	<0.5	35	<1	15	10	40	3.06
				with significant pyrite associated. Orientated parallel to foliation of host rocks, and has passive appearance possibly being intense silicification, or quartz-flooding as opposed to dynamic veining. Quartz grey-white in colour and contains fine grained pyrite aggregates in lenses and irregular to regular thin bands totalling approx. 10% of unit. Possibly rehealed breccia? Unit competent. Base sharp. Minor carbonate microfracture fills.												
258.6	269.8	11.2	100	VOLCANICLASTICS:- Section of variable volcaniclastics being variably siliceous-silicified part of which may be primary.	15961	258.8	259.8		<0.01	<0.5	38	<1	10	20	60	2.58

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au	Ag	As	Bi	Cu	Pb	Zn	Fe%	
				Overall consists of varying proportions of grey white to grey	15962	259.8	260.8		<0.01	<0.5	5	<1	15	15	80	3.30	
				siliceous, and orangey-pink-buff lithic fragments in grey,	15963	260.8	261.8		0.20	7	6	3	65	15	30	2.14	
				reddish and greenish matrix forming series of fairly nebulous	15964	261.8	262.8		0.01	<0.5	4	<1	15	5	45	1.65	
				zones within unit. Fragments generally of lapilli size and	15965	262.8	263.8		<0.01	<0.5	2	<1	75	25	50	1.68	
				poorly sorted as open framework volcaniclastic. Commonly has	15966	263.8	264.8		<0.01	<0.5	3	<1	30	20	65	1.68	
				appearance of ignimbrite, but original texture obscured by	15967	264.8	265.8		<0.01	<0.5	<1	<1	15	5	30	1.14	
				foliation at 30-40° to ca which appears to cause elongation-	15968	265.8	266.8		<0.01	<0.5	<1	<1	15	10	40	1.38	
				flattening of lithics. Also silicification confuses texture,	15969	266.8	267.8		<0.01	<0.5	<1	<1	35	10	30	1.34	
				notably towards base of unit where sericite and carbonate	15970	267.8	268.8		<0.01	<0.5	<1	<1	50	20	30	1.27	
				component are also involved. Possible re-healed breccias observed	15971	268.8	269.8		<0.01	<0.5	<1	<1	30	10	35	1.38	
				in this zone. Trace fine grained pyrite disseminated locally.													
				Broken in patches but generally competent. Possible mass flow													
				or ignimbrite. Base gradational.													
269.8	273.8	4.0	100	VOLCANICLASTIC:- Continuation of previous unit but now dominantly	15972	269.8	270.8		<0.01	<0.5	<1	<1	10	5	20	0.37	
				orangey pink lava(?) lithics generally of lapilli size and	15973	270.8	271.8		0.05	<0.5	14	<1	325	25	25	2.45	
				poorly-moderately sorted, with only minor grey-white quartzose	15974	271.8	272.8		0.04	<0.5	19	2	50	45	60	3.05	
				component, in grey-green to greyish weakly silicified matrix,	15975	272.8	273.8		0.13	<0.5	15	<1	35	50	40	3.37	
				as open framework volcaniclastic. Moderately foliated at 30-													
				45° to ca but notable decrease overall in elongation-flattening													
				of clasts from previous unit. Locally matrix contains fine													
				grained dissemination of pyrite, increasing in abundance towards													
				base of unit but overall 0.5% Sulphide. Thin fault pug at													
				25° to ca at 271.75m but otherwise unit competent. Towards													
				base of unit lithic fragments lose their pinkish colour possibly													
				due to alteration (silicification). Base sharp. Possible mass-													
				flow deposit or epiclastic?													
273.8	276.8	3.0	100	MINERALISED RE-HEALED BRECCIA:- Significant mineralised zone	14087	273.8	274.8	100	5.38	5.2		15	1420	950	111	2.6	
				on what appears to be a re-healed breccia within volcaniclastics.	14088	274.8	275.8	100	4.25	7.5	13	17	1170	9030	2000	1.3	
				Host is continuation of previous unit with pinkish-greyish	14089	275.8	276.8	100	2.83	4.8	12	14	800	6000	3280	1.0	
				siliceous clasts in silicified-pyritic matrix, the pyrite-													
				silica phases presumably being response to same broad event													
				as breccia. The volcaniclastic appears to have been brecciated													
				and quartz-flooded /silicified healing breccia and silicifying													

113252

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 9.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au	Ag	As	Bi	Cu	Pb	Zn	Fe%		
				fragments. This phase also has abundant carbonate and subordinate sericite associated. Also introduced is significant galena-chalcopyrite-pyrite and subordinate sphalerite(?)mineralisation which occurs as irregular fine-medium grained aggregates and splashes either in quartz fill, or silicified matrix of volcaniclastics(?) generally elongated in direction of foliation of unit at 15° to ca near top of unit swinging to 50° to ca towards base. Locally appears to have been restressed with carbonate filling resultant microfractures. Unit generally competent. Base sharp. Possible minor shearing to low angles to ca near top of unit. Some sulphides in microfractures penetrating lithic fragments.													
276.8	281.2	4.4	100	SILICIFIED-PYRITIC VOLCANICLASTICS:-Similar to immediate hanging-wall of mineralised zone with orange-grey siliceous lithic fragments in dark grey matrix which has been silicified (sub-ordinate sericite) with fine grained pyrite dissemination associated. Near top of unit open framework volcaniclastic is relatively well sorted and fine, with clasts generally 1cm in length, but towards base, becomes more poorly sorted and blocky, with pink-orange lava blocks up to 30cms in length observed. Mineralisation dominantly restricted to matrix and so sulphide proportion drops with coarsening of valcaniclastics. Thin breccia(?) zones with whitish quartz-carbonate component, as previous unit, are observed with galena-chalcopyrite-pyrite mineralisation associated. Well foliated at 30-50° to ca, but little apparent flattening of lithics associated, though many appear elongated as primary feature (possible ignimbrite?). Overall sulphide of 2-3%. Local shearing but unit generally competent.	14091	276·8	277·8		0·317	3·4	26	10	106	970	550	3·2		
					14092	277·8	278·8		0·917	2·6	36	10	510	315	77	2·7		
					14093	278·8	279·8		0·333	1·3	32	10	370	355	240	3·1		
					14094	279·8	280·8		0·050	<0·1	17	7	26	37	60	1·9		
					15976	280·8	281·8		0·02	<0·5	14	<1	100	45	65	2·41		
281.2	284.9	3.7	100	VOLCANICLASTIC:- Closed-open framework lithic rich volcaniclastic consisting dominantly of poorly sorted orangey-pink lava clasts generally of lapilli size with grey to dark grey-green matrix. Minor grey-white siliceous clasts and possible trace crystal	15978	281·8	282·8		<0·01	<0·5	2	<1	20	15	50	1·56		
					15979	282·8	283·8		0·01	<0·5	2	<1	10	10	30	1·37		
					15980	283·8	284·8		<0·01	<0·5	6	<1	35	15	40	1·77		

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 10.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au AAS	Ag	As	Bi	Cu	Pb	Zn	Fe%
				component. Moderately zoned on basis of clast density which may indicate mass-flow or epiclastic origin. Unit has been moderately silicified with trace-minor fine grained pyrite development in matrix, but high clast density prevents significant sulphide proportion. Foliated at 35-45° to ca but very little evidence of significant flattening-elongation of clasts associated. Base gradational. Unit competent.											
284.9	287.4	2.5	100	SILICIFIED-PYRITIC VOLCANICLASTICS:- Marked change in clast density to open framework volcaniclastic consisting of orangey-red lava and grey-white siliceous clasts in dark grey matrix. Clasts generally of lapilli size and moderately sorted, with few lava blocks observed. Unit has been silicified with significant pyrite development in matrix associated generally as dissemination though locally concentrated in irregular bands and aggregates, locally penetrating clasts through microfractures. Moderately foliated at 35-40° to ca but again only minor elongation of clasts observed in this plane. Unit generally competent. Base fairly sharp.	15981	284.8	285.8		0.14	3.5	74	11	375	70	45	3.89
					15982	285.8	286.8		0.07	2.5	19	3	100	45	50	2.58
					15983	286.8	287.8		0.08	3.0	33	7	90	50	45	3.57
287.4	295.1	7.7	100	VOLCANICLASTIC:- Continuation of open framework volcaniclastic but drop in orangey-red lava lithics to minor, with dominant clasts being grey siliceous poorly sorted and generally lapilli size. Few orangey lava blocks observed. Matrix grey-dark grey in colour but contains only trace-minor pyrite as fine dissemination and locally fine aggregates. Locally matrix greenish colour. Local minor carbonate whisps and small patches. Moderately foliated at 40-45° to ca, locally swinging beyond this trend. Becomes broken towards base of unit, but otherwise fairly competent. Overall is continuation of previous unit but decrease in pyrite content in matrix. Base sharp.	15984	287.8	288.8		<0.01	1.5	18	<1	100	60	270	2.30
					15985	288.8	289.8		0.01	1.5	29	4	120	50	210	4.01
					15987	289.8	290.8		0.01	2.5	21	7	170	120	240	2.91
					15988	2908	291.8		<0.01	3.0	28	7	60	435	300	2.80
					15989	291.8	292.8		0.02	3.1	15	9	30	610	120	2.20
					15990	292.8	293.8		<0.01	<0.5	6	<1	65	20	40	2.18
					15991	293.8	294.8		<0.01	<0.5	9	<1	90	30	45	2.27
295.1	295.9	0.5	63	FAULT ZONE:- Sharp change in rock type to fairly massive grey-white orangey siliceous unit that has been faulted with crushing of rock and core loss associated. Only trace sulphide associated.	15992	294.8	295.8		<0.01	<0.5	1	<1	60	30	35	1.20

113254

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 11.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au ppb	Ag	As	Bi	Cu	Pb	Zn	Fe%		
				Sericite as fault breccia matrix. Base gradational.														
295.9	300.6	4.3	91	SILICIFIED LAVA?:- Fairly massive pinkish grey white siliceous-silicified unit, possibly a silicified lava, with minor creamy feldspar laths visible throughout. Locally has silicified fragmental appearance which may be thin clastic zones or may indicate lava to be a large block. Faulted in first half of unit with significant core loss associated and minor quartz veining observed distinct from quartz flooding in lavas. Carbonate in microfractures. Base sharp. Only trace pyrite observed locally. Unit broken in patches.	15993	295.8	298.8		<0.01	<0.5	<1	<1	5	5	25	0.36		
					15994	298.8	301.8		<0.01	<0.5	<1	<1	5	15	30	0.45		
300.6	305.5	4.9	90	SILICIFIED LAVA?:- Continuation of previous unit but appears to be even more strongly silicified, and grey-white in colour with only minor pink tinge locally. Thin fragmented zones locally but may be autobrecciation. Carbonate fill to micro-fractures throughout. Creamy crystal laths observed throughout in translucent siliceous groundmass. Minor sericite in fragmented zones. Only trace pyrite locally. Broken in patches with core loss associated (notably at 304m). Base gradational.	15995	301.8	304.8		<0.01	<0.5	<1	<1	<5	10	15	0.33		
					15997	304.8	305.8		<0.01	<0.5	<1	<1	<5	10	10	0.28		
305.5	324.4	18.9	100	SILICIFIED LAVAS-(VOLCANICLASTICS):- Section of strongly silicified material for the most part appearing to be massive-vitric lava, with fragmental horizons, locally being clearly volcani-clastics but in general have texture of auto-brecciated lava. Lava is orangey to grey white in colour, translucent and containing creamy feldspar laths. Locally has greenish hue due to sericite presence in autobrecciated horizons - clastic zones. Near base of unit lava lithic rich volcaniclastic horizons occur. Unit has been strongly silcified and pervaded by quartz stringer network, which near top of unit has significant pyrite and chalcopyrite mineralisation associated (307.4-309.4m), but generally only trace-minor sulphides (pyrite) observed throughout. Minor carbonate as microfracture fill observed throughout. Weakly foliated in clastic horizons but in general	15998	305.8	306.8		<0.01	<0.5	<1	<1	20	5	30	0.50		
					15999	306.8	307.8		<0.01	<0.5	1	<1	20	5	35	0.94		
					16000	307.8	308.8		0.01	1.5	60	<1	10	20	25	1.39		
					17102	308.8	309.8		0.02	2	15	<1	1950	15	40	0.96		
					17103	309.8	310.8		<0.01	<0.5	1	<1	10	15	30	0.61		
					17104	310.8	311.8		<0.01	<0.5	1	<1	10	10	40	0.56		
					17105	311.8	312.8		<0.01	0.5	19	<1	40	70	80	1.03		
					17106	312.8	315.8		<0.01	<0.5	1	<1	15	20	35	0.49		
					17107	315.8	318.8		<0.01	<0.5	<1	<1	15	15	40	0.47		
					17109	318.8	321.8		<0.01	0.5	<1	<1	5	15	35	0.34		
					17110	321.8	324.8		<0.01	<0.5	1	<1	10	20	95	0.56		

GOLD FIELDS EXPLORATION PTY. LIMITED

DCV. PRESS PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 12.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au AAS	Ag	As	Bi	Cu	Pb	Zn	Fe%		
				is massive. Slightly broken in patches but overall is competent. Volcaniclastic horizons near base consist of poorly sorted siliceous clasts in grey-green to dark grey matrix. Base is sharp, with minor shearing at 20° to ca observed near contact.														
324.4	332.4	7.8	98	INTENSELY SILICIFIED LAVA:- Very hard broken grey-white translucent massive vitric lava, probably intensely silicified, with local orangey-pink hue. Minor core loss associated with broken ground (pug wash-out?) which appears to be due to fracturing at 15-20° and approx. 50°. Minor carbonate as microfracture fill throughout. Increase in competence towards base of unit. Creamy feldspar laths throughout (platey). Only trace sulphides observed. Base fairly sharp and irregular. N.B See Petrographic description 17111	17111	324·8	327·8		<0·01	0·5	<1	<1	<5	10	20	0·19		
					17112	327·8	330·8		<0·01	<0·5	<1	<1	<5	5	20	0·26		
					17113	330·8	333·8		<0·01	1·5	1	<1	10	30	80	1·87		
332.4	344.8	12.4	100	EPICLASTIC :- Sharp change from previous unit to possible epiclastic consisting dominantly of faintly purple grey fine grained material which appears to have been slumped-reworked for much of unit. At top of unit this material is fairly massive containing few orangey lava lithics but towards middle occurs dominantly as irregular clasts in dark greenish matrix forming both open and closed framework epiclastics. Lava lithics from minor constituent in this section as well. Texture suggest material was moderately consolidated before reworking. Occasional silicified zones where framework is open. Minor carbonate strings and patches and possible clasts. Well foliated at 40-50° to ca with some elongation-flattening of clasts observed in this plane. Unit competent. Would appear to have been deposited on top of preceding lava unit. Base gradational. Only trace fine grained pyrite observed.	17114	333·8	336·8		<0·01	1·5	3	<1	5	25	125	2·92		
					17115	336·8	339·8		<0·01	0·5	9	<1	5	20	110	2·70		
					17116	339·8	342·8		<0·01	0·5	6	<1	5	25	115	2·93		
					17117	342·8	343·8		0·01	1	3	<1	5	40	175	2·87		
					17118	343·8	344·8		0·01	2	5	<1	<5	15	110	2·74		
344.8	349.5	4.5	96	BROKEN EPICLASTICS:- Continuation of previous lithology but increasingly broken and sheared towards base of unit with sericite development associated. Increase also in carbonate stringers and networks. Shearing observed at low angles to ca (approx. 15°) and at angles from 40-50° to ca. Base gradational	17119	344·8	345·8		<0·01	1	6	<1	5	40	215	2·29		
					17120	345·8	346·8		<0·01	1	6	<1	10	20	140	2·86		
					17121	346·8	347·8		0·01	0·5	5	<1	5	20	110	2·57		
					17122	347·8	348·8		0·01	<0·5	12	<1	10	35	135	3·43		
					17123	348·8	349·8		<0·01	0·5	4	<1	90	40	110	2·08		

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: H.P. 6 Page: 13.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %	Au AAS	Ag	As	Bi	Cu	Pb	Zn	Fe%		
				Only trace pyrite observed.														
349.5	350.5	0.6	60	FAULT ZONE:- Zone of crushed and broken epiclastics with sericitic pugs observed at angles from 15-70° to ca, and severe core loss associated. Becomes more siliceous towards base which is sharp. Only trace pyrite observed.	17124	349·8	350·8		<0·01	1	<1	<1	1450	30	235	1·31		
350.5	359.5	9.0	100	CONGLOMERATE (OWEN):- Poorly sorted grey-white quartzose-cherty generally moderately rounded clasts from grit-cobble in size in grey siliceous gritty matrix. Poorly bedded. Few light greenish vitric lava? clasts also observed. Fractured throughout with local broken ground associated. Local pyrite concentrations on fracture surfaces and carbonate fill in some microfractures. Owen (Jukes) conglomerate faulted against volcanics.	17125	350·8	351·8		<0·01	<0·5	<1	<1	5	10	25	0·51		
					17126	351·8	352·8		<0·01	<0·5	<1	<1	<5	10	25	0·52		
					17127	352·8	353·8		0·03	<0·5	1	<1	<5	5	25	0·55		
				END OF HOLE														

11325-1

GOLD FIELDS EXPLORATION PTY. LIMITED
DRILL CORE RECORD

HOLE NO.: HP6
STATE :

Sample Number : 14088

Identification : Foliated, sulphide impregnated, completely silicified, sericitized and carbonated lithic tuff

Description :

The sample is a small slab of core which displays several rounded and rolled yellowish grey lithic clasts, about 20 to 30mm in size set in a sheared matrix which is darkened by very fine sulphides. Thin sericitic shears penetrate the matrix and the coarse clasts.

A cobaltinitrite staining test produced weak staining attributable to sericite, but revealed no K-feldspar.

In thin section one of the large rounded clasts is seen to consist of cherty fine quartz (commonly 0.02mm grainsize), small patches and flecks of sericite, small patches of sericite-sphene-sulphide (possibly after biotite) and a few specks of calcite.

The bulk of the sample consists of similar ovoid to lenticular cherty silicified clasts (commonly 1 to 2mm in size), along with similar-sized but more wispy, sericite-dominated clasts and more coarsely silicified or carbonated clasts with the most abundant and coarsest sulphides. The latter clasts are commonly about 1 to 4mm in size and carry quartz, calcite and sulphide grains about 0.02 to 0.5mm in size. The sulphides include abundant anhedral and generally fine galena, subhedral pyrite and small amounts of translucent grey sphalerite.

There are a few 0.1mm wide fissure veins of quartz and calcite.

An approximate mode is :

55-60%	quartz
30-35%	sericite
5-7%	calcite
3-4%	sulphides (galena, pyrite and minor sphalerite)
0.1-0.2%	sphene

Comments and Interpretations :

It seems quite likely that this rock originated as a lithic tuff with a leucocratic intermediate or acid composition, It then experienced intense pervasive hydrothermal alteration and sulphide mineralization. The alteration and mineralization appears to represent a single event. An impression was gained that sericite and sulphides formed early and that alteration progressed to silica and carbonate. Mild deformation post-dates alteration.

The occurrence of the sulphides as concentrations within various replaced clasts is quite consistent with an epigenetic origin and quite inconsistent with a syngenetic sedimentary origin.

Sample Number : 14091

Identification : Foliated, sulphide impregnated, completely sericitized, silicified and carbonated tuff

Description :

The sample is a small slab of drill core which displays finely schistose rock with abundant fine pyrite, small pods and mineral clasts of medium light grey quartz and some patches and streaks of yellowish orange carbonate.

A cobaltinitrite staining test revealed about 1-2% K-feldspar as fine grains within a few clasts.

In thin section the sample displays many ovoid to lenticular, silicified clasts, about 0.5 to 3mm in size, set in a foliated, finely sulphide impregnated sericitic matrix with some fine quartz, carbonate and rutile. The silicified clasts are cherty mosaics of quartz, commonly 0.02mm in grainsize, accompanied by minor sericite and sulphides, especially fine subhedral pyrite. There are some silicified clasts with coarser quartz, some carbonate and little sulphide. Some clasts consist of deformed, sutured aggregates of dolomite or ankerite with minor quartz and sulphide.

Most of the sulphide consists of subhedral cubes of pyrite, about 0.01 to 0.2mm in size, and it is most abundant as disseminations with the foliated, sericitic matrix. Minor fine galena and coarser sphalerite (up to 0.5mm as grains zoned from translucent pale brown to opaque grey rims) is present, especially in the silicified clasts with the coarsest quartz and some carbonate.

There is a strained and disrupted fissure vein of quartz with a central core of barytes. The vein is about 0.5mm wide.

An approximate mode is :

50-55%	sericite
30-35%	quartz
10-12%	sulphide (mainly pyrite, but with some galena and sphalerite)
4-6%	carbonate (probably dolomite or ankerite)
1-2%	K-feldspar
0.1-0.2%	rutile
0.1%	barytes

Comments and Interpretations :

It seems quite likely that this sample originated as a lithic tuff with a leucocratic intermediate or acid composition. It has experienced intense pervasive hydrothermal alteration and sulphide mineralization prior to deformation.

The impression was gained that a single hydrothermal event was involved, starting with production of sericite, pyrite and rutile, progressing to silica and carbonate with minor pyrite, sphalerite [illegible] era and culminating in quartz and barytes

113258

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.: HP6
STATE :

Sample Number : 14093

Identification : Foliated, sulphide impregnated, completely sericitized, silicified and carbonated acid lithic crystal tuff

Description :

The sample is a small slab of drill core which displays hard, yellowish grey and moderate reddish orange, rounded and probably stretched, altered lithic clasts, about 2 to 20mm, and small quartz phenoclasts set in a finely schistose, abundantly finely pyritic matriz.

A cobaltinitrite staining test seemed to indicate the presence of minor fine K-feldspar.

In thin section the sample displays a foliated, altered tuffaceous texture. Quartz phenoclasts and other silicified clasts are set in a schistose matrix rich in sericite and fine sulphides.

There are many mildly strained phenoclasts of quartz, about 0.2 to 1mm in size, some angular and some embayed and corroded. There are no remnant feldspar phenoclasts, but there are several quartz clasts with ghosted plagioclase twinning. Many lithic clasts are present and they now display a few quartz phenocrysts set in an altered groundmass of cherty quartz, dolomitic or ankeritic carbonate, sericite, sphene and traces of disseminated pyrite. The matrix between the clasts consists mainly of sericite, subhedral to euhedral pyrite cubes (about 0.01 to 0.1mm) and tiny prisms of rutile. The sulphide has a streaky distribution.

Several straight fissure veins of calcite (0.1 to 0.3mm wide) transgress the foliation.

An approximate mode is :

50-60%	sericite
30-35%	quartz
6-8%	sulphide (mainly or wholly pyrite)
3-4%	dolomite or ankerite
3-4%	K-feldspar
0.2-0.3%	calcite
0.1-0.2%	sphene
0.1-0.2%	rutile

Comments and Interpretations :

Remnant textures indicate that this rock originated as an acid lithic crystal tuff, but it has undergone intense hydrothermal alteration and mineralization, then shearing and then minor veining by calcite.

Unlike Samples 14088 and 14091, this sample retains some primary quartz phenoclasts. Some probable plagioclase clasts and many lithic clasts have undergone intense silicification, usually of cherty style. The finer matrix is intensely sericitized and carries most of the pyrite.

The impression was gained that a single hydrothermal event first attacked the matrix of the tuff to produce sericite-pyrite-rutile then attacked the lithic clasts to produce quartz-carbonate-sphene with only minor sericite and traces of pyrite.

Initially it was thought that the dolomitic or ankeritic carbonate might account for the reddish orange colour of some lithic clasts, but it does not seem sufficiently abundant. On close inspection the quartz itself reveals a faint, very fine pigmentation.

113259

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.: HP6
STATE :

Sample Number : 15957

Identification : Carbonate-veined, weakly pyritic, intensely silicified acid tuff or lava

Description :

The sample is a small slab of drill core which displays hard, finely siliceous light olive grey rock with inconspicuous fracturing and veining.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays phenoclasts, or possibly phenocrysts, about 0.1 to 1.5mm in size, set in a cherty matrix with grainsizes of about 0.01 to 0.02mm.

The most common clasts or phenocrysts are strained quartz; shapes are commonly equant and angular to corroded, commonly with partial recrystallization. Clear grains of twinned albite have tabular or broken shapes. The cherty matrix seems to consist very largely of quartz. There are irregularly disseminated, subhedral cubes of pyrite (0.01 to 0.2mm), specks of sphene and a few wisps and stringers of sericite.

There are inconspicuous fissure and replacement style veins of cherty quartz (about 0.5mm wide); most are barren but a few carry sparse grains of pyrite. Such veins post-date sericitic stringers and pre-date thicker fissure veins (0.05 - 0.5mm) of dolomite or ankerite with and without minor quartz and albite.

An approximate mode is :

3-4%	quartz clasts or phenocrysts
1-2%	albite clasts or phenocrysts
85-90%	matrix quartz
0.1-0.2%	matrix sphene
0.5-1%	sericite
0.4-0.5%	pyrite
3-4%	cherty vein quartz
1-2%	dolomite or ankerite veins with minor quartz and albite

Comments and Interpretations :

The original rock may have been a tuff or possibly a lava of acid composition. There has been intense hydrothermal alteration and weak sulphide mineralization.

The paragenetic sequence seems to involve production of very minor sericite and sphene, then pervasive cherty silicification. Disseminated pyrite formed before or during silicification. There was then subtle replacement and fissure-style veining by quartz and subsequent fissure veining by dolomite or ankerite with minor quartz and albite.

Sample Number : 15967

Identification : Well foliated, intensely sericitized, weakly silicified and carbonated, acid crystal lithic tuff

Description :

The sample is a small slab of hard, schistose, moderate reddish orange, fine-grained rock with subtle quartz clasts and some stretched medium light grey lithic clasts, up to a maximum of about 10mm in size.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenoclasts of quartz (about 0.1 to 1mm) and a few silicified and carbonated formerly lithic or vitric clasts (commonly 1 to 2mm in size) set in a schistose matrix of sericite, fine quartz, anhedral calcite, a few specks of sphene and sparse, subhedral grains of pyrite (finer than about 0.03mm). A few quartz phenoclasts have smoothly corroded forms, but most are plainly broken.

An approximate mode is :

20-25%	quartz phenoclasts
4-6%	silicified and carbonated lithic or vitric clasts
50-60%	matrix sericite
15-20%	matrix quartz
1-3%	matrix calcite
0.1-0.2%	matrix sphene
0.1%	pyrite

Comments and Interpretations :

The remnant textures of this rock are quite consistent with an acid crystal lithic tuff or related volcaniclastic sediment.

Alteration has involved extensive sericitization and minor silicification and production of calcite. Sulphide mineralization is in the form of traces of disseminated fine pyrite. The sericitized matrix has been well foliated.

113260

HOLE NO: HP6
STATE :

GOLD FIELDS EXPLORATION PTY LIMITED

DRILL CORE RECORD

Sample Number : 15981

Identification : Deformed, sulphide impregnated, completely silicified, sericitized and carbonated, coarse acid lithic tuff

Description :

The sample is a small slab of drill core which displays a moderate reddish orange, hard band, pod, vein or clast, more than 15mm by 20mm in contact with weakly foliated rock dominated by medium grey and light grey silica and fine-grained sulphides.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the reddish orange regime is seen to consist of small quartz phenocrysts and twinned plagioclase phenocrysts pseudomorphed by quartz set in a cherty groundmass of quartz (about 0.02mm grainsize) with disseminated dolomite or ankerite, a few grains of sphene, rare cubes of pyrite and some streaks of sericite. Thus, it seems to be an intensely altered acid volcanic clast.

Several smaller lenticular clasts are similarly finely silicified acid volcanic rock but another large clast and several small ones are coarsely silicified and consist of mildly strained quartz (up to 0.3mm), carbonate, minor sericite and conspicuous anhedral chalcopyrite and subhedral pyrite.

The matrix between the clasts is a strained aggregate of quartz (finer than 0.2mm), subhedral pyrite (0.02 to 0.7mm) sericite and minor carbonate. There are some late, straight fissure veins of calcite, generally less than 0.1mm wide.

An approximate mode is :

65-70%	quartz
12-15%	sulphide (mainly pyrite and subordinate chalcopyrite)
8-12%	sericite
6-8%	dolomite or ankerite
0.4-0.6%	calcite
0.1%	sphene

Comments and Interpretations :

Textures suggest that this rock originated as a coarse lithic tuff of acid composition. It has been intensely hydrothermally altered and mineralized, then mildly deformed and subsequently veined by calcite.

The impression was gained that alteration first attacked the matrix of the tuff and involved production of pyrite, quartz and minor sericite. Lithic clasts were then finely silicified, along with the production of dolomitic or ankeritic carbonate, minor sericite, traces of sphene and rare pyrite. Some coarsely silicified clasts were impregnated with chalcopyrite and pyrite.

Sample Number : 16000

Identification : Quartz-veined, mildly pyritic, intensely silicified and moderately sericitized and carbonated porphyritic acid lava

Description :

The sample is a small slab of light olive grey, hard, fine-grained rock with many inconspicuous small phenocrysts or clasts. There is irregular medium and light grey siliceous veining, but no obvious schistosity.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays quartz phenocrysts, about 1 to 2mm in size, set in a groundmass composed mainly of allotriomorphic quartz (about 0.2mm in size) and similarly sized aggregates of cherty quartz and sericite (probably after feldspar).

The quartz phenocrysts are strained, corroded and subhedral grains. There are no plagioclase phenocrysts, but there are scattered aggregates of calcite, quartz and minor sericite which may be alteration products of former phenocrysts.

Subhedral pyrite (about 0.02 to 0.2mm) is present as irregularly distributed disseminations and as several replacement patches and veins (up to 2mm wide) with quartz and minor sericite and calcite.

There are numerous barren, irregular quartz veins, up to about 1.5mm wide. Those with replacement style carry only fine quartz, whilst others with fissure style carry coarser quartz and some calcite.

An approximate mode is :

7-8%	quartz phenocrysts
3-4%	calcite-quartz aggregates, possibly after feldspar phenocrysts
30-35%	fine groundmass quartz
30-35%	fine "cherty" groundmass quartz
5-8%	groundmass sericite
0.3-0.4%	pyrite
10-15%	vein quartz
0.2-0.3%	vein calcite

Comments and Interpretations :

This rock is intensely altered, but it seems likely that it originated as a porphyritic acid lava.

Alteration has involved pervasive broadly synchronous silicification and subordinate sericitization and production of calcite. Pyrite was introduced as disseminations and replacement veins and patches with these three minerals. There was then a phase of barren replacement veining by quartz and barren fissure veining by quartz and calcite. Weak deformation has strained all quartz and produced very minor local foliation in sericite.

113261

GOLD FIELDS EXPLORATION PTY LIMITED

DRILL CORE RECORD

HOLE NO: HP6
STATE :

Sample Number : 17111

Identification : Intensely albitized porphyritic acid lava

Description :

The sample is a small slab of drill core which displays hard, light grey to whitish, fine-grained rock with inconspicuous small phenocrysts or clasts. There are several thin siliceous veins and several very pale orange, thin veins carrying carbonate.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays numerous phenocrysts, about 0.5 to 2mm in size, set in a cherty groundmass with grainsizes of about 0.02 to 0.2mm.

The main phenocrysts are mildly strained, equant subhedral to corroded quartz. Subhedral, tabular grains of twinned, unzoned albite are prominent; most show minor flecking or veining by sericite. The 'cherty' groundmass consists mainly of faintly twinned and untwinned albite; there is an undertain and probably minor amount of groundmass quartz. There are a few specks of sphene and rare tiny grains of pyrite.

There are several very inconspicuous fissure style veins of cherty quartz, up to about 0.5mm wide, several later veinlets of sericite and subsequent replacement veins of calcite with minor quartz.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts with minor sericite
80-85%	groundmass albite with an uncertain amount of quartz
tr	sphene
rare	pyrite
1-2%	vein quartz
1-2%	vein sericite
0.5-1%	vein calcite

Comments and Interpretations :

Remnant textures suggest that this rock originated as a porphyritic acid lava. If not, then it was a tuff.

The rock has undergone intense albitization of its groundmass and presumably of its plagioclase phenocrysts. There are minor other alteration minerals and the apparent paragenesis is albite with traces of sericite, sphene and rare pyrite, then quartz, then sericite, then calcite with minor quartz.

The sample has similarities to 14135.

Sample Number : 17107

Identification : Weakly foliated, silicified, heavily sericitized, weakly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays moderately foliated, hard, light olive grey rock with vague phenocrysts or small clasts and with several light grey siliceous veins, the thickest about 3mm.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenocrysts, about 0.5 to 3mm in size, set in a webbed groundmass of quartz (0.03 to 0.05mm) and sericite.

The dominant phenocrysts are mildly strained, embayed and corroded quartz. Others are subhedral, tabular, twinned, unzoned albite, lightly flecked with sericite, and a few sericite-sphene pseudomorphs of biotite. In addition to quartz and sericite the groundmass carries a few grains of sphene and disseminations and vague stringers of subhedral pyrite grains, about 0.01 to 0.05mm in size.

Quartz forms some replacement and fissure-style veins. Some are fine and "cherty", whilst others are coarser grained (up to 0.5mm grainsize) and carry minor albite and small rhombs of calcite.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts, lightly flecked with sericite
0.1-0.2%	sericite-sphene pseudomorphs of biotite
50-55%	groundmass sericite
25-30%	groundmass quartz
0.2-0.3%	pyrite
8-12%	quartz in veins
0.2-0.3%	calcite in veins
tr	albite in veins

Comments and Interpretations :

It seems likely that this rock originated as a porphyritic acid lava, probably a dacite.

Intense hydrothermal alteration involved the production of sericite, sphene and pyrite, then silicification, then crystallization of minor calcite and albite in late quartz veins. Weak deformation has partly foliated the sericite and weakly strained all quartz.

11 3262

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO.:	RE1
STATE :	TASMANIA

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	F.G. FITZGERALD
COMMENCED	7-11-84
COMPLETED	21-11-84

PURPOSE

To test a moderate EM anomaly beneath glacial deposits 250m west of exposed quartz-sericite-pyrite alteration.

LOG SUMMARY / GENERAL COMMENTS

A true depth of 15m of volcanic derived glacial detritus overlies a volcanic sequence which is completely weathered to over 50m (true depth). The underlying sequence is composed of weakly altered, unmineralised felsic lavas, ignimbrites and minor epiclastics intruded by a mafice dyke swarm. The source of the EM anomaly is unexplained but may be related to the glacial till - weathered bedrock interface

ASSAY SUMMARY

INTERVAL From	INTERVAL To													COMMENTS

LOCATION

NORTHING	5365425
EASTING	329900
R.L.	707.0
GRID	A.M.G.
LENGTH	364.0m

HOLE CONDITION

SIZE	
Hole Size	Depth
HQ	3.0m
HQ(ream)	70.0m
NQ	95.0m
BQ	364.0m

SIGNIFICANT CORE LOSS INTERVALS		
From	To	% Lost
0.0	56.2	67
56.2	85.5	27
110.0	125.0	28

POOR GROUND CONDITION ZONES		
From	To	Condition
0.0	20.0	Unconsolidated glacial deposits
20.0	56.2	Completely weathered, fractured volcanics.

HOLE CONDITIONS AFTER COMPLETION

All casing recovered.
Hole open at collar.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total	SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	282	45.0	0.0	40.0	40.0	28.3	678.7	28.3	28.3										
80.0	281	44.0	40.0	100.0	60.0	41.7	637.0	43.2	71.5										
120.0	282	43.0	100.0	140.0	40.0	27.3	609.7	29.3	100.8										
150.0	284	41.0	140.0	185.0	45.0	29.5	580.2	34.0	134.8										
210.0	285	37.5	185.0	225.0	40.0	24.4	555.8	31.7	166.5										
240.0	287	36.0	225.0	260.0	35.0	20.6	535.2	28.3	194.8										
280.0	288	33.0	260.0	300.0	40.0	21.8	513.4	33.5	228.3										
320.0	290	31.0	300.0	340.0	40.0	20.6	492.8	34.3	262.6										
360.0	292	27.0	340.0	364.0	24.0	10.9	481.9	21.4	284.0										

HOLE NO. RE I

GOLD FIELDS EXPLORATION PTY. LIMITED
DIAMOND DRILL HOLE PLOT

SCALE 1:1000

282°AMG
45°DIP

5 cm

PLAN VIEW

DIP PROFILE

GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
0.0	20.0	4.5	23	GLACIAL DEPOSITS Unconsolidated glacial debris made up of boulders and cobbles of volcanic lithologies: predominantly felsic lavas and ignimbrites up to at least 75cm diameter. The volcaniclastic lithologies are weakly altered with minor remnant disseminated pyrite. Some quartz vein material is present especially towards the base of the deposits.				
20.0	74.5	27.8	51	DEEPLY WEATHERED MAFIC AND FELSIC VOLCANIC SEQUENCE A yellow-brown volcanic sequence where the intensity of weathering usually completely obliterates the primary lithological characteristics. Minor less weathered sections reveal 2 distinct lithologies viz (1) a dark green fine grained uniform relatively massive rock: a mafic lava or intrusive e.g. 58.5-60.8m (2) a medium-coarse grained foliated felsic volcaniclastic with relict feldspar crystals eg 62.6-64.0m. Alteration. The less weathered mafic rocks appear to have weak pervasive sericite, apart from the supergene effects. The felsic pyroclastics have relict chlorite veins and diffuse elongate zones. Mineralization. No sulphides present. Mafic rocks have typically strong pervasive FeOx with MnOx fractures. Felsic rocks are only stained with FeOx. Structure. Core is generally moderately fractured, much of the apparent rubble may be due to drilling completely weathered rock. Significant core loss in this section obscures any major structures.				
74.5	108.8	28.5	83	FELSIC WELDED IGNIMBRITE Moderately weathered to fresh grey to tan medium grained massive felsic pyroclastic. Relatively uniform sequence with weak foliation from orientation of white feldspar fragments defining a consistent 30°/LCA e.g. 90.2m. In places the groundmass is very fine grained, dense and glassy (almost lava-like). The feldspar crystals give a sub porphyritic texture to the				

11326

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE LOG AND ASSAY DATA

PROJECT: TYNDALL E.L. 9/66 HOLE NUMBER: R.E. 1 Page: 2.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				rock, however the foliation and presence of subtle dark streaks (relict fiamme?) favour a strongly welded ignimbritic genesis. Rare dark green basaltic dykes occur e.g. 81.1-81.4m, 103.7-104.1m and 104.8-105.2m. The contacts are generally obscured by broken core but appear to be irregular and sub parallel to foliation. The contact at 81.1m is very irregular and disrupted, almost extrusive in appearance suggesting facing up hole. Alteration Overall quite weak with pervasive sericite, minor chloritic blebs (after pumice?) and quartz-chlorite veinlets up to 1cm thick. Mineralization No sulphides visible. Scattered FeOx grains probably after chlorite. Minor Fe/MnOx fractures. Structure Moderately jointed with scattered broken zones, no distinct faults. Moderate core loss.				
108.8	139.0	24.5	81	MAFIC-INTERMEDIATE INTRUSIVE Green-grey fine to medium grained crystalline mafic-intermediate volcanic, locally moderately weathered. Mostly uniform structureless rock apart from subtle foliation from feldspar crystals e.g. 18° to LCA at 113.3m. The uniform crystallinity and lack of porphyritic textures favours an intrusive origin. Upper contact is obscured by broken core, lower contact is chilled over 2m and weathered. Rock is non magnetic. Lithic Block 131.9-133.2m : pink-brown medium grained felsic porphyritic lava with sharp upper and lower contacts at 34° and 60° to LCA respectively. A similar small (10cm) lithic clast of the same lava occurs adjacent to the margin. Suggest that the lava forms a large block or raft or is a pillar of wall rock caught up in the main mafic-intermediate intrusion. Alteration Weak pervasive chlorite-sericite-carbonate. All feldspar crystals now calcareous. Moderate calcite veins increasing down hole. Mineralization No sulphides visible. Structure Common joints, typically 30-60° to LCA. Core more strongly broken to 123.8m, MnOx fracture fill common to this				

11326 6

GOLD FIELDS EXPLORATION PTY. LIMITED

DEV. PRESS PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 3.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				depth then solid rock.				
139.0	154.8	14.2	90	FELSIC LAVA SEQUENCE Grey and sometimes pink-brown medium grained massive sub porphyritic felsic lava(?). Subtle foliation from feldspar crystal alignment at 20°-35° to LCA appears similar to strongly welded ignimbrite above. However even distribution of euhedral feldspar crystals in an aphanitic groundmass favours a lava interpretation. Alteration Mostly very weak with only scattered chlorite-quartz-carbonate veins, all barren. Mineralization Minor to trace dissem. pyrite often along margins of feldspars. Mafic Intrusives 2 small mafic dykes at 143.6-143.8m and 149.5-151.1m. Typically weathered contacts, the core is more broken here. The composition and alteration is similar to unit below.				
154.8	165.1	10.3	100	MAFIC-INTERMEDIATE INTRUSIVE As above unit. green-grey medium grained uniform weakly altered mafic-intermediate intrusive. Feldspar crystals are calcareous and moderate carbonate veins cut the rock. The core is weakly jointed with minor hematite fill. No sulphides are visible. A rare lithic clast of pink felsic lava 1.5cm in size occurs at 157.8m.				
165.1	187.2	21.9	99	FELSIC PORPHYRITIC LAVA Striking pink-red medium to coarse grained porphyritic felsic (dacitic?) lava, similar to above. The rock is very hard, uniform and massive with feldspar crystals 6-8mm in size in a reddish aphanitic groundmass. There is no distinct foliation. Subtle auto brecciation fabric evidenced by blotchy colouration (very similar to Red Hills Lava). Lower contact at 28° to LCA. Mafic Intrusives Small mafic intrusives or blocks : 166.4-166.6m, 166.9-167.3m (diffuse margins), 183.2-183.7m (sharp				

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GOLD FIELDS EXPLORATION PTY. LIMITED

DLV. PRESS

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				margins at 20° to LCA but irregular)				
				Alteration: Apart from dusty pink-red hematite only weak pervasive alteration. Quartz-carbonate-chlorite-albite(?) veins				
				are common.				
				Mineralization No sulphides visible.				
187.2	203.4	16.0	99	MAFIC-INTERMEDIATE INTRUSIVE				
				Similar to above sequence of mafic-intermediate (basaltic andesite?) intrusives but even more uniform, hard and weakly altered. Subtle foliation evident from feldspar elongation parallel to weak cleavage e.g. 35° to LCA at 190.5m. Lower contact is sharp, not chilled at 35° to LCA although there appears to be some intrusion of the mafic lava along fractures into the adjacent felsic porphyry. Felsic lava blocks (as above) at 195.7-196.4m and 198.0-198.2m with sharp disrupted contacts.				
				Alteration Moderate-weak pervasive carbonate, especially of feldspar crystals. Moderate veins and irregular patches of quartz-carbonate ± sericite ± hematite throughout.				
				Mineralization Virtually unmineralized apart from veins at margins of felsic lava blocks viz 195.7m quartz-carbonate-chalcopyrite-galena-sphalerite vein 5mm thick; 196.6m quartz-carbonate-galena vein 4mm thick.				
203.4	219.1	15.5	99	FELSIC PORPHYRITIC LAVA				
				Brown-grey becoming reddish medium to coarse grained porphyritic felsic (dacitic?) lava as above. Prominent cream feldspar crystals 5-7mm and dark (relict mafic?) crystals 1-3mm set in a very fine grained to aphanitic groundmass. Lower contact is 15cm of fine grained foliated ashy(?) pyroclastic at 65° to LCA.				
				Alteration: Weakly altered. From 211.5m an increase in pink-red pervasive/blotchy hematitic/albitic colouration. Scattered quartz-carbonate-chlorite veinlets.				
				Mineralization No sulphides visible. Minor hematite in veins				

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				especially 213-215m.				
219.1	262.7	43.6	100	MIXED SEQUENCE OF FELSIC IGNIMBRITES AND MAFIC-INTERMEDIATE INTRUSIVES				
				Alternating sequence of felsic ignimbrites and mafic-intermediate intrusives, approximately 50:50 with the latter increasing down hole.				
				1. Felsic Ignimbrites				
				Grey to pale brown medium grained lithic felsic ignimbrites, moderately foliated at 65° to LCA. Lithics are light grey and pink lavas 0.5-5cm in size. They are always angular, often irregular or elongated in shape. Dark fiamme up to 2cm long are common as are cream feldspar crystals/grains. The units are between 10cm and 4m in thickness and show much variation in grainsize and texture. Typically a fine-medium grained crystal-vitric component exhibiting a crude sorting.				
				Alteration Moderate to strong cream carbonate throughout, altering feldspar crystals and as irregular veinlets and patches. Some weak chlorite-sericite alteration of vitric component.				
				Mineralization Unmineralized apart from trace to minor pyrite grains scattered throughout.				
				2. Mafic-intermediate intrusives				
				Grey fine to medium grained basaltic andesite intrusives as above. The units vary from 25cm to 7m in thickness and always have sharp contacts with the ignimbrites. Crude, orientation of feldspar crystals sub parallel to the ignimbrite foliation. May be some internal (intrusive?) contacts within the thicker units.				
				Alteration: Very weak pervasive chlorite-sericite. Moderate pervasive carbonate alteration of feldspars and as veins and irregular patches up to 10cm in size.				
				Mineralization No sulphides evident.				
262.7	292.2	29.5	100	PREDOMINANTLY MAFIC-INTERMEDIATE INTRUSIVE SEQUENCE				
				Relatively unform grey-green fine to medium grained basaltic				

11326

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				andesite(?) sequence as above. Subtle textural changes throughout from very even fine grained crystalline mass to medium grained sub porphyritic texture (slightly similar to the felsic lava blocks). Internal contacts vary from quite sharp to relatively diffuse. In places some dark prismatic (relitc mafic) phenocrysts occur. Felsic Lava blocks up to 1.5m thick occur mainly towards the margin of the above sequence. These appear to be blocks or rafts of the wall rock caught up in the basic dyke swarm. The blocks are more strongly veined with carbonate-sericite-quartz ± pyrite than the host rock.				
				Alteration: Weak pervasive chlorite-sericite. Moderate to strong carbonate alteration and veins with chlorite ± quartz. Mineralization Trace of disseminated pyrite.				
292.2	303.0	10.8	100	FELSIC PORPHYRITIC LAVA				
				Light brown-pinkish medium to coarse grained felsic (dacitic) porphyritic lava as above. Massive, uniform weakly altered rock with euhedral pinkish feldspar phenocrysts. Minor thin mafic-intermediate dykes between 10cm and 1m thick at 299.8m-300.8m.				
				Alteration: Weak chlorite and pink hematite/albite patches. Scattered quartz-carbonate-chlorite veins.				
				Mineralization: Virtually unmineralized.				
303.0	317.2	14.2	100	MAFIC-INTERMEDIATE INTRUSIVE				
				Grey-green fine to medium grained crystalline mafic-intermediate (basaltic andesite) intrusive. No inclusions or blocks of felsic lava.				
				Alteration Moderate pervasive carbonate. Scattered carbonate ± quartz-chlorite veins throughout.				
				Mineralization Minor hematitic fracture fill only.				
317.2	329.8	12.6	100	MIXED COARSE EPICLASTICS AND MAFIC-INTERMEDIATE INTRUSIVES				
				Predominantly a grey coarse grained gritty epiclastic sequence marked by a strong foliation (possible primary layering) at				

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: R.E. 1 Page: 7.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				50° to LCA and prominent red felsic lava clasts 1-5cm in size.
				Appears to be moderately sorted with dense feldspar crystal
				grains and lithic chips set in a cream-grey ashy(?) matrix.
				Some finer grained grey shale-siltstone bands with bedding e.g.
				319.2m at 57° to LCA. Some mafic-intermediate intrusive bodies
				as above : 321.7-323.9m, 326.6-327.7m with sharp contacts
				parallel to foliation/cleavage.
				Alteration: Epiclastics are only weakly altered with pervasive
				sericite.
				Mineralization: Only trace disseminated pyrite.
329.8	344.3	14.5	100	MAFIC-INTERMEDIATE INTRUSIVE
				Green-grey medium-fine grained basaltic andesite (?) unit
				as above
				Alteration Common carbonate veins and irregular patches up
				to 10cm thick. Weak pervasive chlorite-sericite.
				Mineralization Minor pyrite associated with carbonate quartz
				veins.
344.3	364.0	19.7	100	PREDOMINANTLY EPICLASTIC SEQUENCE
				Grey coarse grained gritty epiclastic similar to above sequence
				with strong foliation at 55° to LCA. Some features like the
				ignimbritic unit higher up the hole with subtle fiamme like
				inclusions. However the presence of minor finer grained bands
				of tuffaceous siltstone-shale suggest an epiclastic origin.
				These bands define probable bedding eg 355.8m at 62° to LCA.
				Mafic-intermediate intrusives occur within the epiclastic
				sequence. The intrusives are also moderate-strongly foliated
				along their margins with subtle sedimentary banding and evidence
				of some reworking.
				Alteration Only weak pervasive sericite. The intrusives are
				calcareous.
				Mineralization Rare trace disseminated pyrite.
				END OF HOLE

ASSAY DATA Sample No.	From	To	Rec. %

11362/71

GOLD FIELDS EXPLORATION PTY. LIMITED

DRILL CORE RECORD

HOLE NO:	B.L. 5
STATE :	TASMANIA

DLV. PRESS

PROJECT	TYNDALL
DESIGNED BY	A.J. CARTWRIGHT
LOGGED BY	F.G. FITZGERALD
COMMENCED	20-2-85
COMPLETED	6-3-85

PURPOSE

To test for base and precious metal enrichment in a strike extension of the massive pyrite lens 150m south of the intersection in DDH BL4 and to test a double IP anomaly as well.

LOG SUMMARY / GENERAL COMMENTS

The massive sulphide lens does not extend south from BL4. However, a similar sequence of sericitic-calcareous epiclastics which carry abundant disseminated pyrite was intersected between 213.7-332.0m. No significant base or precious metal mineralization was intersected. The IP anomalies appear to be adequately explained by the pyritic mineralization and several black shale lenses.

ASSAY SUMMARY

INTERVAL From	INTERVAL To	Cu	Pb	Zn	Ag	Au	Ba							COMMENTS
229.0	230.8	340	157	615	3.5	<0.01	1250							Pyritic schist: semi massive sulphide
325.4	331.4	75	615	1720	0.8	0.01	1217							Sulphidic epiclastic sequence.

LOCATION

NORTHING	5353651
EASTING	380541
R.L.	503.9
GRID	A.M.G.
LENGTH	346.5

HOLE CONDITION

SIZE Hole Size	SIZE Depth
HQ	12.0
NQ	58.0
BQ	346.5

SIGNIFICANT CORE LOSS INTERVALS From	To	% Lost
0.0	9.0	76
12.0	21.9	30
23.3	33.8	21
220.3	224.0	18

POOR GROUND CONDITION ZONES From	To	Condition
0.0	9.0	Unconsolidated glacial deposits

HOLE CONDITIONS AFTER COMPLETION

All casing recovered from the hole. The hole collapsed and is blocked at the collar and is making water.

SURVEY DATA (Note: Bearing type must be same as Project Grid Type)

SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total	SURVEY Depth	SURVEY Bearing	SURVEY Dip	INTERVAL From	INTERVAL To	INTERVAL Distance	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog.Total
0.0	075	51.0	0.0	20.0	20.0	15.5	488.4	12.6	12.6										
40.0	076	51.0	20.0	60.0	40.0	31.1	457.3	25.2	37.8										
80.0	076	49.0	60.0	100.0	40.0	30.2	427.1	26.2	64.0										
120.0	-	46.0	100.0	139.0	39.0	28.1	399.0	27.1	91.1										
158.0	081	45.0	139.0	179.0	40.0	28.3	370.7	28.3	119.4										
200.0	083	40.0	179.0	220.0	41.0	26.3	344.4	31.4	150.8										
240.0	083	37.0	220.0	260.0	40.0	24.1	320.2	31.9	182.7										
280.0	087	34.0	260.0	297.5	37.5	21.0	299.3	31.1	213.8										
315.0	088	33.0	297.5	330.0	32.5	17.7	281.6	27.3	241.1										
345.0	090	31.0	330.0	345.0	15.0	7.7	273.9	12.6	253.7										

272

113273

GOLD FIELDS EXPLORATION PTY. LIMITED
DIAMOND DRILL HOLE PLOT

HOLE NO. **BL 5**

PLAN VIEW

380 600mE

380 700mE

5 353 700mN

75° AMG
51° DIP

DIP PROFILE

504m R.L. Gossan

497m R.L.

Hornblende Andesite Intrusive chl. – calc. – epidote

Siltstone

Andesite Lava

Black Shale, calc.

Andesite Breccia calc. cement

Black Shale calc.

Andesitic Tuff, sil. calc.

Black Shale, calc.

2–4% py

100m

3–5% py pipe

5% py pipe

Andesite Lava brecciated (phreatic?) minor epidotic lenses calc. brecht

Black Shale – Siltstone sil. calc.

Andesitic Tuff Shale Siltstone

100m

5–10% py

pyritic schist up to 20% py

1·8m @ 340ppm Cu
157 ppm Pb
615 ppm Zn
3·5 ppm Ag
< 0·01 ppm Au

Conglomeratic Epiclastic (Oxide facies) chl.-hem.-calc.

Andesite Lava (partly recrystal.) chl.-hem.-calc. veins

Porphyritic Andesite

Mixed Epiclastics calc. & hem.-chl.-ser.

Mixed Epiclastics calc. ser.

1–2% py locally 10% in cement

100m

up to 10% py

6m at 75ppm Cu
615ppm Pb
1720ppm Zn
0·8ppm Ag
0·01ppm Au

5–15% py

Quartz-Pyrite Lens

445m R.L.

436m R.L.

42m R.L.

413m R.L.

409m R.L.

347m R.L.

343m R.L.

341m R.L.

337m R.L.

318m R.L.

302m R.L.

295m R.L.

288m R.L.

280m R.L.

272m R.L. (E.O.H.)

5 cm

LEGEND

- Bedding angle
- Foliation angle
- Fault (prominent)

ALTERATION TYPE

calc.	Calcareous
chl.	Chloritic
hem.	Hematitic
ser.	Sericitic
sil.	Siliceous

SCALE 1:1000

20 10 0 20 40 METRES

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5 Page: 1.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
0.0	9.0	2.18	24	GLACIAL DEPOSITS Unconsolidated cobbles and boulders, predominantly Owen Conglomerate, minor quartz veins and andesitic porphyry lithologies.
9.0	19.5	8.19	78	WEATHERED HORNBLENDE ANDESITE INTRUSIVE Depth of weathering decreasing rapidly down-hole. Porphyritic andesite with relict hornblende phenocrysts up to 8mm long and feldspar crystals to 4mm set in a fine-medium grained groundmass. Texture often obscured by clay/limonitic weathering. Alteration Some relict chlorite veining especially 9-12m. Mineralization No sulphides preserved Structures Moderate clean joints, mostly at 40° - 70° to LCA. 15.0m clayey rubble zone after fault?.
19.5	77.6	55.20	95	HORNBLENDE ANDESITE INTRUSIVE Dark grey homogenous porphyritic andesite with phenocrysts of hornblended up to 1cm long (mostly 6-8mm) and weakly altered feldspar set in a fine-medium grained crystalline groundmass (i.e. probably sub-volcanic intrusive). Base of oxidation is 40m. Rock is non-magnetic. Alteration Generally quite weak. Thin veins of quartz-carbonate 1cm thick. 53.0-58.5m weak chlorite-pale green epidote(?) veins/breccia-fill. 59.0-63.5m moderate pervasive chlorite-carbonate-epidote. Mineralization From 36m on minor dissem. and fracture fill pyrite especially in quartz veins, locally up to 1% py. 59.0-63.5 1-5% py in matrix of breccia zone. Structure Mostly massive core. Broken zones : 32.4-33.8m, 42.7-45.3m and 57.5-58.6m. 67.6-68.0m fault-crush zone. Core Loss 31.5-33.8, only 48% recovery.
77.6	78.7	1.10	100	SILTSTONE

ASSAY DATA Sample No.	From	To	Rec. %

11327

113275

274

GOLD FIELDS EXPLORATION PTY. LIMITED

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				Light and dark grey to green siltstone, almost shale. Upper contact sharp at 35° to LCA. No clear evidence of thermal metamorphism of contact sediments or chilled margin of intrusive although the andesite is less porphyritic with a concentration of hornblende crystals between 75-76m. Alteration Moderate pervasive clay-sericite, common quartz-carbonate veins. Mineralization No visible sulphides, common limonitic fractures. Structures Core strongly broken, many fractures sub parallel to contact viz 35° to LCA.
78.7	88.1	9.84	99	ANDESITE LAVA Grey-green medium grained porphyritic andesite. Rare hornblende but common feldspar phenocrysts up to 5mm long. Upper contact obscured by broken core. Core is moderately magnetic. Lower contact appears extrusive (i.e. probable lava flow) Alteration Generally quite weak apart from carbonate breccia fill at contact and minor quartz-carbonate veins. Mineralization No sulphides visible Structures Rock mostly massive, structureless. Upper contact marked by fault(?) zone 30cm wide.
88.1	89.0	0.90	100	CALCAREOUS BLACK SHALE Finely banded black shales. Bedding 57° to LCA except upper contact where 65° to LCA and slightly irregular. Shales are hard and competent, possibly hornfelsed. Alteration Abundant pervasive calc. carbonate and minor gash veins. Mineralization Common dissem. and vein pyrite, est. 2-4% py.
89.0	107.7	18.66	100	ANDESTIE BRECCIA Similar grey-green porphyritic andesite lava as above with prominent brecciated texture made up of very angular blocks set in cream-grey calcareous cement. Possibly an autobreccia

ASSAY DATA Sample No.	From	To	Rec. %

INTERVAL		RECOVERY		DESCRIPTION	ASSAY DATA			
From	To	m	%		Sample No.	From	To	Rec. %
				or phreatic breccia indicative of a submarine extrusion. The blocks range from a few mm up to 20 cm in size. Non brecciated lava 95.8-99.6m and 103.4-105.6m maybe much larger blocks. Core is non magnetic. Alteration 30-40% cream-grey calcareous carbonate forming the breccia cement. Mineralization No visible sulphides. Structure Apart from the carbonate the rock is hard and competent.				
107.7	117.9	10.81	96	PYRITIC CALCAREOUS BLACK SHALE Relatively uniform massive fine grained sediment, predominantly black shale with thin grey silty laminations at 48° to LCA and minor reworked andesitic breccia e.g. 115.1-116.0m. Upper contact gradational with possible shale clasts within the calcite cement (suggesting facing down-hole) Lower contact sharper, fairly disrupted and sub parallel to bedding. Shale weakly graphitic. Alteration Strong pervasive carbonate, white carbonate veins up to 3cm thick and some breccia fill of andesitic unit. Mineralization Moderate dissem. pyrite throughout with remobilized veinlets and rare pods up to 2cm long. Dissem. and blebs of pyrrhotite especially adjacent to andesitic lava contacts possibly result of thermal metamorphism of pyrite. Estimate 3-5% total sulphide with py>po.				
117.9	121.0	3.1	100	REWORKED CALCAREOUS ANDESITIC TUFF Grey medium grained andesitic tuff, similar texture to porphyry above however evidence of reworking (e.g. rounded feldspar grains) and subaqueous deposition (e.g. abundant calcareous matrix). Some bedding evident at 44° to LCA with good evidence for down-hole (East) facing (e.g. lower contact). Upper contact is sharp at 80° to LCA. Alteration Strong calc. carbonate within matrix and cross cutting veins.				

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5 Page: 4.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				Mineralization Only minor to trace dissem. pyrite.				
121.0	123.4	2.5	100	PYRITIC CACLAREOUS BLACK SHALE				
				Very similar to black shale unit above viz finely banded calcareous				
				competent sediment. Upper contact is irregular and shows evidence				
				of soft sediment disruption of underlying tuffs. Lower contact				
				is more gradational. Bedding is 44° to LCA at 121.4m and				
				55° to LCA at 122.8m, possibly reflecting post lithification				
				deformation.				
				Alteration Strong pervasive carbonate				
				Mineralization Moderate disseminated fine grained sulphides				
				up to 5% with py>po.				
123.5	213.7	89.2	99	BRECCIATED CALCAREOUS ANDESITE LAVA				
				Typically grey medium grained massive porphyritic andesite				
				which is often brecciated and recemented with calcareous carbonate,				
				similar to the phreatic breccia above. The rock is quite uniform,				
				competent and non magnetic. Subtle foliation is defined by				
				orientation of feldspar and mafic phenocrysts in some sections,				
				perhaps lava flow banding? Several minor sedimentary lenses				
				(or clasts) occur within the sequence viz. 173.9-174.8m,				
				179.4-180.8m, and 188.4-189.3m. Lenses are predominantly black				
				shale with minor siltstone and typically have disrupted contact				
				with clasts being torn off and incorporated into the enclosing				
				andesites especially on the down-hole contact margins. From				
				205m onwards the clasts and/or thin disrupted lenses of shale-				
				siltstone become quite common with contacts marked by carbonate				
				veins up to 10cm thick.				
				Alteration Generally quite weak with minor pervasive sericite				
				of the andesites. Moderate-strong calc. carbonate especially				
				as breccia-fill and cross-cutting veins. Concentration of				
				carbonated brecciated lava adjacent to sedimentary units.				
				Mineralization Andesites mostly unmineralized apart from				
				trace dissem. py. Shales are quite pyritic, both dissem and				
				veins with moderate pyrrhotite as well.				

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5 Page: 5.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (in ppm) Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au	Ba
				Structure Relatively massive structureless sequence 159.5-159.7m broken core with some core loss.										
213.7	221.1	7.33	99	PYRITIC CALCAREOUS BLACK SHALE	T901	213.7	215.7	100	57	37	91	0.2	0.017	1200
				Relatively massive black shale becoming increasingly well	T902	215.7	217.7	100	51	84	146	0.1	0.05	700
				bedded with thin laminations (1mm thick) of light grey siltstone	T903	217.7	219.7	99	66	80	136	0.2	0.017	590
				downhole. Lower section fine to medium grained grey sandstone.	T904	219.7	222.1	100	101	85	161	0.2	<0.008	1000
				Upper contact with andesite is sharp at 38° to LCA, lower										
				contact is obscured by quartz vein. Bedding quite variable										
				from 20° to LCA at 215.5m to 80° to LCA at 222.0m. Good facing										
				evidence from truncated cross bedding and scour-fill structures										
				indicate down-hole (East) facing sequence. Shales only weakly										
				graphitic.										
				Alteration Strong calc. carbonate throughout, both finely										
				dissem. and sweat-out veins.										
				Mineralization Abundant pyrite both as strataform (syngenetic)										
				fine grained bands and thin lenses up to 5mm thick, also cross-										
				cutting veins. Est. total 5-10% py.										
221.1	225.0	3.35	86	REWORKED ANDESITIC TUFF										
				Grey coarse grained crystal rich massive epiclastic unit	T905	222.1	224.1	82	15	3	67	0.1	<0.008	1000
				similar to andesitic lavas above but with a concentration	T906	224.1	225.0	100	21	23	51	0.1	<0.008	530
				of feldspar crystals to matrix. Also subtle foliation between										
				20° and 70° to LCA, no definite bedding observed.										
				Alteration Relatively weak, no pervasive calcareous alteration										
				but common quartz-carbonate veins up to 10cm thick mostly										
				barren. Feldspar crystals mostly unaltered.										
				Mineralization Minor fine grained pyrite, possible clasts,										
				and thin veinlets. Overall approx. 1% py.										
225.0	230.8	5.45	94	PYRITIC SHALE - SILTSTONE SEQUENCE										
				Black shale becoming grey siltstone with minor thin cream										
				sandstone beds downhole. Upper contact with tuffs appears										
				conformable and gradational over 10cm. Bedding well developed										
				from 30° to 65° to LCA, some clear folding and crumpling										

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5 Page6.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (in ppm) Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au	Ba
				evident even crenulation. Also intraformational slump folding.										
				Bands very thin, as little as 0.1mm thick. 225.0-226.4m										
				predominantly black shale, strongly calcareous with moderate										
				fine grained syngenetic pyrite. Locally pyrite associated										
				with carbonate "sweat-out" veins. Est. 1-2% py. 226.4-										
				227.2m predominantly grey-green siltstone-sandstone finely	T907	225·0	227·0	88	60	64	160	0·6	<0·008	1150
				bedded sequence. Only minor carbonate veins and disseminated	T908	227·0	229·0	100	60	295	740	0·7	0·008	1650
				pyrite 0.5% py overall.	T909	229·0	230·8	82	340	157	615	3·5	<0·008	1200
				227.2-230.8 Pyritic schist after siltstone-sandstone.										
				Moderately cleaved at 47° to LCA with strong pervasive										
				quartz-sericite-pyrite alteration obliterating primary										
				rock fabric. Rock is non calcareous but carries 10-20%										
				dissem and vein py. No other sulphides visible.										
				This prominent concentration of pyrite marks the margin										
				between the sulphide and oxide facies.										
230.8	263.4	32.05	98	CONGLOMERATIC EPICLASTIC-OXIDE FACIES										
				Sequence of prominently green and red very coarse grained										
				(conglomeratic) epiclastics with some finer interbeds										
				of siltstone. Primary layering only poorly developed.										
				Rock has appearance of poorly sorted mass-debris type										
				of deposit with clasts of felsic lava and pyroclastics										
				from a few cm up to 30cm + in size. Some sections may										
				even be clasts several metres in size or actually be porphyritic										
				lava flows caught up in the sediments e.g. 254.0-256.1m	T910	230·8	232·8	94	58	78	88	1·0	0·008	1250
				and 258.9-260.2m. These lava "clasts" are made up of hornblende	T911	232·8	234·8	96	49	33	66	0·5	<0·008	800
				and feldspar phenocryst 3-6mm in size in a finegrained	T912	234·8	236·8	96	70	56	90	0·9	<0·008	1150
				(aphanitic) red-brown to green-grey groundmass which is	T913	236·8	238·8	97	67	35	60	0·7	0·017	1650
				moderate-strongly magnetic. The definite epiclastic sections										
				are non magnetic with diffuse zones in between weakly										
				magnetic.										
				Alteration: Strongly calcareous both disseminated and										
				as pods and veins strongest in the finer sediments with										
				only veins in the lava clasts. Chlorite-hematite common										
				throughout and increasing downhole, both pervasive and										

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA (in ppm) Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au	Ba
				fracture controlled. Some quartz-sericite? (bright green) veins										
				developed.										
				Mineralization: Locally up to 5% fine grained dissm. py										
				over 30-50cm e.g. 246.6m but the pyrite decreases markedly										
				down-hole.										
263.5	292.0	27.93	98	ANDESITIC LAVA, PARTLY REWORKED										
				Green-grey uniform porphyritic andesite with pink feldspar										
				phenocrysts 2-4mm set in microcrystalline groundmass. Subtle										
				foliation due to crystal alignment at 60° to LCA particularly										
				where rock has slight fragmental appearance and is strongly										
				altered (e.g. 270.8-272.0m). These zones maybe reworked										
				tuffaceous units or matrix-fill around the brecciated margins										
				of lava blocks especially from 285m onwards.										
				Alteration Common quartz chlorite-hematite-carbonate veins										
				but decreasing down hole along with the weaker pervasive										
				alteration. 263.5-269.5m these veins abundant and up to										
				70cm thick. Often see pyrite selvages along margins of hematite-										
				carbonate alteration adjacent to lava blocks and within										
				the breccia (-tuff?) zones.										
				Mineralization: Disseminated and veinlet pyrite throughout										
				mainly within reworked and brecciated lava zones. Estimate										
				1-2% py with minor cpy. Locally 10-15% py as fine grained										
				matrix e.g. 269.6-270.1m, 283.3-283.8m forming a sulphidic	T914	290·0	292·0		73	21	66	0·3	40·005	1250
				cement.	T915	292·0	294·0		175	72	81	0·9	40·005	1250
					T916	294·0	296·0		58	17	120	0·2	40·005	760
292.0	305.1	12.84	98	PREDOMINANTLY EPICLASTIC SEQUENCE	T917	296·0	298·0		35	3	60	<0·1	<0·005	580
				Mixed sequence of grey-green coarse grained epiclastics	T918	298·0	300·0		58	2	108	<0·1	0·005	690
				and fine grained shales and siltstones. Within the sequence	T919	300·0	302·0		89	129	265	0·2	0·032	1250
				are units very similar to the above andesitic lava-tuff?	T920	302·0	304·0		126	335	600	0·7	0·058	2150
				(e.g. 295.2-300.4m). Rest of sequence is typically well										
				bedded e.g. 65° to LCA at 303.0m. Upper contact with "lavas"										
				is gradational and marked by more prominent brecciated fabric										
				and increasing calcareous cement and pyrite lenses.										
				Alteration: Moderate pervasive sericite with weak chlorite										

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113281

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PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION	ASSAY DATA Sample No.	From	To	Rec. %
				in "lava type" units. Carbonate common throughout both as fine				
				grained dissem. grains, coarser clots and veins ± hematite-				
				chlorite. Lower contact marked by major quartz-chlorite-				
				sericite-carbonate veins up to 30cm thick.				
				Mineralization Abundant very fine grained pyrite as syngenetic				
				bands within the finer shales up to 10% py e.g. 302.9-				
				305.2m. The uniform "lava-tuff type" units have minor dissem.				
				pyrite. Trace of chalcopyrite in chlorite-carbonate veinlets.				
				Structure. Moderate cleavage within finer grained units.				
305.1	317.4	12.05	98	PORPHYRITIC ANDESITE				
				Uniform green non magnetic medium grained porphyritic andesite				
				with local pink albitization of feldspar phenocrysts.				
				Scattered narrow zones within brecciated lava appear similar				
				to the sulphidic epiclastics above (e.g. 306.2-306.45m,				
				312.3-312.6m). These units have diffuse contacts with bleached				
				selvages along the margins indicative of replacement alteration.				
				However within the units there are clear fragmental features				
				such as clasts or islands of andesite within the fine grained				
				sulphide material. Perhaps sulphide rich muds percolated				
				through fractures within the brecciated lava soon after				
				lithification and were associated with restricted hydrothermal				
				alteration.				
				Alteration. Mostly weakly altered (chloritic) andesites.				
				Quartz-sericite-carbonate alteration concentrated along				
				narrow bands on the brecciated margins of the volcanics.				
				Minor quartz-carbonate veins.				
				Mineralization. Sequence only weakly mineralized apart from				
				narrow sulphidic "epiclastic" bands which carry up to 10%				
				very fine grained pyrite.				
317.4	332.0	14.30	98	SULPHIDIC EPICLASTIC SEQUENCE				
				Grey to green and brown sequence of shales, siltstones and				
				tuffaceous sandstones, almost conglomerates with common				
				lithic clasts of porphyritic andesite. Primary layering				

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113282

PROJECT: TYNDALL E.L. 9/66

DRILL CORE LOG AND ASSAY DATA

HOLE NUMBER: B.L. 5 Page: 9.

INTERVAL From	INTERVAL To	RECOVERY m	RECOVERY %	DESCRIPTION
				variably developed, best in finer grained units typically
				50° -70° to LCA, some even 35° e.g. 319.6m. Upper contact
				with altered andesites not clearly distinguished as it appears
				that blocks of unaltered lava up to 30cm in size occur within
				sulphidic silts and muds. Within the main sequence the clasts
				tend to be elongate, subrounded and up to 5cm long (mostly
				1cm). Quartz and feldspar grains are common within the
				coarser units up to 5mm in size. Minor grey cherty clasts
				also occur.
				Alteration: Moderate-strong pervasive sericite, especially
				in finer epiclastics. Only minor carbonate, mostly as irregular
				veinlets. Some pink (albite) alteration of clasts and feldspar
				crystals within andesitic blocks.
				Mineralization: Overall approx. 5% very fine grained disseminated
				pyrite often concentrated into stratabound bands. Locally
				up to 10-15% py e.g. 317.4-317.7m, 318.4-319.3m, 320.1-
				320.7m, 321.6-322.2m, 323.8-325.0m, 326.8-327.0m, 329.0-
				330.2m.
332.0	345.5	13.30	99	QUARTZ-PHYRIC LAVA
				Grey to pinkish-red medium grained felsic lava. Sub porphyritic
				texture with minor but prominent quartz phenocrysts. Rock
				is hard and uniform and texturally similar to the andesitic
				lavas above with a weak foliation evident.
				Alteration: Mostly weakly altered. Minor pervasive sericite
				332.0-338.0m prominent pink-red colouration mostly of feldspars
				but also pervasive patches (hematitic-albitic alteration).
				Minor quartz-carbonate veins with prominent vein carrying
				fluorite 2cm thick at 338.0m.
				Mineralization: Only trace of sulphide e.g. cpy in quartz
				vein at 336.95m.
				END OF HOLE

ASSAY DATA (in ppm)

Sample No.	From	To	Rec. %	Cu	Pb	Zn	Ag	Au	Ba
T921	317.4	319.4	100	80	132	405	0.3	0.025	950
T922	319.4	321.4	100	73	22	340	0.2	0.032	520
T923	321.4	323.4	100	157	116	304	0.4	0.017	800
T924	323.4	325.4	98	264	335	749	1.1	0.008	1100
T925	325.4	327.4	96	84	900	2160	1.0	0.008	1300
T926	327.4	329.4	96	84	335	1375	0.3	0.017	1000
T927	329.4	331.4	97	56	610	1600	1.1	0.005	1350

113283

APPENDIX C

PETROLOGICAL REPORTS

CMS Report 84/6/35	HFZ5 Drill Core, July, 1984
CMS Report 84/9/14	Henty Fault Costean Samples, October, 1984
CMS Report 85/3/18	HP4 and HP4A Drill Core, April, 1985
Geochempet Report	HP5 and HP6 Drill Core, June, 1985

283.

113284

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Gold Fields Exploration Pty. Ltd.
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9th April, 1985

REPORT CMS 85/3/18

YOUR REFERENCE:	Letter dated 18.3.1985 AJC/9003/5
DATE RECEIVED:	19th March, 1985
SAMPLE NOS.:	11 Samples
SUBMITTED BY:	P.A. Roberts
WORK REQUESTED:	Mineralogy/Petrology

for

H.W. Fander, M. Sc.

113285

REPORT CMS 85/3/18

Eleven drill core samples from drill holes within the Mt. Read Volcanics were received for petrological and mineragraphic examination, with emphasis on the nature of gold mineralisation.

Representative polished sections were prepared from all eleven samples, and six samples were selected for thin-section preparation and petrological examination. Sections and related offcuts were examined in oblique incident, transmitted and reflected light, as appropriate, and minor carbonate stain tests were carried out. Attached semi- to detailed descriptions summarise the microscopic data, with some samples described in relative detail and others partly by analogy.

Summary

Lithologies comprise a complex of phyllitic banded sediments and volcaniclastic rocks with much of the finer detail obscured by secondary effects, notably alteration and shearing.

A phyllitic cleavage is penetrative and pervasively developed in the eleven samples examined. It is uncertain whether this is a strictly regional metamorphic or localised (i.e. fault- or shear-controlled) *feature on strictly petrological* grounds, and interpretation of its significance will be dependent on field evidence. Interpretation of some aspects of the alteration and mineralisation is complexed by more or less pervasive secondary (shear-induced) *brecciation* phenomena, with a typical breccia comprising fragmented (or boudinaged) primary clasts and vein components in a phyllitic micaceous matrix.

Volcaniclastics are dominated by altered (silicified, variably sericitic) "glassy" rhyolite (devitrified, typically perlitic, obsidian) as the major clast component, with relatively minor quartz crystals and crystal fragments, and clasts of impure chert. These rocks are white mica (fine to semi-sericitic muscovite) matrixed, with generally minor associated quartz. Clasts exhibit quartz-mica-carbonate veining, and this assemblage appears as clasts in secondary breccias.

Volcaniclastics are reasonably interpreted as lithic tuffs and appear to reflect subaqueous deposition in the absence of strictly subaerial characteristics and within the limits imposed by shearing effects. Intercalated impure chert/cherty argillite facies, appearing as clasts in secondary breccias and locally (sample 16778) interbanded with volcaniclastics, are interpreted as "chemical-sedimentary" interbeds and grade into bands of massive sulphide. Both facies exhibit essentially identical mineralogical assemblages with quartz and white mica in varying proportions, more or less pervasive pyrite, minor base metal sulphide disseminations, and accessory ankeritic carbonate and apatite. The variously recrystallized to boudinaged veinlets are mineralogically analogous to the host rocks, and a broadly syndepositional alteration-mineralisation phase is inferred. Apart from boudinaging, the main effects of shearing are recrystallization and grainsize coarsening of mica and pyrite. Relict colloform,nodular and framboidal primary textures persist locally within the relatively massive pyrite aggregates.

Chalcopyrite is the most pervasive base metal sulphide in the eleven samples examined mineragraphically and, at least in this sense, the mineralisation may be classified as an Fe-Cu sulphide association. Accessories include tetrahedrite-tennantite and, locally, native gold in addition to sphalerite and galena. The sulphosalt represents a probable locus of Ag, locally supplemented by silver-rich electrum, in the absence of other optically specific silver minerals.

Gold was detected in one sample only and, at this stage, appears restricted to a relatively chalcopyritic siliceous vein component with accessory carbonate and white mica, appearing as clasts within a phyllite-matrixed breccia.

At the observed levels, this auriferous vein component conceivably represents a single locus of Au and this tends to be enhanced by detailed examination of a variety of disseminated to massive sulphide-mineralised host rock and associated veins, which proved entirely negative in terms of detectable gold. Problematically, temporal relationships of this Au-mineralised vein component are obscured by shearing effects.

In terms of general features this Fe-Cu sulphide(-Au-Ag) association bears analogy with essentially epithermal-hydrothermal footwall zones associated with Rosebery and related situations. Analogies may also be drawn with classical pyritic epithermal Au-Ag situations, for example the Drake field (N.S.W.) and certain Fijian deposits, the main contrast lying in the phyllitic shearing overprint.

D. Cowan, B. Sc.

286

113287

REPORT CMS 85/3/18

Petrological/Mineragraphic Descriptions

HP4 235·15m

16778 (T.S., P.S. 52900)
This rock may be classified broadly as a pyritic quartz-sericite phyllite. Major components comprise fine to microgranular quartz and fine to semi-sericitic muscovite with varying proportions of pyrite. Accessories include thinly disseminated sphalerite, minor films and clots of ankeritic carbonate and traces of apatite.

The rock is banded on a millimetric scale, with a concordant fine-grained phyllitic fabric reflecting a low-greenschist facies regional metamorphic overprint. Banding is largely a relict textural feature, but is enhanced by compositional variations. Typically, weakly sericitic bands of quartz-matrixed semi-massive pyrite alternate with weakly pyritic bands of sericite-quartz rock. Minor concordant lenses of medium-grained granular carbonate carry thinly disseminated weakly granulated sphalerite crystals, are accompanied by similarly mineralised discontinuous discordant films and represent recrystallized veinlets.

Pyritic bands are weakly phosphatic (apatitic) and consist essentially of fine-grained pyrite and variously semi-fibrous to directed-micro-granular quartz with semi-ubiquitous pressure-shadow fringe-type composites. Individual bands may be crudely lenticularly banded or exhibit vague relict "colloform" and "nodular" structures. These units are reasonably interpreted as representing a recrystallized pyritic impure chert facies of probable sinter-type "exhalative" origin.

In contrast, the interspersed (quartz-sericite) units exhibit fragmental relict textures. These are dominated by sub- to millimetric clasts of thoroughly silicified obsidian represented by weakly sericitic and ultrafinely pyrite-stained aggregates of fine to microcrystalline quartz with relict perlitic devitrification structures, defined partly by the distribution of sericite films. Subordinate clasts of stressed pyritic vein-type quartz with accessory apatite are present. The matrix consists of relatively pyritic/weakly siliceous sericite aggregates. Tbe fragmental aspects are enhanced by shear-induced boudinaging of veinlets, but these units are reasonably interpreted as primarily bands of psammitic rhyolitic lithic tuff. Minor leucoxenised opaques and rare zircons represent an accessory clastic heavy mineral component.

The polished section represents a band of semi-massive pyrite, comprising granular to sub- and euhedral crystals witha modal grainsize about 40 μ (range 10-150 μ). Rare relics of framboidal to micronodular pyrite are present. Thinly disseminated intergranular blebs of sphalerite, chalcopyrite and rarely galena range to 100 μ, with a mode about 25 μ. Pyrite-intergranular sphalerite exhibits pervasive sub-micron-sized chalcopyrite, exsolution blebs.

Carbonate vein-hosted sphalerite crystals are essentially devoid of chalcopyrite exsolution. These features range to 250 μ diameter and grade into anhedral carbonate-intergranular patches (to 500 μ). Vein-marginal zones carry thinly disseminated galena, chalcopyrite and (tetrahedrite-)tennantite, with galena typically discrete and tennantite

usually loosely intergrown with chalcopyrite (composites to 175 μ). In this context, chalcopyrite carries rare submicron-sized inclusions of a metallic phase, probably bismuth (too fine for positive optical identification). Close examination revealed no detectable gold or optically specific silver phases.

HP4 235·4m

16779

(P.S. 52901)
This section represents a zone of "massive" pyrite, quartz-matrixed, with accessory mica, and texturally similar to the 16778 pyrite aggregates, although modally coarser-grained (mean 75 μ).

In comparison with 16778, this zone carries conspicuous pyrite-intergranular chalcopyrite. Galena is absent from the area sectioned and sphalerite is represented only in extremely rare microscopic blebs.

Intergranular chalcopyrite blebs and films grade into coarser irregular patches, to a few hundred microns in diameter, associated with poorly defined quartz veinlets. In this mode, chalcopyrite is frequently accompanied by blebs (10-125 μ) of tetrahedrite(-tennantite) which rarely include microscopic corroded relics of ?gudmundite.

"Tetrahedrite" is blue-grey in comparison with the greenish grey "tennantite" in 16778 and represents a possible locus of Ag. Close examination revealed no detectable gold.

HP4 235·6m

16780

(T.S., P.S. 52902)
This rock is essentially similar to 16778. In comparison, shearing effects are relatively marked, with enhanced secondary brecciation (boudinaging) effects; the rock approximating to a sericite phyllite-matrixed breccia.

Millimetric to centimetric, dimensionally orientated, platy to lensoid masses of sericite- and sericite-quartz-matrixed semi-massive pyrite aggregates are the major clast component. These are supplemented by variably pyritic quartz and sericitic quartz aggregates, partly recognisable as altered perlitic obsidian, and rarely including corroded quartz microphenocrysts in addition to thinly disseminated leucoxenised opaques. Minor intraclasts of recrystallized vein-type quartz are present, and some pyritic sericitic quartz aggregates with traces of apatite represent boudinaged veins.

The matrix consists of phyllitic white mica aggregates with pervasively disseminated fine-grained, pressure-shadowed pyrite and rare interspersed lenses of sphalerite. This corresponds with the sericite matrix in 16778. A relative abundance of sericite, both as matrix and as the major gangue component of pyrite aggregates may be correlated with the relatively marked shearing effects.

The polished section represents a zone of spongy semi-massive pyrite with interspersed irregular sub- to millimetric patches of chalcopyrite.

Pyrite is relatively coarse-grained, euhedral an of "metablastic" character with frequent microscopic inclusions, sometimes zonally arranged, of galena and chalcopyrite. Interstices comprise micaceous quartz aggregates with disseminations of chalcopyrite, galena and rarely sphalerite. Minor traces of tetrahedrite appear as microscopic blebs associated with chalcopyrite. The coarser chalcopyrite patches are studded with disseminated pyrite euhedra and carry traces of galena as intergranular blebs.

Close examination revealed a single 3x5 μ irregular particle of electrum enclosed in pyrite-intergranular galena.

HP4 259-35
16781

(T.S., P.S. 52903)
This rock represents a silicified-sericitised and sheared volcaniclastic sediment reasonably categorised as a rhyolitic lithic tuff with affinities to the altered clastic bands in 16778, although primary textural detail is partly obscured by secondary brecciation effects.

Major features comprise a poorly sorted framework (40-60 % of sectioned area) of variably sericitic and variably pyritic quartz aggregates and a phyllitic matrix of fine to semi-sericitic white mica with disseminated fine-grained pyrite.

Clasts are randomly sized in the sub- to millimetric range, with isolated centimetric types. The majority consist of fine to microcrystalline quartz, grading into sericitic quartz and sericite-quartz aggregates. Many exhibit faint relict perlitic devitrification structures and represent altered obsidian clasts. These are supplemented by clasts of vein-type quartz and the "megaclasts" consist of recrystallized vein-type quartz and ankeritic carbonate with a little pyrite and accessory muscovite. Accessory quartz grains represent crystal fragments in part. There are minor clasts of impure (sericitic-argillaceous) chert.

Clasts are sub- to rounded with subordinate angular types. Shapes are partly controlled by in-situ shear-induced boudinaging of perlitic-devitrified obsidian clasts. The boudinaged-intraclastic vein components are relatively angular.

The polished section is largely representative of a coarse clast of weakly micaceous quartz-carbonate vein material with disseminated quartz-intergranular blebs and spongy clots (to 1 mm) of chalcopyrite, a little fine pyrite, traces of sphalerite, and rare microscopic blebs of tetrahedrite.

X This section exhibits conspicuous gold, disseminated throughout the quartz aggregates as single to clustered particles with no tendency to close spatial relationship with the disseminated sulphides. A total of approximately 60 particles were observed with equant to flaky and irregular shapes. Modal sizing is 10-15 μ in an observed range of 1-50 μ.

Clusters comprise from three to approximately 25 particles in areas of 300-500 μ diameter.

HP4 259.7m
16782

(P.S. 52904)
This section represents a banded pyritic phyllite with affinities to 16778.

Millimetric-scale bands and lenses of semi-massive quartz-matrixed pyrite carry semi-pervasively disseminated pyrite-intergranular chalcopyrite. Interspersed lensoid masses of quartz and carbonate grade into more or less massive carbonate lenses and include relatively conspicuous chalcopyrite, subordinate to minor pyrite and minor traces of pale sphalerite. These features represent boudinaged veinlets, at least in part, are distinctly carbonate-rich in comparison with the 16781 assemblage, and are devoid of detectable gold, at least in the area sectioned.

HP4A 259.25m
16783

(T.S., P.S. 52905)
This rock is closely analogous to 16781 and similarly represents an altered (silicified-sericitised), weakly pyritised and sheared rhyolitic lithic tuff. General features are similar to the degree that little special comment is warranted.

In comparison, this rock exhibits a modally slightly coarser-grained framework of altered perlitic to structureless obsidian clasts and a slightly enhanced content of recrystallized quartz crystals and crystal fragments. A few of the altered clasts include differentially sericitised or silicified plagioclase and K-feldspar microphenocrysts. Many exhibit irregular quartz veinlets carrying accessory Fe-carbonate, pyrite,and minor traces of apatite, chalcopyrite, and sphalerite. In common with 16781, this vein assemblage also appears as (boudinaged) clasts, and the matrix comprises phyllitic white mica aggregates with fine-grained, variably pressure-shadowed pyrite disseminations. Polished section examination revealed no detectable gold.

HP4A 254.42m
16784

(P.S. 52906)
This section represents a pyritic phyllite-matrixed breccia and, in terms of general characterisitcs, appears closely analogous to 16783. In comparison, the matrix and to a certain degree the altered clasts, are relatively pyritic and the rock as a whole exhibits a slightly enhanced chalcopyrite content.

The sectioned area includes minor quartz-carbonate-veined clasts and intraclasts of pyritic quartz-carbonate vein material. These features are relatively chalcopyritic and include minor traces of sphalerite. Close examination revealed no detectable gold.

HP4A 259.85m
16785

(P.S. 52907)
This pyritic phyllite-matrixed breccia is closely analogous to 16783 and 16784, with a typical composite of altered acid volcanic and subordinate vein components represented as clasts. The vein component is carbonate-rich. Minor clasts of quartz-chalcopyrite-matrixed semi-massive pyrite are present. The matrix is, typically, composed of phyllitic white mica aggregates with pervasive and conspicuous dimensionally orientated and pressure-shadowed pyrite disseminations.

Polished section examination reveals minor accessory traces of sphalerite, supplementing sparsely disseminated chalcopyrite. Close examination revealed no detectable gold.

HP4A 234·05m
16786

(T.S., P.S. 52908)
This rock is a relatively sulphide-rich sericitic phyllite, crudely lenticularly banded and texturally approximating to a pyritic sericite-matrixed breccia. Much primary detail is obscured by the relatively marked shearing effects but, in contrast to 16781 and 16783, clasts are largely recrystallized vein-type, sulphide-mineralised, variably sericitic quartz aggregates.

These features are boudinaged into elongate, angular to lensoid masses of millimetric to locally centimetric proportions within the phyllitic white mica matrix. Subordinate silicified and variably sericitic obsidian clasts are present, but due to the enhanced shearing effects are poorly resolvable and are locally defined only by included accessory leucoxenic semi-opaques.

The matrix is pervasively pyritic. The boudinaged vein component includes relatively conspicuous disseminations, films and irregular sub- to millimetric-scale semi-massive clots of base metal sulphides (colour-variable sphalerite, chalcopyrite, galena).

The polished section includes sulphide-mineralised vein-type and subordinate pyritic phyllite (matrix) components.

The siliceous vein-hosted assemblage comprises disseminated to locally spongy, semi-massive, ultrafinely exsolution chalcopyrite-stained sphalerite, disseminated to locally massive chalcopyrite, varying proportions of pyrite and of galena, which is variously intergrown with chalcopyrite, sphalerite, or forms pressure shadow "tails" on pyrite euhedra. Rare microscopic blebs of proustite-pyrargyrite appear intergranular to quartz.

In comparison, the matrix assemblage is distinctly pyritic, with accessory traces of galena, chalcopyrite and sphalerite. Close examination revealed no detectable gold.

HP4A 234·40m
16787

(P.S. 52909)
This section represents a zone of quartz-matrixed "massive" pyrite, analogous to those noted in 16778 and particularly 16779. Pyrite is generally fine but uneven-grained and variously spongy and granular to euhedral where relatively disseminated. Vague relict colloform and nodular textures persist in places, supplementing a mesoscopic millimetric-scale banding.

Pyrite and quartz aggregates carry more or less pervasively disseminated intergranular chalcopyrite blebs and accessory traces of sphalerite with rare associated blebs of tetrahedrite. Close examination revealed no detectable gold.

HP4A 234.90m

16788 (T.S., P.S. 52910)

This rock may be broadly classified as a pyritic phyllite-matrixed breccia, and reflects a composite of primary and secondary breccia features.

The sub- to millimetric-scale dimensionally orientated clasts are relatively variable, with boudinaged siliceous vein, silicified obsidian, and cherty sediment components recognisable in the sericitic quartz aggregates. Obsidian clasts include relict perlitic-textured types. The chert component is typically impure (sericitic), "grades" into cherty argillite, and is pervasively stained with ultrafine pyrite. Both types include sporadic irregular networks of disseminated sulphide-mineralised quartz veinlets analogous to those in 16786 and similarly appearing as clasts as a result of secondary (shearing-induced) brecciation. Relict features are consistent with a tuffaceous composite (volcanic- and chert-derived) sedimentary breccia, phyllosilicate (pyritic sericite-) matrixed,quartz-sulphide-veined, and subsequently sheared.

The phyllitic matrix carries ubiquitous dimensionally orientated fine-grained pyrite disseminations. Boudinaged siliceous vein-hosted sulphides comprise disseminated to spongy semi-massive pyrite with subordinate to minor sphalerite, a little chalcopyrite and traces of galena. Close examination revealed no detectable gold.

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292

113293

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24th October, 1984

REPORT CMS 84/9/14

YOUR REFERENCE:	Letter dated 13.9.1984
DATE RECEIVED:	14th September, 1984
SAMPLE NOS.:	~~A. 8~~ 2984, 2985
SUBMITTED BY:	P.A. Roberts
WORK REQUESTED:	Petrology

DATE: 26/10/84
FILE No.: 9510/3
INITIALS: HL

for H.W. Fander, M. Sc.

/293

113294

REPORT CMS 84/9/14

Petrological Notes

2984/A (T.S. 51442)
This rock may be categorised as a quartz-kaolin rock and clearly represents a degraded fine-grained "massive" pyritic ore.

Major constituents are microcrystalline quartz and closely intergrown optically ill-defined ultrafine kaolin. Patchy incipient Mn-oxide stainings are reflected, mesoscopically, in the mottled brown to white colouration.

Kaolinitic infilled microscopic cavities after euhedral pyrite are ubiquitous throughout, comprising 50-70 % of the sectioned area. These features are sized in the 10-100 μ range, with a mode about 30-40 μ, and reflect entirely cubic habits. Minor relics of fine-grained quartz represent the original gangue.

This rock clearly reflects marked secondary silicification analogous to that noted in certain N.W. Tasmanian weathering profiles over ultramafic and carbonate-sedimentary facies.

2985/B (T.S. 51443)
This rock consists largely of variably stressed to extensively recrystallized fine-grained quartz with accessory sericitic white mica, partly represented by secondary ferruginised (limonitic) zones.

Minor cavities and secondary microcrystalline quartz pseudomorphs after fine-grained pyrite euhedra are present. These features are variously rare to conspicuous within the area sectioned, and exhibit a similar habit and sizing range to those noted in chip A.

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294

113295

REPORT CMS 84/9/14

At the request of Paul Roberts, two small chips were received for petrological examination, with emphasis on possible weathered pyritic mineralisation characteristics.

Representative thin-sections were prepared, examined together with the offcuts, and are described in the accompanying notes.

Both rocks exhibit thoroughly weathered pyritic characteristics. Chip A (2984) represents a "massive" pyritic zone, and chip B (2985) a relatively disseminated variant. Both exhibit relics of quartz gangue, supplemented in the extensively stressed and recrystallized chip B (2985) by sericitic white mica. Pyrite is variously represented by cavities and kaolin-quartz-infilled cavities. Inherited shapes are strictly cubic, and these rocks may thus be contrasted with certain fault-controlled silicified zones developed in, for example, dolomites in N.W. Tasmania. The secondary silicification, relatively marked in chip A (2984), is a not uncommon feature of N.W. Tasmanian weathering profiles.

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295

113296

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19th July, 1984

HFZ 5

REPORT CMS 84/6/35

YOUR REFERENCE:	Letter dated 26.6.1984 AJC/9003/5
DATE RECEIVED:	27th June, 1984
SAMPLE NOS.:	6 Samples
SUBMITTED BY:	P.A. Roberts
WORK REQUESTED:	Petrology/Mineralogy

for

H.W. Fander, M. Sc.

296

113297

REPORT CMS 84/6/35

Six small samples of quartered drill core from a drill hole in the Henty Fault Zone were received for petrological and mineragraphic examination. Representative thin-sections were prepared and, in view of the small sample size, thin-sectional offcuts were used to prepare polished sections. Attached composite descriptions summarise the microscopic data, with some samples described in relative detail and others partly by analogy.

Summary

All six rocks are essentially similar and may be categorised broadly as fine-grained quartz ± sericite-carbonate rocks. Relict features, in the form of pseudomorphed feldspar grains, sporadic relict phenocrystal quartz grains, vague microtextural features, and more or less ubiquitous leucoxenic semi-opaques, define these rocks as alrered ("silicified") acid fragmental volcanics. Obliteration of the critical textural detail, problematically, negates definition of the specific mode of origin. On the basis of relict features, there is little to choose between clastic lavas and strictly pyroclastic rocks.

Silicification is marked to the degree that, with the exception of sample 11142, which reflects selective sericitic argillisation, these rocks consist largely of secondary microcrystalline quartz. Impure (low R.I.) sideritic carbonate and pyrite disseminations are more or less ubiquitous accessories to silicification. Associated veinlets consist variously of (recrystallized) chalcedonic quartz, quartz and carbonate, massive carbonate, and, white mica-quartz(-carbonate) in apparent sequential order of development. Chalcedonic and late quartz-mica veinlets appear relatively base metal sulphide-mineralised, although the six samples examined reflect inconsistencies in this pattern. The base metal sulphide assemblage comprises chalcopyrite, galena and ultrafine exsolution chalcopyrite-stained sphalerite and is consistent throughout the disseminated and veinlet-hosted pyritic assemblages.

Gold was detected only in sample 11137 where it is specifically concentrated in a pyritic mica-quartz vein. In that sample 11138 includes an essentially similar but gold-barren (in the optically detectable sense) veinlet, the distribution of gold in this zone appears "spotty" or erratic. An alternate explanation is that there is a certain pyrite-hosted submicroscopic component to the mineralisation that is modified to a particulate pyrite-hosted mode by the late semi-penetrative but rather variable stress effects evident in these rocks.

Silver was detected in two forms, notably ultrafine but particulate native silver in galena and as extremely fine inclusions of Ag sulphosalt (?pearceite) in pyrite. No doubt a certain proportion of total Ag is represented by the gold.

D. Cowan, B. Sc.

REPORT CMS 84/6/35

Petrological/Mineragraphic Descriptions

11137 (424'6" - T.S., P.S. 50728)
This rock may be classified as a pyritic quartz-carbonate rock. The rock is breccia-like, with irregular millimetric-scale clasts interspersed with a quartz (± carbonate) matrix. Finer detail is confused by frequent quartz-carbonate veinlets.

"Clasts" consist of cherty microcrystalline quartz with accessory sideritic carbonate, thinly disseminated fine to ultrafine pyrite and, locally, a little sericitic white mica. The majority are texturally featureless, but a few exhibit vague relict felsitic and/or perlitic microtextures consistent with an altered acid volcanic paragenesis. Whether this rock was primarily fragmental or, alternately, reflects brecciation, however, is not clear. Rare clasts of recrystallized chalcedonic quartz are present.

The matrix and variably continuous irregular veinlets consist of mildly stressed, medium-grained, vein-type quartz with varying proportions of granular to sparry siderite, concentrated in the veins. Fine-grained pyrite is disseminated throughout and is similarly concentrated in the veins.

The thin band of "massive" pyrite is strictly a temporally late vein of fine-grained muscovite, quartz, and pyrite with accessory carbonate and galena. This vein transects quartz-carbonate veinlets and is mildly stressed.

Polished section examination reveals the disseminated and vein-sulphide assemblages to be essentially identical, with pyrite accompanied by minor included and intergranular galena, pyrite- and silicate-intergranular chalcopyrite, and a little silicate-intergranular sphalerite. Chalcopyrite and sphalerite occur partly as composite blebs. Silicate-intergranular chalcopyrite ranges to 500 μ diameter, but the base metal sulphides in general are fine-grained (typically < 50 μ).

The sericitic pyritic vein is relatively base metal sulphide-mineralised in comparison with the host rock. Pyrite is sub- to euhedral, semi-evenly sized (mean 200-250 μ), weakly poikilitic and mildly micro-fractured.

Several microscopic particles of gold were detected within this pyritic vein. The majority appear as inclusions, or rarely partial inclusions in pyrite. This mode is supplemented by relatively minor pyrite- and quartz-intergranular particles and discontinuous microfilms. Modal overall sizing is circa 5-8 μ in an observed range of < 1 μ to a maximum of 16x24 μ.

Rare < 10 μ diameter particles of native silver were detected as inclusions in pyrite-intergranular galena. Presence of these features suggests the Ag distribution is bimodal (i.e. partly alloyed with gold, partly as a discrete native silver component).

11138 (424'9" - T.S., P.S. 50729)
This rock is similar to 11137. In contrast, the fabric is relatively homogeneous, comprising essentially an interbanding of cherty microcrystalline and medium-grained subradiating (crystallized chalcedonic) quartz on a millimetric scale. The coarser-grained zones are mineralised with microscale spongy networks of quartz-intergranular sulphide. Fine pyrite is thinly disseminated throughout the rock as a whole. Concentrations of pyrite also appear in association with late discontinuous sericitic quartz veinlets. These features transect a network of intersecting carbonate (siderite) veinlets with thin siliceous selvedges.

Polished section examination confirms the relatively conspicuous "disseminated" sulphide assemblage as galena, chalcopyrite and sphalerite in varying but overall near-equant proportions, with accessory associated pyrite.

Sphalerite is pervasively clouded with ultrafine (submicron-sized) chalcopyrite exsolution blebs, which impart the dark submetallic characteristics in hand specimen. Grainsizings are ubiquitously fine, consistent with the quartz-intergranular habit.

The discontinuous sericitic pyritic quartz veinlets appear close analogous to that noted in 11137 and require little special comment, except to note that these features (similarly the rock as a whole) are devoid of optically detectable gold.

11139 (422'9" - T.S., P.S. 50730)
This sample may be classified as a pyritic quartz-sericite rock and represents an altered acid volcanic. Major features comprise conspicuous more or less evenly disseminated sericite pseudomorphs after feldspar crystals and crystal fragments (mean 200 μ), and a matrix of sericite-stained microcrystalline quartz with disseminated fine to ultrafine pyrite. The sericitised feldspar crystals are moderately flow-orientated. The matrix is generally featureless, but locally exhibits vague relict "shardy" microtextures. This rock is thus interpreted as a silicified and sericitised vitric-crystal tuff of dacitic affinities.

Disseminations of pyrite and base metal sulphides are associated with temporally early, weakly sideritic-sericitic quartz veinlets. These features are stressed and segmented, and appear largely as intraclasts within subsequent sub- to millimetric-scale veinlets of quartz and siderite. Sporadic temporally late films of sideritic carbonate are displaced by sericitic microfractures.

Polished section examination reveals a disseminated to segmented quartz-carbonate veinlet-hosted sulphide assemblage of sphalerite and chalcopyrite with interspersed clusters of fine-grained, variably granulated pyrite and accessory traces of galena. The total assemblage is analogous to that in 11137 and 11138, with sphalerite similarly

pervasively stained with ultrafine chalcopyrite exsolution blebs. Gold was not detected. Randomly disseminated fine (mean 40 μ) subhedral pyrite grains in the host rock, however, locally carry microscopic (< 10 μ, typically < 5 μ) inclusions of an indeterminate sulphosalt (probably pearceite), rarely accompanied by ultrafine particles of native silver.

11140 (420'6" - T.S., P.S. 50731)
This rock consists largely of microcrystalline quartz with accessory clots and discontinuous films of carbonate and thinly disseminated fine-grained pyrite. Vague relict fragmental microtextures are supplemented by isolated stressed relics of "phenocrystal" quartz, disseminated fine-grained quartz (± carbonate) pseudomorphed feldspar crystals and conspicuous leucoxenic semi-opaques. These features define the rock as a thoroughly silicified acid fragmental, although there is little to chose between a clastic lava ("tuff lava") and a strictly pyroclastic (lithic-crystal tuff) rock on relict textural grounds.

Frequent discontinuous veinlets and microscopic films of quartz and sideritic carbonate are present, with minor associated disseminations of pyrite. This rock is mildly stressed, with vein-carbonate locally partly recrystallized and crudely schistose.

Polished section examination confirms a simple, thinly disseminated pyrite assemblage with minor associated traces of chalcopyrite and galena. Pyrite is relatively euhedral and rarely exhibits micro-inclusions (< 10 μ) of chalcopyrite. Close examination revealed no detectable gold.

11141 (421'6" - T.S., P.S. 50732)
This rock is very similar to 11140. Major features comprise more or less massive, weakly carbonate-stained microcrystalline quartz aggregates with thinly disseminated relict primary "phenocrystal" quartz grains, minor ill-defined quartz-pseudomorphed feldspar grains, and thinly disseminated amygdales of quartz and carbonate, grading locally into relatively coarse zones of crystallized chalcedonic quartz similar to those appearing as clasts in 11137. Accessory, more or less evenly disseminated leucoxenised opaques enhance the altered (silicified) volcanic aspect. As in 11140, however, there is little to choose between lava, and pyroclastic modes of origin.

Fine-grained pyrite is thinly disseminated throughout. Microscale, weakly pyritic carbonate-quartz veinlets supplement the amygdales, but are relatively inconspicuous in comparison with 11140.

Polished section examination reveals more or less evenly disseminated fine-grained pyrite euhedra throughout the rock. These features appear closely analogous to those noted in 11140, but are relatively abundant and slightly coarser-grained. Minor traces of galena and chalcopyrite are present, partly as micro-inclusions in pyrite. Close inspection revealed no optically detectable gold.

11142 (423'9" - T.S., P.S. 50733)
This rock may be classified as a pyritic sericite-quartz rock. The relict fabric is vaguely fragmental and essentially similar to 11140, although finer details are relatively obscured by a weak but penetrative slaty cleavage.

Relatively conspicuous fine-grained pyrite is more or less evenly disseminated with associated incipient sericitic pressure shadows.

Sporadic sub- to millimetric-scale quartz veinlets are stressed and contorted to mildly boudinaged by the slaty cleavage. These features carry accessory traces of sideritic carbonate and locally conspicuous "lacy" quartz-intergranular films of chalcopyrite.

Polished section examination confirms a simple major pyrite/accessory chalcopyrite assemblage. Pyrite is sized in the 20-250 μ range, with a mean about 75 μ and is relatively euhedral. Individual grains may exhibit ultrafine (< 5 μ) inclusions of pyrrhotite. Minor traces of galena appear as randomly disseminated microscopic blebs. Close examination revealed no detectable gold.

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301

113302

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DATE: 15 JUL 1985
FILE No.: 9510/3
INITIALS: JC

PETROLOGICAL REPORT ON

FIFTEEN SAMPLES OF DRILL CORE

FROM THE HENTY PROSPECT, TASMANIA

prepared for

GOLD FIELDS EXPLORATION PTY. LTD.

Ref : F.G. Fitzgerald

Date : 20th June, 1985

Stan Joyce

A. S. Joyce, B.Sc.(Hons), Ph.D.

GENERAL COMMENTS

1. The samples 14088, 14091, 14093 and 15981 which represent the Zone B intersection are all interpreted to have been tuffaceous rocks. The other 11 samples include three or four tuffaceous rocks (14096, 14109, 15967 and possibly 15957) but are thought to have been mainly acid lavas.

2. Most of the rocks were probably of dacitic derivation, but 14127 carries enough K-feldspar to suggest rhyolitic or rhyodacitic derivation.

3. The sulphide mineralization in the Zone B samples is considered to have originated by hydrothermal replacement and not by exhalative sedimentary deposition. The host rocks are too coarsely clastic, the sulphides are not distinctly laminated and there are many examples of selective replacement of altered clasts by sulphides.

4. The paragenesis of alteration and mineralization in Zone B appears to involve early sericite, rutile and sulphides (particularly pyrite and galena) grading into silicification with quartz, carbonate, sphene and minor sulphide (including chalcopyrite and sphalerite) and culminating in barren fissure veins of quartz and in one case (14091) barytes.

5. Nine of the samples from the host sequence show broadly similar patterns of alteration to the Zone B samples and all carry traces of finely pyritic mineralization of replacement style. The general pattern involves early sericite, sphene and pyrite giving way to barren replacement quartz and culminating in barren fissure veins of quartz. Carbonate (variously calcite or ankerite or dolomite) has a somewhat variable paragenesis : commonly the carbonate occurs in late fissure veins with or without quartz and, in some cases, albite, but there are examples of carbonate broadly synchronous with early sericite and pyrite.

   In all probability the alteration and weak mineralization of the host rocks is an extension of the same processes which operated in Zone B. Mineralization may well have focused in Zone B because it featured tuffs which were more permeable than the lavas which dominate the host suite.

6. Two samples which appear very siliceous (14135 and 17111) are in fact intensely albitized rocks.

303

113304

Sample Number : 14088

Identification : Foliated, sulphide impregnated, completely silicified, sericitized and carbonated lithic tuff

Description :

The sample is a small slab of core which displays several rounded and rolled yellowish grey lithic clasts, about 20 to 30mm in size set in a sheared matrix which is darkened by very fine sulphides. Thin sericitic shears penetrate the matrix and the coarse clasts.

A cobaltinitrite staining test produced weak staining attributable to sericite, but revealed no K-feldspar.

In thin section one of the large rounded clasts is seen to consist of cherty fine quartz (commonly 0.02mm grainsize), small patches and flecks of sericite, small patches of sericite-sphene-sulphide (possibly after biotite) and a few specks of calcite.

The bulk of the sample consists of similar ovoid to lenticular cherty silicified clasts (commonly 1 to 2mm in size), along with similar-sized but more wispy, sericite-dominated clasts and more coarsely silicified or carbonated clasts with the most abundant and coarsest sulphides. The latter clasts are commonly about 1 to 4mm in size and carry quartz, calcite and sulphide grains about 0.02 to 0.5mm in size. The sulphides include abundant anhedral and generally fine galena, subhedral pyrite and small amounts of translucent grey sphalerite.

There are a few 0.1mm wide fissure veins of quartz and calcite.

An approximate mode is :

55-60%	quartz
30-35%	sericite
5-7%	calcite
3-4%	sulphides (galena, pyrite and minor sphalerite)
0.1-0.2%	sphene

Comments and Interpretations :

It seems quite likely that this rock originated as a lithic tuff with a leucocratic intermediate or acid composition, It then experienced intense pervasive hydrothermal alteration and sulphide mineralization. The alteration and mineralization appears to represent a single event. An impression was gained that sericite and sulphides formed early and that alteration progressed to silica and carbonate. Mild deformation post-dates alteration.

The occurrence of the sulphides as concentrations within various replaced clasts is quite consistent with an epigenetic origin and quite inconsistent with a syngenetic sedimentary origin.

304

113305

Sample Number : 14091

Identification : Foliated, sulphide impregnated, completely sericitized, silicified and carbonated tuff

Description :

The sample is a small slab of drill core which displays finely schistose rock with abundant fine pyrite, small pods and mineral clasts of medium light grey quartz and some patches and streaks of yellowish orange carbonate.

A cobaltinitrite staining test revealed about 1-2% K-feldspar as fine grains within a few clasts.

In thin section the sample displays many ovoid to lenticular, silicified clasts, about 0.5 to 3mm in size, set in a foliated, finely sulphide impregnated sericitic matrix with some fine quartz, carbonate and rutile. The silicified clasts are cherty mosaics of quartz, commonly 0.02mm in grainsize, accompanied by minor sericite and sulphides, especially fine subhedral pyrite. There are some silicified clasts with coarser quartz, some carbonate and little sulphide. Some clasts consist of deformed, sutured aggregates of dolomite or ankerite with minor quartz and sulphide.

Most of the sulphide consists of subhedral cubes of pyrite, about 0.01 to 0.2mm in size, and it is most abundant as disseminations with the foliated, sericitic matrix. Minor fine galena and coarser sphalerite (up to 0.5mm as grains zoned from translucent pale brown to opaque grey rims) is present, especially in the silicified clasts with the coarsest quartz and some carbonate.

There is a strained and disrupted fissure vein of quartz with a central core of barytes. The vein is about 0.5mm wide.

An approximate mode is :

50-55%	sericite
30-35%	quartz
10-12%	sulphide (mainly pyrite, but with some galena and sphalerite)
4-6%	carbonate (probably dolomite or ankerite)
1-2%	K-feldspar
0.1-0.2%	rutile
0.1%	barytes

Comments and Interpretations :

It seems quite likely that this sample originated as a lithic tuff with a leucocratic intermediate or acid composition. It has experienced intense pervasive hydrothermal alteration and sulphide mineralization prior to deformation.

The impression was gained that a single hydrothermal event was involved, starting with production of sericite, pyrite and rutile, progressing to silica and carbonate with minor pyrite, sphalerite and galena and culminating in quartz and barytes.

Sample Number : 14093

Identification : Foliated, sulphide impregnated, completely sericitized, silicified and carbonated acid lithic crystal tuff

Description :

The sample is a small slab of drill core which displays hard, yellowish grey and moderate reddish orange, rounded and probably stretched, altered lithic clasts, about 2 to 20mm, and small quartz phenoclasts set in a finely schistose, abundantly finely pyritic matriz.

A cobaltinitrite staining test seemed to indicate the presence of minor fine K-feldspar.

In thin section the sample displays a foliated, altered tuffaceous texture. Quartz phenoclasts and other silicified clasts are set in a schistose matrix rich in sericite and fine sulphides.

There are many mildly strained phenoclasts of quartz, about 0.2 to 1mm in size, some angular and some embayed and corroded. There are no remnant feldspar phenoclasts, but there are several quartz clasts with ghosted plagioclase twinning. Many lithic clasts are present and they now display a few quartz phenocrysts set in an altered groundmass of cherty quartz, dolomitic or ankeritic carbonate, sericite, sphene and traces of disseminated pyrite. The matrix between the clasts consists mainly of sericite, subhedral to euhedral pyrite cubes (about 0.01 to 0.1mm) and tiny prisms of rutile. The sulphide has a streaky distribution.

Several straight fissure veins of calcite (0.1 to 0.3mm wide) transgress the foliation.

An approximate mode is :

50-60%	sericite
30-35%	quartz
6-8%	sulphide (mainly or wholly pyrite)
3-4%	dolomite or ankerite
3-4%	K-feldspar
0.2-0.3%	calcite
0.1-0.2%	sphene
0.1-0.2%	rutile

Comments and Interpretations :

Remnant textures indicate that this rock originated as an acid lithic crystal tuff, but it has undergone intense hydrothermal alteration and mineralization, then shearing and then minor veining by calcite.

Unlike Samples 14088 and 14091, this sample retains some primary quartz phenoclasts. Some probable plagioclase clasts and many lithic clasts have undergone intense silicification, usually of cherty style. The finer matrix is intensely sericitized and carries most of the pyrite.

2/...

306

The impression was gained that a single hydrothermal event first attacked the matrix of the tuff to produce sericite-pyrite-rutile then attacked the lithic clasts to produce quartz-carbonate-sphene with only minor sericite and traces of pyrite.

Initially it was thought that the dolomitic or ankeritic carbonate might account for the reddish orange colour of some lithic clasts, but it does not seem sufficiently abundant. On close inspection the quartz itself reveals a faint, very fine pigmentation.

Sample Number : 14096

Identification : Foliated, completely sericitized, silicified and carbonated vitric crystal tuff

Description :

The sample is a small slab of drill core which displays light olive grey, schistose rock with many reddish orange and yellowish grey phenoclasts, about 0.2 to 3mm in size.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenoclasts and altered phenoclasts set in a finely sericitic, schistose matrix with many finely silicified structures with shapes suggestive of compressed formerly vitric shards, generally less than about 0.4mm long.

Most of the phenoclasts have tabular shapes suggestive of plagioclase, but they have been replaced by quartz and a dolomitic or ankeritic carbonate. A very few are simple quartz phenoclasts. The inferred vitric shards now consist of clouded very finely microcrystalline quartz.

Subhedral pyrite grains, up to 0.04mm, occur rarely within silicified feldspar clasts or within silicified shards.

An approximate mode is :

tr	quartz phenoclasts
10-15%	quartz-carbonate pseudomorphs of feldspar phenoclasts
50-60%	matrix sericite
30-35%	clouded, silicified pseudomorphs of inferred vitric shards
rare	pyrite

Comments and Interpretations :

Remnant textures are consistent with a vitric crystal tuff of leucocratic intermediate or possibly acid composition. The tuff has been subjected to complete hydrothermal alteration to a sericite-quartz-carbonate assemblage and a subsequent metamorphic foliation has been induced in the sericite. The carbonate is dolomite or ankerite rather than calcite.

Sulphide mineralization is confined to rare grains of fine pyrite in silicified clasts.

Sample Number : 14098

Identification : Foliated, variably silicified, intensely sericitized, mildly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays about 30mm of pale reddish orange altered volcanic rock in sharp contact with a regime which has many reddish orange, yellowish and grey clasts, smaller than about 3mm, set in foliated, olive grey sericite.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the reddish orange regime is seen to have abundantly porphyritic but hydrothermally altered volcanic textures. There are many corroded and embayed phenocrysts of quartz, about 0.4 to 2mm in size. Subhedral, twinned plagioclase phenocrysts, about 0.5 to 3mm in size carry sericite and some ankeritic or dolomitic carbonate; they are now albite. Inferred biotite phenocrysts have been replaced by pyrite-sericite-quartz. The groundmass consists of cherty quartz (0.02mm grainsize) and a foliated web of abundant sericite. An approximate mode is :

10-12%	quartz phenocrysts
20-25%	plagioclase phenocrysts with inclusions of sericite and less abundant carbonate
0.5-1%	pyrite-sericite-quartz aggregates after inferred biotite
30-35%	groundmass sericite
30-35%	groundmass quartz

The more obviously foliated and sericitic regime differs in having a less siliceous, more sericitic groundmass and in having some quartz-ankerite pseudomorphs of former subhedral plagioclase phenocrysts. The maximum abundance of carbonate is about 3%.

The reddish orange colour of the most siliceous regime seems to be attributable to ultra-fine pigmentation in the secondary quartz.

Comments and Interpretations :

It seems quite likely that this rock originated as an abundantly porphyritic acid lava, probably a dacite. It has undergone intense hydrothermal alteration involving broadly synchronous sericitization, silicification and production of minor ankeritic or dolomitic carbonate and pyrite. The pyrite occurs as aggregates selectively replacing inferred biotite. The albite composition of the plagioclase phenocrysts may not be original, but no interpretable information was gained.

The hand specimen gives an apparently false impression of a lithic tuff. Thin section features are more consistent with an altered lava in which a relatively rigid, silicified and moderately sericitized regime has been retained within a more sheared, more intensely sericitized regime.

113310

Sample Number : 14107

Identification : Foliated, intensely sericitized and silicified, weakly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays many small subhedral phenocrysts of transparent quartz and reddish orange and yellowish grey, altered feldspar set in a yellowish grey to light olive grey, finely crystalline groundmass. Numerous fine fractures delineate an incipient cleavage. There are subtle patches and streaks of very fine sulphide.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays abundant phenocrysts and altered phenocrysts, about 0.5 to 3mm in size, set in an altered, weakly foliated groundmass and cut by fissure veinlets.

Many of the phenocrysts are mildly strained, corroded and embayed quartz. Many others are twinned, unzoned albite carrying some sericite and commonly some dolomitic or ankeritic carbonate. Thick biotite flakes, commonly about 0.7mm long, have been pseudomorphed by coarse sericite and fine sphene. The groundmass consists of cherty quartz (0.02mm) and foliated fine sericite; there are some patchy variations in abundance.

Fine, subhedral pyrite is disseminated unevenly through the groundmass and also forms a few small aggregates in silicified phenocrysts. Grains range from about 0.01 to 0.1mm. Some pyrite is vaguely fracture controlled.

Irregular fine fissure veins (up to 0.2mm wide) cut the rock. Some consist of dolomitic or ankeritic carbonate and others, commonly later, carry quartz with and without traces of carbonate.

An approximate mode is :

7-8%	quartz phenocrysts
8-10%	albite phenocrysts, lightly sericitized and carbonated
0.5-1%	sericite-sphene pseudomorphs of biotite
40-45%	groundmass sericite
35-40%	groundmass quartz
0.3-0.4%	sulphides (mainly or wholly pyrite)
2-3%	vein quartz
0.5-1%	vein carbonate (dolomite or ankerite)

Comments and Interpretations :

It seems quite likely that this rock originated as a porphyritic acid lava (probably dacitic), similar to 14098. It has been intensely silicified and sericitized, moderately carbonated and weakly impregnated with pyrite, then mildly foliated. Plagioclase phenocrysts may have been albitized.

The paragenesis seems to involve sericitization and production of minor carbonate, then silicification with earlier or synchronous pyrite. Barren fissure veins of carbonate give way to barren quartz; such veins probably post-date the foliation.

310

113311

Sample Number : 14109

Identification : Intensely silicified, heavily sericitized, weakly pyritic, dacitic pumiceous crystal tuff

Description :

The sample is a small slab of hard, light olive grey rock with many light grey, small phenocrysts or clasts. There are indications of mild deformation, but no pronounced schistosity.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many subhedral phenocrysts and some angular phenoclasts, about 0.1 to 2mm in size, set in a finely siliceous and sericitic matrix. Subtle textures indicate that the rock was tuffaceous and probably composed largely of uncompacted pumiceous or perlitic vitric clasts, about 1 to 6mm in size.

The phenocrysts and clasts are mainly quartz and twinned, unzoned albite. There are a few sericite-sphene pseudomorphs of inferred biotite. The inferred pumiceous or glassy components are now cherty quartz and locally foliated sericite.

Subhedral pyrite, about 0.01 to 0.1mm in size, occurs as small aggregates in association with sphene and sericite, probably after biotite.

There are disseminated anhedral small grains of dolomitic or ankeritic carbonate, a few replacement veinlets of sericite and rare fissure veinlets of quartz.

An approximate mode is :

10-12%	quartz phenocrysts and clasts
3-5%	albite phenocrysts and clasts
0.5-0.6%	sericite-sphene pseudomorphs of biotite
50-60%	matrix quartz
25-30%	matrix sericite
0.5-1%	carbonate (dolomite or ankerite)
0.3-0.4%	pyrite

Comments and Interpretations :

Remnant textures suggest that this rock was an uncompacted pumiceous crystal tuff of acid composition, probably dacitic. It has experienced intense silicification and heavy sericitization. Small patches of pyrite probably formed during sericitization of biotite. The observed plagioclase phenocrysts are now albite, but may well have been more calcic originally; they may have contributed calcium to the disseminated carbonate.

311

113312

Sample Number : 14127

Identification : Weakly deformed, heavily quartz-veined, silicified, sericitized and weakly pyritized rhyolite or rhyodacite

Description :

The sample is a small slab of hard, yellowish grey, fine-grained rock with some patches of fine-grained sulphide, many irregular small veinlets of light grey quartz and a subparallel set of thicker, straight quartz veins, less than about 1.5mm thick.

A cobaltinitrite staining test revealed abundant fine K-feldspar in the host rock.

In thin section the host rock displays moderately abundant phenocrysts of embayed quartz (1 to 3mm) and a few of sericite after biotite (0.5mm) set in a sutured recrystallized groundmass of quartz (0.1 to 0.2mm), fine K-feldspar (0.01mm), sericite, irregularly disseminated subhedral pyrite (0.01 to 0.2mm) and minor finely granular sphene. The sericite is locally foliated. There are no feldspar phenocrysts but there are some quartz-sericite aggregates with shapes vaguely suggestive of former feldspar.

The numerous irregular veinlets (up to about 0.3mm wide) carry mildly strained quartz and traces of sericite; they are partly of replacement style and partly fissure veins. The thicker (up to 1.5mm) straighter veins are of fissure style and carry mildly strained quartz (0.03 to 2mm grainsize) and minor anhedral calcite of similar grainsize, commonly as cores to the veins.

An approximate mode is :

5-8%	quartz phenocrysts
0.1-0.3%	sericite-sphene pseudomorphs of biotite phenocrysts
35-40%	fine quartz
15-20%	fine K-feldspar
12-18%	fine sericite
0.2-0.3%	disseminated pyrite
8-12%	veinlets of fine quartz
10-15%	veins of coarser quartz with calcite

Comments and Interpretations :

Primary textures of this sample have been considerably modified by hydrothermal alteration, veining and mild deformation. It was probably a lava of rhyolitic or rhyodacitic chemistry, but it could have been a tuff.

Intense alteration has involved the production of sericite, sphene and pyrite, then extensive veining and replacement by quartz, then later fissure veining by coarser quartz with minor calcite. Weak deformation post-dated alteration.

Sample Number : 14135

Identification : Intensely albitized porphyritic acid lava

Description :

The sample is a small slab of drill core which displays very light grey to whitish, hard, intensely altered rock with some inconspicuous phenocrysts or clasts.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays numerous phenocrysts, about 0.5 to 3mm in size, set in a cherty groundmass with grainsizes of about 0.02 to 0.05mm.

The main phenocrysts are subhedral and embayed quartz; most are weakly strained and some are partly recrystallized. Less abundant, generally smaller phenocrysts are twinned, unzoned albite, variously clear of alteration or very lightly flecked with sericite. There are a few sericite-calcite-epidote pseudomorphs of small prismatic crystals which may have been amphibole or pyroxene. The groundmass seems to consist of faintly twinned and untwinned albite and an uncertain amount of quartz. There are a few specks of sphene and a few grains and small aggregates of subhedral pyrite (about 0.02mm grainsize). One end of the sample has subparallel wisps and stringers of sericite.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts, with traces of sericite
tr	sericite-calcite-epidote pseudomorphs of mafic phenocrysts
85-90%	groundmass albite and an uncertain amount of quartz
0.2-0.3%	sericite
tr	groundmass sphene
rare	pyrite

Comments and Interpretations :

Remnant textures suggest that this rock was a porphyritic acid lava. If not, then it was a tuff.

The rock has undergone intense albitization of its groundmass and its plagioclase phenocrysts. The resultant rock looks quite siliceous but it seems fairly certain that the bulk of the "cherty" groundmass is poorly twinned and untwinned albite. There are traces of sericite and sphene and rare fine grains of pyrite.

313

113314

Sample Number : 15957

Identification : Carbonate-veined, weakly pyritic, intensely silicified acid tuff or lava

Description :

The sample is a small slab of drill core which displays hard, finely siliceous light olive grey rock with inconspicuous fracturing and veining.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays phenoclasts, or possibly phenocrysts, about 0.1 to 1.5mm in size, set in a cherty matrix with grainsizes of about 0.01 to 0.02mm.

The most common clasts or phenocrysts are strained quartz; shapes are commonly equant and angular to corroded, commonly with partial recrystallization. Clear grains of twinned albite have tabular or broken shapes. The cherty matrix seems to consist very largely of quartz. There are irregularly disseminated, subhedral cubes of pyrite (0.01 to 0.2mm), specks of sphene and a few wisps and stringers of sericite.

There are inconspicuous fissure and replacement style veins of cherty quartz (about 0.5mm wide); most are barren but a few carry sparse grains of pyrite. Such veins post-date sericitic stringers and pre-date thicker fissure veins (0.05 - 0.5mm) of dolomite or ankerite with and without minor quartz and albite.

An approximate mode is :

3-4%	quartz clasts or phenocrysts
1-2%	albite clasts or phenocrysts
85-90%	matrix quartz
0.1-0.2%	matrix sphene
0.5-1%	sericite
0.4-0.5%	pyrite
3-4%	cherty vein quartz
1-2%	dolomite or ankerite veins with minor quartz and albite

Comments and Interpretations :

The original rock may have been a tuff or possibly a lava of acid composition. There has been intense hydrothermal alteration and weak sulphide mineralization.

The paragenetic sequence seems to involve production of very minor sericite and sphene, then pervasive cherty silicification. Disseminated pyrite formed before or during silicification. There was then subtle replacement and fissure-style veining by quartz and subsequent fissure veining by dolomite or ankerite with minor quartz and albite.

Sample Number : 15967

Identification : Well foliated, intensely sericitized, weakly silicified and carbonated, acid crystal lithic tuff

Description :

The sample is a small slab of hard, schistose, moderate reddish orange, fine-grained rock with subtle quartz clasts and some stretched medium light grey lithic clasts, up to a maximum of about 10mm in size.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenoclasts of quartz (about 0.1 to 1mm) and a few silicified and carbonated formerly lithic or vitric clasts (commonly 1 to 2mm in size) set in a schistose matrix of sericite, fine quartz, anhedral calcite, a few specks of sphene and sparse, subhedral grains of pyrite (finer than about 0.03mm). A few quartz phenoclasts have smoothly corroded forms, but most are plainly broken.

An approximate mode is :

20-25%	quartz phenoclasts
4-6%	silicified and carbonated lithic or vitric clasts
50-60%	matrix sericite
15-20%	matrix quartz
1-3%	matrix calcite
0.1-0.2%	matrix sphene
0.1%	pyrite

Comments and Interpretations :

The remnant textures of this rock are quite consistent with an acid crystal lithic tuff or related volcaniclastic sediment.

Alteration has involved extensive sericitization and minor silicification and production of calcite. Sulphide mineralization is in the form of traces of disseminated fine pyrite. The sericitized matrix has been well foliated.

315

113316

Sample Number : 15981

Identification : Deformed, sulphide impregnated, completely silicified, sericitized and carbonated, coarse acid lithic tuff

Description :

The sample is a small slab of drill core which displays a moderate reddish orange, hard band, pod,vein or clast, more than 15mm by 20mm in contact with weakly foliated rock dominated by medium grey and light grey silica and fine-grained sulphides.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the reddish orange regime is seen to consist of small quartz phenocrysts and twinned plagioclase phenocrysts pseudomorphed by quartz set in a cherty groundmass of quartz (about 0.02mm grainsize) with disseminated dolomite or ankerite, a few grains of sphene, rare cubes of pyrite and some streaks of sericite. Thus, it seems to be an intensely altered acid volcanic clast.

Several smaller lenticular clasts are similarly finely silicified acid volcanic rock but another large clast and several small ones are coarsely silicified and consist of mildly strained quartz (up to 0.3mm), carbonate, minor sericite and conspicuous anhedral chalcopyrite and subhedral pyrite.

The matrix between the clasts is a strained aggregate of quartz (finer than 0.2mm), subhedral pyrite (0.02 to 0.7mm) sericite and minor carbonate. There are some late, straight fissure veins of calcite, generally less than 0.1mm wide.

An approximate mode is :

65-70%	quartz
12-15%	sulphide (mainly pyrite and subordinate chalcopyrite)
8-12%	sericite
6-8%	dolomite or ankerite
0.4-0.6%	calcite
0.1%	sphene

Comments and Interpretations :

Textures suggest that this rock originated as a coarse lithic tuff of acid composition. It has been intensely hydrothermally altered and mineralized, then mildly deformed and subsequently veined by calcite.

The impression was gained that alteration first attacked the matrix of the tuff and involved production of pyrite, quartz and minor sericite. Lithic clasts were then finely silicified, along with the production of dolomitic or ankeritic carbonate, minor sericite, traces of sphene and rare pyrite. Some coarsely silicified clasts were impregnated with chalcopyrite and pyrite.

316

113317

Sample Number : 16000

Identification : Quartz-veined, mildly pyritic, intensely silicified and moderately sericitized and carbonated porphyritic acid lava

Description :

The sample is a small slab of light olive grey, hard, fine-grained rock with many inconspicuous small phenocrysts or clasts. There is irregular medium and light grey siliceous veining, but no obvious schistosity.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays quartz phenocrysts, about 1 to 2mm in size, set in a groundmass composed mainly of allotriomorphic quartz (about 0.2mm in size) and similarly sized aggregates of cherty quartz and sericite (probably after feldspar).

The quartz phenocrysts are strained, corroded and subhedral grains. There are no plagioclase phenocrysts, but there are scattered aggregates of calcite, quartz and minor sericite which may be alteration products of former phenocrysts.

Subhedral pyrite (about 0.02 to 0.2mm) is present as irregularly distributed disseminations and as several replacement patches and veins (up to 2mm wide) with quartz and minor sericite and calcite.

There are numerous barren, irregular quartz veins, up to about 1.5mm wide. Those with replacement style carry only fine quartz, whilst others with fissure style carry coarser quartz and some calcite.

An approximate mode is :

7-8%	quartz phenocrysts
3-4%	calcite-quartz aggregates, possibly after feldspar phenocrysts
30-35%	fine groundmass quartz
30-35%	fine "cherty" groundmass quartz
5-8%	groundmass sericite
0.3-0.4%	pyrite
10-15%	vein quartz
0.2-0.3%	vein calcite

Comments and Interpretations :

This rock is intensely altered, but it seems likely that it originated as a porphyritic acid lava.

Alteration has involved pervasive broadly synchronous silicification and subordinate sericitization and production of calcite. Pyrite was introduced as disseminations and replacement veins and patches with these three minerals. There was then a phase of barren replacement veining by quartz and barren fissure veining by quartz and calcite. Weak deformation has strained all quartz and produced very minor local foliation in sericite.

Sample Number : 17107

Identification : Weakly foliated, silicified, heavily sericitized, weakly pyritic, porphyritic dacite

Description :

The sample is a small slab of drill core which displays moderately foliated, hard, light olive grey rock with vague phenocrysts or small clasts and with several light grey siliceous veins, the thickest about 3mm.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays many phenocrysts, about 0.5 to 3mm in size, set in a webbed groundmass of quartz (0.03 to 0.05mm) and sericite.

The dominant phenocrysts are mildly strained, embayed and corroded quartz. Others are subhedral, tabular, twinned, unzoned albite, lightly flecked with sericite, and a few sericite-sphene pseudomorphs of biotite. In addition to quartz and sericite the groundmass carries a few grains of sphene and disseminations and vague stringers of subhedral pyrite grains, about 0.01 to 0.05mm in size.

Quartz forms some replacement and fissure-style veins. Some are fine and "cherty", whilst others are coarser grained (up to 0.5mm grainsize) and carry minor albite and small rhombs of calcite.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts, lightly flecked with sericite
0.1-0.2%	sericite-sphene pseudomorphs of biotite
50-55%	groundmass sericite
25-30%	groundmass quartz
0.2-0.3%	pyrite
8-12%	quartz in veins
0.2-0.3%	calcite in veins
tr	albite in veins

Comments and Interpretations :

It seems likely that this rock originated as a porphyritic acid lava, probably a dacite.

Intense hydrothermal alteration involved the production of sericite, sphene and pyrite, then silicification, then crystallization of minor calcite and albite in late quartz veins. Weak deformation has partly foliated the sericite and weakly strained all quartz.

Sample Number : 17111

Identification : Intensely albitized porphyritic acid lava

Description :

The sample is a small slab of drill core which displays hard, light grey to whitish, fine-grained rock with inconspicuous small phenocrysts or clasts. There are several thin siliceous veins and several very pale orange, thin veins carrying carbonate.

A cobaltinitrite staining test revealed no K-feldspar.

In thin section the sample displays numerous phenocrysts, about 0.5 to 2mm in size, set in a cherty groundmass with grainsizes of about 0.02 to 0.2mm.

The main phenocrysts are mildly strained, equant subhedral to corroded quartz. Subhedral, tabular grains of twinned, unzoned albite are prominent; most show minor flecking or veining by sericite. The 'cherty' groundmass consists mainly of faintly twinned and untwinned albite; there is an uncertain and probably minor amount of groundmass quartz. There are a few specks of sphene and rare tiny grains of pyrite.

There are several very inconspicuous fissure style veins of cherty quartz, up to about 0.5mm wide, several later veinlets of sericite and subsequent replacement veins of calcite with minor quartz.

An approximate mode is :

5-8%	quartz phenocrysts
4-6%	albite phenocrysts with minor sericite
80-85%	groundmass albite with an uncertain amount of quartz
tr	sphene
rare	pyrite
1-2%	vein quartz
1-2%	vein sericite
0.5-1%	vein calcite

Comments and Interpretations :

Remnant textures suggest that this rock originated as a porphyritic acid lava. If not, then it was a tuff.

The rock has undergone intense albitization of its groundmass and presumably of its plagioclase phenocrysts. There are minor other alteration minerals and the apparent paragenesis is albite with traces of sericite, sphene and rare pyrite, then quartz, then sericite, then calcite with minor quartz.

The sample has similarities to 14135.

319

113320

APPENDIX D

REPORT ON STREAM GEOCHEMISTRY

WEST SEDGWICK-HUXLEY-GARFIELD

by

Roger Poltock Geological Pty. Ltd.

June, 1985

320

113321

GOLD PAN CONCENTRATE SURVEY

EL 9/66

SEDWICK HUXLEY GARFIELD

October 1984 - May 1985

Roger Poltock Geological Pty. Ltd.
For GoldFields Exploration

321

113322

TABLE OF CONTENTS

			Page
SUMMARY			1
INTRODUCTION			2
CONCLUSIONS			3
RECOMMENDATIONS			5
GEOCHEMICAL SAMPLING			9
DISCUSSION OF ANOMALOUS AREAS			12
Sedgwick	A.	West Queen River	12
	B.	Pearl Creek - Lake Margaret Road	12
	C.	Cape Horn	12
Huxley	D.	Diorite Creek West	13
	E.	Mt. Ellen - Huxley	14
	F.	Toft River - Huxley Divide	15
	G.	Toft River - Mt. Owen	16
	H.	King River - Jukes Pty.	16
Garfield	I.	Flannigan Creek	18
	J.	Northern End Currie Garfield Divide	19
	K.	Sailor Jacks	20
	L.	S.W. Currie Rivulet	21
	M.	Upper Garfield	21

322

113323

TABLE OF CONTENTS

Photographs

1. a) Coarse gold characteristic of distal alluvial concentrations - one piece equivalent uncorrected assay 740 ppm.

   b) Fine grains of gold indicating proximity to primary source, uncorrected assay vicinity 200 ppm.

2. Sampling in King River Gorge.

3. Stockwork quartz chlorite pyrite veins in elluvial workings Diorite Creek.

4. Sailor Jacks regrowth and camp ruins Mt. Lyell Line.

Drawings

1.	Outcrop Geology and Sample Locations Sheets. Owen, Huxley, Jukes, Snake, Flannigans, Garfield	1:5,000
2.	Interpretive Geology	1:5,000
3.	Geochemistry - data sheets	1:5,000
4.	Pan Concentrate Sample Areas Sheets Franklin and Sophia	1:100,000
5.	Pan Concentrate Anomalous Drainages	1:100,000
6.	Pan Concentrate Site Ratings	
7.	Possible Gold Sources - Sailor Jacks (Sketch Map Only)	
8.	Flannigans Geochemical Traverses Section Lines 3400N 2600N	1:5,000

Appendices

i) Sample Record and Analytical Data Sheets

ii) Pan Concentrates Correction Tables

323

113324

SUMMARY

A pan concentrate survey covering the southern three sections of EL 9/66 carried out during 1984/85 field season.

The aim of this sampling to locate gold mineralization in the Mt. Read Volcanics and overlying Ordovician sediments. Alluvial concentrations of gold and small hard rock gold prospects are scattered throughout this area.

The survey carried out in three phases:

a) Initial reconnaissance coverage of all major drainages by pan concentrates and -80# at Sedgwick.

b) Detailed follow-up of anomalies with pan concentrates (and in some cases -80#), geological mapping and rock chip sampling. These areas shown Drawing 5, designated A-M.

c) Reconnaissance soil and bedrock geochemical traverses at Diorite Creek West (D), Mt. Ellen-Huxley (E) and Flannigans Creek (I).

Maximum pan concentrates recorded from the Garfield, the uncorrected assay 740 ppm gold, 70 ppm silver -80# gold assays all <0.1 ppm. Basemetals in most areas at low levels. Rock chip samples were high graded, maximum assay .12 ppm gold from Flannigans Creek silicified zone.

Soil and Wacker bedrook geochemistry at Flannigans outlined a zone of gold mineralization with maximum .45 ppm gold from a bedrock sample in silicified and sericitized volcanics. Similar sampling at Diorite Creeek West and Mts. Ellen-Huxley only located a small lense of chlorite pyrite mineralization assaying 0.15 ppm gold, 565 ppm copper.

INTRODUCTION

This stream pan concentrate and -80# survey covers the southern three areas of EL 9/66, designated Sedgwick Huxley and Garfield (see Drawing 4).

Sampling carried out between October 1984 - May 1985 the initial reconnaissance phase 34 days, more detailed follow up at Huxley and Garfield an additional 14 days. B-C horizon soil and Wacker bedrock sampling at Flannigans and Diorite Creek West - Mts. Ellen-Huxley during May.

The Northern two areas of the EL with the exception of King River were accessed by vehicle. All Garfield exploration helicopter supported, six helipads located in this area.

Previous exploration in the southern two areas is outlined by Poltock 1984. Exploration by Mt.Lyell and geology in the Sedgwick area is adequately covered by Shepherd 1972.

Pan concentrates comprise the major part of this survey, consistency sample type quality exercised throughout the programme. All gold values have been corrected for concentration factor and stream drainage area. See appendices i) and ii).

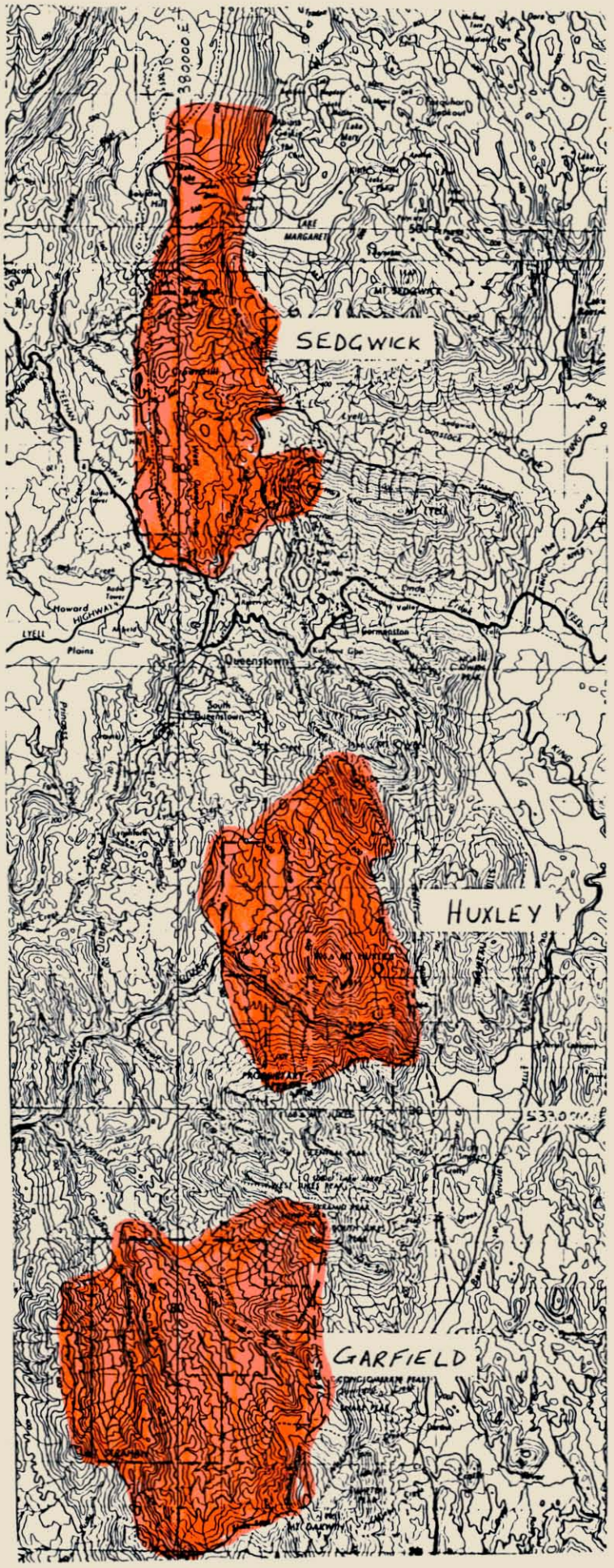
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PAN CONCENTRATE SAMPLE AREAS EL 9/66

Scale 1:100,000



CONCLUSIONS

1. Pan concentrate samples were found to be an effective method in locating gold mineralization, but some degree of interpretation is necessary.

Known mineralization in the sample area was located, East Queen River Mt. Lyell, Mount Ellen, Pearl Creek - West Queen River. However the Jukes Pty. area wouldn't have been located without the associated copper anomally.

2. It is considered essential to visually check the amount and grain size of gold and associated heavy minerals in the pan concentrates. Fine grained gold(see Photo 1a) in amounts > 15 grains assay intermediate anomalies but have been found to indicate proximity to a primary gold source. Since bedrock traverses in the West Diorite Creek area the anomally source is in many cases not going to be significant.

Coarser grainsize gold see photo 1b) has been found to be characteristic of downstream alluvial concentrations. A single 5 mm piece assaying 740 ppm but the anomally being of little significance, due to reworking - redeposition some distance from the primary source.

An implication of this apparent fining of gold grainsize toward the primary source is that

a) alternative sample type, eg -80#, bulk cyanide leaching should be used in following up anomalies.

b) the primary gold source cannot be located in most cases by following visible pan concentrate gold toward the source.

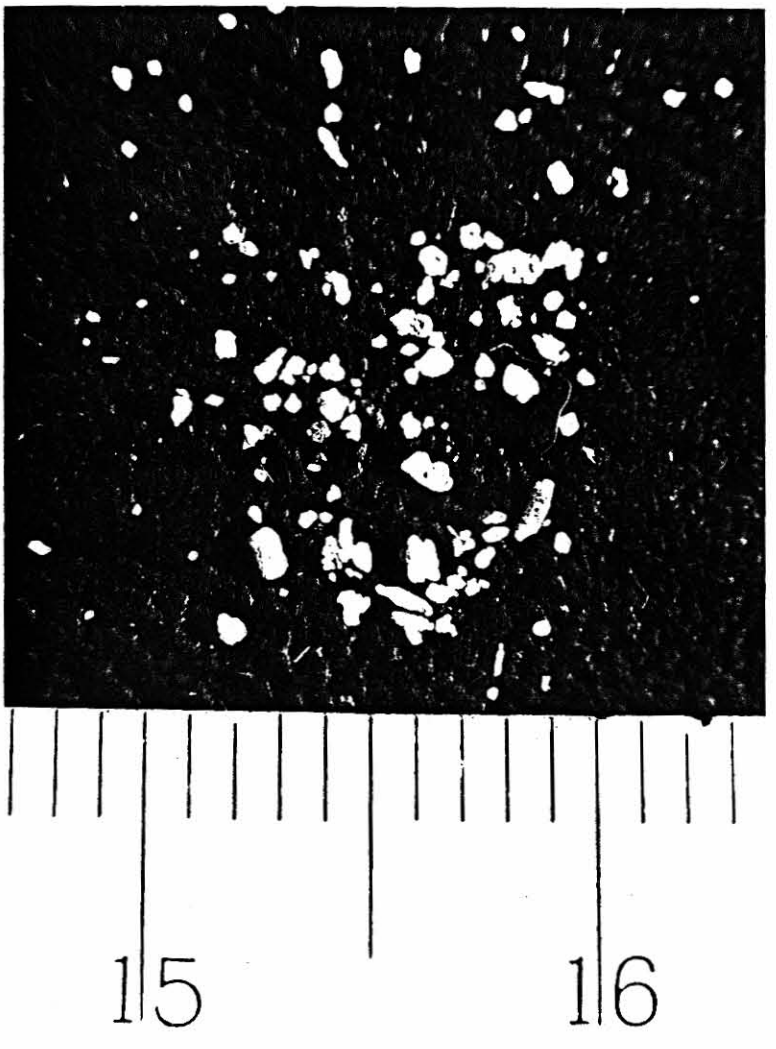


Photo 1a) Fine grainsize gold interpretted to indicate proximity to primary gold source, uncorrected assay in vicinity 200 ppm (scale mm)



Photo 1 b) Coarse gold characteristic of distal alluvial concentrations - one piece the equivalent of uncorrected assay 740 ppm (scale mm)

3. Base metal values in all geochemical sample types low. Anomalous base metals in drainages at Jukes Pty 500 ppm Cu, Mt. Jukes 150 ppm Pb (see Poltock 1984), South Conglomerate Creek Pb 280 ppm Zn, 80 ppm (rock chip shale Pb 270 Zn 1100) and Upper Garfield River Cu 360 Pb 45 ppm.

4. Soil and bedrock geochemistry at Flannigans Creek and Diorite Creek West - Mts. Ellen-Huxley were used as a comparison of two methods in effectiveness in locating gold mineralization in residual soil profiles. At Flannigans a broad zone of weak gold mineralization has been outlined in bedrock sampling with maximum Au .45 ppm whereas only two B/C horizon soils assayed above detection, these coinciding with anomally peaks.

5. Anomalous gold values at Flannigans are associated with patchy silicification and sericitization in Cambrian volcaniclastics and volcanics. The gold values located on the three reconnaissance lines may be indicative of the overall grade of mineralization which is considered adequate to generate the alluvial concentrations along the course of Flannigans Creek (see Drawing 1).

6. Diorite Creek West - Mts. Ellen Huxley, a source for anomalous stream gold in this area was only located at Diorite Creek where a lense of chlorite pyrite mineralization 10 x 30 m assaying .15 ppm gold 565 Cu. The only significance of this minerlization is that it adequately explains the pan concentrate anomaly and downgrades the potential of other anomalous with similar values and small drainage areas.

7. The Sedgwick-Lake Margaret area is significant only in fact that pan concentrate and -80# anomalies are absent except in the Mt. Lyell area and lower sections of the West Queen River.

RECOMMENDATIONS

All areas covered by this survey are now at the stage where detailed/ reconnaissance bedrock geochemical traverses can be made to assess the pan concentrate anomalies.

Bedrock geochemistry is considered the most appropriate method of assessment, the styles of mineralization will have to be ascertained prior to the use of any geophysical methods.

The following areas discussed located on Drawing 5, the anomalous drainages labelled A-M.

Sedgwick (A & B)

With the exception of the anomalous drainages from Mt. Lyell, the only two areas warranting further work are Pearl Creek (B) and West Queen River (A). Gold bearing drainage areas are small. Auriferous quartz veins have been mapped by Shepherd 1972, the area could be further assessed in one or two field days.

Huxley (D - H)

D. Diorite Creek West. The pan concentrate anomaly and source of alluvial gold in this area has been adequately explained. No further work is warranted.

E. Mts. Ellen-Huxley. Soil and bedrock traverses located no mineralization or alteration. Line 1600E Mt. Ellen located 200 m east of the old mine

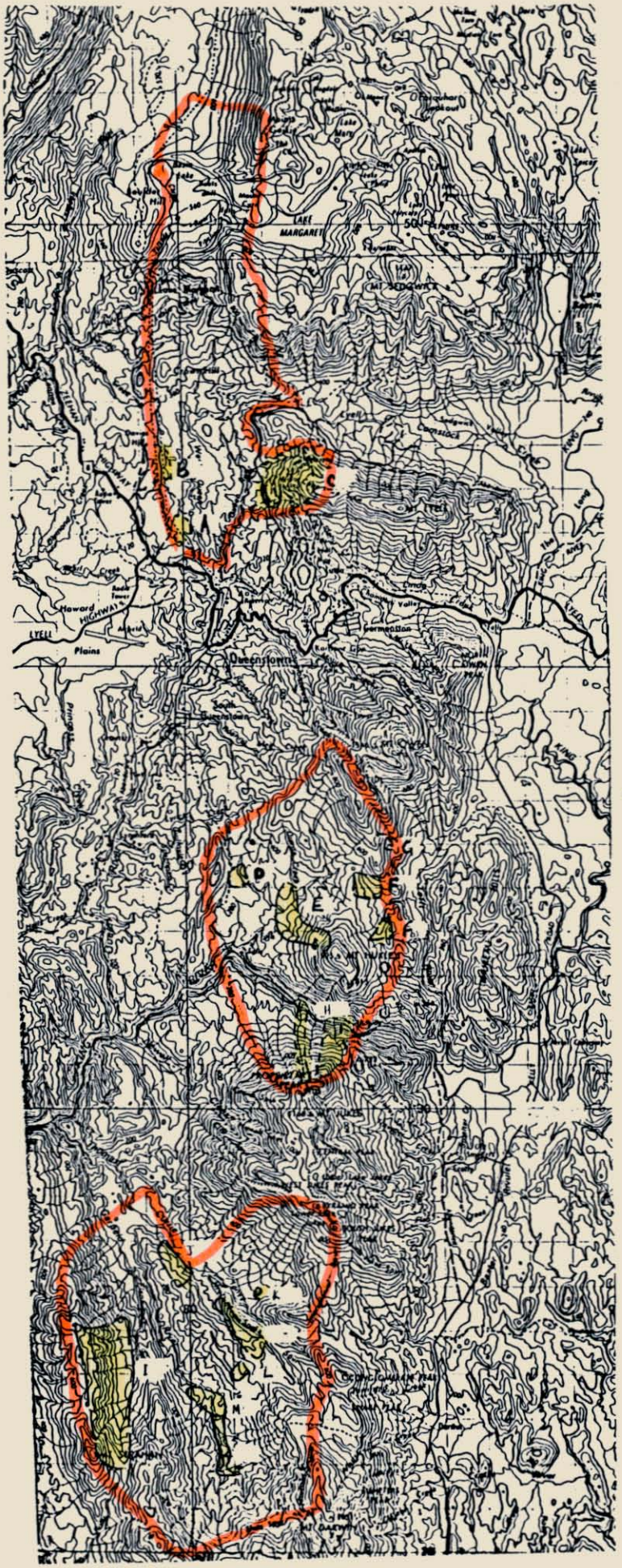
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DWG 5

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GOLD PAN CONCENTRATES EL 9/66
ANOMALOUS DRAINAGES

Scale 1:100,000



workings. The limited area of the anomalous drainage absence of values on 1600E and low assays from the Mt. Ellen mine, restricts potential in this area. Additional lines could be sampled over the workings but only to assess the nature of mineralization and overall grade.

The interpretted continuous stream gold anomaly from Mt. Ellen to the western flanks of Huxley hasn't been confirmed. The gold source in latter area hasn't been defined by the baseline or 2400E crossline soil and rock chip sampling. If more work in this area is contemplated, a re-appraisal of the -80# Golden Apple samples further south should be made. Soil and bedrock geochemistry in this area will be difficult due to veneer of Owen Conglomerate scree and glacials.

F. Toft River Huxley Divide. This area lies between the Huxley Owen saddle and Owen Conglomerate to the east. Pan anomalies in the northern section are probably derived from lenses of chlorite pyrite magnetitie mineralization assaying .05 ppm gold. No further work is warranted in this area.

Shallow alluvial workings in Owen derived gravels on volcanic bedrock coincide with the anomalous stream in the southern section. Gold in the area may be shed from the conglomerate-volcanic contact. A bedrock sampling traverse from the Owen Conglomerate 500 m to the west would probably adequately assess this area. Access is via the H.E.C. Mt. Huxley Road, vegetation cover is sparse.

G. Toft River Mt. Owen. Stream pan concentrate sites in this area are dominated by Owen derived boulder gravels. Interest in this area stems from the major NNW trending faults associated with volcanics - conglomerate contact and mineralization in the Nasty Knob area further north.

Features of interest are weakly anomalous gold in a -80# sample and soft quartz veined Owen sandstones which appear to have been sluiced in the past (assay .02 ppm gold, 26 ppm W). This area may warrant a further field visit, a helicopter could land on this outcrop.

H. King River - Jukes Pty. Sample 13879, a pan concentrate from a small stream in the SW corner of the EL, assayed 520 Cu, 300 Pb. This is one of the few base metal anomalies located in the EL and is similar to the Jukes Pty. drainage anomally. Nothing of interest was noted during sampling, the site should be re-sampled to check the assay.

Garfield (I - M)

I. Flannigans Creek. From location of alluvial gold workings, pan concentrate anomalies and alteration located during reconnaissance mapping an area was defined warranting soil and bedrock sampling. The weak belt of gold mineralization outlined by the latter may be representative of the area, however closing the line spacing with further bedrock sampling may indicate higher grades, trends and possible controls on the mineralization in this area.

J. Northern End of Currie Garfield Divide. A gold anomaly is located in three streams draining the NE flanks of the Currie Rivulet, fine grained pyritic sediments assaying .04 ppm Au have been located in the headwaters of the area. The auriferous pyritic schist discussed by Moore (1912) may be in this area. It is recommended that three bedrock traverses be sampled, lines at 400 m spacings from the Currie Rivulet SW to ridge top. The NW geophysical line of Snake Spur grid could be utilized as the southern most traverse.

Vegetation in this area is quite thick, soil profiles are residual, the only glacials being in Currie Valley.

K. Sailor Jacks. At this location fluvioglacials have been worked for gold and quartz veining in Owen quartzites have been prospected. This gold occurrence lies on the Owen-Mt. Read contact and it is possible that the mineralization may lie in volcanics, having a stratigraphic and structural position similar to Snake Spur (see Drawing 7). It is felt that further work is warranted in the form of close spaced bedrock sample traverses. A veneer of fluvioglacials will pose some difficulties.

L. SW Currie Rivulet. Two small anomalous drainages with abundant fine grained gold occur in this area, which lies within 100 m of EL boundary. No mineralization or alteration has been noted to date. In the light of Diorite Creek West geochemical traverses a small insignficant source may be shedding the anomalous values. The area could be easily tested by bedrock sampling the SE Snake Spur line from sample site 15853 400 m SW to the ridge top.

M. Upper Garfield. Anomalous gold in this area is interpretted to be shed in part from the Mt. Darwin rhyolite dome (copper iron association) outside the EL and locally from volcanics within the licence.

Outcrop in the Garfield River and tributaries in the area is extensive, but mineralization hasn't been located, downgrading the area.

If more work is to be carried out it should be in form of several bedrock traverses at 400 m spacings, and 400 m long (see Drawing 1).

GEOCHEMICAL SAMPLING

The optimum initial pan concentrate sampling density was 1 per 2 km^2 but in most areas the density was greater, to definitively sample major drainages with many small tributaries.

In addition to pan concentrates -80# samples were collected at Sedgwick and some follow up work at Huxley and Garfield.

B-C horizon soil samples and bedrock "Wacker" samples taken along traverse lines at Flannigans, Diorite Creek West and Mt. Ellen-Huxley.

All samples were assayed for Cu, Pb, Zn, Au, Ag, in addition some pan concentrate assayed for Bi, Fe, Sb, Te and rocks/soils for As, Ba.

Pan Concentrate Sampling Procedure

1. A site selected in the stream which was considered the best trap site for accumulation of heavy minerals. These trap sites ranked 1-4 (see Drawing 6). Trap site 1 being the optimum - cleavage and joint cracks with clayey-semi-consolidated gravels. All sample sites have been graded (see Appendix 1).

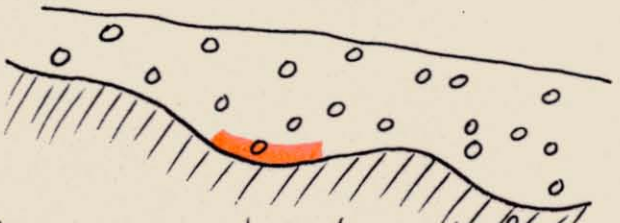
2. 12 kg of -6 mm gravel was screened from at least two locations at each sample site, the total gravel processed 25-30 kg.

3. The 12 kg of screenings panned to about 100 gm of concentrate. The proportion of heavy minerals was in most cases very low. Prior to bagging the concentrate was checked, number and size of gold grains being recorded (see Appendix 1).

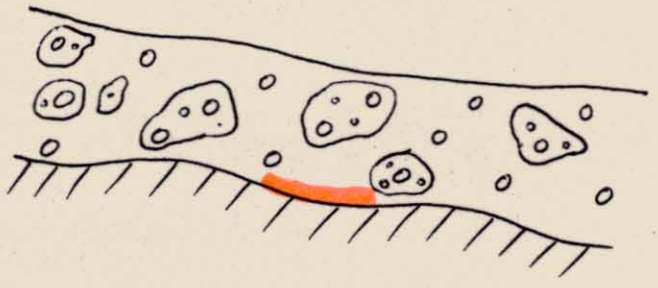
PAN CONCENTRATE SITE RATINGS



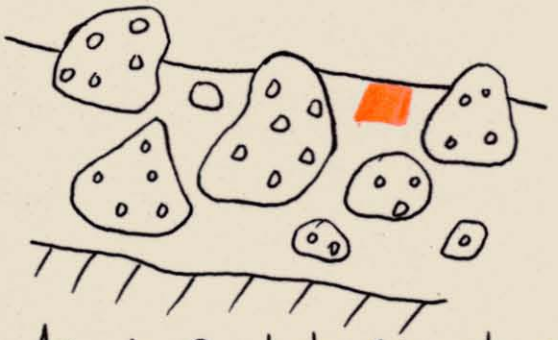
Site.1 Sample from joint and cleavage cracks in bedrock



Site.2 Stream gravels derived from bedrock in the drainage area, sample from close to bedrock.



Site.3 Stream gravels dominated by Owen Conglomerate derived glacials. Sample from close to bedrock.



Site.4 As in 3 but sample not from bedrock.

Pan Concentrate - Corrections Applied to Gold Assays

1. Concentration factor = $\frac{\text{Weight of -6 mm gravel panned}}{\text{weight of concentrate}}$

2. True gold value = $\frac{\text{Gold assay ppm}}{\text{Concentration factor}}$

3. Drainage area correction = True gold x drainage area m^2

This last figure plotted on plans and in text x 10^5, only gold values have been corrected.

-80# Stream Sediments

Fine active stream sediments were collected at some pan concentrate sites. These were sieved to -80# fraction in the laboratory, with the exception of Job No. 49.0/850180 sample sequence 13880 - 15894 which crushed prior to assay.

Soils and Bedrock

At Flannigans and Diorite Creek West - Mt. Ellen Huxley comparison made between hand augered B.C. horizon soil and Wacker bedrock sampling.

Residual soil profiles occur in both areas with the exception of glacials at Mt. Huxley (see Drawing 1). Typically soils are < 1 metre deep:

"A" horizon leached grey-white, frequently with quartz lag.

"B-C" horizon dark brown-orange, few cm thick.

Bedrock samples in both areas ranged from .5 m - 12 m deep.

Rocks

A collection of rock samples taken for assay and representative suite of lithologies (see Appendix 1). A slice of all rocks sent for assay has been retained.

DISCUSSION OF ANOMALOUS AREAS

Huxley (D - H)

This sample area extends from Huxley Road south to Mt. Jukes, drainages tributaries of the King and Toft Rivers (see Drawing 4).

Detailed geological mapping has only been carried out along the Diorite Creek West - Mts. Ellen/Huxley grid lines, all other geological information from reconnaissance traverses (Drawings 1 and 2).

Cambrian lithologies in this area have been sub-divided into:

a) quartz phyric medium grained volcanics with interbedded silstones, the equivalent of Corbett's Western Sequence.

b) rhyolite lavas and feldspar phyric volcanics, the latter interpretted to be ignimbritic. Minor fine grained sediment lenses occur in Huxley saddle area.

c) intermediate volcanics and sediments of Whip Spur area.

Mineralization styles located to date aren't economically significant but include:

- Chlorite, sericite, pyrite, magnetite lenses, (occurring in unit b), interpretted to be the source of stream gold anomalies in areas D and F.

- Quartz, specular hematite and quartz chlorite veining. These veins shallow dipping controlled by jointing which is at right angles to the foliation. Specular hematite is associated with anomalous gold pan samples at Mt. Ellen 15892 and area F 15836.

- Stockwork of quartz chlorite pyrite veinlets in rhyolitic lavas 600 m west of Mt. Ellen (photo 3). Localized elluvial mining on this mineralization, but rock chip 10932 only anomalous Pb 380 ppm.

- Shales with <5% pyrite and galena specks, outcropping in South Conglomerate Creek, rock sample 15876 Pb 270 Zn 1100 ppm. This unit corresponds to the single line DIGEM anomaly in this area.

- Pyritic fine cherty sediments associated with rhyolite lavas, these have been prospected at the Mt. Maid. Previous rock chip sampling and this season's pan concentrate survey indicates that this area is of little interest. The adit reported by Twelvetrees at the Mt. Maid wasn't located.

D. Diorite Creek West

Scattered alluvial and possibly elluvial gold workings occur along the course of Diorite Creek to the west of Mt. Ellen. The two areas separated by unmineralized drainages.

Geologically this area straddles the boundary between the Western Sequence and feldspar phyric volcanics of the Central Sequence.

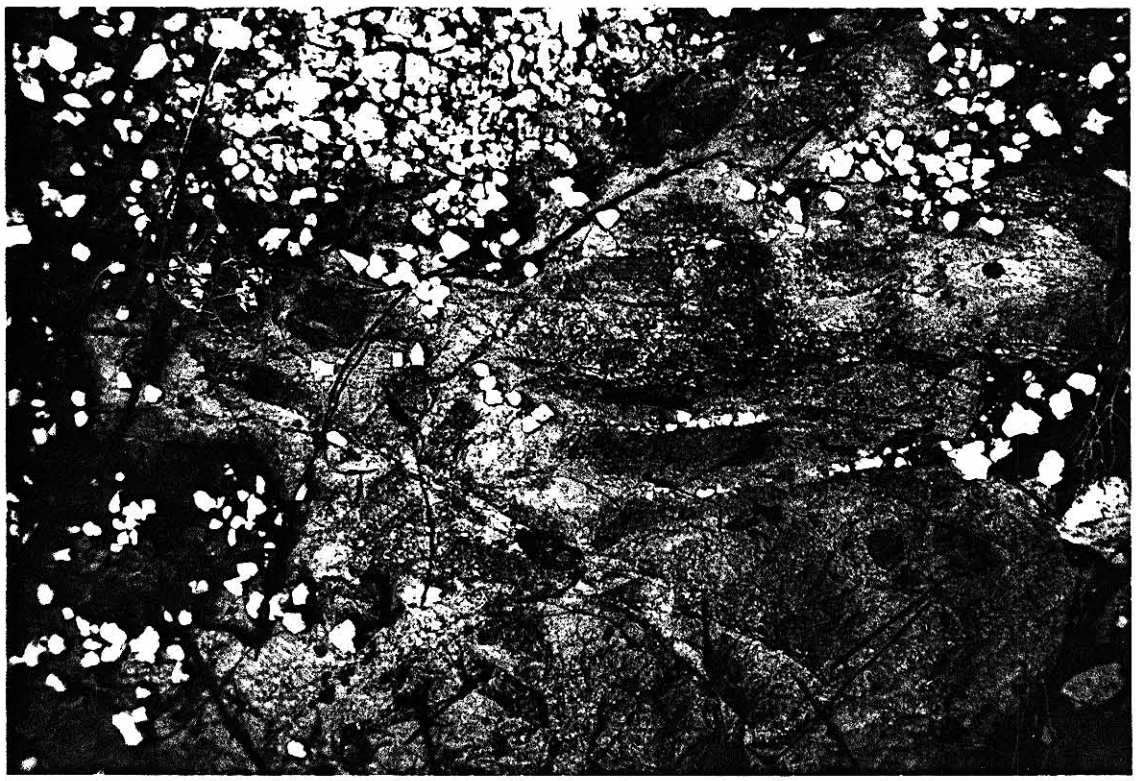


Photo 3. Stockwork quartz chlorite pyrite
veins in elluvial workings
Diorite Creek.
Veins are <5 mm wide.

Maximum pan concentrate 10929 6.9 ppm Au is associated with alluvial workings, 15803 is located higher up this drainage assayed .37 ppm Au (20+ fine grains of gold). After the grid sampling in this area the latter sample was found to be within 100 m of the anomaly source, rock chip T00444 and T00467 Au 0.15 ppm, Cu 565 ppm. This lense of chlorite pyrite mineralization located at B.L. 320 m E is approximately 10 m x 30 m, of little significance.

E. Mt. Ellen-Huxley

This broad area of anomalous drainage extends SSE from Mt. Ellen onto the western flanks of Mt. Huxley. The southern limit is not well defined, -80# samples 21300, 21320, 21323 maximum assay Au 0.12 ppm may be associated with this zone.

Geologically the area consists of two masses of subaerial volcanics, rhyolitic lavas and feldspar phyric ignimbrite (see Drawings 1, 2). There is no indication of trends in these two units, alteration and mineralization appear to be absent. Outcrop on the flanks of Mt. Huxley is partly covered by Owen derived glacials and scree.

In this area gold grainsize and associated heavy minerals varies in pan concentrates indicating two possible styles of mineralization:

- Mt. Ellen characterized by coarse gold with specular hematite sample 15892.

- Flanks of Huxley fine gold with no other heavy minerals.

This anomalous area has been tested by a SE baseline and two crosslines 1600E Mt. Ellen and 2400E Mt. Huxley. Nothing of significance has been located in this area, 1600E being located 200 m E of the Mt. Ellen workings. On 2400E minor magnetite in rhyolites T00814 and quartz limonite veining T00594 the only features of interest located, neither were anomalous.

F. Toft River - Huxley Divide

This area located between Mt. Owen - Huxley divide and the Owen Conglomerate to the east. From reconnaissance mapping a north trending sequence of rhyolite lavas and fine grained tuffaceous sediments are the main features of the geology. Volcanics are overlain in the east by shallow dipping Owen Conglomerate which is interpretted to be either thin remnant caps or fault emplaced wedges.

The anomalous drainage is divided into:

a) Northern area - pan samples 10918, 15824, 15825 with maximum value Au 0.62 ppm. Lenses of chlorite pyrite magnetite mineralization have been prospected by shallow pits, samples 10916, 10917, Au 0.05 ppm, Cu 350 ppm. This mineralization is similar to that located at Diorite Creek West and is considered to adequately explain the stream anomaly.

Twelvetrees describes other prospects in this area, Lady Haville, Sunrise and Redrock. None of these have been located.

b) Southern area - pan sample 10920, 10921 and 15836, maximum value Au 3.29 ppm at the latter site which is located near alluvial workings. -80# sample 15837 from here assayed below detection limit gold.

The anomalous stream parallels the Owen contact, flowing 200 m to the west of it. Mineralization may be associated with north trending shears on this contact. Pan samples contain specular hematite.

This anomaly doesn't extend north or south to other streams draining this contact.

G. Toft River Mt. Owen

This area lies 2.2 km south of the Mt. Owen peak. The location was considered geologically interesting, located on the same major fault structures which are associated with mineralization on the Owen Conglomerate Mt. Read contact in the Nasty Knob area 2 km to the NNW.

Two pan concentrate and -80# sites were sampled, the drainages dominated by conglomerate boulder detritus. Maximum results Au 0.06 ppm (pan) and 0.03 ppm (-80#).

This weak stream anomaly may be shed from soft pink Owen equivalent sandstone with irregular quartz veining, sample 15844, Au 0.02 ppm.

H. King River - Jukes Pty.

All streams draining into the King River were sampled on the steep slopes of the gorge. The area accessed by helicopter, the river frequently crossed by swimming (Photo 2).

Steep stream gradients may have downgraded pan concentrate values, lack of sites for heavy mineral accumulation.

Streams draining the Jukes Pty. mineralization only gave weak pan anomalies and would go undetected without the copper association 13860 Au 0.05 ppm, Cu 500 ppm (-80# Au < D.L., Cu 100 ppm).

The anomaly at 13879 Cu 520 ppm is located in SW corner of the licence, a small stream opposite the confluence of South Conglomerate Creek with the King River. If this analysis is correct it is one of the few base metal anomalies located in this sampling program.

Garfield (I - M)

All of this section of EL 9/66 covered by pan sampling, drainage areas extending beyond the licence to the Jukes Darwin ridge. Access in this area is totally helicopter dependent, six helipads and camp sites have been cleared (Drawing 1).

The geology is outlined (Poltock, 1984), the only major addition being in Flannigan's Creek area where a sequence of shales and coarse volcaniclastics the equivalents of the Garfield River - Snake Spur Sequence have been silicified/sericitized with weak gold mineralization.

A number of anomalous gold drainages have been located, only Flannigans the most extensive has been tested by soil and bedrock traverses.

I. Flannigan's Creek

Scattered gold pan anomalies and alluvial workings have been located the length of Flannigan's Creek, approximately 4 km, the area is easily accessed by an old logging track (see Drawing 1). The main alluvial gold workings are at Flannigan's Flat an area underlain by Gordon Limestone located above and below the Flannigan's Creek confluence with the Garfield River.

The stratigraphy of the Flannigan's Valley correlates with the younger Cambrian Garfield River - Snake Spur Sequence. These volcaniclastics are overlain to east and west by quartzose medium to coarse grained sediments, these are definitely Owen equivalents in the east but may be Owen or Eldon Group correlates in the west (Drawing 8).

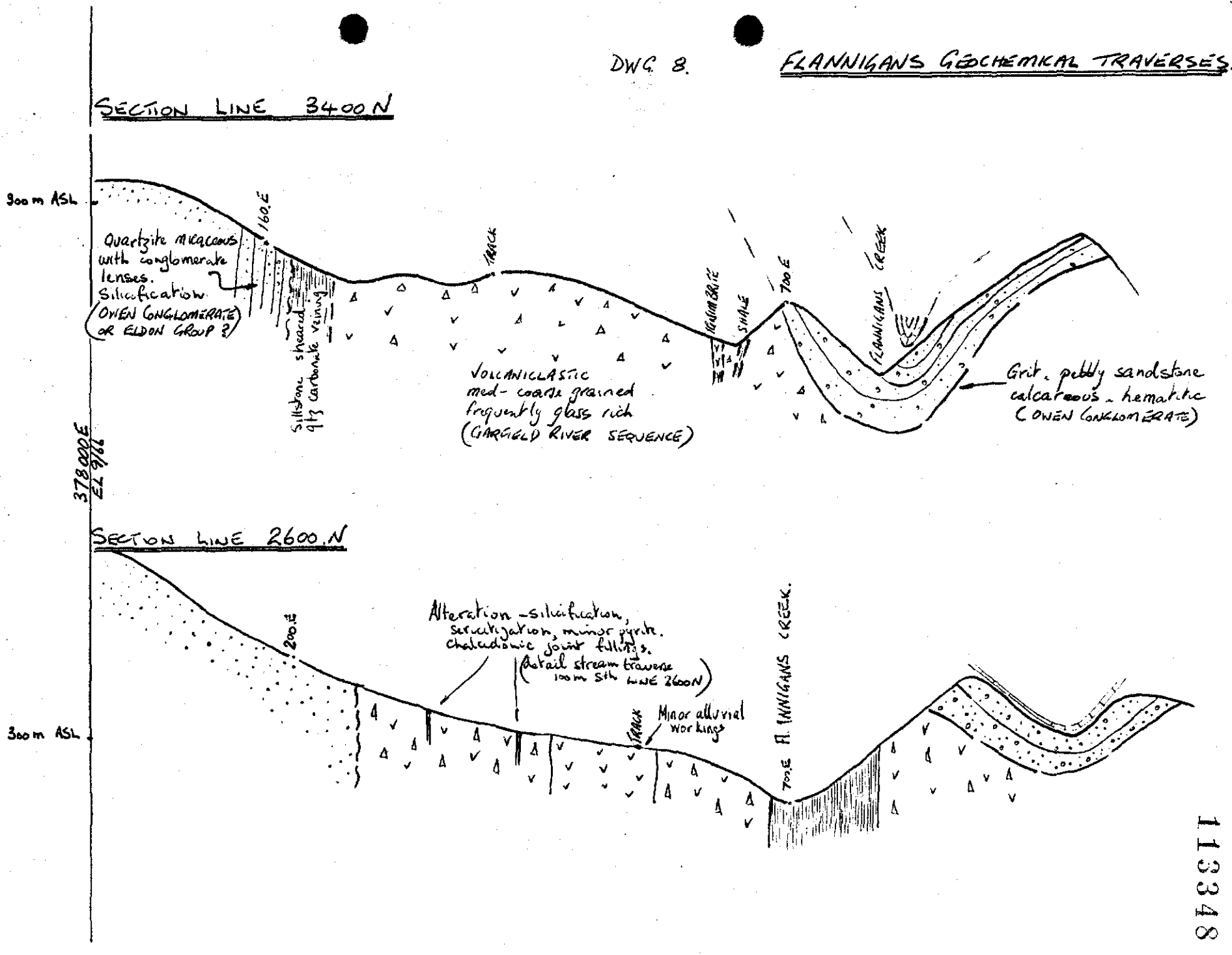
All units strike N-S, the volcaniclastics exposed in a belt 500-800 m wide (interpretted anticlinal core). Main lithologies are fine grained siltstone-cherts and coarse clastics which have undergone varying degrees of reworking. Minor ignimbritic volcanics are associated with these coarse clastics.

Quartz porphyries mentioned by Henderson and Nye associated with gold mineralization have not been located, interpretted to be silicified volcanics. No sign of any intrusive units were located.

Although the mineralization located is weak it occurs through an extensive belt as indicated by geochemical traverses 1400-2600-3400N. Styles of mineralization located to date include silicification/sericitization, silicification of quartzites and pyritic sediments associated with calcareous black shales.

DWG 8.

FLANNIGANS GEOCHEMICAL TRAVERSES.



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a) Silicification and sericitization with minor pyrite - located mainly in the volcaniclastics, originally these are chloritic 15784 with alteration cream 15785, 15788 Au 0.12 and 0.03 ppm. This alteration is patchy a few metres wide, in some cases localized about chalcedonic joint fillings which trend 170.90. Alluvial workings on Line 2600N/ stream 14046 drain this alteration, a single ironstone float block in alluvial tailings 15789 assayed Au 0.31 ppm and As 4000 ppm, this may be derived from a gossan in the area. Similar silicification was located in Flannigan's Creek upstream from line 2600N, samples T00113-00119, all gold < D.L.

b) Pyritic sandstone and calcareous shales - these located in 1984 season 11515 Au 0.04 ppm 11518 Au 0.02 ppm. Line 3400N is located 50 m to the south of these outcrops, 200-250 m E.

c) Silicification of quartzites - there is a marked asymmetry between quartzose sediments to the east and west of the volcanics Dwg 8. The eastern sequence soft pebble conglomerate possibly calcareous 60 m thick, the western sequence silicified micaceous quartzites 200 m thick. If these two units are stratigraphic equivalents then interpretted structural control of deposition, these structures also acting as conduits for alteration and mineralization in this elongate belt.

J. Northern End Currie Garfield Divide

Anomalous drainages located on NE slopes of the Currie River, the Garfield tributaries draining the area contain no gold. The eastern limit is fluvioglacials in Currie Rivulet covering Owen Conglomerate.

Pan anomalies are located in three streams with maximum values 15796 Au 1.14 ppm, a rock chip of fine pyritic sediment assayed Au 0.04 ppm. Minor indications of previous prospecting were located in this stream, the area may contain Moore's auriferous pyrite prospect.

The geological setting of this area is similar to and on strike with Snake Spur 1500 m to SE. Lithologies have been subdivided from E-W.

- Fluvioglacials in Currie Rivulet interpretted to overly Owen Conglomerate and Gordon Limestone.

- Massive-columnar jointed rhyolite lavas, with chloritized feldspar phenocrysts. This unit forms a series of waterfalls.

- Quartz phyric volcanics, medium grained, foliated, sericitized.

- Tuffaceous sediments, fine-medium grained, micaceous with spherical aggregates of fine grained pyrite and limonitic joints (15798 Au 0.04). This lithology was also located in drainage 700 m further north.

K. Sailor Jacks

This gold prospect wasn't detected by pan sampling, the area is flat lying covered by fluvioglacials, with no definite drainage channels.

Alluvial workings, trenches and an inclined shaft have been located near Mt. Lyell Line E, vegetation in the area is of thick eucalypt, tea-tree, baera regrowth (Photo 4).

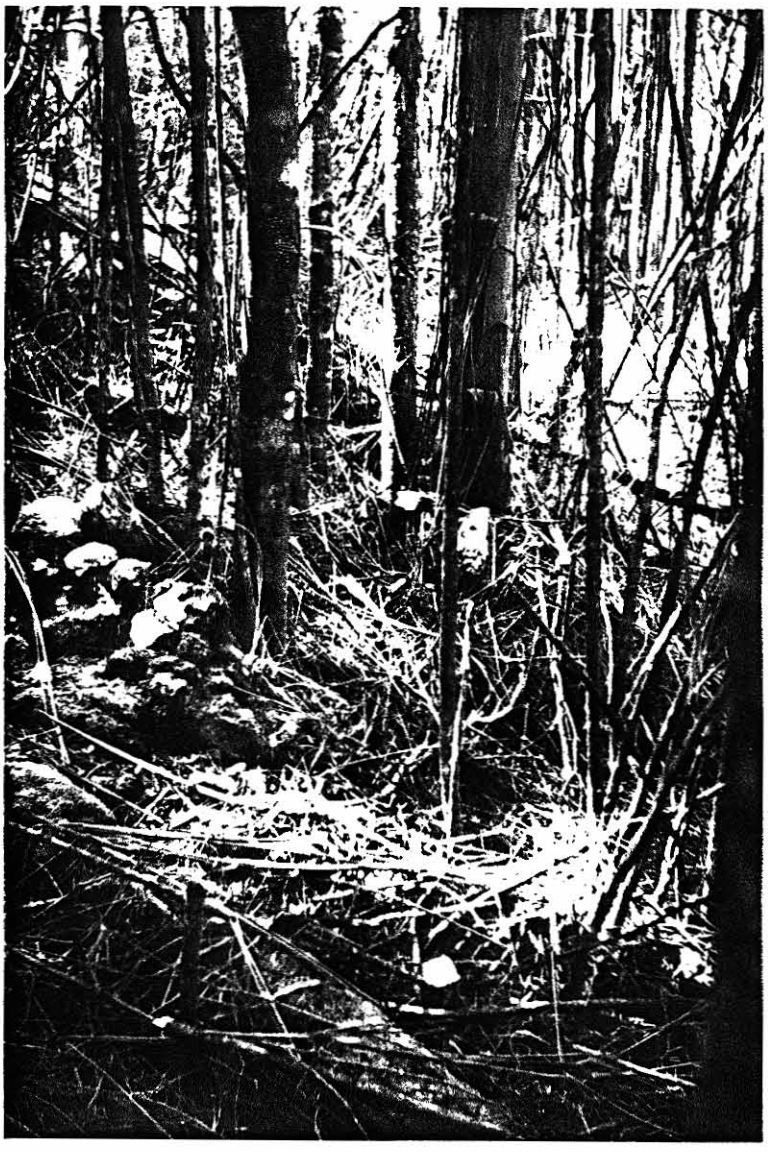


Photo 4. Sailor Jacks regrowth and hut ruins Mt. Lyell "Line E".

A sketch map and section Dwg 7 showing workings and possible sources of alluvial gold has been made. Early prospectors concentrated their efforts on quartz veins in Owen sandstones, a more likely gold source is the foliated and sericitized volcanics. Chip samples from the quartz veins and volcanics only assayed Au 0.01 ppm.

The structural setting of this area is similar to Snake Spur.

L. S.W. Currie Rivulet

This area contains two small anomalous drainages, located within 100 m of the EL boundary. Maximum pan concentrates 15854 Au 1.82 ppm, little is known of geology in this area, vegetation cover limiting access. In the light of bedrock sampling at Diorite Creek West the potential of small drainage area anomalies like this are down-graded.

M. Upper Garfield River

This area lies in SE corner of the EL, maximum pan concentrate values for the 1984-85 program were located in this area Au 740 ppm with corrected value 14 ppm. This result being from a single piece of coarse gold (see Photo 1b).

Geology is well exposed in the Garfield River, a uniform sequence of foliated sericitic quartz phyric volcanics with minor siltstones and vitric lenses.

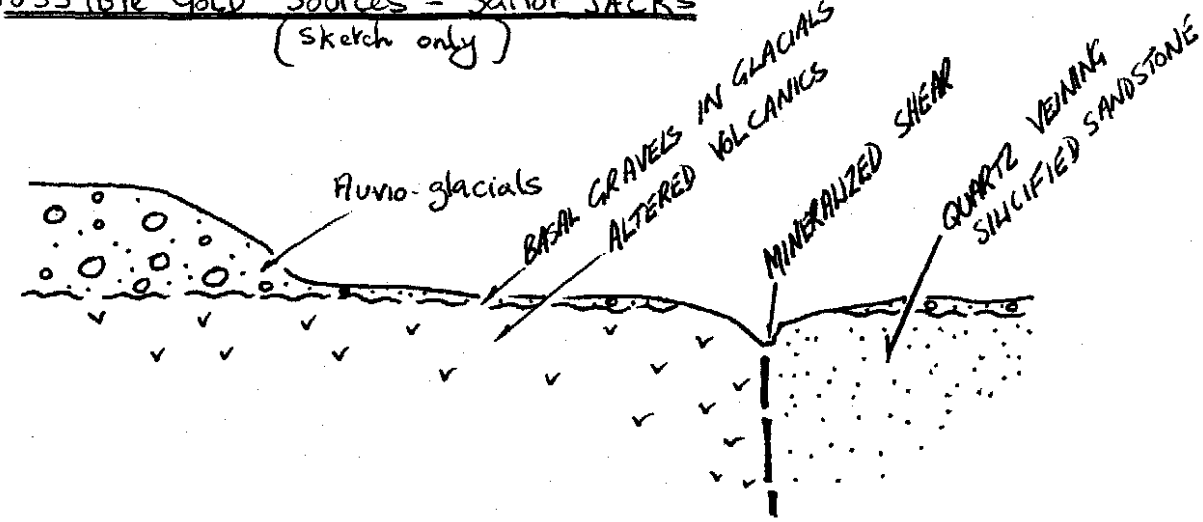
Gold pan anomalies here have been subdivided into two on the basis of location and element associations.

352

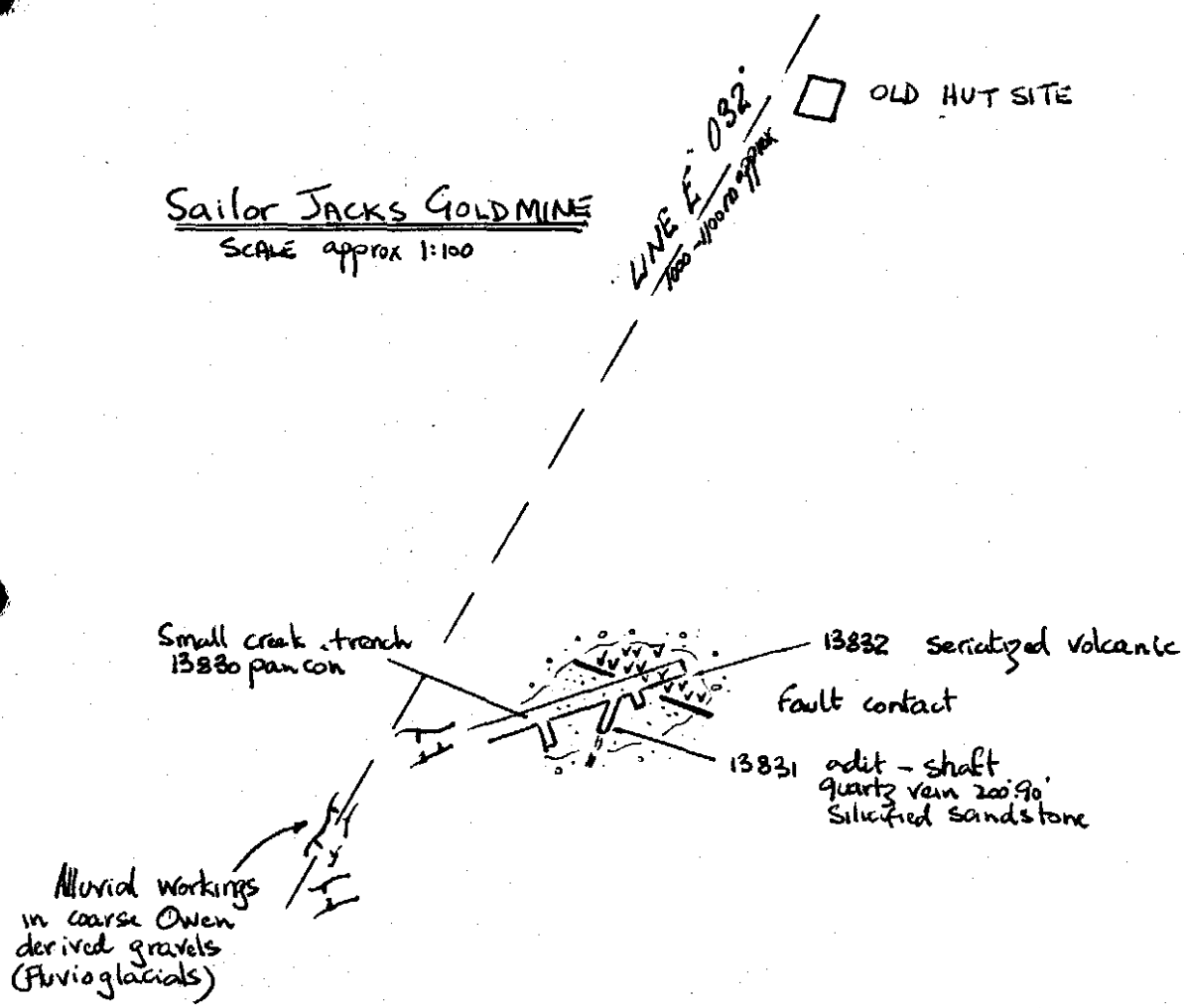
DWG. .7

113353

Possible Gold Sources - Sailor Jacks
(sketch only)



Sailor Jacks Goldmine
SCALE approx 1:100



a) Anomalies confined to the Garfield Valley below 240 m ASL, tributaries sampled above this level in most instances aren't anomalous. This has been interpretted to be a remnant of alluvial gravels in the Garfield which have since been completely eroded leaving only the heaviest mineral fraction behind. These gravels and gold primarily derived from hematite copper veining in the Mt. Darwin rholites. This source is indicated by abundant hematite rhyolite cobbles in the river and the gold copper association in pan samples 13852 Au 11.4 ppm, Cu 240 ppm.

However, some gold anomalous sites within 100 m of river and 20 m vertically above contain no hematitic pebbles or copper. 13840, 844, 845 Cu <12 ppm.

An alternative gold source in the Garfield Valley is that river flows along the strike of a mineralized volcanic unit which to date hasn't been recognized. Alteration similar to Flannigans could be easily overlooked.

b) The only alluvial workings located in the Garfield are at the 13846 stream confluence. Shallow workings occurring adjacent to the river and extend for a short distance up 13846 creek.

This gold has been traced up stream to 13863 Au 0.47 ppm (pan con) and 13864 Au 0.06 ppm (-80), these samples are located within 250 m of EL boundary.

354

113355

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Corbett, K.D., Mines Department Report 1976/52. The Mt. Read Volcanic Sequence in the King River Gorge Below Crotty.

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Moore, T.B., 1912, Progress Report, Vicinity Mt. Jukes - Darwin Area.

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Report on Gold Prospect Near Flannigan's Creek.

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Appendix i

SAMPLE RECORD AND ANALYTICAL DATA SHEETS

N.B. Two gold results are listed for the panned concentrate samples
- Assay
- Corrected

Assay Au is the result from laboratory
Corrected assay is calculated from this result by:-

$$\text{Corrected Au} = \frac{\text{Assay Au (p.p.m)} \times \text{Drainage Area (m}^2\text{)}}{\left(\text{Gravel Wt. (g)} \div \text{Concentrate Wt (g)}\right) \times 10^5}$$

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: R Tolfrick

PROJECT: EL 9/66 PROSPECT: Huxley SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Pan Cons + Rocks SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION	SHEET	DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
10900	South Log Ck	Quion	Pan Con NO HEAVIES Co Cinders detected minor Fe	0·13	·03	·1	5	41	12	5	x
10901			" " 3 Au Ste 1 Crushed Fe o/c	3·06	·06	·3	x	5	15	6	x
10902	South Log Ck		Rock ¼ spec hem veins								
10903			" ¼ veins minor chlorite 5m wide								
10904			Pan Con 4 Au Ste 2 Fe bedrock hematite fines	6·55	·15	1·4	5	14	19	7	8
10905			" " 0 Au Ste 2	0·10	·003	·1	5	7	58	15	2
10906			Rock Fe veinlets pyrite 1% over 5m wide								
10907			Pan Con 0 Au Ste 2	0·04	<·01	·1	x	4	22	8	2
10908			" " 1 Au · 1 Fe bedrock	<0·01	<·01	x	x	3	30	7	x
10909			" " 0 Au · 2 " " laterite	<0·01	<·01	x	x	5	43	7	x
10910			" " 1 Au · 2 Fe " " detritus	0·053	<·01	·1	x	3	33	8	2
10911			" " 4 Au · 1 Fe "	5·84	·12	1·0	5	4	48	10	2
10912			" " 0 Au · 3 Fe ground no o/c	48·0	1·8	9·4	x	4	78	23	6
10913			" " " · 1 Fe bedrock detritus Co	3·87	·04	1·9	x	4	68	18	2
10914			Rock ¼ Mn veining in massive Fe - chert Lam?								
10915			Pan Con 0 Au Ste 2 Fe/o/c detritus dom Co	<0·01	<·01	x	x	3	32	9	2
10916			Rock p.r in clay chl manganese / py stringers in Fe		·	·2	15	76	23	16	x
10917			" " 3m deep chl py in laterite vl		·05	·8	25	350	41	70	x
10918			Pan Con 10 Au Ste 1 Fe bedrock detritus Fe Co	34·5	·62	7·7	x	3	25	4	x
10919			" " 3 Au Ste 2 Fe bedrock detritus [illegible]	1·22	·01	·5	x	4	45	10	2
10920			" " 6 Au Ste 1 Co outcrop	7·24	·36	1·1	x	3	31	11	x

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: Tolhurst

PROJECT: Exn 1166 — PROSPECT: Huxley — SAMPLE STORAGE REQ'D: — LABORATORY: — DATE DISPATCHED:

1:250,000 SHEET: — TYPE OF SAMPLE: PANCONS + Rock — SAMPLE PREP. REQ'D: — ANALYSIS REQ'D: — DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As		Sb		
10121		Huxley	Pancon 6 Au Site 1 Fe bedrock dom Qz detritus	41.0	.57	8.4	x	2	23	12	2
10122		"	" " 4 Au Site 2 Fe o/c + > Qz detritus	0.28	<.1	x	x	1	54	23	2
10123		"	" " 4 Au Site 1 Fe o/c + Qz detritus	4.83	.08	.3	x	3	43	10	2
10124		"	Rock Fe stained schist with hematite								
10125		"	Pancon 1 Au Site 1 Qz o/c + Qz detritus	<0.01	<.01	x	x	2	29	12	2
10126		"	" Site 4 Qz + Fe stained detritus	0.48	.03	x	x	3	82	10	2
10127		Huxley	" " 0 Au Site 1 Fe o/c Fe + Qz detritus	<0.01	<.01	x	x	3	37	12	2
10128		Owen	Rock water race [illegible]								
10129		"	Pancon 12 Au (recon) Site 1 Fe bedrock, ft gravel	182.5	69	25	x	3	9	5	x
10130		"	Pancon 2 Au Site 1 Fe bedrock clean ft gravels	10.28	.07	1.5	x	2	7	6	x
10131		"	Rock Black schist + mod Fe/Mn stained quartz		x	1.2	55	27	200	150	x
10132		"	Rock alluvial workings veined with shells		x	.2	x	52	380	12	x
		"	veinlets of qtz + chlorite + scattered pyrite								
10133		"	Pancon 2 Au Site 1 Fe oxide ft gravels with	0.27	.02	x	x	2	290	54	2
			chl crystalline diamond inclusions + schistose?								
10134		"	Rock chips + pieces of brec gravels (10133)		x	0.1	x	4	12	3	x
10135	STAN TOLHURST										
10136		Huxley	Pancon 7 Au (recon) Site 1 chert cleaved black heavies W?	19.0	.07	4.8	x	5	120	54	2
10137		"	Rock ft chl calcite veins in massive volcanics		x	x	x	50	10	23	x
10138		"	Pancon 6 Au Site 1 + 3 Fe oxide + sed o/c	5.83	.04	.9	5	12	45	28	x
10139		Owen	" " 1 Au Site 1 ft iron stained o/c + black heavies W?	0.82	.01	x	x	6	140	36	x

Au parts per 10^5

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 5/66 PROSPECT: CLARE 2 SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY:

1:250.000 SHEET: TYPE OF SAMPLE: Pan Con + Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: DATE DISPATCHED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
13815		Snake	Pan Con 4 Au Site 1 Fe o/c	11·0	·20	2·0	x	1	11	5	6
13816		"	" " 0 Au " " Fe sulphides + nodules	<0·01	x	·2	x	8	16	5	2
13817		"	" " 6 Au (Fine) Site 1 Fe . 1st ground	33·5	·28	3·0	x	2	4	5	2
13818		"	Rock Fe/chl schist		·01	·2	5	5	56	125	x
13819		"	Pan Con 11 Au (Fine) Site 1 Fe o/c Mn heavies	19·5	·70	5·0	x	4	30	11	2
			probably wolfram? + 1 monish flags.								
13820	Snake Ck	"	Pan Con 15 Au Site 1 Fe o/c fine Co bubbles	16·25	1·82	4·0	10	6	35	37	2
13821		"	" " 16 Au Site 1 Mn heavies of wolfram?	35·0	·46	9·0	x	2	130	27	6
13822		"	Rock Adit 25m chip sample soft volcanics		x	·1	20	27	18	8	x
13823		"	" " face of vein 25m thick		x	·2	x	66	36	4	16
13824	Snake Ck	"	Pan Con Tertiary carbonate silts/clays — grade 1 metre Au.	28·0	0·13	2·0	30	2	3	5	2
13825		"	Pan Con 0 Au Site 3 Co o/c Mn heavies Cr	0·20	·02	x	x	2	100	11	2
13826	Snake Creek Ck	"	" " 4 Au Site 4 Iron traps Co bubbles	0·06	·01	x	x	9	9	13	2
13827		"	" " 0 Au Site 2 Iron traps Fe o/c	<0·01	x	x	x	7	11	15	2
13828	Snake Creek Ck	"	" " 4 Au Site 2 Iron traps Fe o/c bit = Qtz	995	1·28	2·0	x	18	12	14	6
13829	Snake Creek Camp site	"	Rock pink-brn soft massive volcanic sediments		x	·1	15	72	15	44	x
			ferruginous bands.								
13830	Snake Creek	French	Pan Con 30 Au Site 1 fine gold, Co bubbles, Fe	115	0·63	16·0	10	13	8	33	8
13831	" "	Adit/Shaft	Rock Qtz vein no sulphides		·01	·1	x	34	4	x	14
13832	" "	French	" Chip sample bleached Fe? on contact with Co		·01	·1	x	8	7	x	4

1133359

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: PULTOCK

PROJECT: EL 1/66 PROSPECT: GARFIELD SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Pan Con + Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Au	Computed Au	ANALYSES Ag	As	Cu	Pb	Zn	W
13833		Snake	Pan con 5 Au Ste 4 n/c/c Cu glacials	0·60	·002	x	x	3	7	5	4
13834		"	" " 2 Au Ste 4 " " Cu glacials	0·26	·03	x	5	x	15	13	2
			Sl. altd conducted								
13835		"	Pan con 5 Au Ste 4 n/c/c Cu glacials	2·40	·02	1·0	x	x	10	9	x
13836		"	" " 1 Au " " n/c/c glac with	3·20	·06	1·0	x	4	150	20	2
			limonite Mn cement.								
13837		Garfield	Pan con 7 Au (coarse) Ste 2 Fe c/c + detrital	31·0	·35	2·0	x	1	5	2	2
13838		"	" " 11 Au (coarse) " " Fe c	49·0	·55	8·0	x	2	5	3	2
13839		Flemington	" " 3 Au Ste 1 Fe c/c detrital Fe + Mg	0·24	·01	x	5	2	10	7	x
13840		"	" " 17 Au (fine-coarse) Fe c/c but > Cb + Mg	345	6·3	58	5	x	x	5	x
13841		"	Rock Fine with calcite — mid type zone c/c								
13842		"	Pan con 3 Au Ste 1 Fe c/c with Mg veins, >Cb	1·82	·02	·4	x	x	x	4	x
13843		Snake	" " 0 Au Ste 1 Fe c/c + detrital + Mg	0·59		x	x	x	x	3	x
13844		"	" " 7 Au Ste 1 Fe c/c	4·98	·14	1·6	x	x	5	5	x
13845		"	" " 18 Au (fine-coarse) Ste 1 Fe c/c	127·5	1·3	22·0	x	x	5	12	x
13846	Garfield R	"	" " 25 Au (coarse) Ste 1 Fe c/c + bluish-brown frags	380·0	58	48·0	10	230	35	47	16
13847		"	" " 6 Au (coarse) Ste 1 Fe c/c + black heavies of W	5·35	·22	·3	x	12	15	17	x
13848		"	" " 0 Au Ste 1 Fe c/c + detrital	0·48	·03	x	x	6	10	9	x
13849		Flemington	" " 10 Au Ste 1 Fe c/c	2·65	·04	·05	15	11	10	12	x
13850		Snake	" " 5 (coarse) Ste 1 Fe c/c + black leached heavies	48·0	0·32	6·6	x	7	10	13	2
13851		"	" " 8 (Tcoarse weight) Ste 1 Fe c/c	245·0	1·53	41·	x	x	15	11	x

11133960

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Pontack

PROJECT: EL 916 PROSPECT: CARFIELD SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: PAN CON / Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
13852	Garfield R	SNAKE	PANCON 20 Au Std 1 Iron frags	27·0	11·4	5·0	15	240	110	48	42
13853		"	" " 1 Au (coarse) Ev o/c Std 1	630·0	14·9	70·	15	8	25	15	X
13854		DARWIN	" " 3 Au Std 1 Ev o/c Iron Iron frags	5·88	·86	0·8	5	360	45	46	X
13855	STANDARD										
13856		DARWIN Sookie	Pan Con 16 Au (1 coarse) Std 1 Ev o/c	5200	22·7	68·0	10	6	25	16	X
13857		"	" " 10 Au (coarse) Std 1 Ev Sookie Iron frags	3475	6·7	5·4	25	340	65	58	38
13858		Snake	" " 2 Au Std 1	4·08	·06	1·1	10	x	15	18	2
13859		"	" " 0 Au Std	0·19	·002	X	X	10	30	14	X

113361

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 5/66 | PROSPECT: Huxley | SAMPLE STORAGE REQ'D: | LABORATORY: | COLLECTED BY: Pol Tock

1:250.000 SHEET: | TYPE OF SAMPLE: Rock. Rancons | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: PAN CONS 10 5 | DATE DISPATCHED: | DATE RECEIVED:

SAMPLE NUMBER	LOCATION	SHEET	DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	U
10940		Owen	Rancon 14 Au (2 coarse) Site 4 (glacic + clay base)	31.0	.85	6.1	x	6	40	28	x
10941		"	" " 2 Au Site 1+3	5.58	.14	.4	5	15	39	52	x
10942		"	" " 1 Au Site 1 black, Gravel heavies W.?	0.11	<.01	x	x	6	280	80	18
10943		"	" " 3 Au (1 coarse) Site 1 soft chl bedrock.	20.0	.57	.8	x	5	105	33	x
10944		Huxley	Rancon 0 Au Site 1-4 abund fine black heavies	0.10	<.01	x	x	5	10	23	x
10945		"	" " 0 Au Site 1-2 minor heavies	0.02	<.01	x	x	4	x	3	x
10946		"	" " 0 Au Site 2 " "	0.02	<.01	x	x	5	12	10	x
10947		"	" " 0 Au Site 2 " "	0.04	<.01	x	x	5	16	9	x
10948		"	" " 0 Au Site 2 " "	0.07	<.01	x	x	6	8	10	x
10949	King River area	"	Rancon 0 Au Site 1 abund ck heavies Cr?	<0.01	x	x	x	4	4	6	x
			* 2 pans only								
13860	King River	"	Rancon Au 8 + very fine Site 1 Jukes Prop CK	2.70	.05	2.2	20	500	28	24	88
13861	"	"	-80# dito 13860		x	.2	x	110	26	19	14
13862	"	"	Rancon Au 10 very fine Site 3 Jukes Prop CK	0.72	.02	.3	x	50	13	17	22
13863	"	"	Rancon Au 1 Site 3	0.02	<.01	x	x	4	5	7	X
13864	"	"	Rancon Au 1 Site 1-2	7.16	.27	1.1	x	5	21	12	X
13865	"	"	-80# same site 13864		x	x	x	11	33	14	X
13866			Standard								
13867			"								

1133662

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 9166 | PROSPECT: Qtn Sedgwick Rock | SAMPLE STORAGE REQ'D: | LABORATORY: | COLLECTED BY: Portlock

1:250,000 SHEET: | TYPE OF SAMPLE: PAN CONC -80# | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: PAN CONC 10g | DATE DISPATCHED: | DATE RECEIVED:

SAMPLE NUMBER	LOCATION 1:5000 Sheet		DESCRIPTION	Au Assay	Au Corrected	ANALYSES Ag	As	Cu	Pb	Zn	W
12299	DIAMOND	Pad Ck	Pan con Site 1 Au 1 · pg	1·80	·01	·1	x	5	10	x	x
12300	"		-80#		·x1	x	x	24	36	8	4
12297	Diamond		Pan con Site 1 Au 0	0·02	·x1	x	10	23	18	12	2
12298	"		-80		·x1	x	x	36	41	34	8
12295	Diamond		Pan con Site 1 Au 7 (very fine)	5·46	·22	·7	5	5	300	4	2
12296	"		-80		·x1	·2	5	17	46	17	6
12294	Diamond		-80		·x1	·1	x	23	28	33	2
12293	"	HY 2756	Pan con Site 2 Au 0	0·01	·x1	·1	x	11	22	18	2
12290	MINE		Rock slightly pyritic qtz porph.		<x1	·2	15	31	29	19	x
12291	"		Pan con Site 2 Au 0 (prospect pit)	0·08	x	·1	10	39	47	45	x
12292	"		-80		x	·1	15	125	80	27	x
12288	STANDARD		STANDARD								
12289	"										
12286	MINE	*	Pan con 1½ dishfulls only Site 2 Au 0	0·71	<·01	·2	20	32	24	8	x
12287	"		-80		x	·1	x	66	46	13	x
12284	MINE		Pan con Site 2 Au 10 (dom very fine)	10·5	·05	2·9	10	10	37	17	x
12285	"		-80 Alluvial workings		x	·1	5	60	48	38	4
12282	MINE		Pan con Site 2 Au 0	0·08	x	·1	x	7	58	13	x
12283	"		-80		x	·1	x	72	74	17	4
12281	MINE		Pan con Site 1 Au 7 (1 grain)	21·0	·075	4·9	x	6	8	5	x
13792	"		-80 no active silt - sample from trap site · Minor alluv workings		x	x	x	40	33	12	14

113363

363

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 9166 PROSPECT: Qtn – Sedgwick SAMPLE STORAGE REQ'D: LABORATORY: PAN CONS 105 COLLECTED BY:

1:250.000 SHEET: TYPE OF SAMPLE: PAN CON -80# SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: DATE RECEIVED:

SAMPLE NUMBER	LOCATION 1:5000 Sheet		DESCRIPTION	Assay Au	Cores Au	ANALYSES Ag	As	Cu	Pb	Zn	W
13793	MINE	West Queen	Pan con Site 1 Au 16 4 coarse	400·0	4·3	130	10	8	19	5	x
13794	"	"	-80 accy workings		·03	x	x	21	29	20	4
13795	MINE	"	Pan con Site 1 Au 6	10·0	·08	·9	5	50	38	27	x
13796	"	"	-80		x	·1	10	40	54	27	2
13797	MINE	"	Pan con Site 1 Au 0	0·27	x	·1	x	3	5	x	x
13798	"	"	-80		x	x	x	40	25	9	6
13799	MINE	"	Pan con Site 1 Au 0	<0·01	x	x	x	3	5	x	x
13800	"	"	-80		·04	x	x	19	22	13	2
13801	STANDARD	"	STANDARD								
13802	"	"	"								
13803	MINE	"	Pan con Site 1-2 Au 4 (12000)			·6	10	9	10	7	x
13804	"	"	-80								
13805	MINE	"	Pan con Site 1 Au 0	2·70	·04	x	x	6	22	5	2
13806	"	"	-80		x	x	x	29	31	7	8
13807	MINE	"	Pan con Site 1-2 Au 10 (very fine)	0·02	x	·1	x				
13808	"	"	-80 minor alluv workings		x	·1	x	74	120	27	18
13809	MINE	"	Pan con Site 1 Au 8 (12000)	27·0	·16	3	x	6	16	13	x
13810	"	"	-80		x	x	x	16	41	9	4
13811	MINE	"	Pan con Site 1 Au 0 (12000)	<0·01	x	x	x	11	26	10	2
13812	"	"	-80		x	x	x	16	33	7	6
13813	"	"	STANDARD			x	x				

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				Au	Ag	As	Cu	Pb	Zn	W		
3890	MINE	WEST QUEEN	Pan con	x	x	x	5	16	5	10		
3891	"	"	-80 #	x	x	x	17	25	7	4		

NUMBER	SEE 1500			Assay Au	Corrected Au	Ag	As	Cu	Pb	Zn	W	
13814		~~WEST QUEEN~~	STANDARD									
13892	Diamond	West Queen	Pan con 12000 S.to 1 Au 3	0.31	<.01	.3	x	8	52	18	2	
13893	"		-80		x	.1	10	46	150	160	8	
13894	Diamond	West Queen	Pan con 12000 S.to 1 Au 0	<0.01	x	x	x	9	21	38	6	
13895	"		-80		x	x	5	12	34	14	16	
13896	MINE	West Queen	Pan con 12000 S.to 1-2 Au 0	<0.01	x	x	x	7	62	17	36	
13897	"	"	-80		x	x	x	14	23	9	6	
13898	Diamond	West Queen	Pan con (12000) S.to 1 Au 3	<0.01	x	x	5	9	30	26	x	
13902	MARG	W Q	Pan con (12000) S.to 3 Au 1	27.0	.11	.1	15	19	32	28	x	
13903	MARGARET	West Queen	-80		x	.1	20	29	62	52	x	
13904	MARGARET	West Queen	Pan con (12000) S.to 1 Au 0, Fe frags	<0.01	x	.1	10	19	44	90	x	
13905	"	"	-80		x	.1	15	36	62	175	4	
13906	MARGARET	West Queen	Pan con (12000) S.to 4 Au 0 glacials	<0.01	x	.1	10	16	27	26	x	
13907	"	"	-80		x	.1	20	16	48	39	4	
13908	MARGARET	West Queen	Pan con S.to 1 Au 0 (12000)	<0.01	x	.1	10	22	50	52	x	
13909	"	"	-80		x	.1	10	49	48	94	2	
15701	MARGARET	West Queen	Pan con 12000 S.to 4 Au 0 Glacials	0.01	>01	x	.x	6	21	9	x	
15702	"	"	-80		x	x	10	9	41	12	8	
15703	MARGARET	WEST QUEEN	Pan con 12000 S.to 2 Au 0	<0.01	x	x	x	5	13	5	x	
15704	"	"	-80		x	x	x	7	36	11	6	

113363

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: PULTUCK

PROJECT: EL 9/66 PROSPECT: Otin - Sedgwick SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: PAN CON -80 SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	1:5000 SHEET LOCATION		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15705	MARGARET	WEST Queen	Pan con Site 2 Au 0 12000	<0·01	x	x	10	21	49	64	x
15706	"	"	-80		x	x	5	26	52	92	x
15707	YOLANDE	Swan ck	Pan con Site 1 Au 0 (12000)	<0·01	x	·2	55	34	50	54	x
15708	"	"	-80		x	·4	15	24	46	78	x
15709	YOLANDE	Swan ck	Pan con Site 1 Au 1 (12000)	18·50	·9	2·4	x	17	14	8	x
15710	"	"	-80 dik HY 27772		·04	·1	10	26	35	52	x
15711			STANDARD								
15712			STANDARD								
15713	MINE	East Queen	Pan con Site 1 Au 6 (12000)	4·18	·02	1·1	10	27	940	44	x
15714	"	"	-80		x	x	x	40	40	7	2
15715	MINE	East Queen	Pan con Site 1 Au 0 (12000)	<0·01	x	x	10	60	80	28	x
15716	"	"	-80		x	x	15	100	78	58	4
15739	"	"	Moss		·04	x	x	135	76	28	x
15717	MINE	East Queen	Pan con Site 1 Au 0 (12000)	0·05	<·01	·1	10	24	29	11	4
15718	"	"	-80		x	·1	20	39	39	29	6
15719	MINE	East Queen	Pan con Site 1 Au 0 (12000)	<0·01	x	x	10	45	76	14	4
15720	"	"	-80		x	·1	25	100	120	21	8
15740	"	"	Moss		·48	·1	5	48	60	15	x
15721			Pan con Site 1 (12000) Au 3 grains, about 1/4 fine	120·0	8·37	21	80	2300	860	98	125
15742			-80		·08	1·2	15	390	250	47	22
15741			Moss very fine Au.		·06	·1	x	12	47	39	x

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: PULTOCK

PROJECT: EL 9/66 PROSPECT: Gtn Sedgwick SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Pan Con -80 SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Assay Au	Gravitel Au	Ag	As	Cu	Pb	Zn	W
15723			STANDARD								
15724			STANDARD								
15725	MINE	East Queen	Pan con Site 3 Au 0 (12000)	4·61	·06	1·6	x	16	34	12	6
15726	"	"	-80		x	·1	20	70	130	52	4
15727	MINE	East Queen	Pan con Site 1 Au 0 (12000)	0·04	<·01	x	x	12	38	9	6
15728	"		-80		·04	x	15	30	41	19	10
15729	MINE	East Queen	Pan con (1200) Site 2 Au 5 + pyrite	15·0	·21	2·4	10	1250	94	170	4
15730	"	"	-80		·03	·1	x	190	35	40	8
15742	"	"	Moss		·07	·2	x	250	24	38	x
15731	MINE	East Queen	Pan con Site 2 Au 0 (12000)	0·01	<·01	x	x	14	49	15	6
15732	"	"	-80		x	x	10	27	49	19	8
15733	MINE	East Queen	Pan con Site 1 Au 0 (12000)	<0·01	x	·2	280	38	82	76	2
15734	"	"	-80		x	·1	15	74	150	32	4
15735			STANDARD								
15736			STANDARD								
15745	MINE	East Queen	-80		x	·1	10	82	41	135	x
15746	"	"	Pan con Site 1 Au 0 (1200)	<0·01	x	·2	x	64	35	92	x
15747	MINE	East Queen	-80		x	·1	15	38	62	78	4
15748	"	"	Pan con Site 2 Au 0 1200	<0·01	x	·2	5	49	96	170	x
15749	Mine	East Queen	-80#		x	·2	25	82	230	170	2
15750	"	"	Pan con Site 2 Au 4 1200	1·22	·01	·9	25	130	400	460	x

113367

OLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: PoTuck

PROJECT: RL 9/66 PROSPECT: Sedgwick / Blair Lake SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

250,000 SHEET: TYPE OF SAMPLE: Pan con -80# SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION 1:5000 Sheet		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W	
15751	Marg'	Leslie Ck	-80#		x	x	x	12	26	25	2	
15752	"	"	Pan con Au o Site 2 (12oz)	<0.01	x	x	x	6	30	16	6	
15753			STANDARD									
15754			"									
15755	Margaret	Leslie Ck	Pan con Site 1:2 Au o (12oz)	0.08	<.01	x	x	12	29	46	x	
15756	"	"	-80#		x	x	x	17	31	49	x	
15757	Margaret	Leslie Ck	Pan con Au o Site 4 (12oz)	<0.01	x	x	x	9	21	20	2	
15758	"	"	-80#		x	x	x	10	23	26	2	
15759	YOLANDE	Trib Yeland R	Pan con Site 1 (12oz) Au o - dominated by Ag	<0.01	x	x	5	4	3	4	x	
15760	"	"	-80#		x	x	x	5	4	3	14	
15761	Cockie	Peters Hill Ck	Pan con Site 4 (12oz) Au o - 100% Co glacials	<0.01	x	x	x	5	1	4	2	
15762			STANDARD.									
15763	Cockie		Pan con Site 1 (12oz) Au 3 dom Co glacials	<0.01	x	x	x	5	2	5	2	
15764	"		-80#		x	x	x	4	2	3	20	
15765	Glen Langdon	Langdon R	Pan con Site 4 Au o (12oz) 10% fine Co glac grains	1.64		x	x	5	2	6	x	x
15766	"	"	-80# Gold in wood 42/300.		x	x	x	4	3	3	24	
*15767	MINE	East Queen R	Pan con (12000) Site 1 Au o	0.01	x	x	x	10	33	14	4	
15768	"	"	-80#		x	x	15	56	66	16	6	

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: Pollock

PROJECT: EL 9/66 PROSPECT: Huxley SAMPLE STORAGE REQ'D: LABORATORY: PAN CONS DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Pan con - soil SAMPLE PREP. REQ'D: ANALYSIS REQ'D: / x 10 DATE RECEIVED:

SAMPLE NUMBER	1:50,000 Sheet LOCATION		DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	Mn
13868	Huxley	Kiep R	Pan con Au 0 Site 2-3	<0.01	x	x	x	6	35	23	x
13869	"	"	-soil		x	x5	5	8	88	41	x
13870	Huxley	Kiep River	Pan con Au 0 Site 2-3	0.01	x	x	x	6	32	21	x
13871	"	"	- soil		x	x	x	18	80	49	2
13872	Huxley	Kiep River	Pan con Au 0 Site 2	<0.01	x	x	x	5	9	8	x
13873	Huxley	Kiep River	" " Au 0 Site 1	<0.01	x	x	x	6	20	7	x
13874	"	"	" " " Site 2	<0.01		.2	x	9	130	92	x
13875	"	"	" " " " "	<0.01		x	x	4	13	11	2
13876	"	"	" " " Site 4	<0.01		x	x	5	5	4	2
13877	"	"	Pan con " " Site 1	<0.01	"	x	x	5	24	8	x
13878	"	"	-soil		.01	x	x	10	18	11	4
13879	"	"	Pan con " " Site 2.	12.0	.03	4.8	25	520	300	50	8

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: P.R + TC

PROJECT: EL 9166 PROSPECT: GARFIELD

1 250.000 SHEET: TYPE OF SAMPLE: PAN CON

SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION		Assay ppb Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
14008			Au 3	1200	0·15	<·01	·5	x	20	5	6	2
14009			Au 0	1200	<0·01	<·01	x	x	10	6	14	x
14010			Au 8	1200	47·0	1·2	5·2	x	5	10	5	8
14012			Au 0	1200	4·84	·05	x	45	4	9	25	2
14015			Au 5	800	11·4	·19	·5	x	4	8	5	x
14016			Au 0	1200	<0·01	<·01	x	x	4	13	15	x
14018			Au 0	1200	0·06	<·01	x	x	3	15	8	2
14019			Au 3	400	5·71	·04	1·0	x	4	8	5	2
14020			Au 0	400	<0·01	<·01	x	5	5	5	16	x
14021			Au 0	400	0·03	<·01	x	x	4	6	4	2
14022			Au 0	1200	0·03	<·01	x	x	18	21	7	2
14023			Au 0	400	<0·01	<·01	x	x	5	6	4	x
14024			Au 0	1200	<0·01	<·01	x	x	5	10	6	x
14025			Au 0	1200	<0·01	<·01	x	x	3	11	6	x
14035			Au 0	800	0·063	<·01	x	10	5	5	27	x
14038			Au 0	400	2·96	·03	x	5	10	10	800	x
14039			Au 0	800	0·46	·01	x	x	6	x	6	x
14040			Au 0	800	0·06	<·01	x	x	x	x	4	x
14041			Au 0	800	0·11	<·01	x	5	80	15	94	x
14042			Au 0	800	0·60	·01	x	x	3	x	3	2

113370

370

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R + T.C

PROJECT: EL 9166 PROSPECT: Garnett SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: PAN CON SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Au	Graphic Au	ANALYSES Ag	As	Cu	Pb	Zn	W	
14046			Au 5 800	130·0	1·1	4	x	5	x	5	4	
14047			Au 0 800	3·48	<·01	·2	x	3	x	2	2	
14048				0·02		x	5	4	9	18	x	
14049				0·61		·2	220	54	8	3	2	
14												
14												
14												
14011												
14												
14021												
14022												

1133371

371

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Pollock

PROJECT: EL 9166 PROSPECT: GARFIELD SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Pan Conc. -2% Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	1:5000 SHEET. LOCATION	DESCRIPTION	Assay Au	Completed Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15767	Flan	Pan con (1200) Site 4 Au3 N'dc all Oc	<0·01	<0·01	0·5	x	4	x	1	x
15768	"	-80#		·37	x	x	4	1	3	10
15769	STANDARD									
15770	STANDARD									
15771	Flan	Pan con (1200) Site Au2 silst c/c Oc	<0·01	<·01	x	x	6	5	7	x
15772	"	-80#		·21	x	x	7	6	5	4
15773	Flan	Pan con (1200) Site 4, Au6 Cb grounds	2·7	0·34	2·5	x	5	4	3	x
15774	"	-80#		·04	x	x	5	4	3	6
15775	Flan	Pan con (1200) Site 1-2 Au0 Oc/granite minor silst inclusions	<0·01	<·01	x	x	5	1	2	x
15776	"	-80#		x	x	x	7	3	4	8
15777	Flan	Pan con (1200) Site 1 Au2 granite c/c granite	to 0·11	0·04	0·9	x	5	1	4	x
15778	"	-80#		·02	x	x	7	2	3	8
15779	Flan	Pan con (1200) Site 1 Au2 c/c [illegible]	<0·01	<·01	x	x	5	1	4	x
15780		-80#		·04	x	x	9	5	4	8
15781-82										
15783		Rock dark grey hffse silst + fine mod hffse c/c								
15784	Flan	Rock chl gln with vitreous clasts								
15785	"	Rock silicified equiv of 15784		·12	x	50	7	13	10	2
15786	Flan	" " "		x	x	x	9	1	9	4
15787	Flan	Rock white qtz. + qtz veining		x	x	x	13	4	5	8
		with location 15777-78.								

1133372

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: Pollock

PROJECT: EL 9/86 PROSPECT: Garfield

1:250,000 SHEET: TYPE OF SAMPLE: Pan con, -2u Rock

SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	1:5000 SHEET LOCATION	DESCRIPTION	Assay Au	Corrected Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15788	Flan	Rock shafted . weakly py v.l.alt.c		·03	x	20	7	4	38	2
15789	Flan	Rock iron stone sulph poor stock - gossan?		·31	0·1	4000	26	56	420	x
15790	Garf	Pan con Strm (Grab) Au1 sltly sltly alt c/c	0·13	<·01	x	10	5	6	5	x
		follow up rock								
15791	Garf	Rock sltly sltly alt chip sample		0·10	x	x	5	1	3	8
15792	Garf	Pan con (12mm) Strm Au2 . . 1)	200·0	1·2	19	x	5	4	5	2
15793	"	-Dup		·06	x	25	8	11	11	x
15794	Garf	Pan con (12mm) Strm 1, Au 2,	6·24	·03	0·7	x	5	5	8	x
15795	STANDARD									
15796	Garf	Pan con (12mm) Strm 1, Au 12.	135·0	1·14	12·5	x	4	4	4	8
15797	"	Pan con (12mm) Strm 1 50m upstream 15796	0·04	<·01	x	10	12	9	98	x
		Au 0 minor py trays								
15798	Garf	Rock f... med grained tuffac rocks		·04	·2	70	28	43	72	x
		same lorathem 15797								
15799	Garf	Pan con Strm 1-2 (1000), Au 2.	13·50	·13	1·7	x	5	3	4	x
		150m upstream from 15796								
15800	Jukes	Pan con (12mm) Strm 1, Au 0.	0·09	<·01	x	x	4	4	5	x
15851	Snake	Pan con (12mm) Strm 1 .	0·23	<·01	·1	x	5	5	5	x
15852	Snake	Pan con (12mm) Strm 1, 5 Au, 2mm upstream	22·0	·14	4	x	4	3	5	2
		from 13817								
15853	Snake	Pan con (12mm) Strm 1, 2 Au, minor hem Preps	2·05	·06	·4	x	5	37	13	2

1133373

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

PROJECT: EL 9166 PROSPECT: Carfield COLLECTED BY: P.L. TURK

1:250,000 SHEET: TYPE OF SAMPLE: Pan con, -20 mesh SAMPLE STORAGE REQ'D: LABORATORY: PAN CONS #10 DATE DISPATCHED:

SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Assay Hg	Completed Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15854	Snake		Pan con, Sle 1 (12mod) Au 200.	150.0	1.82	22	x	6	9	7	2
15855	STANDARD										
15856	Snake		Pan con (12mod S.le 2 5 Au.	11.50	.03	2.1	x	5	9	7	4
15857	Snake		Pan con (12mod S.le 1 0 Au.	0.07	<.01	x	x	4	2	5	x
15858	"		Pan con (12mod) S.le 1 0 Au.	0.34	<.01	x	x	4	1	4	x
13880	Carf		Pan con (12mod S.le 2, 0 Au white	<0.01	x	x	x	4	12	4	x
			Silv - ish ck								
13881	"		- soft		x	x	x	8	15	4	2
13882	Carf		Pan con (12mo S.le 1-2 0 Au	<0.01	x	x	x	5	2	3	x
13883	"		- "		x	x	x	8	8	4	x
13884	Carf		Rock mod-grained qtz/felt xl tuff, sericitized with minor py		x	x	20	5	11	8	x
13885	Carf		Pan con (12mod S.le 1 1 Au	15.50	.15	1.0	x	4	6	4	x
13886	"		- soft		.03	x	x	8	12	8	6
13887	Carf		Pan con (6mod) S.le 1 0 Au	0.03	x	x	x	5	6	3	4
			at junction with 15790								
15859			Pan con (12mod) S.le 1 Au 2	<0.01	x	x	x	4	9	9	2
15860	"		- soft		x	x	x	5	10	5	2
15861			Pan con (12mod S.le 1 Au 0	<0.01	x	x	x	4	2	4	x
15862	"		- soft		x	x	x	10	6	5	4

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 9/66 | PROSPECT: GARFIELD & HUXLEY | SAMPLE STORAGE REQ'D: | LABORATORY: PAN LOMS x10 | COLLECTED BY: POLTOCK

1:250,000 SHEET: | TYPE OF SAMPLE: PAN. -80# ROCK | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: | DATE DISPATCHED: | DATE RECEIVED:

SAMPLE NUMBER	1:5000 SHEET, LOCATION		DESCRIPTION	Assay Au	Comp'd Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15863			-80#		·06	x	x	6	7	6	8
15864	"		Pan con, (12oz'd) Site 1 Au 10s minor mgnetite	24·0	·47	3·2	x	5	25	21	10
		PROJECT	HUXLEY								
15865	OWEN		-80#		x	x	x	7	8	6	4
15866	"		Pan con (12oz'd) Site 1 Au 8	9·8	·18	3·5	x	5	26	12	2
15867	OWEN		Rock fine grey green massive may be rhyolitic lava crystal								
15868	HUXLEY		Rock - ignimbrite? med grained felsophyric								
15869	HUXLEY		-80#		·04	x	x	10	9	7	6
15870	"		Pan con (12oz'd) Site 1 Au 15 (very fine)	8·57	·13	5·6	x	5	8	12	2
15871	HUXLEY		Pan con (12oz'd) Site 1 Au 1	<0·01	x	x	x	5	46	14	4
15872	"		-80#		x	x	x	13	13	6	x
15873	HUXLEY		Rock rhyolitic lava (felsophyric) abundant qtz fractures		x	x	x	13	5	23	x
15874	OWEN		Rock silic - ex fyl/tectonite - (surficial filled with limonite) med tuffaceous with fyl (5%) inclusions.		x	0·6	10	27	94	72	x
15875			STANDARD (incomplete)								
15876	OWEN		Rock black pellet - med grained tuffaceous, mgnet		x	1·0	60	25	270	1100	x
15877	OWEN		Pan con Site 1 (12oz'd) Au 7 (coarse)	7·64	·08	1·2	5	8	17	14	x
15878	"		-80#		·05	·1	10	19	24	10	4
15879	OWEN		Pan con Site 1 (12oz'd) Au 30 (fine)	14·50	·17	7·0	x	5	30	10	x
15880	"		-80#		x	0·1	x	14	22	9	4

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Eh 9166 | PROSPECT: HUXLEY | SAMPLE STORAGE REQ'D: | LABORATORY: | COLLECTED BY:

1:250.000 SHEET: | TYPE OF SAMPLE: PAN, -80#, Rock | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: PAN Conc ×10 | DATE DISPATCHED:

DATE RECEIVED:

SAMPLE NUMBER	1:5000 SHEET	LOCATION	DESCRIPTION	Assay Au	Concentrate Au	ANALYSES Ag	As	Cu	Pb	Zn	W
15801	OWEN		Pan con (12000) Site 1 Au 3	0·04	<·01	x	x	8	82	19	8
15802	"		-80#		·03	x	x	41	68	12	4
15803			STANDARD								
15804			STANDARD								
15805	OWEN		Pan con (12000) Site 1, Au 0	1·10	·01	0·1	x	7	32	11	2
15806	"		-80#		·02	x	10	12	44	13	x
15807	OWEN		Pan con (12000) Site 1 Au 15 (fine)	17·00	·08	9·0	5	6	72	22	x
15808	"		-80#		·06	0·1	20	16	50	14	x
15809	OWEN		Pan con (12000) Site 1 Au 2	0·12	<·01	0·1	x	7	9	7	x
15810	"		-80#		·04	x	x	12	14	7	6
15811	OWEN		Pan con (12000) Site 1 Au 50+ (fine) + spec hematitic ppt frags	170·0	1·43	26	x	8	70	22	32
15812	"		-80#		·75	·1	x	24	21	10	14
15813	OWEN		Pan con 12000 Site 1 Au 20 (5 coarse)	125·0	·61	8·4	x	7	2	6	10
15814	"		-80#		✓	x	x	5	5	5	6
15897	OWEN dit	15801, 810	Rock black pyritic siltstone float								
15898	Owen dit	15803, 15812	" chloritic siltstone, minor pyrite								
15801	Owen dit	15810	Pan con Site 2 (12000) Au 0 abundant black fine pyrite	<0·01	x	x	x	7	6	5	x

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: POLTOCK

PROJECT: EL 916 | PROSPECT: Huxley | SAMPLE STORAGE REQ'D: | LABORATORY: AMN (CONS) LTD | DATE DISPATCHED:

1:250,000 SHEET: | TYPE OF SAMPLE: Pan con, -20# 20 Mesh | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: | DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Au Fire Assay	Au Cyanide	ANALYSES Au	Ag	Cu	Pb	Zn	W
15802	Owen dth	15811	Pan con S.Fe 1, Au 3 fine, (12000)	0.66	.016	.2	x	4	5	4	x
15803	Owen dth	15812, 15832	" " " " Au 5-20 fine (12000)	25.0	.37	3.0	55	10	15	7	x
15804	Owen dth	15813	" " " " Au 1 very small stream (8000)	<0.01	x	x	x	3	2	3	x
15805	Owen dth	15814	" " S.Fe 2 Au 0 (12000)	<0.01	x	x	x	4	10	3	x
15806	Owen dth	15815	" " S.Fe 2 Au 0 (12000)	<0.01	x	x	x	3	4	2	x
15807	~~STANDARDS~~										
15808											
15809	Huxley dth	15818 15834	Pan con (12000) S.Fe 1 Au 30 fine Owen deterits	22.5	.176	14.5	x	5	17	7	x
15810	Owen dth	15801	-20#		.02	.1	5	44	74	12	4
15811	" "	15802	-20#		.08	.7	5	9	12	4	10
15812	" "	15803	-20#		x	x	x	6	6	3	12
15813	" "	15804	-80#		x	x	x	14	12	6	x
15814	" "	15805	-20#		x	.1	x	10	11	4	14
15815	" "	15806	-20#		x	x	x	9	8	4	18
15816											
15817	~~STANDARDS~~										
15818	Huxley dth	15807	-20#		x	x	5	9	12	5	2
15819	Huxley		Pan con S.Fe 1 Au 1 (12000) Owen. fr deterits	0.48	.004	.1	x	4	7	6	x
15820	"		-20#		.06	x	x	8	17	7	6
15821	Owen		Pan con S.Fe 1 Au 3 (12000)	25.0	.02	3.6	20	30	78	66	2
15822	"		-20#		x	.2	20	15	30	21	4

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GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

PROJECT: EL 9166 PROSPECT: Huxley COLLECTED BY: P. Tuck

1 250.000 SHEET: TYPE OF SAMPLE: Pan Con, Rock SAMPLE STORAGE REQ'D: SAMPLE PREP. REQ'D: LABORATORY: ANALYSIS REQ'D: PAN LONG x10 DATE DISPATCHED: DATE RECEIVED:

SAMPLE NUMBER	LOCATION	DESCRIPTION	Heavy Fr	Au Completed	ANALYSES Au	Ag	As	Cu	Pb	Zn	W
15823	Owen	Pan con Pit 1 Au 10 fine (12000)	25·0	·10	6·0	x	5	16	8	2	
15824	"	-2off		·10	·1	x	24	41	8		
15825	Owen	Pan con Pit 1 Au is fine Owen defects (12000)	15·25	·09	3·1	x	5	14	6	x	
15826	"	-2off		·02	·2	25	68	160	49	x	
15827	Owen	-2off		x	x	x	12	13	6	14	
15828	"	Pan con Pit 2 Au 8 (12000)	0·03	<·01	x	x	4	42	16	x	
15829	STANDARD										
15830	Owen	Pan con Pit 2 Au 0 (12000)	<0·01	x	x	x	3	5	5	x	
15831	"	-2off		x	·1	x	8	13	4	24	
15832	Owen	Pan con 5000 Pit 1 Au 3	0·05	<·01	·1	x	5	15	6	x	
15833	"	-2off alth. mioss		·08	·1	x	40	140	23	x	
15834	STANDARDS.										
15835											
15836	Owen	Pan con Pit 1 (12000) Au 3 + [illegible] with te min. [illegible]	3·95	3·29	64	x	6	14	10	6	
15837	"	-2off		x	·2	x	32	48	11	6	
15838	Owen	Pan con Pit 1-2 (12000) Au 1 Owen gc. defects	<0·01	x	x	x	3	3	2	x	
15839	"	-2off		x	x	x	12	25	6	12	
15840	STANDARDS										
15841											
15842	Owen	Pan con Pit 3 (12000) Au 0 Owen gc. defects	8·94	·06	2·0	5	13	52	34	6	
15843	"	-2off		·03	x	x	10	17	5	22	

GOLD FIELDS EXPLORATION PTY. LTD.

SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: Pollock

PROJECT: EL 9166 | PROSPECT: Huxley | SAMPLE STORAGE REQ'D: | LABORATORY: | DATE DISPATCHED:

1:250,000 SHEET: | TYPE OF SAMPLE: Rock chips, -2cm ROCK | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: PAN LONS x10 | DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Assay Au	Corrected Au	Ag	As	Cu	Pb	Zn	Mn
15844	Owen	Lit 15842-3	Rock sft friable pink s/s with qtz veining		.02	x	x	3	3	2	26
15845	Owen		Rock Site 3 Au 2 hematitl. frags. (1200)	<0.01	x	x	x	3	3	2	x
15846	"		-2cm		x	x	15	31	60	39	4
15847	Owen		Rock Site1 Au 0 (1200)	0.15	<.01	.1	x	10	11	13	2
15848	"		-2cm		x	x	15	24	64	19	16
15849	Owen		Rock Site1 Au 1 (1200)	2.9	<.01	.6	x	14	8	34	x
15850	"		-2cm		x	.1	x	11	16	9	14

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Appendix ii

GOLD PAN CONCENTRATES CORRECTION TABLES

380

Qtn - Selgwick

N°	Wt grms	Wt grms	Conc fact	Gold N°/size	Tapsite	Au ppm	True Au ppm	Diamonds m^3 Au x 10^5
12281	56·3	12000	213	7 (1 coarse)	1	21	·10	75000 ·0750
12282	77·5	12000	155	0	2	·08	·000	40,000 ×
12284	69·9	12000	172	10	2	10·5	·06	90,000 ·05400
12286	40·6	6000	148	0	2	·71	·005	62,500 ·03125
12291	68·9	12000	174	0	2	·08	·000	360000 ×
12293	70·8	12000	169	0	2	·01	·000	400,000 ×
12295	59·9	12000	200	7	1	5·46	·035	650000 ·22750
12297	65·5	12000	183	0	1	·02	·000	180000 ×
12299	52·8	12000	227	1	1	1·80	·008	1630000 ·01280
13793	79·8	12000	150	16 (4 coarse)	1	400·	2·66	1600000 4256000
13795	95·2	12000	126	6	1	10·	·079	1090000 ·07900
13797	93·0	12000	129	0	1	·27	·002	450000 ·00090
13799	82·4	12000	146	0	1	<0.01	×	180000 ×
13803	74·5	12000	161	0	1	2·70	·017	2400000 ·04080
13805	72·3	12000	166	10 (v fine)	1-2	·02	·000	4000000 ·00480
13888	52·4	12000	229			8·72	·038	
13801	?	12000		4	1-2	?		1500000
13809	79	12000	152	8	1	27	·177	900000 ·15986
13811	61	12000	197	0	1	<0.01	×	210000 ×
13890	53	12000	226	0	?	<0.01	×	1350000 ×
13892	76	12000	158	3	1	·31	·002	1250000 ·00245
13894	59·5	12000	201	0	1	<0.01	×	900000 ×
13896	53·5	12000	224	0	1-2	<0.01	×	4050000 ×
13898	69	12000	174	3	1	<0.01	×	1800000 ×

113381

381

Qtz-sulphide | wt ground in mine

N°	Wt gms	Wt ground	Cone fact	Gold visible	Grapsite	Au ppm	Assay Au	Assay method	Au x10⁵
13902	60	12000	200	1	3	27	.135	82500	.11137
13904	67	12000	179	0	1	<0.01	x	320000	x
13906	59	12000	203	0	4	<0.01	x	1050000	x
13908	59	12000	203	0	1	<0.01	x	367500	x
15701	57.7	12000	236.7	0	4	.01	.0004	480000	.00020
15703	61.2	12000	196	0	2	<0.01	x	74000	x
15705	57.4	12000	202	0	2	<0.01	x	320000	x
15707	57.7	12000	204	0	1	<0.01	x	700000	x
15709	51.5	12000	287	1	1	18.50	.0886	1050000	.93076
15713	65.8	12000	182.4	6	1	4.18	.0229	900000	.02062
15715	65.4	12000	183	0	1	<0.01	x	1600000	x
15717	65.6	12000	183	0	1	.05	.0003	2400000	.00065
15719	60.4	12000	199	0	1	<0.01	x	157500	x
15721	93.2	12000	129	3 coarse in many fine	1	120	.930	900000	.837209
15725	63.5	12000	189	0	3	4.61	.024	225000	.05488
15727	76.8	12000	156	0	1	.04	.0003	500000	.00012
15729	49.7	12000	241	5	2	15	.062	340000	.21161
15731	58	12000	207	0	2	.01	.00004	900000	.00043
15733	65.8	12000	183	0	1	<0.01	x	900000	x
15737	60.9	12000	197	0	1	.01	.0004	525000	x
15746	70.2	12000	171	0	1	<0.01	x	135000	x
15748	81.0	12000	148	0	2	<0.01	x	192500	x
15750	71.4	12000	168	4	2	1.22	.007	900000	.00653

11,13,882

382

wt gravel / wt core | Qtz - Sedgwick | Au ppm / comp. t

N°	wt core	wt gravel	Core feet	Gold N°/kg	Trap rock	Au ppm	True Au	Drainage m²	Au x 10⁵
15752	75.2	12000	159.6	0	2	<0.01	x	2665000	x
15755	46	12000	260.9	0	1-2	.08	.0003	6600000	.0202
15757	60	12000	200	0	4	<0.01	x	1120000	x
15759	63.7	12000	188	0	1	<0.01	x	5100000	x
15761	76.3	12000	157.3	0	4	<0.01	x	5200000	x
15763	50.6	12000	237	5	1	<0.01	x	1710000	x
15765	70.5	12000	170.	0	4	1.64	.0096		

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383

GARFIELD (RP)

N°	Wt gms	Ground gms	Conc fact	Gold mgs/kg	Trough site	ASSAY Au ppm	TRUE Au ppm	Drainage Area m²	X10⁵ RELATIVE Au
13815	76·3	12000	157	4	1	11·0	·068	300,000	·20,400
13816	87·4	12000	134	0	1	<0.01	000	135,000	- X
13817	54·9	12000	219	6 (3 coarse)	1	33·5	·153	135,000	·20,305
13819	39·6	12000	303	11 (1 coarse)	1	19·5	·064	1100,000	·70,400
13820	67·2	12000	179	15	1	16·25	·071	2000,000	·32,000
13821	82·7	12000	145	16	1	35·	·241	90,000	·45,790
13825	79·8	12000	150	0	3	·20	·001	2200,000	·0 2,200
13826	74·4	12000	161	4	4	·06	·0003	2650,000	·00795
13827	72·2	12000	166	0	2	<0.01	000	650,000	X
13828	71·2	12000	155	4	2	9·75	·064	2000,000	128,000
13833	68·9	12000	174	5	4	·60	·003	80,000	·0·240
13834	94·2	12000	127	2	4	·26	·002	1500,000	·03,000
13835	70·2	12000	171	5	4	2·40	·014	130,000	·01820
13836	95·0	12000	126	1	4	3·20	·025	250,000	·06250
13837	77·5	12000	155	7 (2 coarse)	2	31·	·200	175,000	·35,000
13838	116·6	12000	103	11 (1 coarse)	2	49·	·476	115,000	·54740
13839	99·3	12000	120	3	1	·24	·002	270,000	·00540
13840	71·8	12000	167	17 (2 coarse)	1	345·	2·066	305,000	630,130
13842	73·5	12000	163	3	1	1·82	·011	210,000	·02310
13843	108·8	12000	110	0	1	·59	.005	275,000	.01471
13844	70·	12000	171	7	1	4·98	·029	480,000	·13926
13845	76·8	12000	156	18 (2 coarse)	1	127·5	·817	160,000	130,720
13846	91·6	12000	131	25 (6 coarse)	1	380·	2·900	2000,000	580,000
13847	92·2	12000	130	6 (2 coarse)	1	5·35	·041	540,000	·22140

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HUXLEY

N°	Wt gms	Gravel gms	Conc feet	Cobbles/Pebbles/N°	Traps/ch	Assay Au ppm	Tru Au ppm	Dwgs m³	Au x10⁻⁵
10900	116·6	12000	103	0	4	·13	* ·0013	2520000	·03181 *
10901	59·8	12000	201	3	1	3·06	·015	382500	·05737·5
10904	54·5	12000	220	4	2	6·55	✓ ·030	515000	·15450
10905	87·5	12000	137	3	0	·10	·000	300000	·00277·36
10907	89·7	12000	134	0	2	·04	·000	175,000	·00062·24
10908	66·2	12000	181	1	1	<0.01	·000	130,000	X
10909	72·0	12000	167	0	2	<0.01	·000	190,000	X
10910	85·1	12000	141	1	2	·055	·000	410,000	·00159·9
10911	98·8	12000	122	4	1	5·84	·048	247500	·11880·
10912	55·2	12000	217	0	3	48·	* ·221	802500	·773525
10913	59·9	12000	200	0	1	3·87	·019	2100 00	·03990
10915	76·5	12000	157	0	2	000	·000	135000	X
10918	41·0	12000	293	10	1	34·5	·118	527500	·62245
10919	60·9	12000	197	3	2	1·22	·006	162500	·00975
10920	84·0	12000	143	6	1	7·24	·050	720,000	·36000
10921	74·3	12000	162	10 (2 cobbles)	1	41·00	·253	225000	·56925
10922	72·0	12000	167	4	2	·28	·001	277500	·00277·5
10923	83·0	12000	145	4	1	4·83	·033	230000	·07590
10925	87·1	12000	138	1	1	<0.01	000	640000	X
10926	97·4	12000	123	?	4	·48	·004	8 00 000	·03200
10927	73·0	12000	164	0	1	<0.01	000	225 000	X
10929	74·3	12000	162	12 (2 cobbles)	1	182·5	1·127	6100 00	687470
10930	54·2	12000	221	2	1	10·28	·047	1500 00	·07050
10933	79·6	12000	151	2	1	·27	·002	84 00 00	·01680
10934	43·6	12000	275	7 (1 cobble)	1	19	·069	1000 00	·06900

3885

Huxley

(RP)

N°	Wt gms	Wt gravel	Conc fact	Gold Sig/N°	Tropsts	Assay Au ppm	Tav Au	Heavies	x10⁵ Relative Au
10938	50.5	12000	237.6	6	2	5.83	.0245	1575.00	.03364
10939	73.7	12000	162.8	1	1	.82	.0050	295000	.01486
10940	68.8	12000	174.4	14 (2 coarse)	4	31.	.1778	480000	.85321
10941	54	12000	222.2	2	2	5.58	.0251	54000.00	.13560
10942	94	12000	127.7	1	1	.11	.00086	9000.00	.00077
10943	71	12000	169.0	3 (1 coarse)	4	20.	.1183	48000.00	.56804
10944	49	12000	245.	0	2.5	.10	.0004	123750	.00050
10945	62	12000	193.5	0	1.5	.02	.0001	175000	.00018
10946	91	12000	131.9	0	2	.02	.0002	74000.00	.00112
10947	91	12000	131.9	0	2	.04	.0003	50000	.00015
10948	88	12000	136.4	0	2	.07	.0005	44000.00	.00371
10949	55	8000	145.5	0	1	<0.01	x	90000	x
13860	45.5	12000	263.7	8 + very fine	1	2.70	.0102	600000	.04607
13862	73	12000	164.4	10 very fine	3	.72	.0043	452000	.01970
13863	79.5	12000	150.9	1	3	.02	.0001	600000	.00060
13864	56	12000	214.3	1	1.5	7.16	.0334	8,00000	.26728
13868	62	12000	193.6	0	2.5	<0.01	x	630000	x
13870	95	12000	126.3	0	2.5	.01	.00008	150000	.00011
13872	65	12000	184.6	0	2	<0.01	x	400000	x
13873	74	12000	162.2	0	1	<0.01	x	450500	x
13874	79	12000	151.9	0	2	<0.01	x	90000	x
13875	81.5	12000	147.2	0	2	<0.01	x	270000	x
13876	79.5	12000	150.9	0	4	<0.01	x	30 0000	x
13877	86	12000	139.5	0	1	<0.01	x	55 0000	x
13879	33.4	12000	359.3	0	2	12	.033	80000	.02671

EL 3386

386

Hydraulic follow up

N°	wt gravel	wt fine	Conc fact	Au N°/size	Trap site	Au ppm	True Au	Drainage area m²	Au x 10⁵
15801	12000	93	129.0	?	?	<0.01	x	60000	
15802	12000	1065	112.7	3 fine	1	.66	.006	280000	.01639
15803	12000	74	162.2	15-20 fine	1	25	.154	245000	.37762
15804	8000	?		1	1	<0.01	x	45000	x
15805	12000	101	118.8	0	2	<0.01	x	125000	x
15806	12000	169	71.1	0	2	<0.01	x	40000	x
15809	12000	94	127.7	30 fine	1	22.5	.176	160000	.28191
15819	12000	103	116.5	1	1	.48	.004	140000	.00576
15821	12000	10.5	1142.8	3	1	25	.022	712500	.15586
15823	12000	47.2	243.9	10 fine	1	25	.103	60000	.06150
15825	12000	67	179.1	15 fine	1	15.25	.085	240000	.20435
15828	12000	119	100.8	8	2	.03	.0003	75000	.00022
15829	12000	122	98.3	0	2	<0.01	x	800 00	x
15832	8000	86.5	92.48	3	1	.05	.0005	180000	.00097
15836	12000	100	120	30+	1	3.95	3.29	120000	3.94999
15838	12000	132	90.9	1	1-2	<0.01	x	160000	x
15842	12000	84.5	142	0	3	8.94	.063	360000	.22664
15845	12000	130	93.3	2	3	<0.01	x	120000	x
15847	12000	100	120	0	1	.15	.0013	250000	.00312
15849	12000	12	1000	1	1	2.9	.003	250000	.00725
15866	12000	92.3	130	8	1	9.8	.075	238000	.17941
15870	12000	91.4	131.3	15 v fine	1	8.57	.065	195500	.12760
15871	12000	72.7	165	1	1	<0.01	x	51000	x
15877	12000	103.5	1159	7 (2 coarse)	1	7.64	.066	120000	10000 .09910
15879	12000	81.1	148	30 v fine	1	14.50	.0981		.16655

11 33 88 -1

387

Huxley follow up wt gravel corrected. Au core fact

N°	Wt gravel	Wt conc	Conc fact	Gold No/size	Trap site	Au assay	True Au	Drainage Area m²	Au x 10⁵
15881	12000	68	177	3	1	.04	.0002	105000	.0023
15885	12000	102.2	117.4	0	1	1.10	.009	20 0000	.9873
15887	12000	60.7	198	15(fine)	1	17.00	.086	103000	.08843
15889	12000	77.3	155	2	1	.12	.0008	10 0000	.00080
15891	12000	101.2	119	30+(coarse)	1	170	1.43	10 0000	1.42857
15893	12000	65	185	20(5 coarse)	1	125	.675	90000	.60810

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388

Garfield

N°	Wt gms	Grav/gm	Conc/sct	Gold in/oz	Trap site	Assay Au ppm	True Au	Drainage Area	Relative Au x10⁵
13848	119.6	12000	100	0	1	.48	.005	620,000	.03100
13849	64.5	12000	186	10	1	2.65	.014	310,000	.04340
13850	79.5	12000	151	5 (4 coarse)	1	48.	.318	300,000	.95400
13851	75.0	12000	160	8 (accurate)	1	245.	1.531	287,500	4.40234
13852	68.7	12000	175	20	1	27.	.154	7400,000	1.139600
13853	86.2	12000	139	1 (coarse)	1	630.	4.53	330,000	1494700
13854	59.6	12000	201	3	1	5.88	.029	2990,000	86.710
13856	66.2	12000	181	16 (6 coarse)	1	520.	2.07	1100,000	2.2770000
13857	77.6	12000	155	10 (6 coarse)	1	34.75	.224	3000,000	672,000
13858	81.5	12000	147	2	1	4.08	.027	237500	.06412.5
13859	81.0	12000	148	0	1	.19	.001	210,000	.00210

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389

Garland PR TC

n°	Wt conc gm	Wt gravel	Conc fact	Gold n°/s.g.	Trap's side	Assay Au ppm	Tro. Au ppm	Drainage m²	Relative Au × 10⁵
14008	41	12000	292	3	3-4	.15	.0005	170,000	.0085.
14009	57.5	12000	202	0	3-4	< 0.01	—	300,000	—
14010	52.2	12000	230	8	2-3	47.	.20	69500	119000.
14012	60.3	12000	199	0	2-3	4.84	.024	200000	.04800.
14015	63.3	8000	126	5	3	11.4	.09	215000	.19350.
14016	67.0	12000	179	0	3	<0.01	—	45000	×
14018	50.3	12000	239	0	1-2	.06	.0003	107500	.0032.25
14019	34.3	4000	117	3	2	5.71	.05	73500	.03675.
14020	22.2	4000	180	0	1	<0.01	—	202500	×
14021	24.9	4000	161	0	1-2	.03	.0002	300000	.0006.
14022	46.6	12000	258	0	1	.03	.0001	285000	.00285.
14023	34.8	4000	115	0	3-4	<0.01	—	35000	×
14024	47.7	12000	252	0	1-2	<0.01	—	245000	×
14025	52.9	12000	227	0	1-2	<0.01	—	140000	×
14035	27.3	8000	293	1	2-3	.063	.0002	587500	.0117.5
14038	25.3	4000	158	0	2	2.96	.019	140000	.02660.
14039	36.7	8000	218	0	1-2	.46	.002	225000	.0450.
14040	38	8000	211	0	1	.06	.0003	22000	.00066.
14041	5	8000	1600	0	4	.11	.00007	87500	.00625
14042	82	8000	98	0	3-4	.60	.006	135000	.00810.
14046	51	8000	157	5	1-2	130.	.83	275000	1058.25.

11339

330

Garfield PR-TC (PR)

N°	wt conc gms	wt gravel	wt raw / wt conc	Conc fact	Fill N°/size	Trap size	Au ppm	Au ppm Time Assay	Au ppm Assay	m²Au x 10⁶
14047	46	8000	174	0	2-3	3.48	.02	13000	.X360.	
14048	49					.02				
14049	70					.61				
15767	? ?	12000	?	3	4	.04	?	480000	?	
15771	86.5	12000	138.7	2	1	.01	.0007	275000	.0089.	
15773	99	12000	121.2	6	4	41	.338	790000	267244	
15775	97.4	12000	123.2	0	1-2	.08	.0006	270000	.00175	
15777	95	12000	126.3	2	1	4.92	.0389	270000	.10517	
15779	104.5	12000	114.8	2	1	.03	.0002	30 0000	.00078	
15790	84	6000	71.4	1	1	.13	.0018	2750 V small pk	.00095	
15792	93	12000	129.	2	1	200	1.55	80000	1.24031	
15794	104 ?	12000	115.4	2	1	6.24	.054	60000	.03244	
15796	92.5	12000	129.7	+20	1	135	1.04	110000	1.4494	
15797	108	12000	111	0	1	.04	.00036	55000	.00019.	
15799	100.5	8000	79.6	2	1-2	13.50	.169	75000	.12719	
15800	86	12000	139.5	0	1	.09	.0006	45000	.00029	
15851	78.7	12000	152.5	?	1	.23	.0015	160000	.00241	
15852	93.2	12000	128.8	5	1	22.	.1702	80000	.13664	
5853	75.5	12000	158.9	2	1	2.05	.0129	48 0000	.06193	
15854	92.9	12000	129.2	20+	1	150	1.1609	157500	182856	
15856	71	12000	169	5	2	11.50	.068	500 00	.03402	
15857	114.8	12000	105	0	1	.07	.0006	800 00	.00053	
15858	102.8	12000	116.7	0	1	.34.	.0029	600 00	.0174	
13880	63.5	12000	189.0	0	2	<0.01	x	37500	x	
13882	80.0	12000	150.0	0	1-2	<0.01	x	600 00	x	

T13391

391

N°	Wt cm	Wt gravel	Conc Wt	Gold No/size	Trapsite	Au ppm	True Au	Drainage m^2	Au
15885	94	12000	127.7	1	1	15.50	.12	125000	.15172
15887	41	6000	146.3	0	1	.03	.0002	v small	.00010
15859	97	12000	123.7	2	1	<0.01	x	125000	x
15861	83.7	12000	143.4	0	1	<0.01	x	137500	x
15864	61.5	12000	195.1	10	1	24	.123	35000	.4736

T13392

392

GOLD FIELDS EXPLORATION PTY. LIMITED

113393

APPENDIX E

INTERPRETATION OF SELINA U.T.E.M. SURVEY

by

J.R. Bishop (Mitre Geophysics)

Report GF/MG85/10

July, 1985

393

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MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

INTERPRETATION OF THE SELINA UTEM SURVEY (E.L. 9/66).

for

Gold Fields Exploration Pty Ltd

by

Dr J.R. Bishop

GF/MG85/10
July, 1985

113395

CONTENTS

This report has been prepared as an appendix to the 1984-85 annual report on the Tyndall area (E.L. 9/66) and the figure numbers refer to that report.

Summary	2
Introduction	3
Geology and Exploration Target	3
Exploration History	3
Survey Details	4
Interpretation	4
Conclusions and Recommendations	5
References	6

Table 1.	UTEM coverage of the Selina grid.	7
Figure 32.	Interpretation of Selina UTEM survey (1:5,000 scale).	
-	UTEM Profiles (lines 104N to 144N)	

Figures referred to but not included in this report

The 1985 geological plan (1:5,000 scale)

The 1981 Selina grid anomaly compilation plan (1:5,000 scale).

SUMMARY

No good, well-defined anomalies were interpreted from the UTEM survey of the Selina grid. The best response, adjacent to an area of excellent geochemistry in prospective rocks, has an amplitude in the noise level and no quantifiable decay. If this area is to be drilled, it is suggested that the hole be designed to intersect its target zone below the penetration of the UTEM survey which is estimated to be around 200m.

INTRODUCTION

The Selina grid overlies Mt Read Volcanics in the north-eastern segment of E.L. 9/66. Previous exploration programs have defined areas of sulphide enrichment and/or geochemical significance. Twelve diamond drill holes have been completed on the grid.

Gold Fields believe it unlikely that there are any more near-surface prospects to be found and decided to conduct a deep-seeking, fixed-loop time domain electromagnetic (TDEM) survey over a portion of the grid which contained highly anomalous base-metal geochemistry. A UTEM survey was carried out in February, 1985 and this report interprets the results from that survey.

GEOLOGY AND EXPLORATION TARGET

The Selina grid overlies a narrow belt of Mt Read Volcanics, wedged between Ordovician sediments to the west and Lower Cambrian sediments and PreCambrian metamorphics to the east. The detailed geology of the rocks underlying the grid has undergone a number of revisions, but all show sequences of acid volcanics in the southern-central and north-eastern parts of the grid with (?)unprospective Tyndall Group rocks (designated Jukes Breccia or Dora Conglomerate) in the central and north-western areas (ie, Mt Selina). Structure in the volcanics is still tentative, but all drill-holes have indicated near-vertical dipping contacts.

The prime target is a polymetallic, volcanogenic massive sulphide body. Based on physical property measurements from type deposits in the volcanics, such a body is expected to be a good, rather than an excellent, conductor. It would be chargeable (but a TDEM survey is expected to look deeper than IP), but would probably not be magnetic.

EXPLORATION HISTORY

The Selina grid has been covered or partially covered by several geophysical techniques. Those surveys carried out up to and including the 1980/81 field season have been evaluated by Bishop (1980) and Bishop (1981). They include: gradient array, pole-dipole and dipole-dipole IP, Dighem, magnetics and test lines of Max-Min EM and gravity. Surveys carried out since then (in 1981/82) include a northern extension to the gradient array IP coverage (to define the extent of the 'Eastern Pyrite Zone'), one dipole-dipole IP spread, magnetics and some Genie-EM (Hutton, 1982).

Exploration by Mt Lyell in the early 1970's outlined a large, disseminated body of pyrite in the south-western corner of the Selina grid (termed the 'Western Pyrite Zone'; over 350m long and up to 150m wide, containing 10% to 15% pyrite). Including three holes on the Rolleston grid immediately to the south of

Selina, a total of nine drill holes have been drilled into this zone. No significant mineralisation was intersected in any of these holes. Three other drill holes have tested the Eastern Pyrite Zone -a narrow band of disseminated pyrite extending for more than 3kms along the central and northern parts of the grid - but very little base metal mineralisation (less than 1% combined Pb+Zn) was intersected.

The most encouraging hole to date is LS10 which tested the southern part of the Eastern Pyrite Zone. The hole intersected a strongly altered sulphidic sequence of fine grained epiclastics adjacent to altered dacitic lavas and volcaniclastics. Minor, but significant Cu,Pb,Zn and Ag mineralisation was encountered over broad intervals in this hole. Geological interpretation of the outcrop and drill section indicates strong similarities with the typical Kuroko massive sulphide setting. Hole LS10 was drilled 300m north of an area of strongly anomalous Ag-Pb-Zn geochemistry which lies along strike from the Eastern Pyrite Zone (Cartwright, pers. comm.). The gradient array chargeability values over the geochemical zone were mostly high (greater than 20mv/v), but no definite target was defined. This area was covered by the UTEM survey.

SURVEY DETAILS

The surveyed area has a strike length of approximately 1.25kms with a width of about 1km. A single, irregularly shaped loop of roughly 1300m x 550m to the west of the grid was used for the survey. The Selina grid is a composite of old (imperial) and new (metric) lines. Thus a station interval of 100ft was used west of the base line with a 40m interval to the east. Results for each line have been produced as two plots: a western imperial section and an eastern metric section. Only the vertical component was measured. The survey coverage is listed in Table 1.

INTERPRETATION

The results were disappointing; no well-defined responses were obtained. The data was therefore examined for possible anomalies within the noise level (ie, examined for a sequence of data points which described a curve similar to that of a genuine anomaly). Four such anomalies were interpreted, describing two separate zones. (Correlation of 'anomalies' on adjacent lines, suggests that the responses are real features, if not prospective targets.) The zones have been labelled 'B' and 'E' in Figure 32.

Zone B was interpreted on channels 3, 4 & possibly 5, centred at 128N/460mE and on channels 2 & 3, centred at 136N/460mE. A depth interpretation using the channel 3 response on line 136N, gives a depth of less than 40m.

Zone E was interpreted on channel 5, centred at 112N/850'W and on channels 4,5 & 6, centred at 120N/550'W. A depth interpretation

using channel 5 on line 112N, gives a depth of around 50m. Other parameters, such as dip were not determinable for either zone. It is emphasised that these responses (on both zones) were picked purely by shape. They do not have the decay characteristics of a normal conductor.

Figure 32 shows three other zones which are interpreted as being due to weak, unprospective conductors. Zone C coincides with the southern end of the eastern pyrite zone. The other two zones (A & D), though of quite different character, are both close to the interpreted contact between the Mt Read Volcanics and the Stitch Range sediments and may be caused by it.

CONCLUSIONS AND RECOMMENDATIONS

Both zones B and E have little merit on their own. However, zone E lies on the flank of highly anomalous geochemistry in prospective-looking rocks. Whilst the very low amplitudes of these anomalies might be compared with those obtained over the Hellyer deposit; the depth there, both real and interpreted, was more than twice the depths calculated here (Eadie and Silic, 1984). (A shallower body, of comparable size, should give a larger amplitude*.) Drilling of responses similar to B and E elsewhere in the Mt Read Volcanics has been unsuccessful.

Apart from the geochemistry, the chargeability recorded by the gradient array IP indicates that this is an area of alteration. If this area is to be tested, it is recommended that the hole be designed to pass below the depth of penetration of the UTEM -say 200m for a large tonnage target.

Given the uncertainty of this interpretation, it is quite likely that the source of the anomaly would be missed by a drill hole, even if the source is a massive sulphide deposit of potentially economic size. It is therefore recommended that if a hole is drilled, a down-hole EM survey be carried out (regardless of the rock-types intersected by the drill).

J.R. Bishop
July, 1985

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* A steeply dipping tabular body, and possibly even one of smaller tonnage, would be expected to give a much larger response.

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Bishop, J.R., 1980. An appraisal of the geophysics carried out over the Selina, Rolleston and Dora areas. Mitre Geophysics report 80/03 for Mt Lyell.

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Eadie, E.T. and Silic, J., 1984. The application of geophysics in the discovery of the Hellyer ore deposit. Preprint.

FitzGerald, F.G. and Pease, C.F.D., 1985. E.L. 9/66 Tyndall area, 1984-85 annual report for Goldfields.

Hutton, M.J., 1982. E.L. 9/66 Tyndall area, 1981-82 annual report for Mt Lyell.

TABLE 1

UTEM Coverage of the Selina Grid

Survey by: Lamontagne Geophysics

Date: February, 1985.

Components: vertical only.

Line	Stations	
	Imperial	Metric
144N	1400'W - 0	0 - 600mE
136N	1400'W - 0	0 - 600mE
128N	1300'W - 0	0 - 600mE
120N	1900'W - 0	0 - 400mE
112N	2400'W - 0	0 - 400mE
104N	2400'W - 0	0 - 400mE

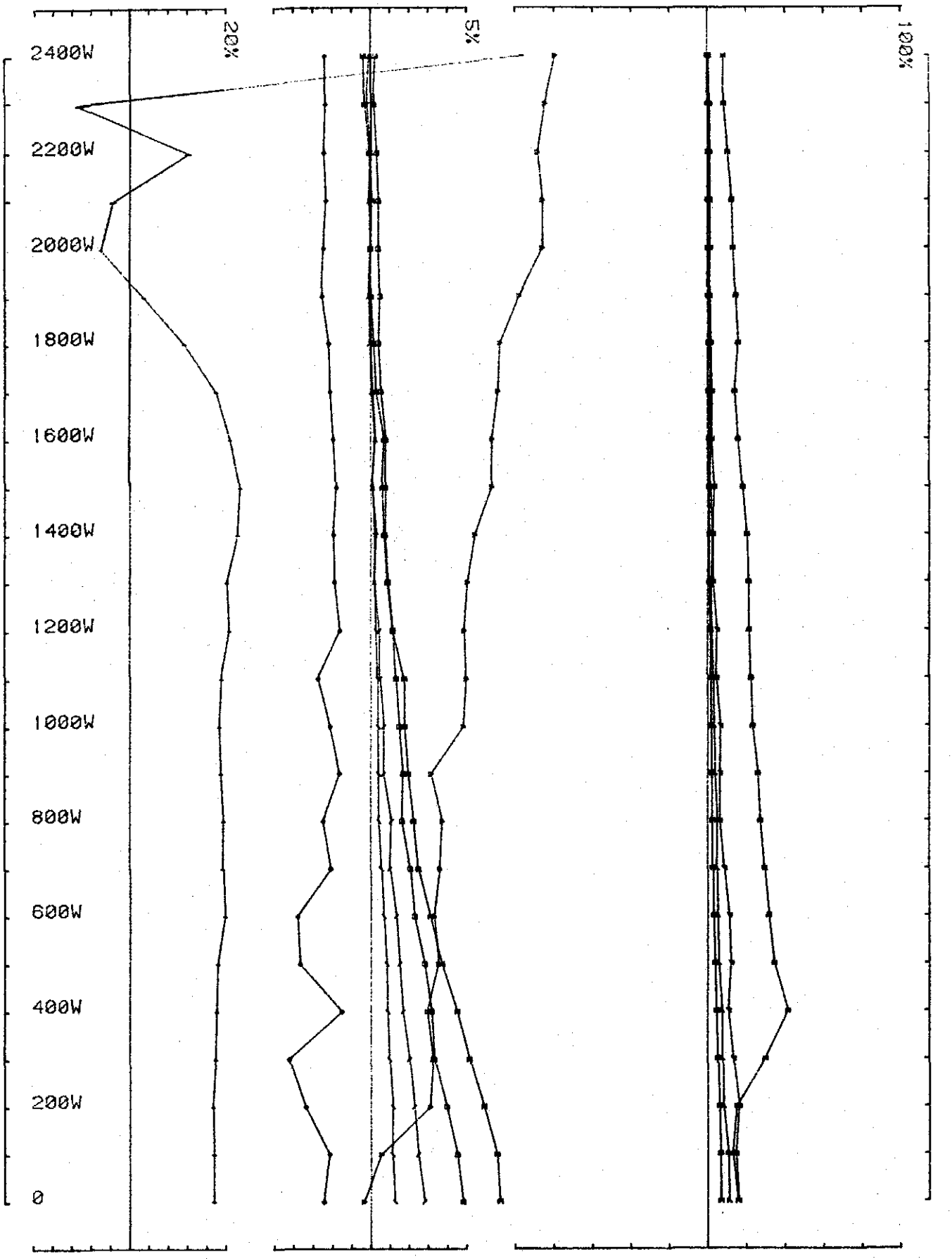
Station interval:

100ft -west of baseline

40m -east of baseline.

401

113402



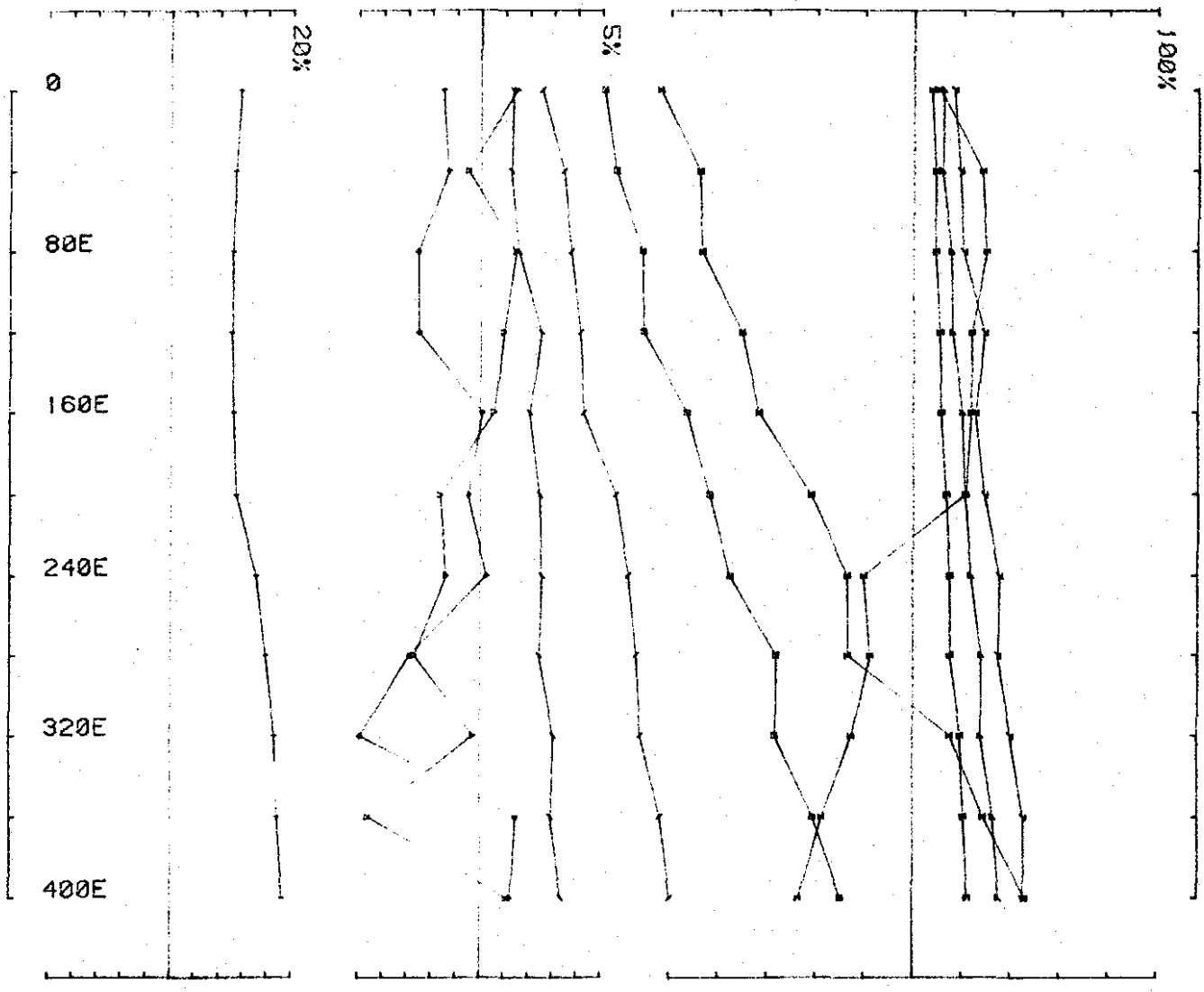
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 10400N component Hz secondary Ch 1

402

113403



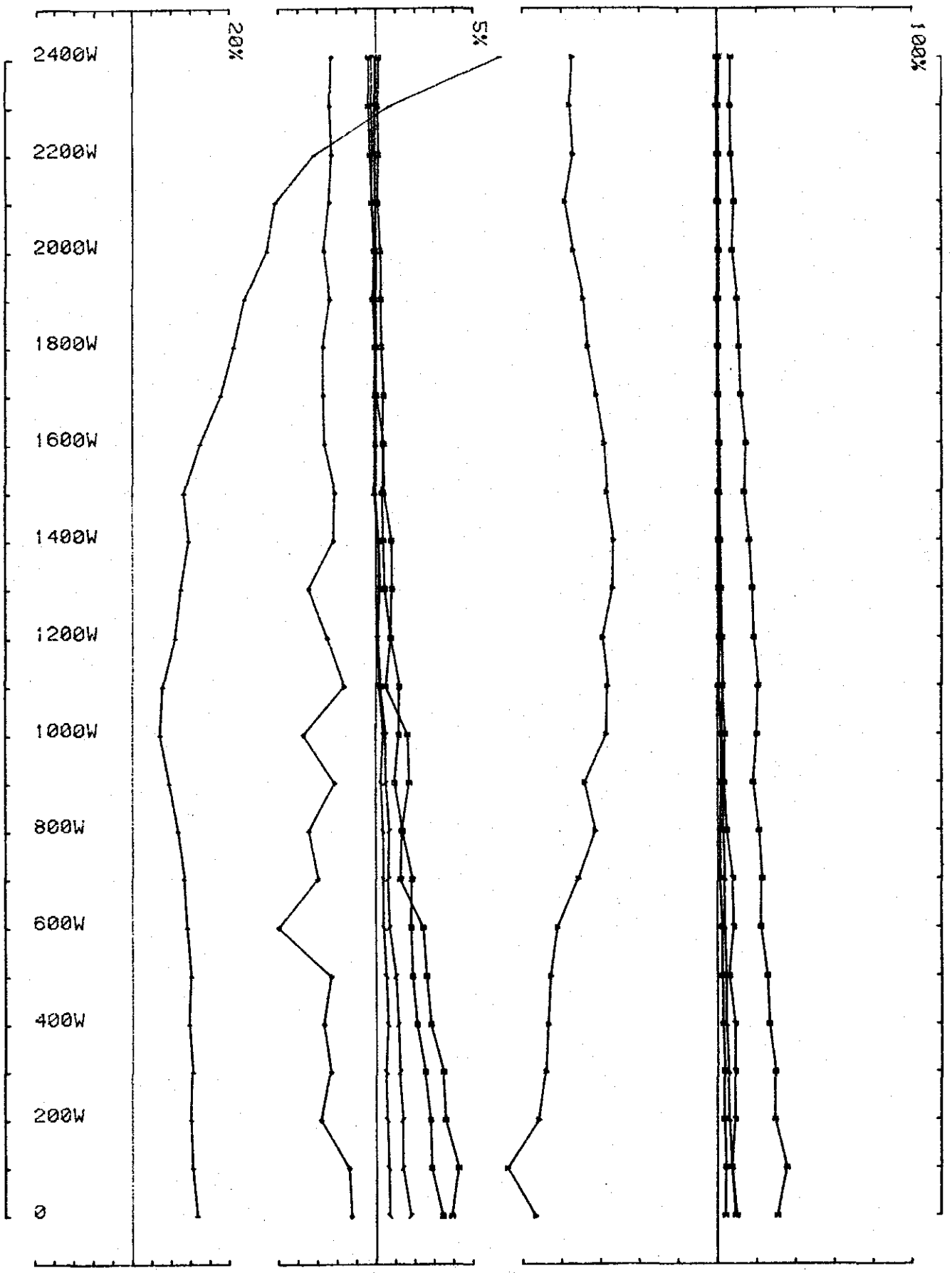
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Project Area Selina Grid Survey for Goldfields Exploration freq(Hz) 26.230

Loopno 0001 Line 10400N component Hz secondary Ch 1

403

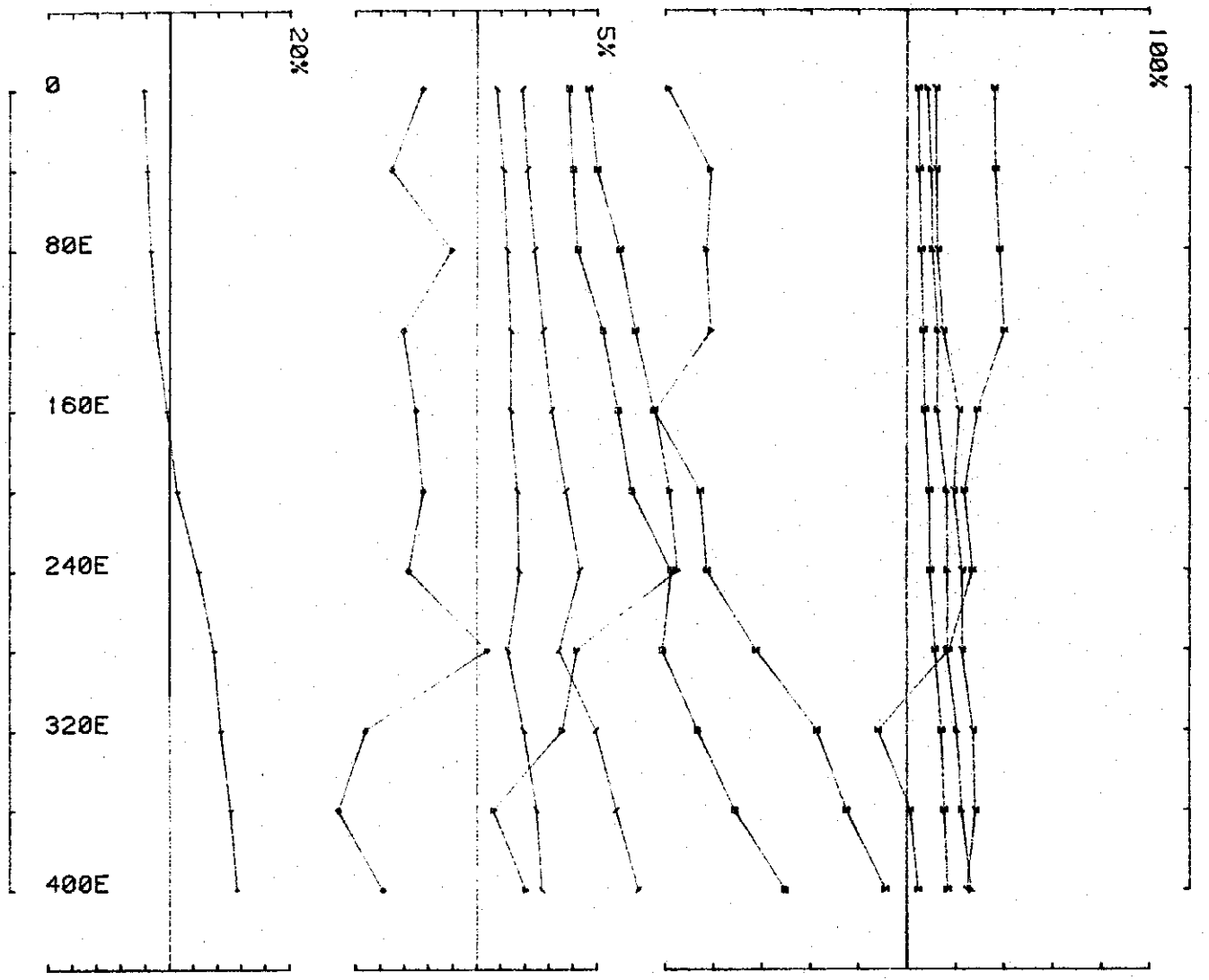
113404



UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 11200N component Hz secondary Ch 1



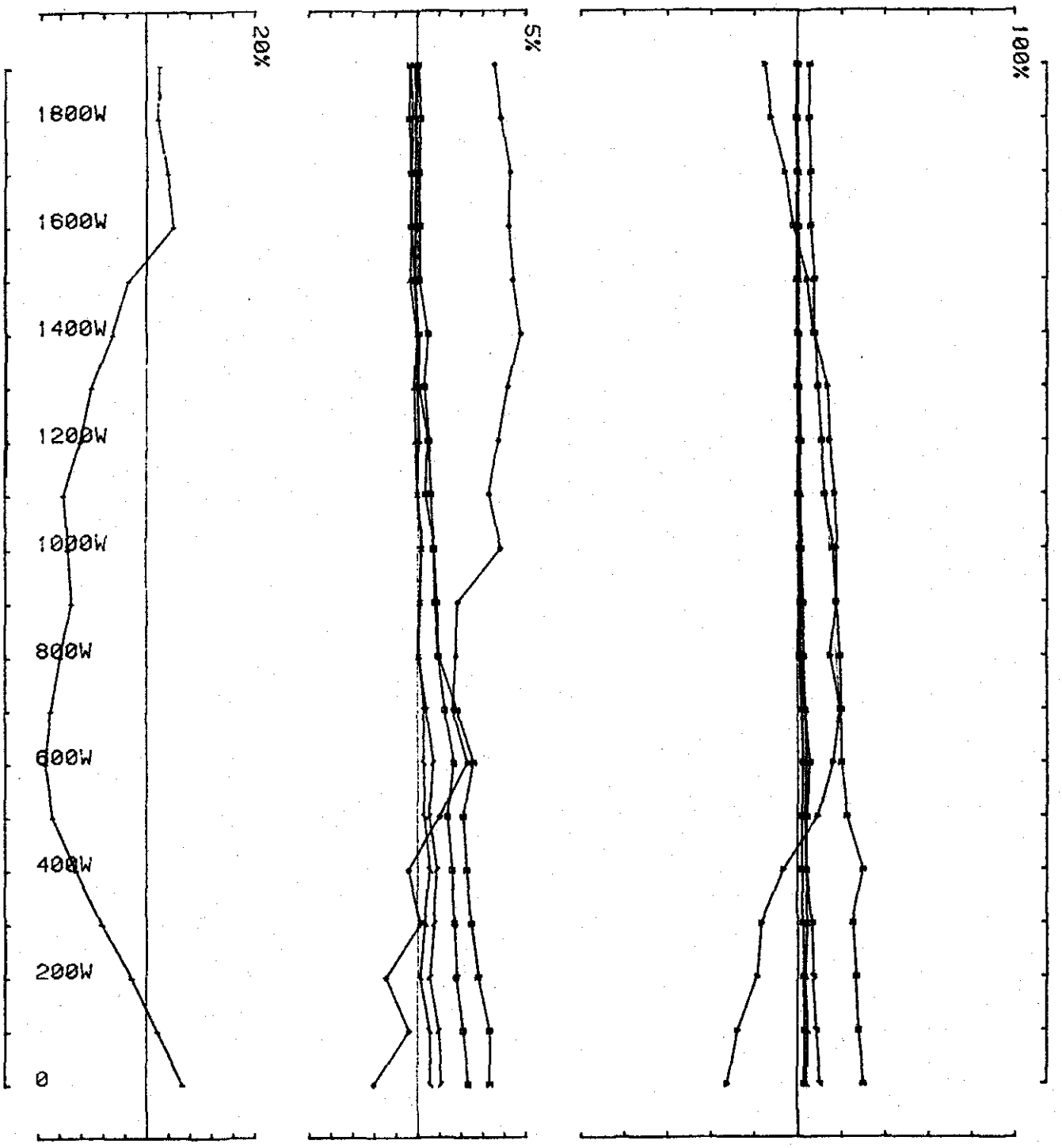
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line//200N component Hz secondary Ch 1

405

113406



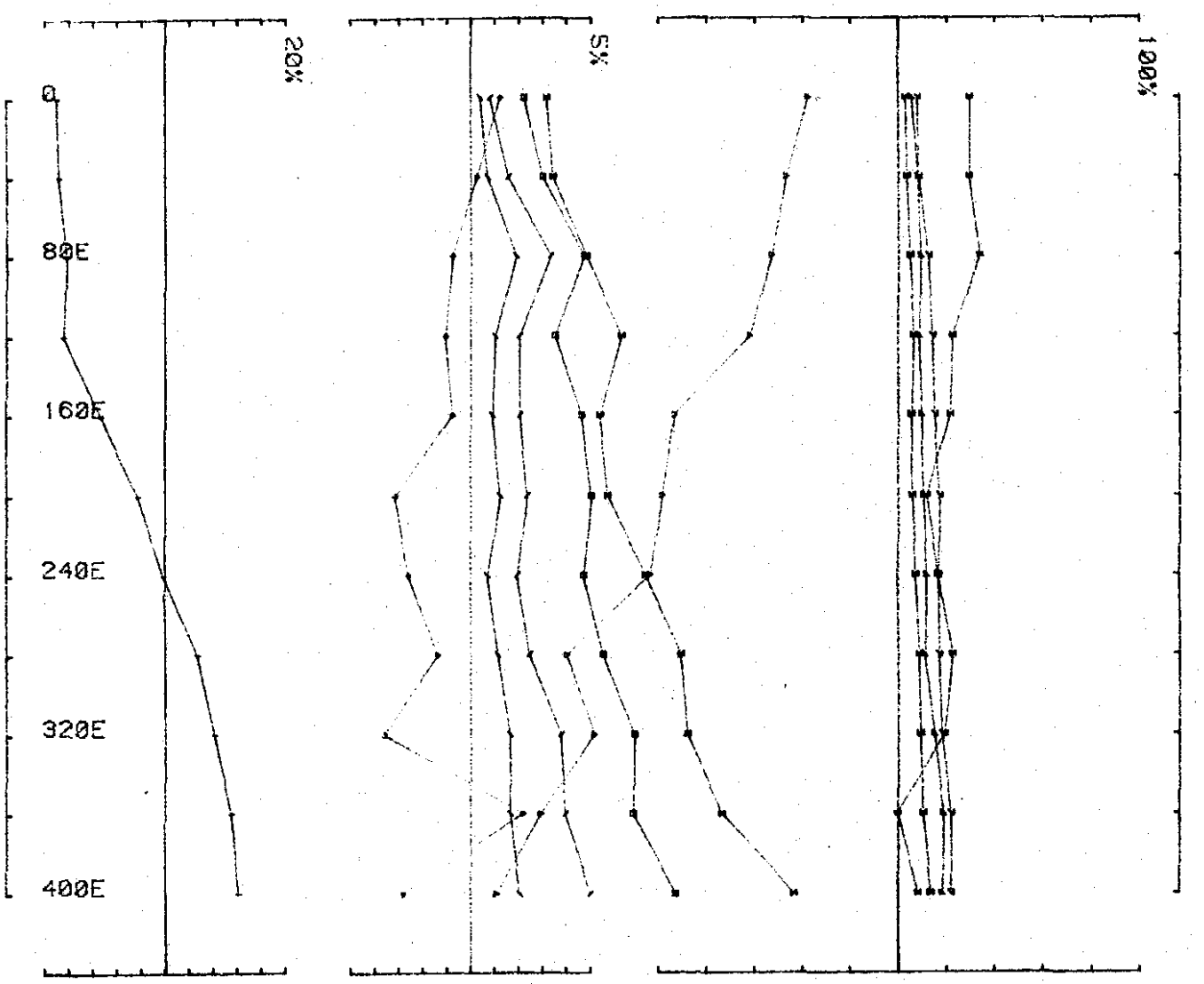
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 12000N component Hz secondary Ch 1

406

113407



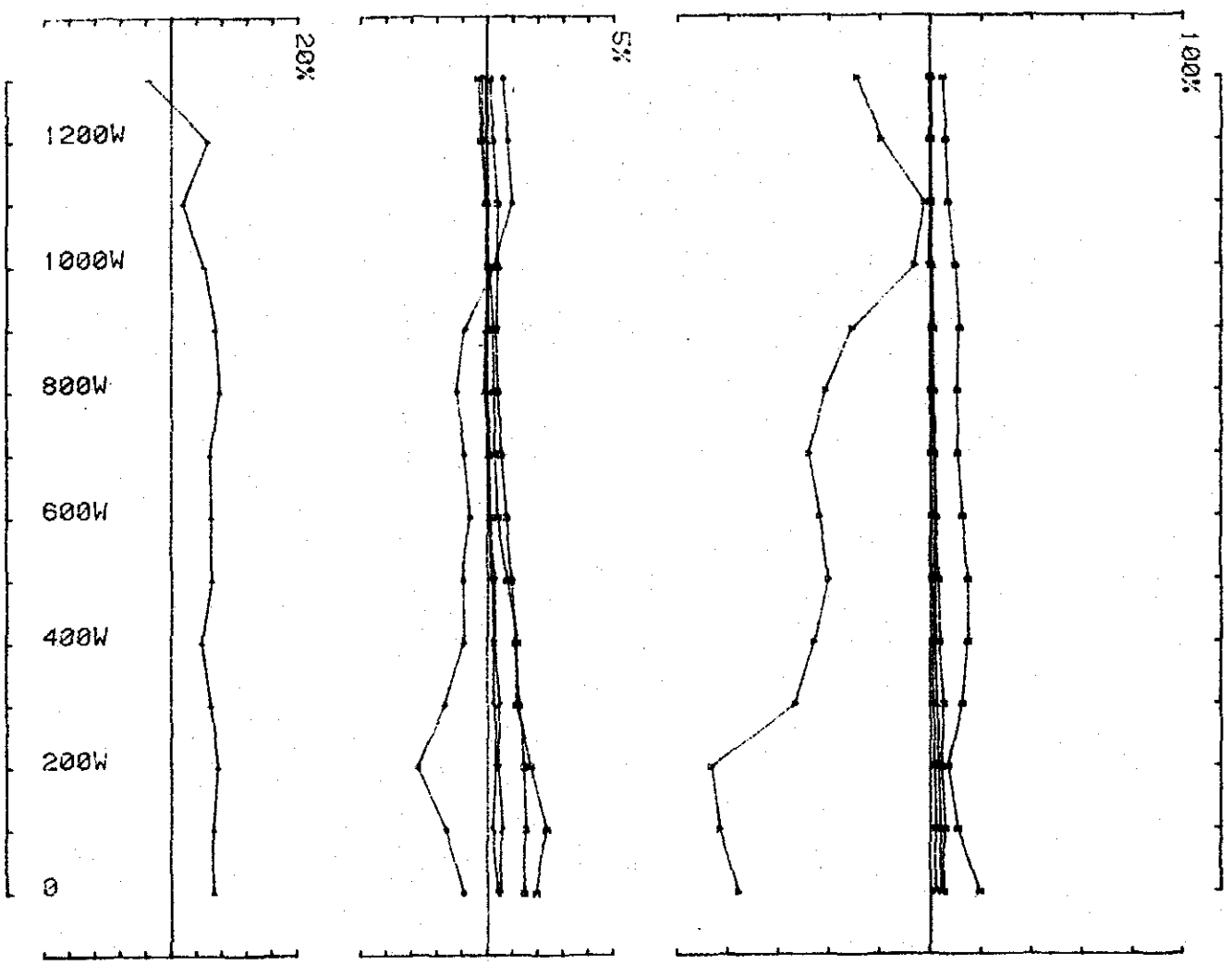
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line12000N component Hz secondary Ch 1

407

113408



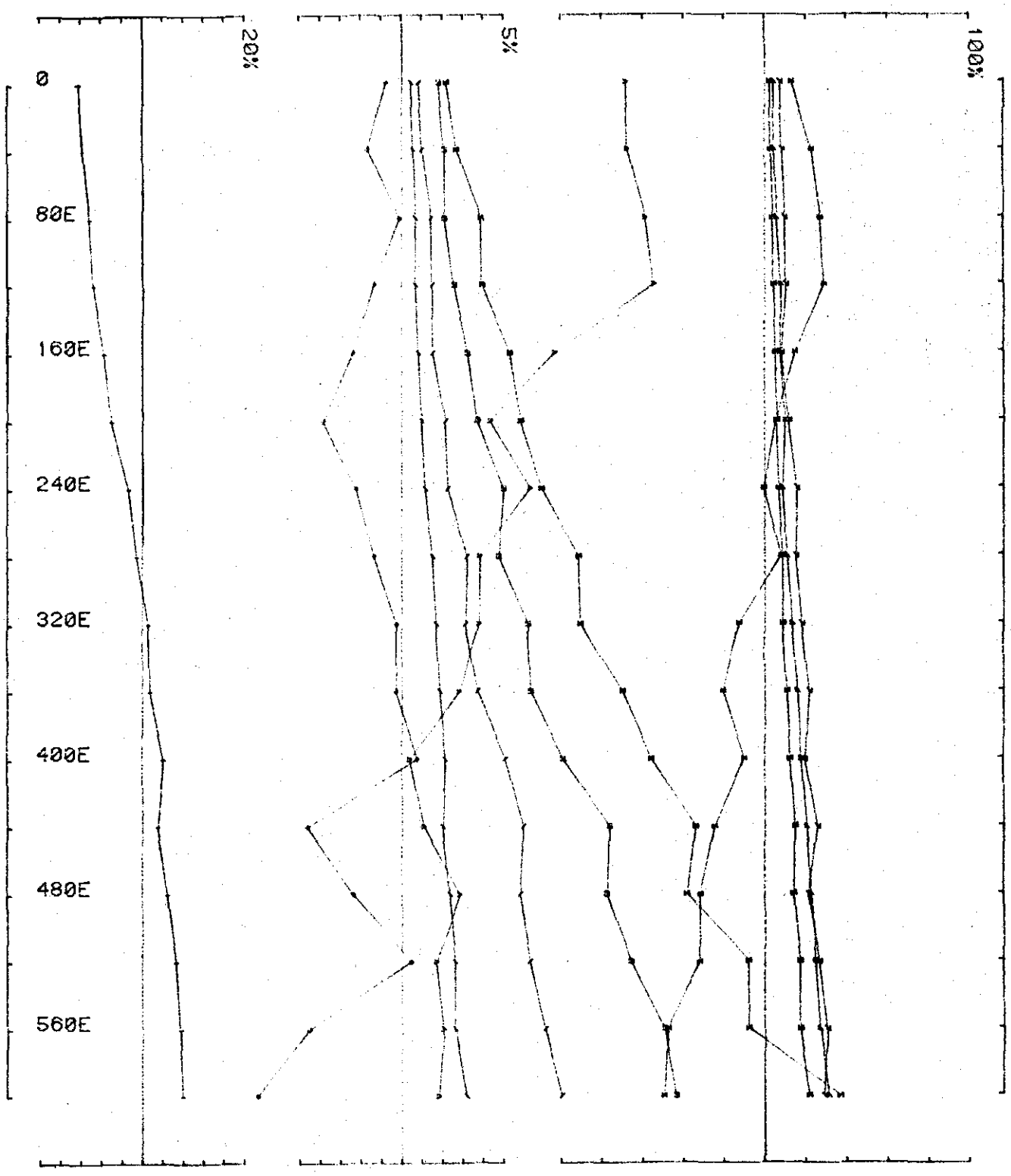
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 12800N component Hz secondary Ch 1

408

113409



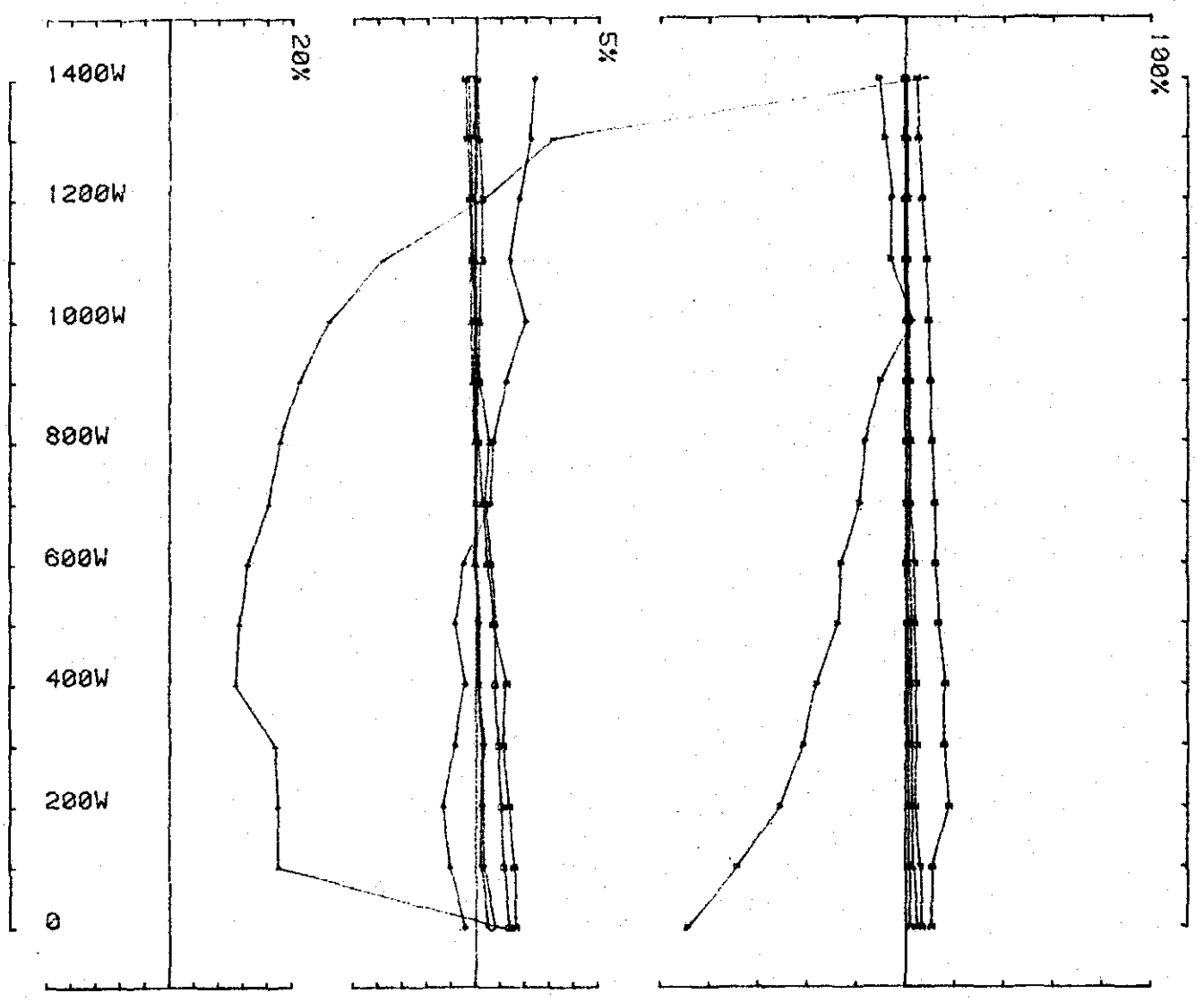
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 12800N component Hz secondary Ch 1

409

113410



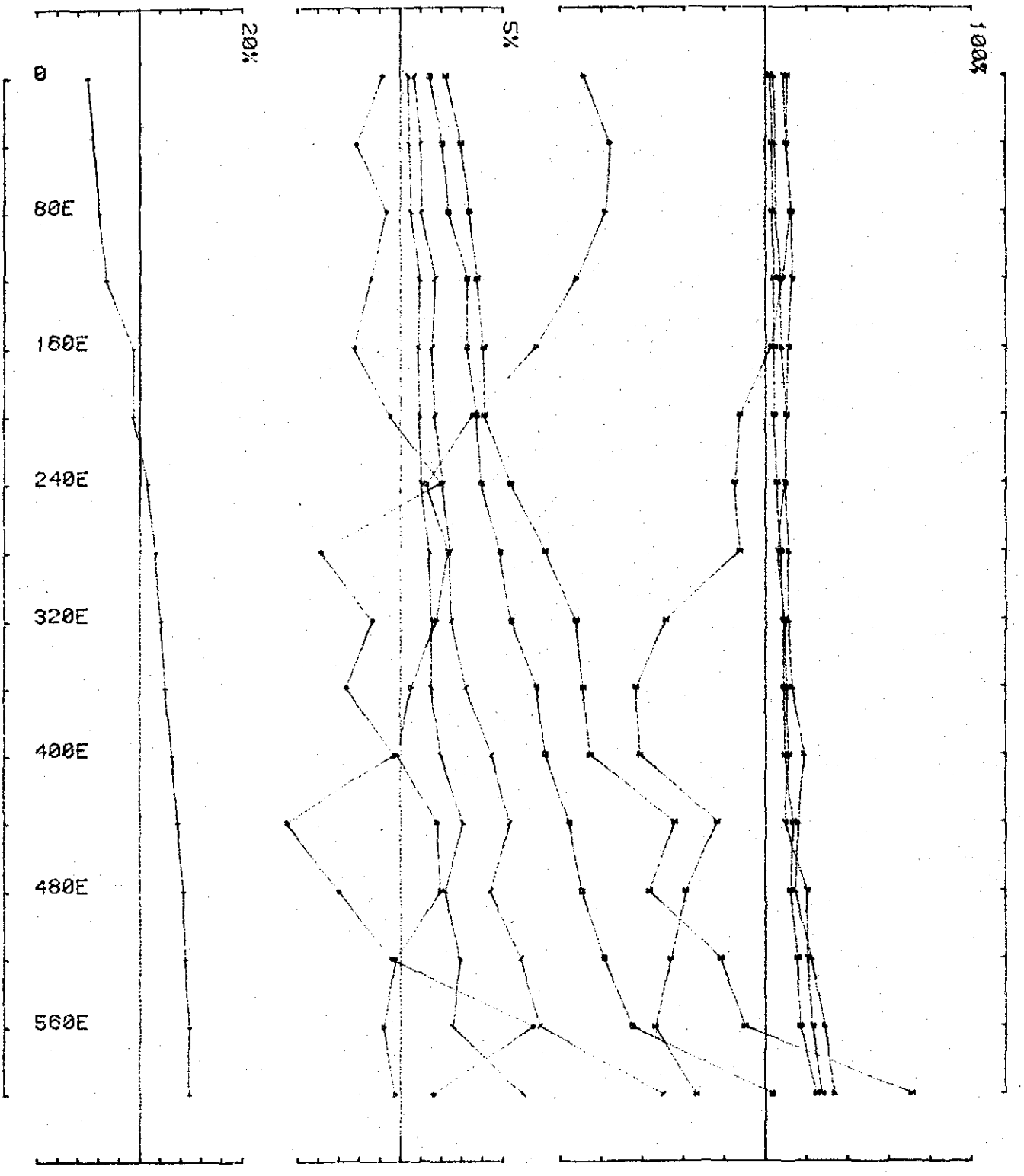
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 13600N component Hz secondary Ch 1 .

410

113411



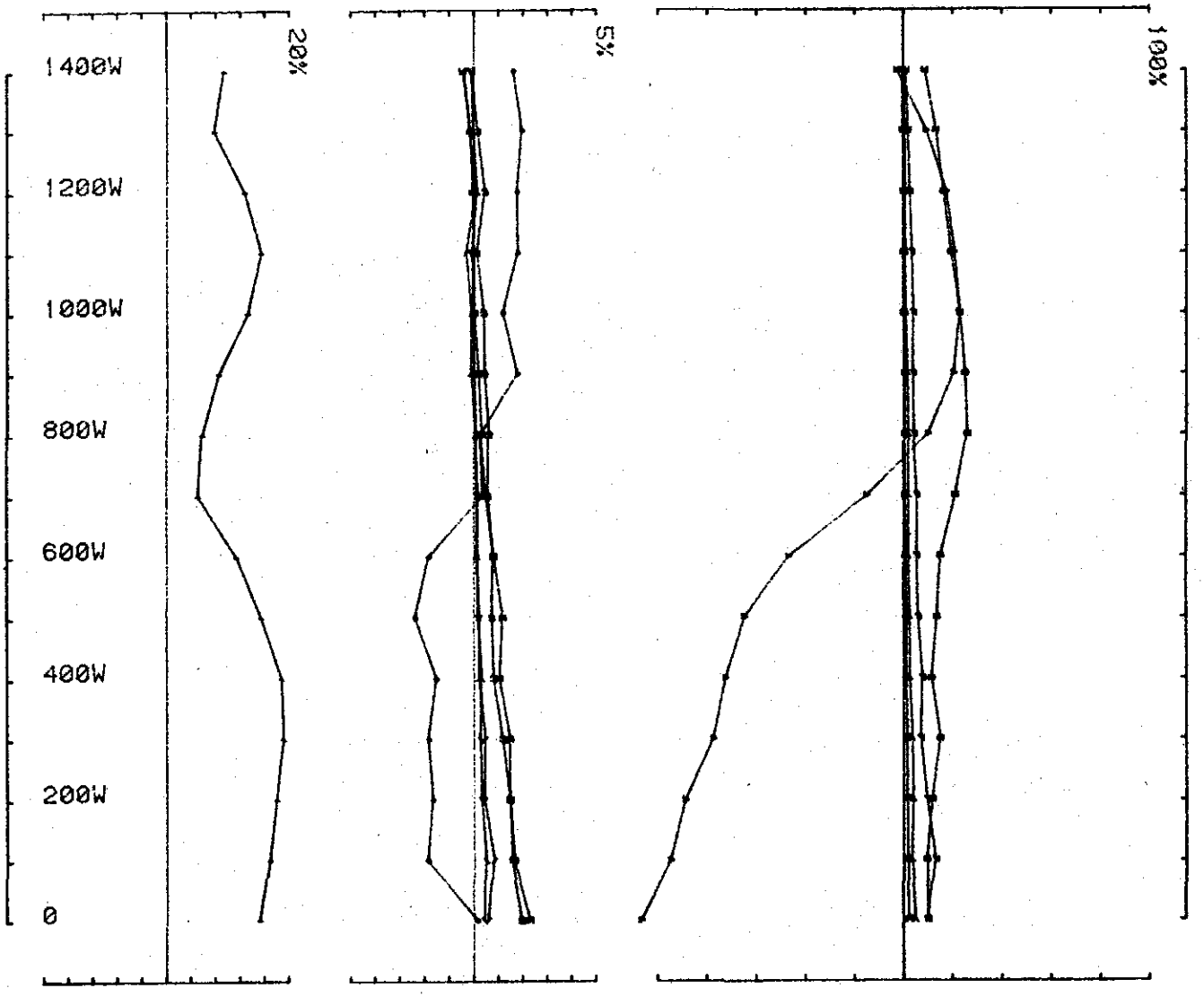
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line13600N component Hz secondary Ch 1

411

113412



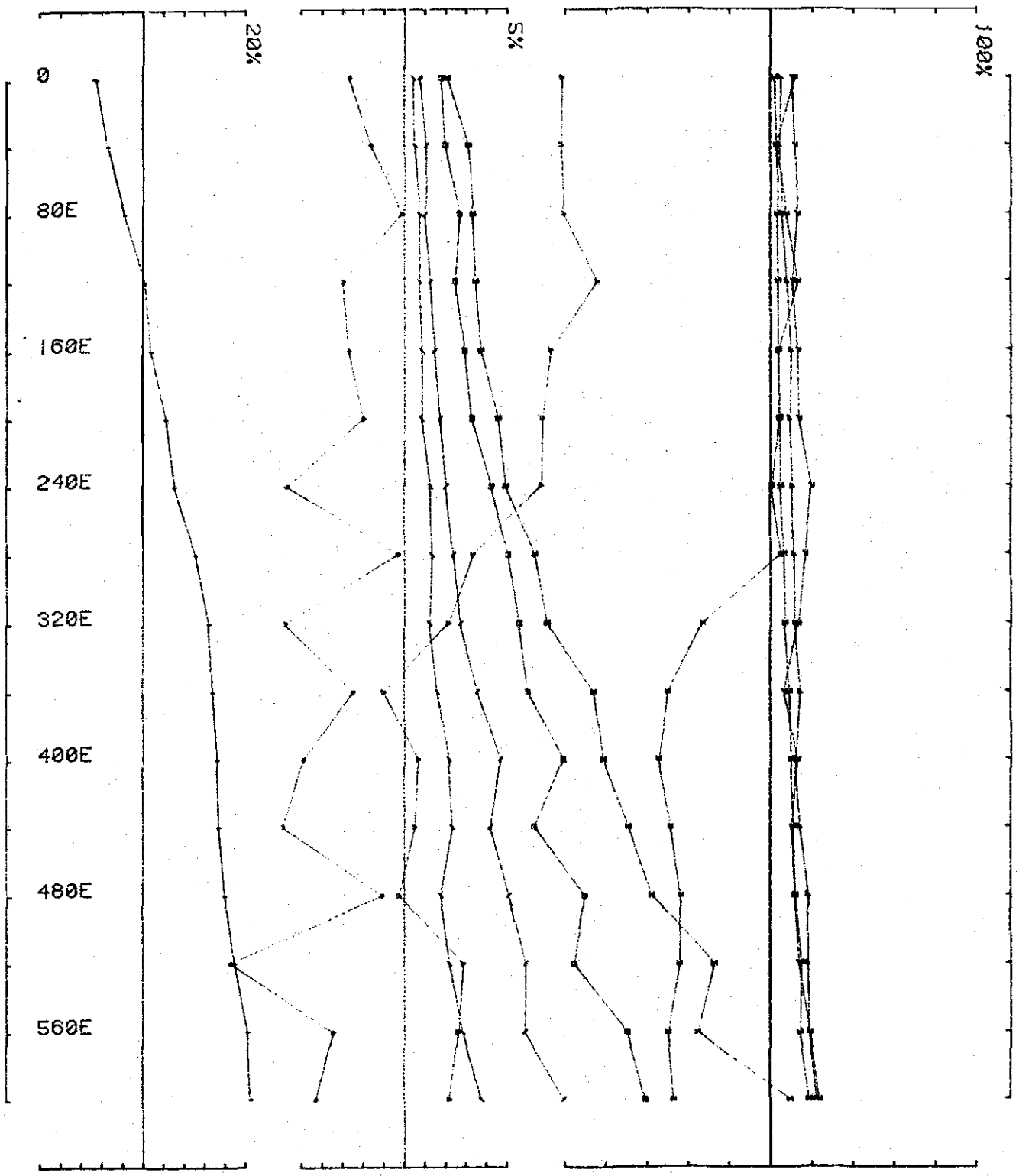
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Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 14400N component Hz secondary Ch 1 .

412

113413



UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Selina Grid Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0001 Line 14400N component Hz secondary Ch 1

413

APPENDIX F

INTERPRETATION OF WHITE SPUR U.T.E.M. SURVEY

by

J.R. Bishop (Mitre Geophysics)

Report GF/MG85/06

May, 1985

414

113415



MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
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INTERPRETATION OF THE WHITE SPUR UTEM SURVEY (E.L. 9/66).

for

Gold Fields Exploration Pty Ltd

by

Dr J.R. Bishop

GF/MG85/06
MAY, 1985

415

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CONTENTS

This report has been prepared as an appendix to the 1984-85 annual report on the Tyndall area (E.L. 9/66) and the figure numbers refer to that report.

Summary	1
Introduction	2
Geology and Exploration Target	2
Exploration History	2
Survey Details	3
Interpretation	3
Conclusions and Recommendations	3
References	4

Table	1.	UTEM coverage of White Spur grid.	5
Figure	42.	Interpretation of White Spur UTEM survey (1:5,000 scale).	
	-	UTEM profiles (lines 37N to 43N)	

Figures referred to, but not included in this report.

Geological plan (1:6,000 scale).

SUMMARY

A UTEM survey has been carried out over a section of the White Spur grid. No prospective responses were obtained and no further work is recommended.

INTRODUCTION

The White Spur grid covers an area of Cambrian volcanics on the southern slopes of Mt Read, within the northwest portion of Gold Field's E.L. 9/66.

The northeastern section of the grid was covered by a UTEM survey in February, 1985. This report interpretes the results from that survey.

GEOLOGY AND EXPLORATION TARGET

The part of the White Spur grid covered by the UTEM survey is underlain by a mixture of tuffs, tuffaceous sediments and black shales. The area is interpreted to lie along strike from the Rosebery mine and a similar volcanogenic base-metal deposit is the primary target.

Measurements of core from, and EM surveys over, this type of (Tasmanian) deposit have shown that although the mineralisation is not highly conductive, it is sufficiently conductive to produce recognizable time domain EM responses (eg, Eadie and Silic, 1984).

A secondary target is for a volcanic-hosted gold deposit. EM may be directly useful in helping to locate such a target if the gold is associated with massive sulphides or, indirectly, by helping to define the structure (faults, fractures or contacts). However since gold may occur with only disseminated sulphides, IP surveys are recommended for exploration programs where gold is the primary target.

EXPLORATION HISTORY

The area was mapped by Mt Lyell geologists in the period 1974 to 1979 and this was revised by Getty in the 1983/84 field season. Several good (up to 1850ppm Pb and 1460ppm Zn) base-metal geochemical anomalies have been defined from soil sampling (Walter, 1978). The grid has also been covered by IP and magnetic surveys.

A gradient array IP survey was carried out in the 1976/77 field season (Howland-Rose, 1977). The IP defined a moderate chargeability anomaly (of the order of 30ms) centred near the eastern ends of lines 38N and 39N. This anomaly was detailed with more gradient array IP and with a dipole-dipole IP survey on line 39N (Howland-Rose, 1978). There was no associated resistivity anomaly with either the gradient or dipole-dipole array surveys (values were all greater than 1000ohm-m).

In 1979, DDH WSP1 was collared on line 38.5N to test associated geochemical and geophysical anomalies. The results were disappointing, although interesting lead and zinc values were obtained from core samples (to 1550ppm Pb & 6300ppm Zn). A down-

hole IP survey was carried out over the top one third of the hole. Howland-Rose (1979) noted that the total sulphide values (less than 1.2%) seemed too low to explain the observed down-hole chargeabilities (to more than 60mv/v). The lowest down-hole resistivity recorded was around 100ohm-m (over a short interval).

SURVEY DETAILS

The surveyed area measures approximately 1.2km long by 1km wide. It was covered by one loop (1.2km x 0.7km) placed on the western side of the grid. The grid's original imperial units were used and the station spacing was 100ft (30m). The line spacing varied between (approximately) 150m and 250m. Only the vertical component was measured. The coverage is given in Table 1.

INTERPRETATION

The results were disappointing, no good anomalies were recorded. A number of zones and single-line responses have been interpreted but since they were all 'early-channel' responses (to #8), no economic significance is attached to any of them. A possible exception is zone F which has been defined by questionable channel 6 responses. Since the feature has occurred over five lines it is presumably real. However, because of the very low amplitudes and single channel response, I do not believe it constitutes a target.

Correlation between the UTEM responses and the geology map, shows a general parallelism between the direction of strike and the UTEM zones. The central part of zone D overlies the main body of tuffaceous (?black) shale, but no obvious cause of zones E and F (eg, faults) can be found from the drill section of the underlying DDH WSP1. Superficial fractures or rock-type contacts are the likely source of most if not all of the UTEM responses.

CONCLUSIONS AND RECOMMENDATIONS

No responses of potential interest have been interpreted and no further work is recommended.

J.R. Bishop
May, 1985.

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Howland-Rose, A.W., 1970. Comments on further geophysical surveys over the White Spur grid. Scintrex report TAS-062C for Mt Lyell.

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TABLE 1

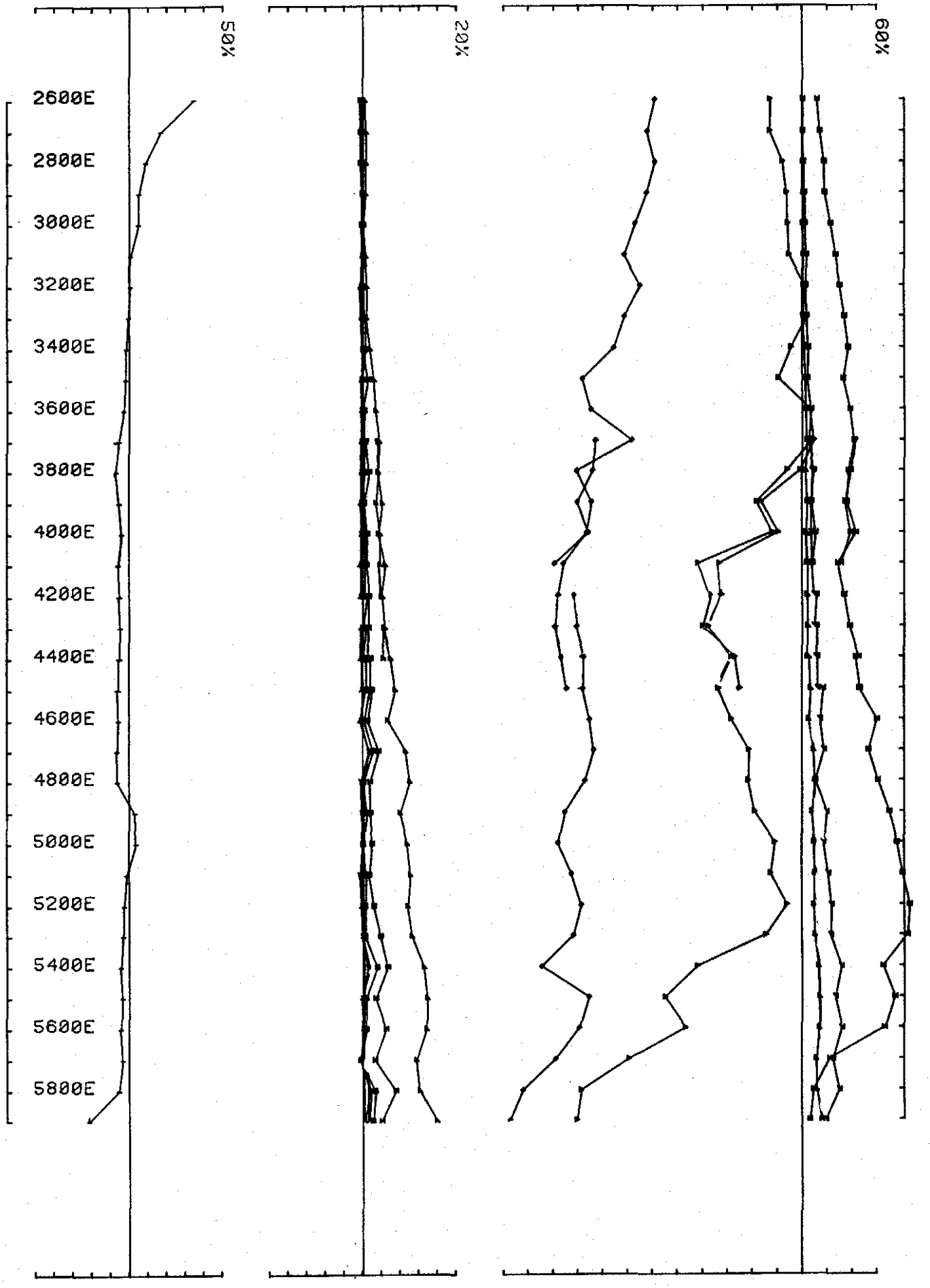
UTEM coverage of White Spur Grid

Line	Stations*
43N	3200E - 5600E
42N	3100E - 5700E#
41N	2400E - 5500E
40N	2600E - 6000E
39N	2400E - 6000E
38N	2100E - 5900E
37N	2600E - 5900E

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* The original Mt Lyell grid was used and distances are in feet.

On line 42N, the line finishes at Jones Creek at 3800E and restarts (on the opposite bank of the creek) at 3100E. Thus the the eastern limit of the UTEM survey is at a peg marked 5000E.



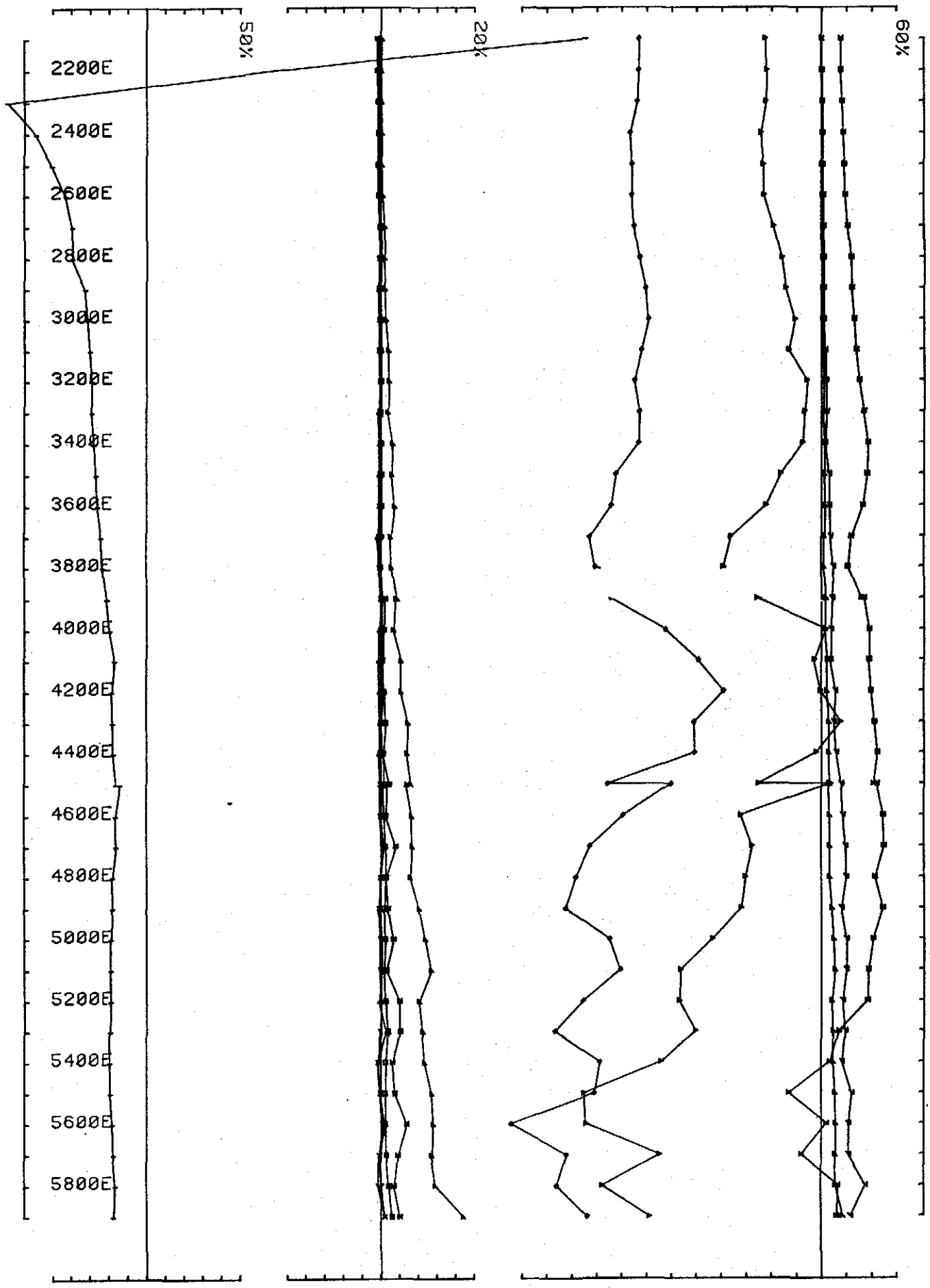
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line37N component Hz secondary Ch 1

422

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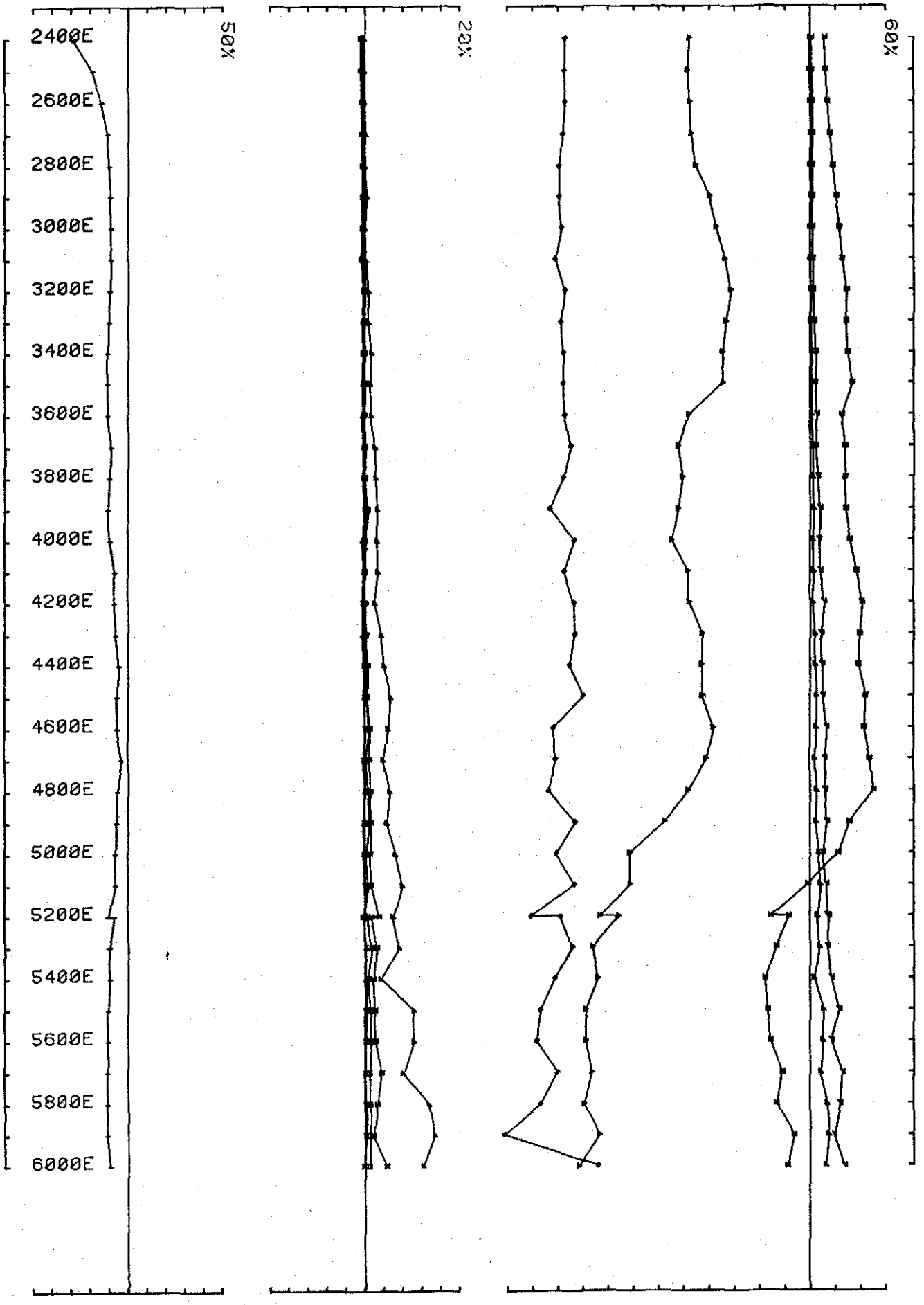
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 38 N component Hz secondary Ch 1

423

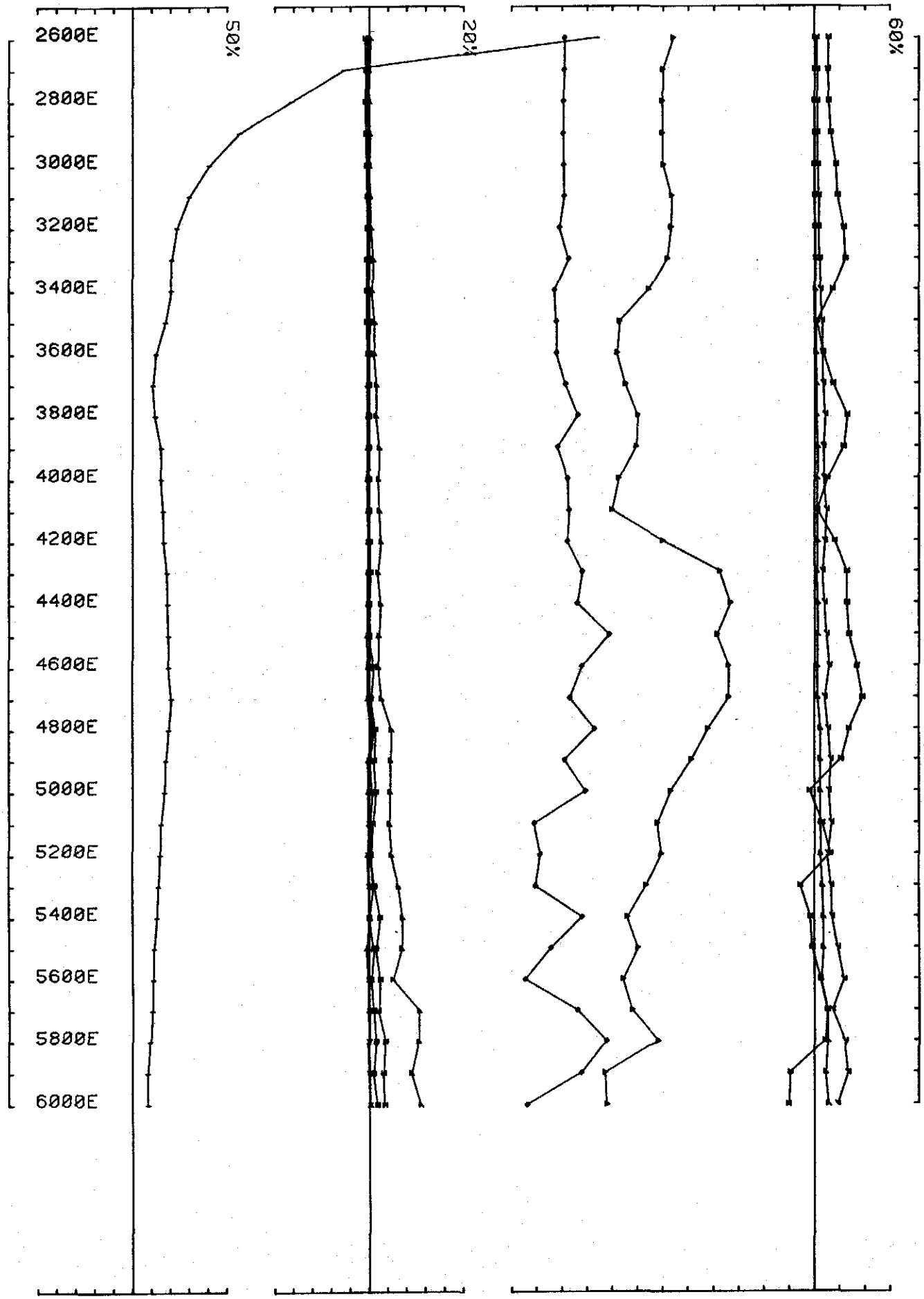
113424



UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 39N component Hz secondary Ch 1



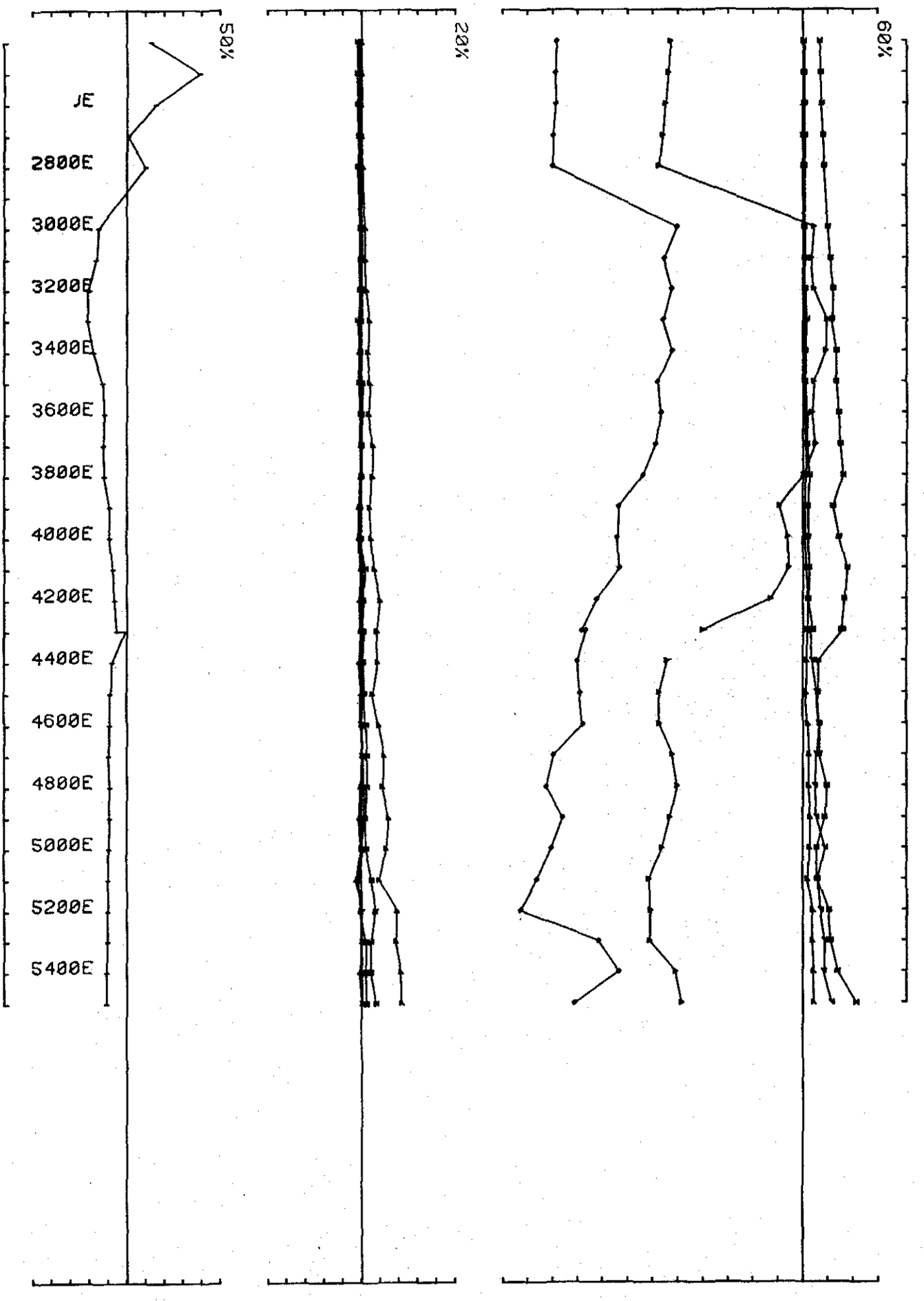
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Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 40N component Hz secondary Ch 1

425

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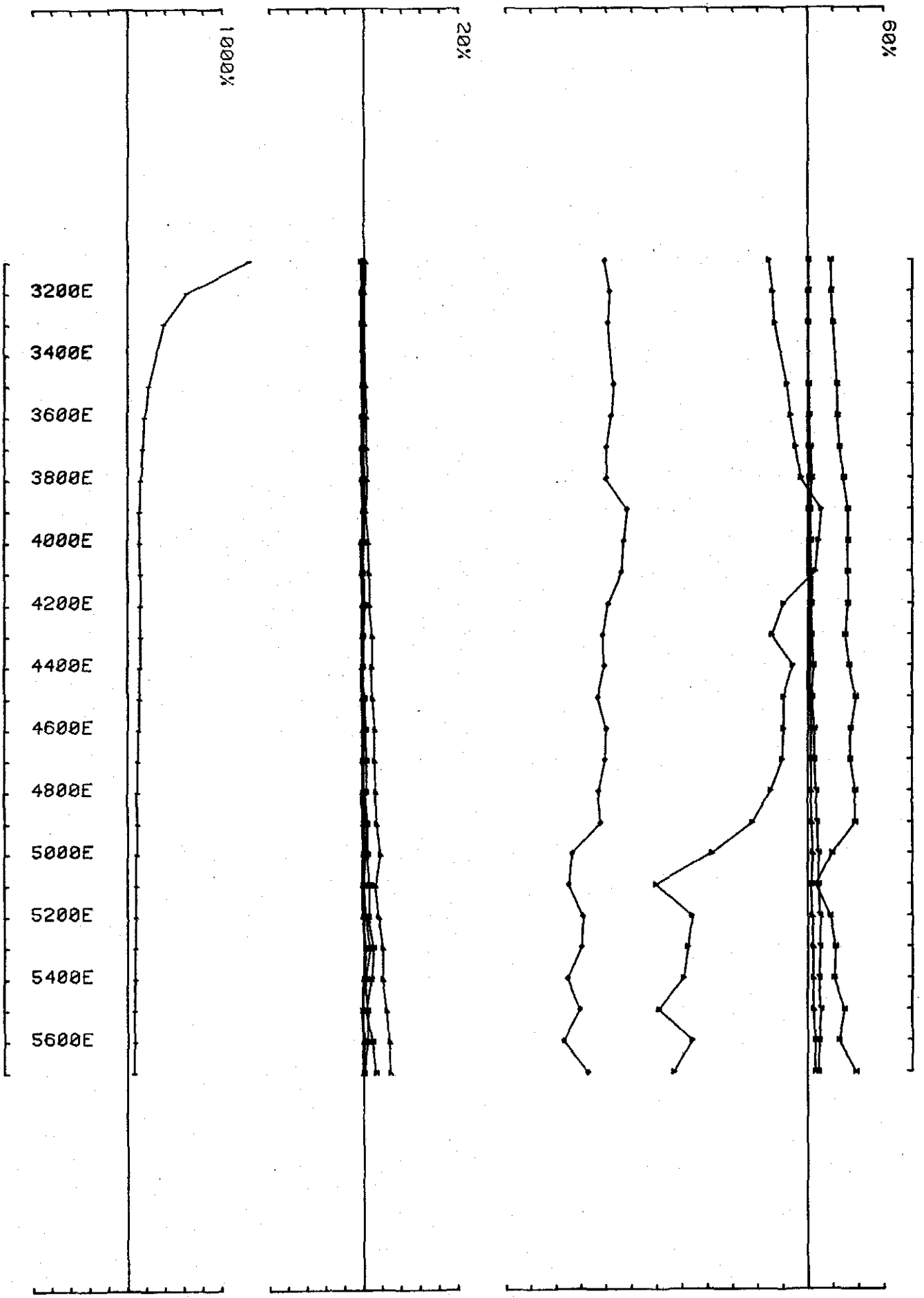
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 4/N component Hz secondary Ch 1

426

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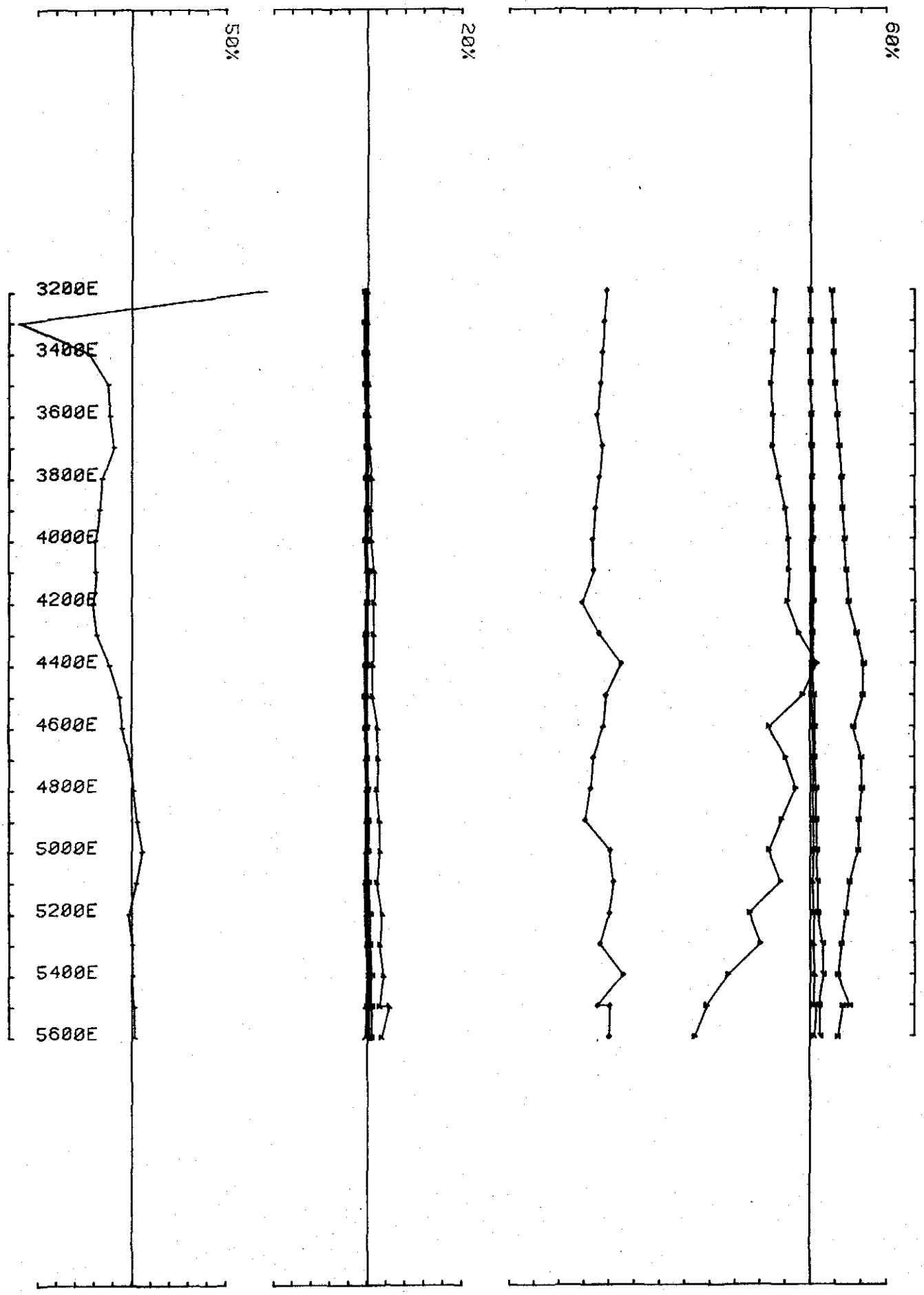
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 42N component Hz secondary Ch 1

427

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UTEM SURVEY conducted by PMM JCH Job 8502

Project Area White Spur Survey for Goldfields freq(hz) 26.230

Loopno 0002 Line 43N component Hz secondary Ch 1

428

113429

APPENDIX G

INTERPRETATION OF HUXLEY DIPOLE-DIPOLE I.P. SURVEY

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429

113430

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INTERPRETATION OF THE HUXLEY INDUCED POLARISATION SURVEY (E.L. 9/66).

for

Gold Fields Exploration Pty Ltd

by

Dr J.R. Bishop

GF/MG85/07
July, 1985

430

113431

CONTENTS

List of Tables and Figures	2
Summary	3
Introduction	4
Geology and Exploration Target	4
Exploration History	4
Survey Details	5
Interpretation	5
Conclusions and Recommendations	7
References	9

LIST OF TABLES AND FIGURES

This report has been prepared as an appendix to the 1984-85 annual report on the Tyndall area (E.L. 9/66) and the figure numbers refer to that report.

Table 1. IP coverage of the Huxley grid. 10

Figure 70. IP interpretation plan (1:5,000 scale).

Figure 71. Averaged chargeability plan (1:5,000 scale).

Figure 72. Averaged resistivity plan (1:5,000 scale).

Figure 73. Averaged metal factor plan (1:5,000 scale).

Figure 74. IP modelling: line 00 (homogeneous half space with topography; 1:2,500 scale).

Figure 75. IP modelling: zone 1 (line 00: geologic contact & discrete body, 1:2,500 scale).

Figure 76. IP modelling: zone 2 (line 6S: discrete body, 1:2,500 scale).

Figure 77. IP modelling: zone 3 (line 12S: thin, discrete body, 1:2,500 scale).

- IP pseudosections (1:2,500 scale).

Figures referred to but not included in this report

Geological plan (1:5,000).

SUMMARY

A dipole-dipole IP survey carried out over the Huxley grid has failed to locate any potential massive sulphide bodies. However responses were obtained over prospective zones previously defined by geological mapping and geochemistry.

It is suggested that if a massive sulphide deposit does lie in one of these zones, then it is located at least 100m below the surface (ie, beneath the 'reach' of the IP). The responses from three of the four zones recognised in the volcanics are suggestive of shallow disseminated sulphides of limited extent (or are spurious responses). The shape of the anomaly at the fourth area (zone no. 2: Island Ridge) suggests a significant volume of disseminated sulphides. This area (in common with some of the others) has the added interest of being covered by scree and glacially derived material.

A drill hole is recommended to test zone 2 at depth (about 200m below 6S/27SW). This target is imprecise and should be followed up with down-hole EM.

INTRODUCTION

The Huxley grid lies on the south-west slopes of Mt Owen, in the central section of E.L. 9/66. It is immediately south of, and along strike from, the Mt Lyell copper-gold mine. A similar geological setting to the mine and anomalous stream, soil and rock geochemistry suggest that the area is prospective.

A dipole-dipole induced polarisation (IP) survey was carried out over the grid in January, 1985 and this report interprets the results from that survey.

GEOLOGY AND EXPLORATION TARGET

The Huxley grid covers (what is interpreted to be) a southern extension of the Gt Lyell Fault. This fault is a contact between Cambrian Mt Read Volcanics to the west and Ordovician Owen Conglomerate to the east. At the Mt Lyell mine, the higher grade copper deposits occurred within steeply dipping volcanics close to the fault. Thus the prime target is a North Lyell type of deposit, on the western side of the fault, containing perhaps 6% copper. However, the soil and rock geochemistry has been high in lead and zinc, suggesting that the area is prospective for a polymetallic massive sulphide deposit. Both types of deposits should respond well to an IP survey.

If the fault dips shallowly to the east (or there is a series of faults), then a section of the volcanics covered by the younger sediments will be within the radius of search of geophysical methods (perhaps 100m for a 50m dipole IP survey). For this reason, a section of the sediments near the fault has been covered by the survey.

More than 50% of the volcanics in the gridded area are covered by glacial moraine and conglomerate scree. Most of this cover is probably less than 1 or 2m thick.

EXPLORATION HISTORY

The only geophysics carried out in the area is a Dighem survey, flown in 1982, which covered the volcanics, but not the fault or the Owen Conglomerate. One very low amplitude anomaly was recorded within the Huxley grid, which according to Peters and Dvorak (1982) may well have been due to aerodynamic noise.

Purvis et al (1983) state that the Huxley grid was established to follow up a number of stream sediment anomalies and the Dighem anomaly. However the anomaly was located over unprospective massive rhyolite and the ground EM follow up recommended by Bishop (1982) was not implemented.

Soil and rock chip geochemistry define several anomalous areas on

the grid. Purvis et al (1983) noted three specific areas of interest. (1) A hematitic tuff unit at the northern end of the grid and close to the fault "contains significant amounts of Pb and Zn sulphides" (several gossans have developed). (2) A window in the volcanics near the central part of the grid ('Island Ridge') has tuffs bearing up to 1% Zn. (3) Sericitised and pyritised volcanics at the southern end of the grid ('Windy Ridge') have not been mapped in detail and may have potential.

SURVEY DETAILS

The dipole-dipole IP survey was carried out by Scintrex in January, 1985 (job no. TAS-120). An IPR-11 receiver was used with 50m dipoles, read to n=5 (as specified by the contract. This did not take full advantage of the IPR-11's 6 channel input capability.) Pseudosections of resistivity and window M6 of the transient decay curve* were plotted by hand in the field and are enclosed with this report. (The normal digital plots were not available, since the data was not recorded on to tape. However a data listing was made.) The plots are known to contain errors, but these are largely uncorrected (except in the main areas of interest). The survey coverage is given in Table 1.

INTERPRETATION

The survey did not record any well-defined strong chargeability anomalies with associated resistivity lows such as might be expected over a copper, or (probably less conductive) polymetallic, deposit. Rather, a number of mostly poorly-defined areas of anomalous chargeability were observed. These occurred in both the volcanics and the conglomerate. Figure 70 shows the various interpreted chargeability and resistivity responses. Also shown are 'contact' lines of resistivity and chargeability which divide higher values (for both parameters) to the east from lower values to the west. These lines closely follow the Gt Lyell Fault indicated on the geology plan (FitzGerald and Pease, 1985). That is, the Owen Conglomerate is more resistive and (surprisingly) regionally more chargeable than the volcanics. Also indicated in Figure 70 are the three areas of interest mentioned by Purvis et al (1983). These have been labelled zones 1, 2 & 3.

To better show the main areas of interest, the average chargeability, resistivity and metal factors were calculated using the method described by Fraser (1981)#. The results are presented as contour plans in Figures 71, 72 & 73 respectively. Because of the

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* The M6 window gives values about 20% higher than the chargeabilities recorded by the IPR8 or IPR10 receivers (Scintrex, 198-). I have (loosely) called the M6 decay value, 'chargeability' in this report.

Negative chargeabilities were arbitrarily entered as 0.9mv/v.

averaging process, these figures or do not enhance any subtle or minor deep-seated responses. However the centres of the better anomalies are more clearly defined.

Zone 1 (the sulphide-bearing hematitic tuff unit east of Nasty Knob described by Purvis et al, 1983) contains two gossans on line 1N. These are only weakly seen on the IP pseudosection. The line 00 response is stronger, but still cannot be described as a good anomaly. The zone is not seen on the averaged chargeability plan (Figure 71), but is within an area of higher metal factors (Figure 73).

Line 00 has a second response, near 125E, which has an associated (but not coincident) resistivity low. Modelling of these responses was attempted using the 'RESIP' program (see Mudge, 1984). Figure 74 shows the influence topography has on the resistivity. 'Lows' are recorded at the bottom of valleys, with values higher than intrinsic at peaks. A smooth surface is probably a better approximation to the true topography and the results for a finite body, plus a more resistive and chargeable* '1/4 space' (the Owen Conglomerate) is shown in Figure 75.

The model has some similarities with the observed results, but the differences are probably more significant. Modelling can produce asymmetric anomalies, but not the single-sided response observed on line 00 at 300E. Such features are usually due to electrode effects#.

The negative IP effects associated with the (also single-sided) chargeability high beneath 00/50E also cannot be modelled and spurious responses again seem likely@.

The resistivity low in Figure 75 is too far to the east (note the position of the lowest resistivity value with respect to the model). A more westerly source of possibly smaller dimension is

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* The IP model program uses the frequency domain and gives the IP effect as the Percent Frequency Effect (PFE). Multiply by about 7 to convert to M6. (No attempt has been made to match values in the modelling; rather, similar shape has been the aim.)

ie, poorly contacting electrodes. This effect (of a single-sided anomaly) could possibly also be produced by a change in electrode position when each side of the 'anomaly' was being measured: eg, if an electrode for one of the sides was placed in sulphides, but not when measuring the other side. (This difference in electrode positions might occur between transmitting and receiving electrodes.)

@ Sumner (1976) states that negative IP effects often occur adjacent to polarisable bodies of limited extent, especially where the electrodes are close to the body. They can also occur under some conditions of horizontal layering.

needed to better model this feature.

The best defined chargeability anomaly of the survey lies 100m to 200m to the west of the second zone (Island Ridge) described by Purvis et al (1983). The anomaly has a good 'trouser-leg' shape (suggesting a discrete source) combined with an area of somewhat lower (but ill-defined) resistivity. It is well defined on the averaged metal factor plan (Figure 73) and reasonably defined on the averaged chargeability (Figure 71).

A model of the anomaly on line 12S, centred at 50W is given in Figure 76. This shows a large chargeable body near the surface. The response is not consistent with that expected from a massive sulphide body, however it may define a zone of alteration (with the prospective horizon at depth and possibly along strike).

The third zone (Windy Ridge) described by Purvis et al (1983) is seen as a distinct high on the averaged chargeability and metal factor plans, possibly open to the south (to zone 4; see Figure 70). Like zone 2, the area is partially covered by scree and glacial material and is therefore of particular interest. As with the zone 1 response at 00/100E, the anomaly here (12S/50W) is single-sided with adjacent negative values and a similar spurious source would normally be interpreted (ie, if there were no other prospective features). (There is also one extremely high value of 141mv/v close by; this value was repeated and the decay is normal.) Accurate modelling of these responses is not possible: a very narrow chargeable zone, persisting to depth gives the results shown in Figure 77.

The IP survey recorded one other anomaly of possible interest. This was a chargeable response centred at 15.5S/100E (labelled as zone 4 on Figure 70). Again it is single-sided with adjacent negative values, but it also is closely associated with some anomalous base metal values in soil samples.

All of the remaining chargeable responses lie within the Owen Conglomerate. Anomalies on the eastern sides of lines 12S to 15.5S indicate a very shallow chargeable and resistive source. Elsewhere (eg, 8S/475E) deeper sources are interpreted, but the resistivity sections suggest that these are still within the conglomerate (rather than in underlying, less resistive, volcanics). Samples (red in colour: ?hematitic) have been taken from the conglomerate in areas of shallow responses and sent for petrophysical testing.

CONCLUSIONS AND RECOMMENDATIONS

The IP survey has recorded responses over, or in close proximity to, the three areas of interest recognised by Purvis et al (1983). One other area, open to the south and possibly a southerly extension of zone 3, was also observed. None of these responses are indicative of massive sulphides and three of the four have several detracting features: namely 'single-sided' responses

of one dipole width, with adjacent negative values. Without the prior interest in these zones defined by their anomalous geochemistry and/or prospective lithology, I would have had little regard for these responses. Only the zone 2 anomaly has the classic 'trouser-leg' shaped response indicative of a finite chargeable source. The interest in this zone is enhanced by the fact that it is under glacial cover.

If any of these zones contain a potentially economic massive sulphide deposit, then it must lie beneath the depth of penetration of the IP survey (perhaps as much as 100m for 50m dipoles in resistive ground). That is any drill hole should not be targeted on the source of the IP response, but should look deeper. The best IP response (which may represent a significant volume of alteration) is at zone 2 and a target some 200m below 6S/275W is suggested. Given the very imprecise target, an EM survey should be carried out down the hole.

Although the chargeability responses in zones 1, 3 & 4 are apparently at depth, their narrow width and adjacent negative values, suggest that the sources, if real, are chargeable bodies of limited extent near the surface. None is indicative of a substantial zone of alteration.

Several chargeability responses were recorded in the Ordovician sediments. No sulphides have been observed in these rocks and the responses are thought to be associated with hematite.

J.R. Bishop
July, 1985.

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433

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TABLE 1

Dipole-dipole IP Coverage of the Huxley Grid.

Survey by: Scintrex

Date: Jan., 1985.

Receiver: IPR-11.

Dipole spacing: 50m.

Read to: n=5.

Transmitter wave form: 2 secs on;
2 secs off.

Line	From station (at n=)		To station (at n=)
1N	175W (n=1)	to	475E (n=3)
00	175W (n=1)	to	700E (n=4)
2S	175W (n=1)	to	700E (n=4)
4S	675W (n=1)	to	750E (n=4)
6S	825W (n=1)	to	750E (n=4)
8S	1075W (n=1)	to	650E (n=4)
10S	975W (n=1)	to	650E (n=4)
12S	425W (n=1)	to	700E (n=4)
14S	425W (n=1)	to	700E (n=4)
15.5S	75W (n=1)	to	750E (n=4)

440

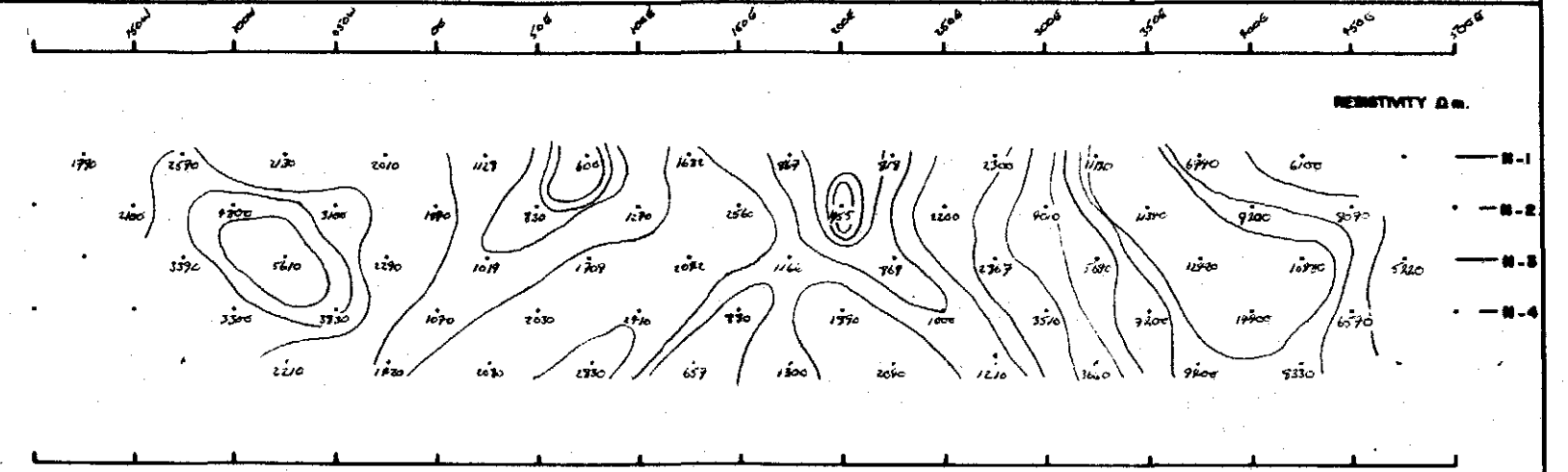
SCINTREX PTY LTD.

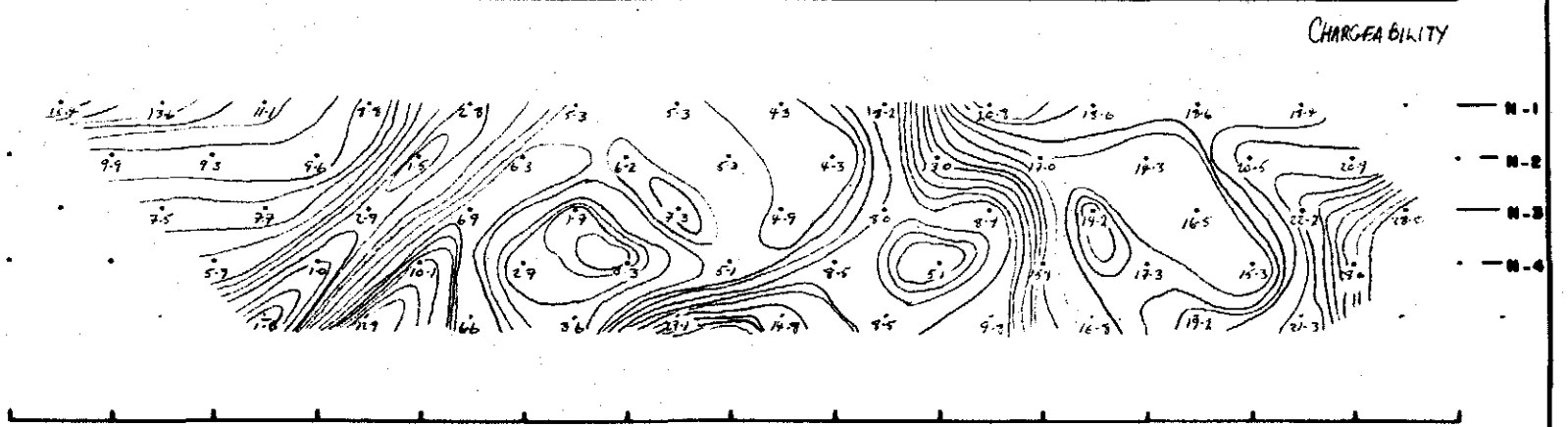
INDUCED POLARIZATION AND RESISTIVITY SURVEY

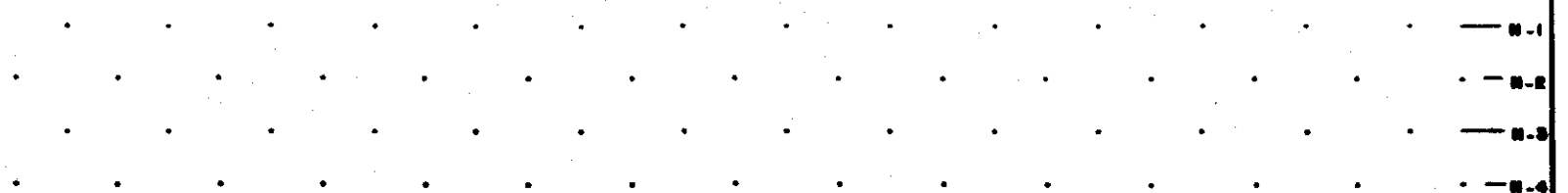
DIPOLE - DIPOLE ARRAY

DATE 21st JANUARY 1985	LINE No. 1N
PLOTTED BY PHILIP BROWN	PROSPECT HUXLEY
2 SECOND / RE. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50 METRES	

4900
6400
8100
10000
16000
24000
36000
49000
64000
81000
100000







5 cm

1134411

441

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 20TH JANUARY 198	LINE No. 00 N A
PLOTTED BY WORLD CHAMPION	PROSPECT HUXLEY
2 SECOND / Rx. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50 METRES	

990
640
410
1000
1600
2500
3600
4900
6400
8100
10000

RESISTIVITY Ω m.

N-1
N-2
N-3
N-4

5 cm

CHARGEABILITY

METAL FACTOR

113442

442

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 20TH JANUARY 1986	LINE No. CCN B
PLOTTED BY WORLD CHAMPION	PROSPECT HUXLEY
2 SECOND / Rx. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50 METRES	

490
540
590
640
690
740
790
840
890
940

5006 5506 6006 6506

RESISTIVITY Ω.m.

N-1
N-2
N-3
N-4

5120 10600 5809
9350 10190 7960 13370
6810 6500 17990 15960
9756 9160 19600 19200 12900
5250 9960 15760 12530

N-1
N-2
N-3
N-4

18·6 20·3 13·3
19·3 20·4 16·3 16·3
20·1 17·0 17·9 12·5
19·4 19·6 19·8 18·3 18·0
16·5 19·2 19·7 13·9

N-1
N-2
N-3
N-4

N-1
N-2
N-3
N-4

5 cm

113443

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 17/ JAN 1985	LINE No. 2S
PLOTTED BY P. Brown	PROSPECT HUXLEY
2 SEC / Rx. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50m	

690
810
1000
1600
2500
4000
6200

150W 100W 050W 0E 50E 100E 150E 200E 250E 300E 350E 400E 450E 500E

RESISTIVITY Ω m.

N-1 N-2 N-3 N-4

CHARGEABILITY

N-1 N-2 N-3 N-4

N-1 N-2 N-3 N-4

5 cm

113441

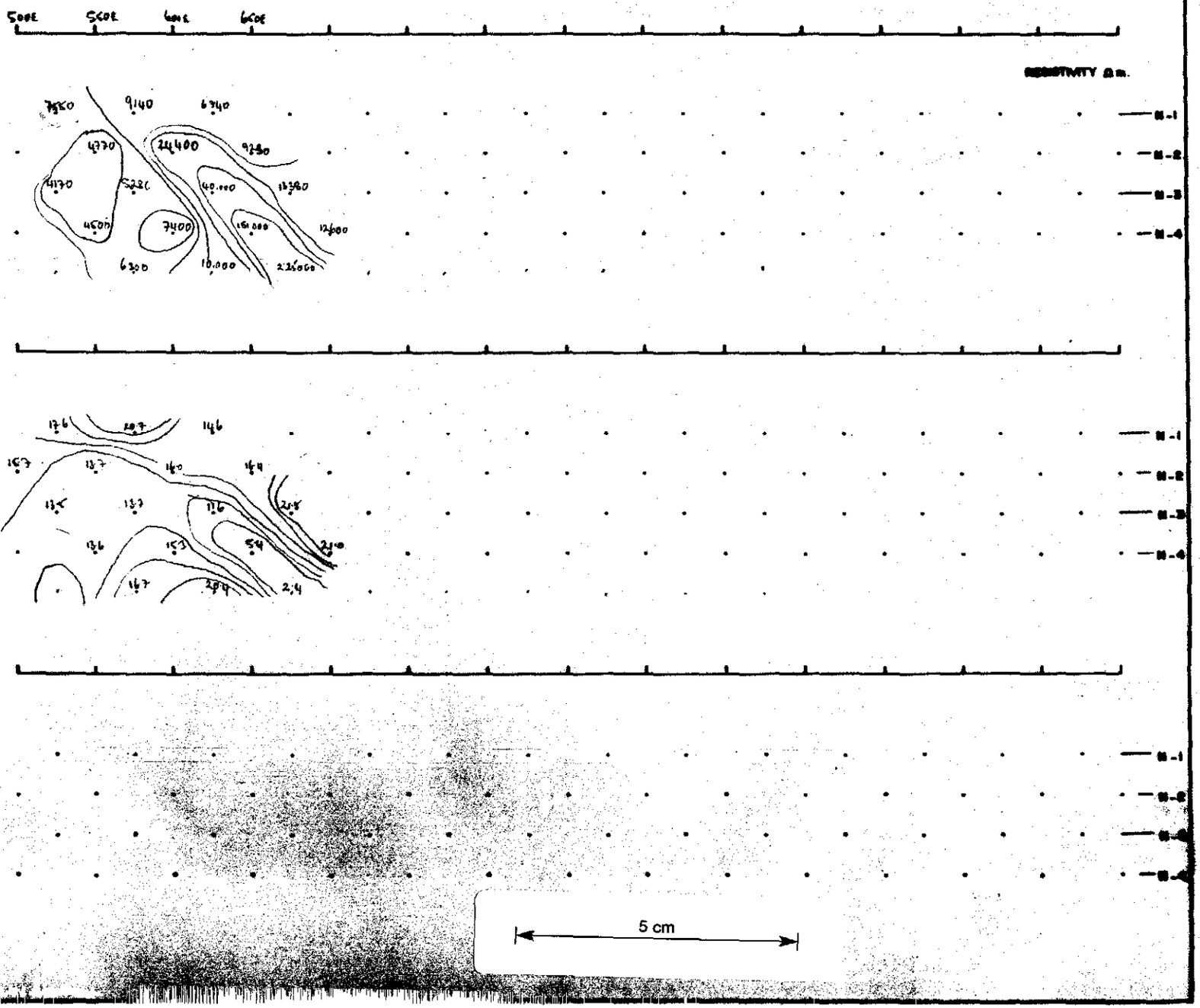
444

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 17-01-85	LINE No. 2 S B
PLOTTED BY RP	PROSPECT HUXLEY
2SEL / Rx. IPR11	JOB No. TAS 120
DIPOLE SPACING 50m	



113445

A45

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 15/10 JAN 1985	LINE No. 45 A
PLOTTED BY P. Brown	PROSPECT HUXLEY
2SEC Rx. IPR-11	JOB No. TAS-128
DIPOLE SPACING 50 m	

690
810
1000
1606
2500
3900
6400
8100
10000
16000Ω

RESISTIVITY Ωm.

CHARGEABILITY

5 cm

1134A6

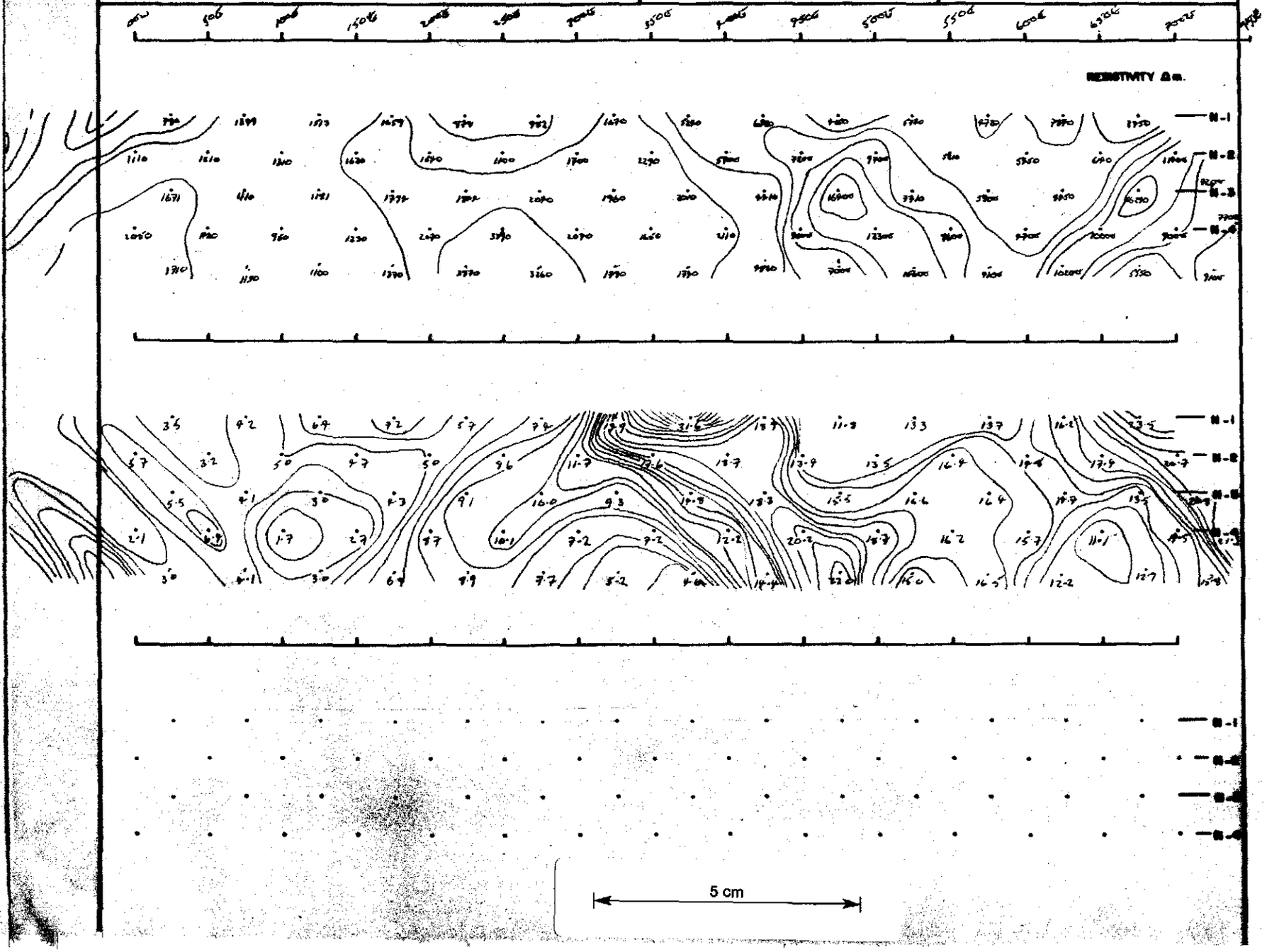
448

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 16/16 JAN 1985	LINE No. 4 S B
PLOTTED BY P. Brown	PROSPECT HUXLEY
2 Sec Rx. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50.m	



11341

447

SCINTREX [redacted] LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 4.2.-

PLOTTED BY [redacted]

Rx. IPR-11

DIPOLE SPACING 50m

LINE No. 6S A

PROSPECT HUXLEY

JOB No. TAS 120

850W 800W 750W 700W 650W 600W 550W 500W 450W 400W 350W 300W 250W 200W 150W

RESISTIVITY Ωm.

3680 1231 1775 2660 1990 1884 936 1191 1590 2284 1120 766 1960 1890 — N-1

1840 2250 2390 2170 1830 2540 1120 1640 2550 2380 1190 1820 1870 1490 — N-2

2660 2310 1376 1949 2360 2910 1371 1703 2360 4140 1990 1360 1520 — N-3

2760 1560 1300 2370 2890 2920 1320 1940 2690 7900 1940 1870 2400 — N-4

1530 1610 1900 2460 2540 2890 1480 2110 6030 6950 2140 2380 2710

CHARGEABILITY

10.7 6.2 4.8 5.5 4.3 5.2 5.9 6.2 7.4 10.6 13.8 25.3 24.5 13.2 — N-1

9.4 6.0 4.6 4.1 5.7 5.3 4.2 7.3 10.7 18.5 23.7 19.0 13.2 10.7 — N-2

9.5 5.3 3.0 5.1 4.0 3.5 6.1 11.1 13.2 15.9 15.5 15.4 — N-3

9.1 3.6 5.2 2.6 4.3 6.3 9.7 14.0 15.0 6.2 10.2 14.3 15.2 — N-4

4.0 6.9 3.8 3.7 7.7 10.2 13.5 15.0 5.2 5.3 9.7 14.0 20.1

3.9 4.6 15.9 33.0 17.2 9.5 — N-1

4.5 4.2 4.3 18.1 10.4 9.2

4.4 6.5 5.6 3.8 6.3 11.4 10.5

2.1 7.0 7.2 4.1 0.9 5.3 9.7

3.0 3.5 9.1 7.1 0.9 0.8 4.4 6.1

5 cm

1134148

448

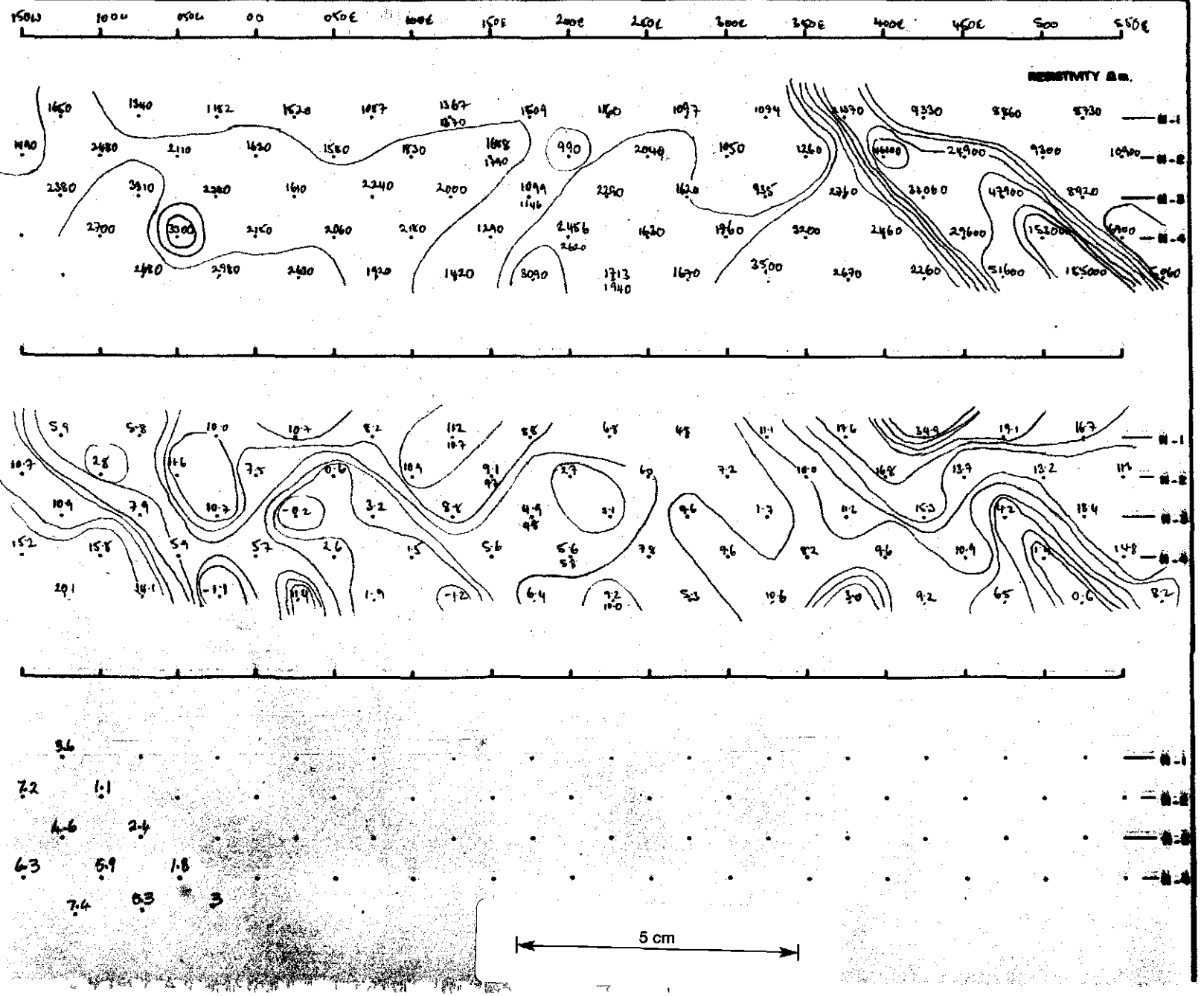
640
810
1000
1600
2500
4000
4000

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 22-01-86	LINE No. 6S B
PLOTTED BY RP	PROSPECT HUXLEY
2sec / No. IPR11	JOB No. TAS 120
DIPOLE SPACING 50m	



5 cm

11943

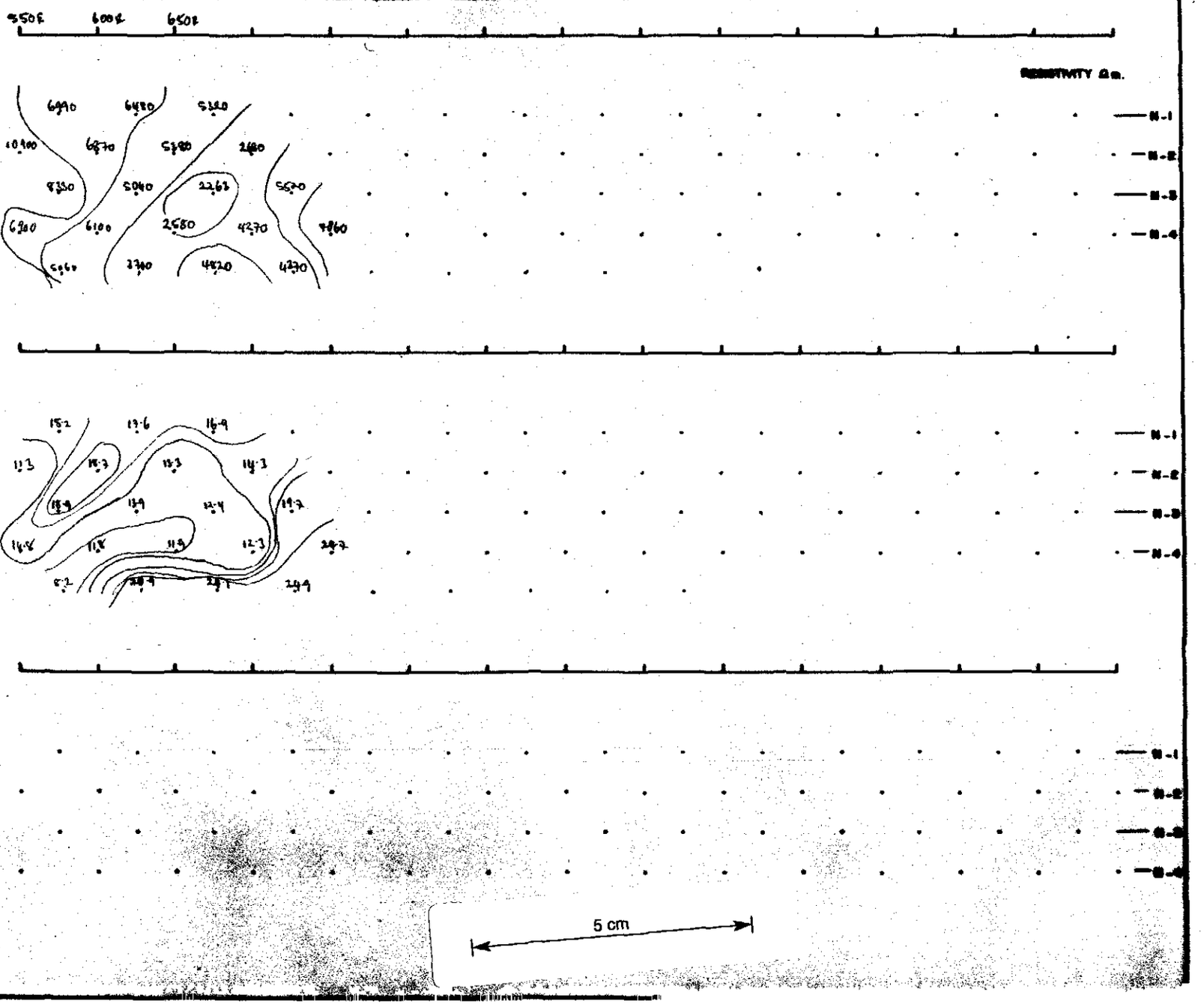
449

SCINTREX PTY LTD.

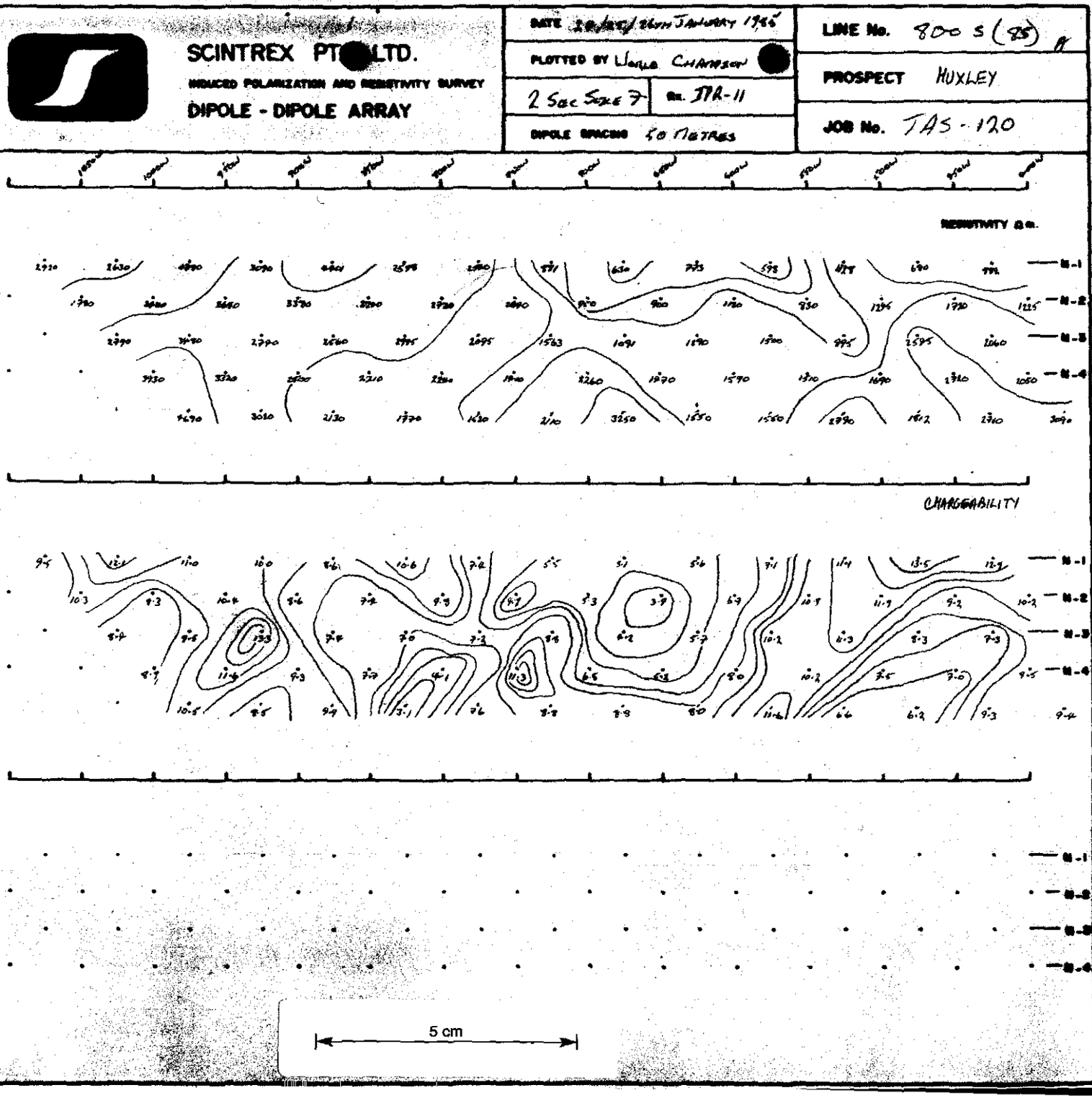
INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 23-01-85	LINE No. 6S C
PLOTTED BY RP	PROSPECT HUXLEY
2 SEC / Rx. IPR-11	JOB No. TAS 120
DIPOLE SPACING 50m	



11350


SCINTREX PTY LTD.
INDUCED POLARIZATION AND RESISTIVITY SURVEY
DIPOLE - DIPOLE ARRAY
DATE 26th JANUARY 1976
PLOTTED BY WAYNE CHAMPION
2 Sec Scale 7
Rx. IPR-11
DIPOLE SPACING 40 METRES
LINE No. 800 S (85) A
PROSPECT HUXLEY
JOB No. TAS-120
RESISTIVITY Ω m.
CHARGEABILITY
N-1
N-2
N-3
N-4
5 cm

451

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 25th/26th JANUARY 1985

PLOTTED BY WORLD CHAMBERLAIN

SCALE 1" = 2 SECOND

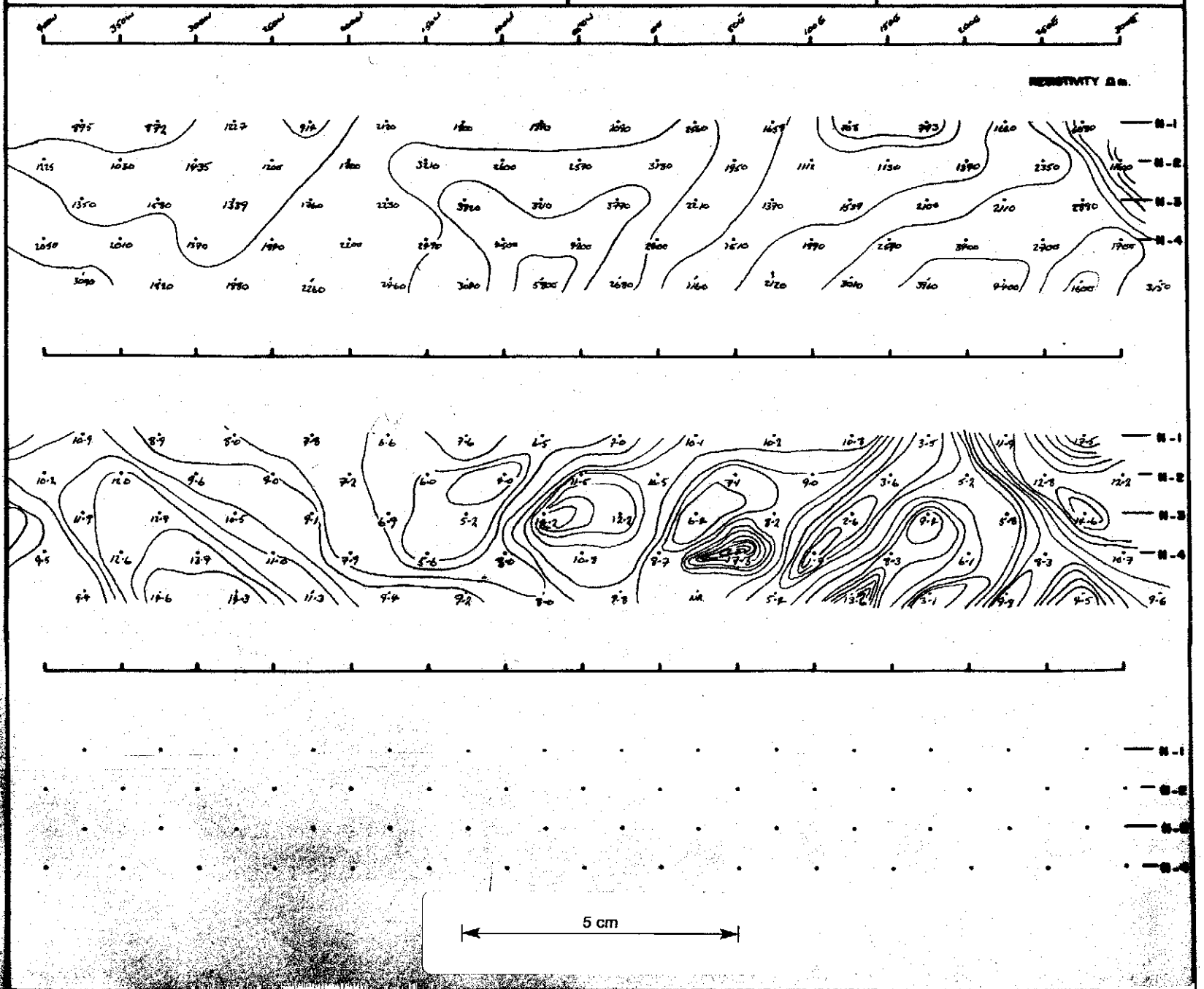
No. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 8 S. B

PROSPECT HUXLEY

JOB No. TAS-120



113452

452

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 26TH JANUARY 1985

PLOTTED BY DAVID GARRISON

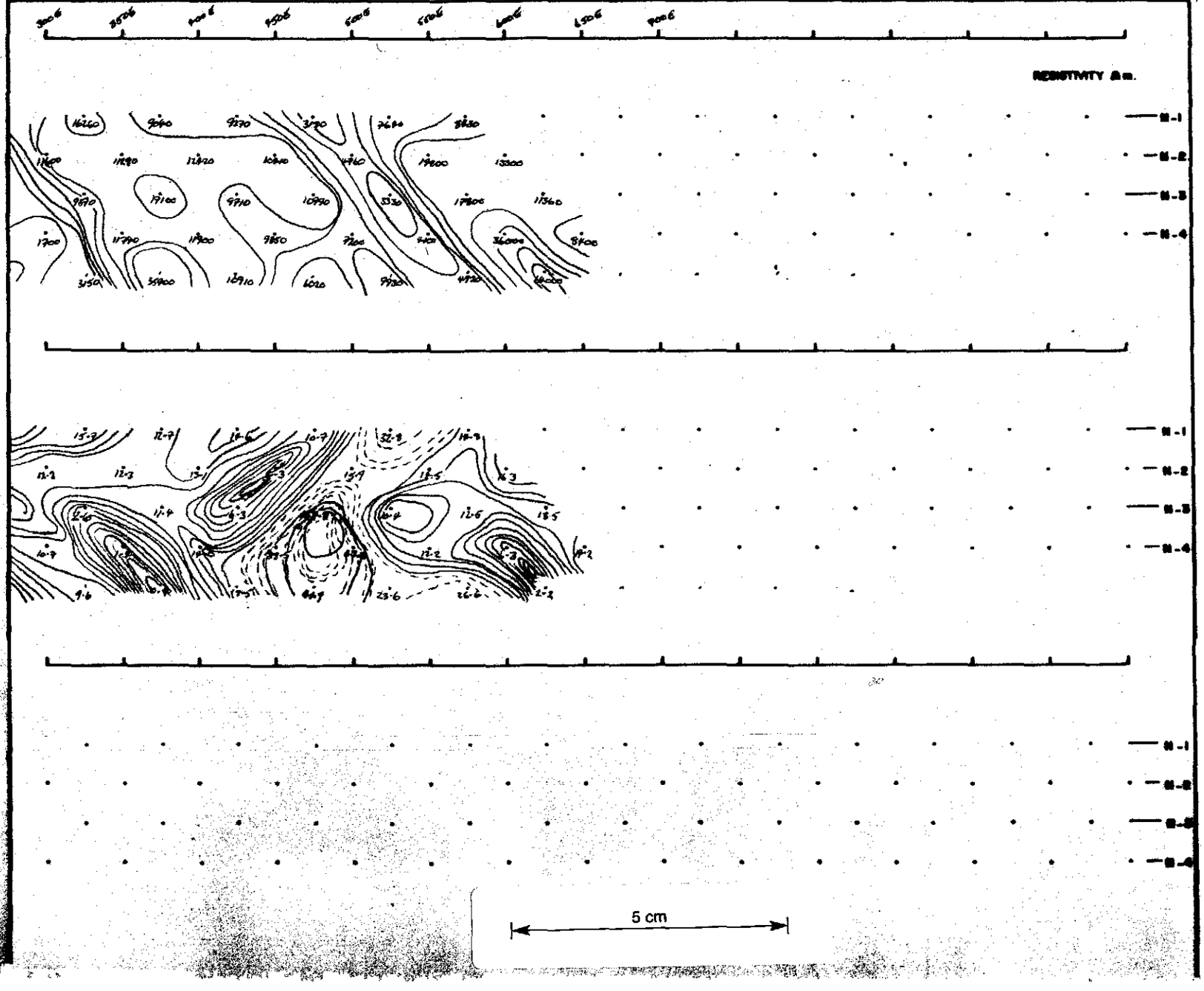
2 SECOND FAN SWEEP | Rx. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 8 S.

PROSPECT HUXLEY

JOB No. TAS-120



113453

453

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 27TH/28TH JANUARY 1985

PLOTTED BY PHILIP BROWN

2 SECOND SLICE 7 | Rx. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 10 S A

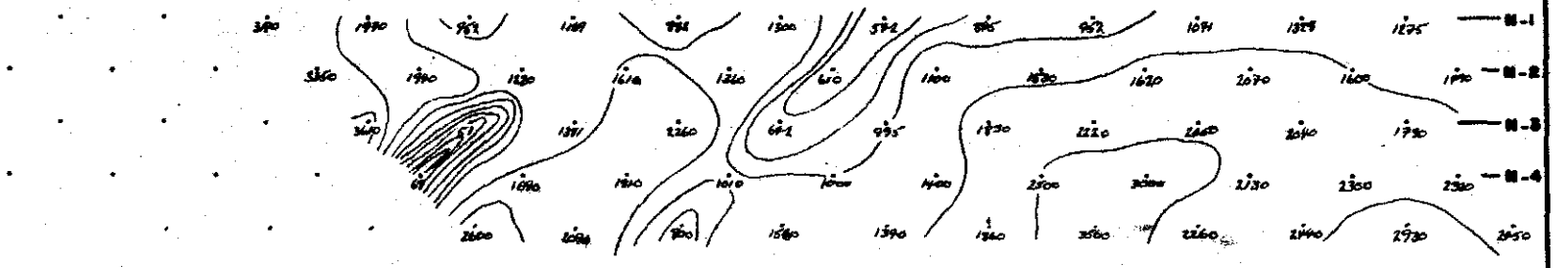
PROSPECT HUXLEY

JOB No. TAS-120

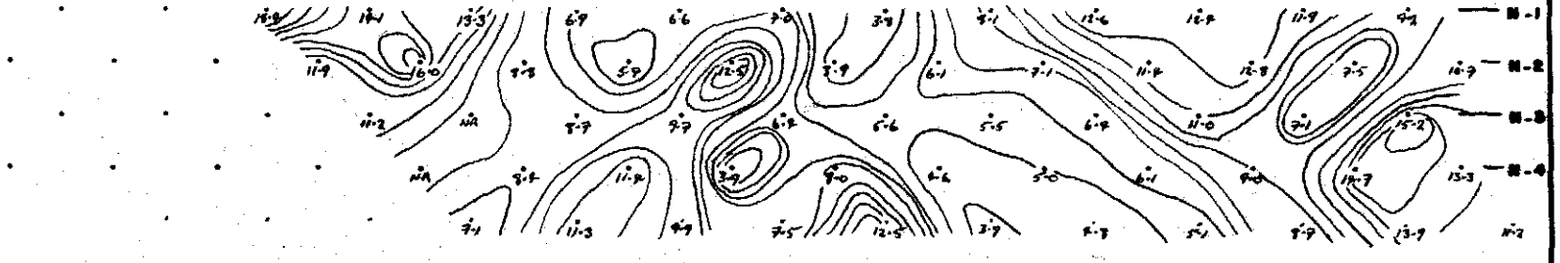
1000N
1600
2500
3600
4900
6400
8100
10000

10400W 10000W 9600W 9200W 8800W 8400W 8000W 7600W 7200W 6800W 6400W 6000W 5600W 5200W 4800W 4400W

RESISTIVITY Ω m.



CHARGEABILITY





5 cm

113454

454

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 27TH/28TH JANUARY 1985

PLOTTED BY PHILIP BROWN

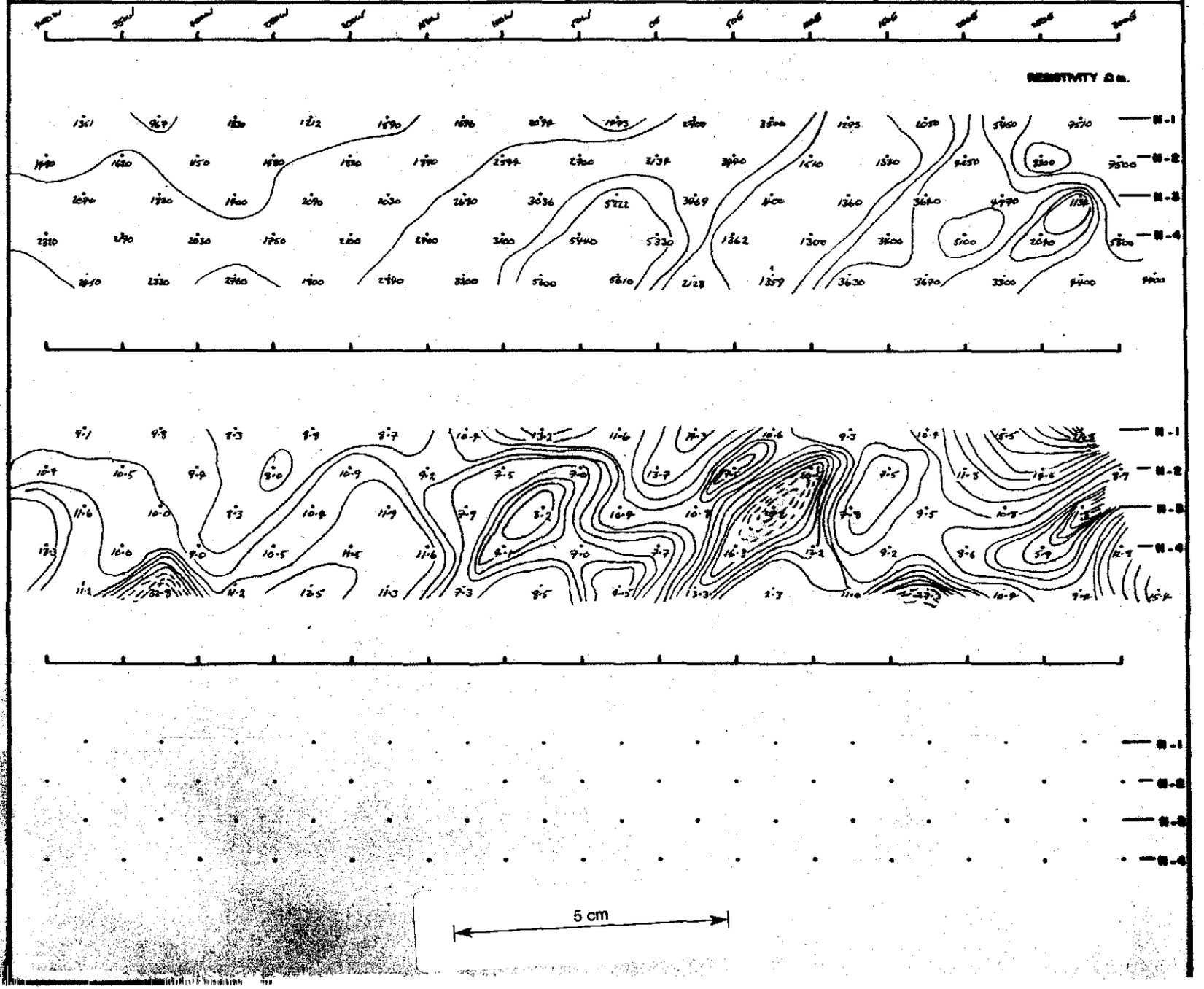
SECOND SUITE 7 RX. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 10 S B

PROSPECT HUXLEY

JOB No. TAS-120.



113453

455

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 18TH JANUARY 1985

PLOTTED BY PHILIP BROWN

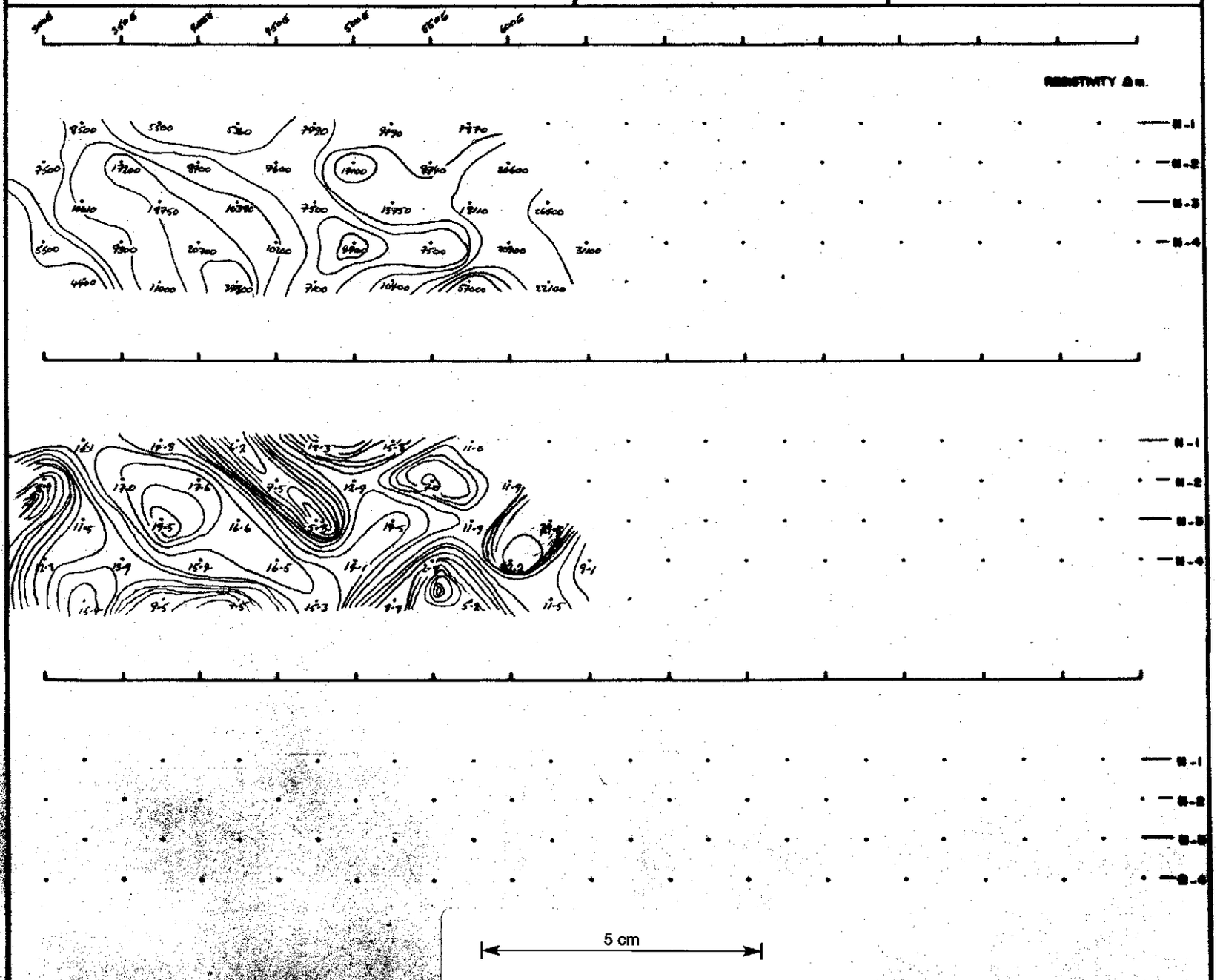
2 SECOND SLICE 7 | Rx. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 10 S

PROSPECT HUXLEY

JOB No. TAS-120



113459

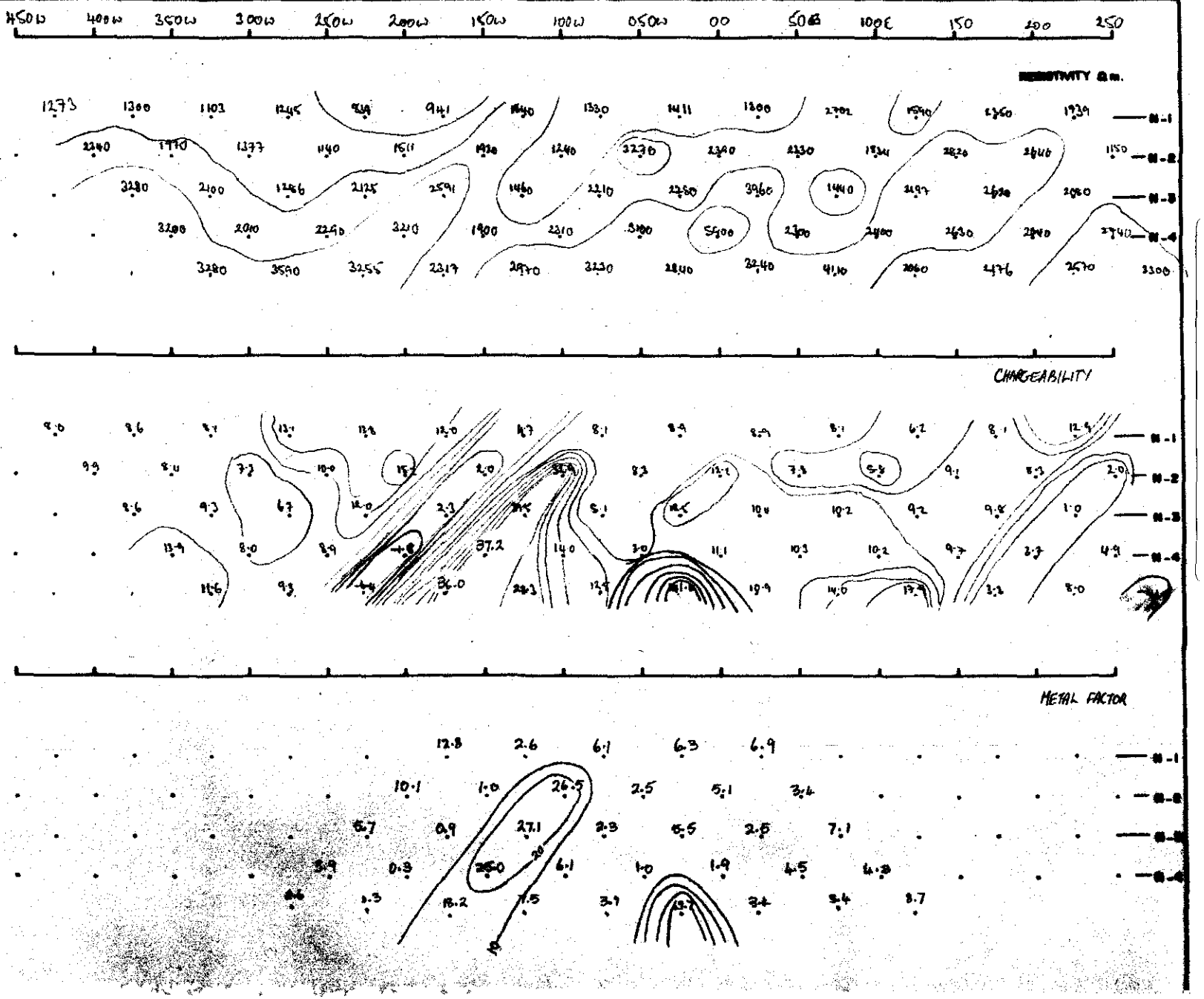
456

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 29-01-85	LINE No. 12S A
PLOTTED BY Rob Pryoon	PROSPECT HUXLEY
2SEC / No. IPR-11	JOB No. TAS 120
DIPOLE SPACING 50m	



5 cm

NB negative values plot as 0.9 and use for averaging

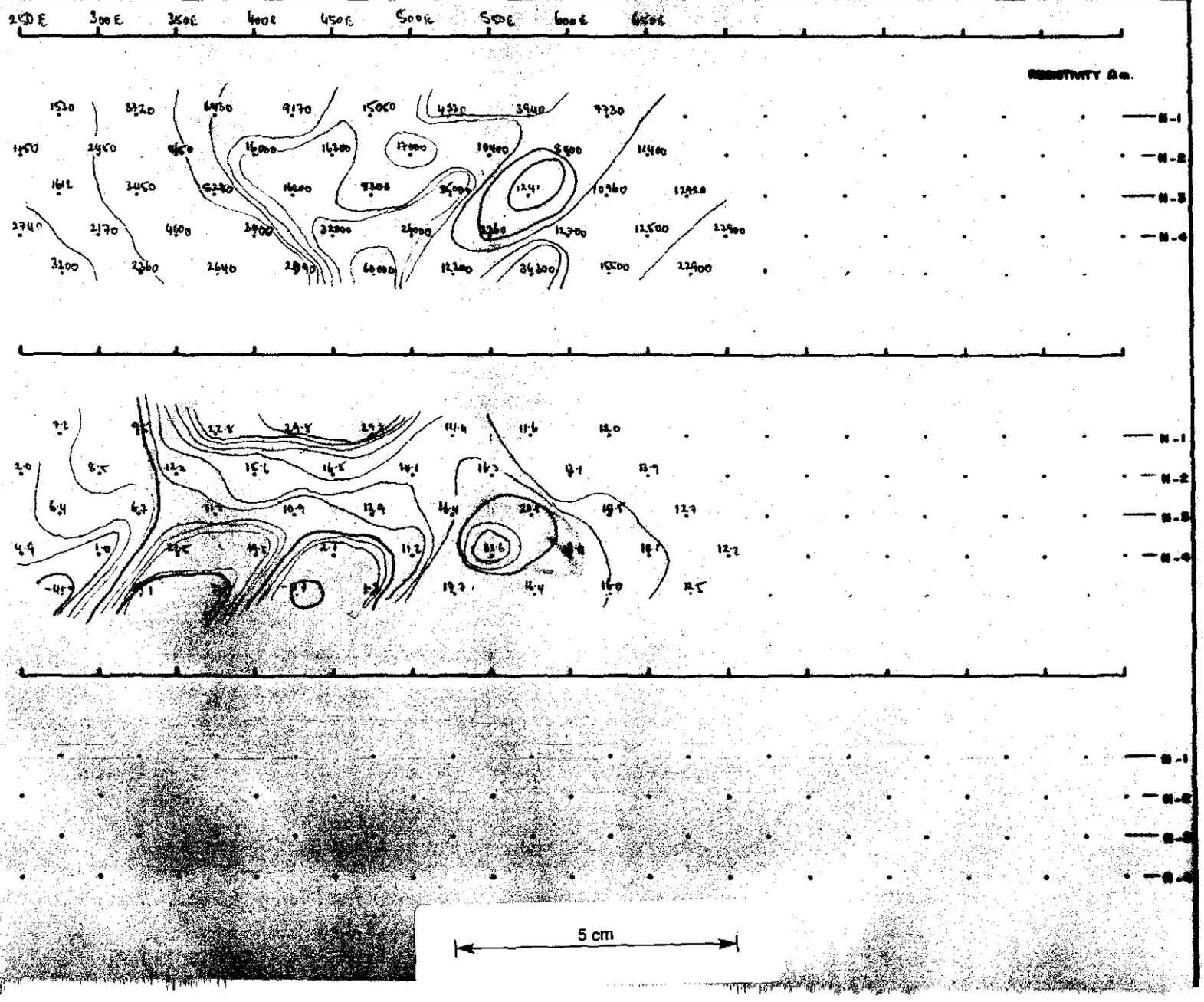
1134571

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 29-01-85	LINE No. 125 B
PLOTTED BY Rob Prydon	PROSPECT Huxley
2 Sec. / IPR-11	JOB No. TAS - 120
DIPOLE SPACING 50m	



1134458

458

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 30TH JANUARY 1985

PLOTTED BY DONALD CAMPBELL

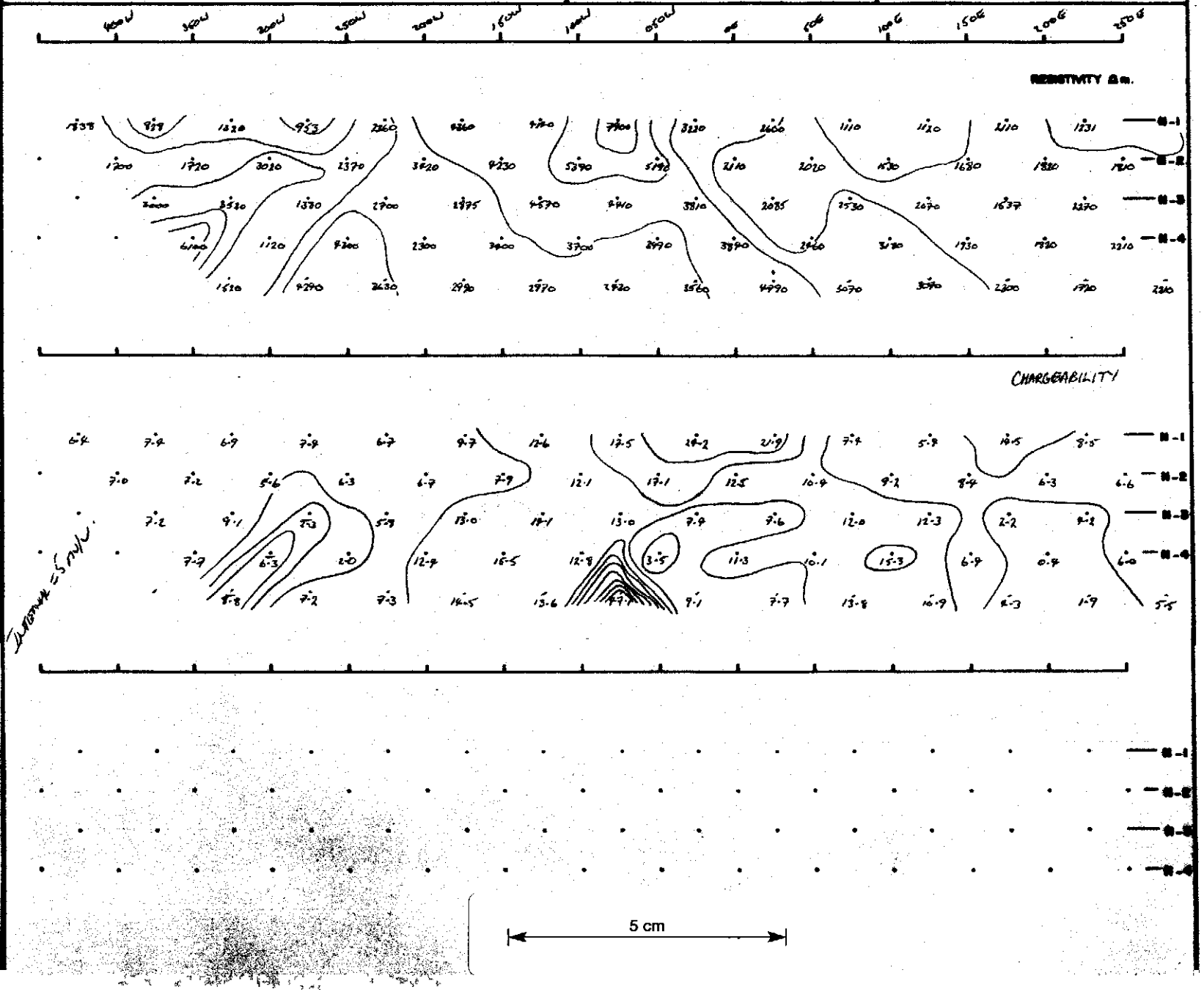
2 SECOND SWEEP | RX. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 19S A

PROSPECT HUKLEY

JOB No. TAS-120



1139459

459

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 30TH JANUARY 1985

PLOTTED BY WORLD CHAMPION

2 SECOND SWEEP 7 | No. IPR-11

DIPOLE SPACING 50 METRES

LINE No. 19S B

PROSPECT HUXLEY

JOB No. TAS-120

RESISTIVITY Ω m.

N-1
N-2
N-3
N-4

INTEGRAL = 5 mV/V

N-1
N-2
N-3
N-4

N-1
N-2
N-3
N-4

5 cm

1134460

460

SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 31st JANUARY 1985 / 1st FEBRUARY 1985	LINE No. 15·5 S. A
PLOTTED BY PHILIP BROWN	PROSPECT HUXLEY
2 SECOND SLICES 7 / No. IPR-11	JOB No. TAS-120
DIPOLE SPACING 50 METRES	

1000
1600
2600
3600
4900
6400
8100
10000

RESISTIVITY Ωm.

CHARGEABILITY

5 cm

113461

SCINTREX PTY LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

DIPOLE - DIPOLE ARRAY

DATE 1ST FEBRUARY 1985

PLOTTED BY PHILIP BROWN

2 SECOND SIZE 7 | RE IPR-11

DIPOLE SPACING 50 METRES

LINE No. 15·5 S B

PROSPECT HUXLEY

JOB No. TH5-20

RESISTIVITY Ω m.

N-1
N-2
N-3
N-4

3460 6000 6800 9900 1800 9200 9300 9570 5500 5100 10060 6900 7100 6600 8700

N-1
N-2
N-3
N-4

10·6 19·2 18·4 11·7 19·3 13·4 19·9 13·2 16·0 28·9 16·3 13·9 26·2

N-1
N-2
N-3
N-4

5 cm

1134462

462

GOLD FIELDS EXPLORATION PTY. LIMITED

113463

APPENDIX H

INTERPRETATION OF SNAKE SPUR U.T.E.M. SURVEY

by

J.R. Bishop (Mitre Geophysics)

Report GF/MG85/04

April, 1985

463

113464

MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

INTERPRETATION OF THE SNAKE SPUR UTEM SURVEY (E.L. 9/66).

for

Gold Fields Exploration Pty Ltd

by

Dr J.R. Bishop

GF/MG85/04
April, 1985

464

113465

CONTENTS

This report has been prepared as an appendix to the 1984-85 annual report on the Tyndall area (E.L. 9/66) and the figures refer to that report.

Summary	1
Introduction	2
Geology and Exploration Target	2
Exploration History	2
Survey Details	2
Interpretation	3
Conclusions and Recommendations	4

Table 1.	UTEM coverage of Snake Spur grid.	5
Figure 90.	Interpretation of Snake Spur UTEM survey (1:5,000 scale).	
-	UTEM profiles (lines 1000N to 3300N).	

Figures referred to, but not included in this report.

Geological plan (1:5,000 scale).

465

113466

SUMMARY

A UTEM survey was carried out over the Snake Spur area within E.L. 9/66. The results were disappointing; the largest amplitude responses have been interpreted as being caused by conductive (glacially derived) overburden.

A very low amplitude (and therefore dubious) two-line zone was interpreted over glacials and lying close to old gold workings. If this area is of interest, then more detailed EM surveying will be required to define a drill target.

INTRODUCTION

The Snake Spur grid covers a small area of Cambrian Mt Read Volcanics and Owen Conglomerate. It is situated between Mt Jukes and Mt Darwin, to the south of Queenstown, within E.L. 9/66. The area is remote and access for the 1984/85 field season was by helicopter.

The grid was covered by a UTEM survey in February, 1985. This report interprets the results from that survey.

GEOLOGY AND EXPLORATION TARGET

The Snake Spur grid covers the western contact of a narrow, north-west trending syncline of Owen Conglomerate overlying the Mt Read Volcanics. The north eastern part of the grid is covered by glacial material which is thought to be 20-30m thick in the west and thinning to the east. It was hoped that the conglomerate would be sufficiently thin to be penetrated by the EM survey.

The area was considered to have structural similarities to the North Lyell area (ie, a north-west trending, faulted contact between the volcanics and the conglomerate) and the prime exploration target was for a North Lyell type copper deposit. Such a deposit, containing perhaps 6% copper, would be very conductive and an excellent target for an EM survey. Traces of copper are to be found in an old costean cut through the volcanics near the contact with the conglomerate in the southern part of the grid (south of line 1800N).

A secondary target is for gold, probably as a volcanic-hosted body, but possibly of vein-type, associated with the faulted contact. An old gold prospect (named Sailor Jacks), about which apparently little is known, lies close to the eastern conglomerate - volcanics contact near line 2200N. The role of geophysics for such a target is not as clear-cut as for the copper deposit. EM may be useful if the gold is structurally controlled (the EM being used to define the faults). If the gold is associated with sulphides, then IP should be the most applicable method.

EXPLORATION HISTORY

The area has not been previously gridded and thus it has not had any other geophysical surveys conducted over it, nor had it been mapped in any detail.

SURVEY DETAILS

The surveyed area measures roughly 1km wide by 2km long. It was covered by using two loops located on the western side of the grid. The line spacing was 200m with two 400m gaps. The station interval was 50m, with 25m detailing in anomalous areas. Only

the vertical component was measured. The survey coverage is listed in Table 1.

INTERPRETATION

The results are disappointing; no well-defined, prospective anomalies were obtained. The strongest responses occurred in a zone which extended over five lines and which is open to the north (labelled 'B' in Figure 90)*. However, I believe that these responses are caused by the glacial overburden, rather than a bedrock conductor. (This observation is largely based on the strong migration of the cross-overs and the lack of consistency among the interpreted parameters (eg, depth) using different algorithms.) In the zone's 'favour', it is noted that it does not parallel the edge of the glacials. Recommendations for a better understanding of the cause of the responses are given below.

Zone C was interpreted on 2 lines and consists of doubtful - channel 5 only -responses. On line 2200N it is approximately 75m west of the Sailor Jacks gold workings. If this prospect has any substance, then its proximity may impart to the zone a significance which it would otherwise not have. The zone coincides with the extrapolated axis (under the glacials) of the syncline and could perhaps be caused by a thin layer of limestone, speculated to be in the centre of the syncline (see geology map), if the limestone has been weathered to a clay or if it is carbonaceous (as in the Comstock Valley). The responses are not readily interpreted, but on line 2200N, the anomaly, if real, has a source in the vicinity of 3800E at a depth of perhaps 70-100m.

Two areas of local, superficial (and poor) conductivity have been interpreted, such as may be caused by a swamp. Here, neither is likely to have such a source. The southern response, on line 1800N, is the more marked, and though not indicated on Figure 1, may extend southwards to line 1600N. This area would then encompass the previously mentioned costean.

Zone A and the several isolated responses shown on Figure 90 have been picked from the early time UTEM data and are indicative of superficial and poorly conducting features such as faults or contacts. One might have expected to see the volcanics - conglomerate contact in this data, but it is not there (which suggests that both rock types are resistive and that the contact is relatively impermeable). No economic significance is attached to any of these responses.

---

* Conductive zones (ie, those responses which can be correlated across at least two lines) have been labelled alphabetically. Isolated anomalies are labelled by position.

CONCLUSIONS AND RECOMMENDATIONS

If zone B fits any prospective geological model, then its cause should be better interpreted by conducting a single loop TEM survey along line 2600N, or possibly, by a profile of CSAMT*. Such surveys should readily distinguish between horizontal and steeply dipping conductors. (The limestone mentioned as a possible source for zone C, may also be invoked for this zone.)

If zone C is of interest (and it has little geophysical merit), it is recommended that it be resurveyed with two small loops on either side of the zone. This would confirm (or deny) the response and if positive, should allow a quantitative interpretation. EM37 or Sirotem is suggested for this detailing (both of these systems have a larger number of channels than UTEM in the time-interval of interest).

J.R. Bishop
April, 1985.

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* See, for example, the results of the TEM surveys over the Brittania prospect (Irvine and Staltari, 1984) and the CSAMT follow up (Zonge Engineering, 1985; unpub.).

Irvine, R.J. and Staltari, G., 1984. Case history illustrating problems in transient electromagnetic surveys. Explor. Geophysics 15, p155-167.

469

113470

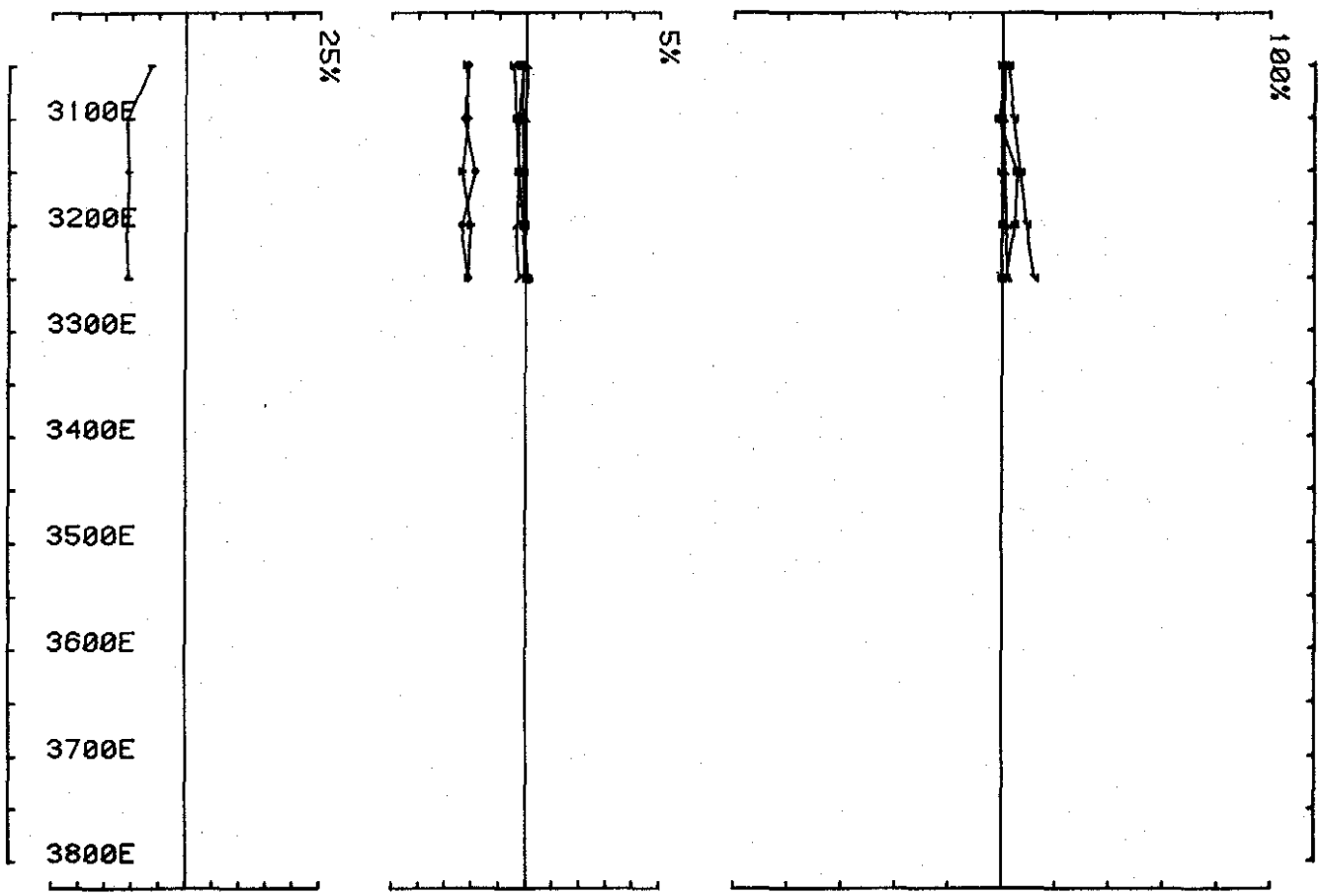
TABLE 1

UTEM coverage of Snake Spur Grid

Line	Stations
Loop 4	
3300N	3050E - 3850E
3100N	3050E - 3850E
2600N	3050E - 4050E
Loop 3	
2400N	3025E - 4000E
2200N	3025E - 4150E
2000N	3050E - 3550E
1800N	3050E - 4200E
1600N	3050E - 4150E
1400N	3050E - 3550E
1000N	3050E - 3250E

470

113471



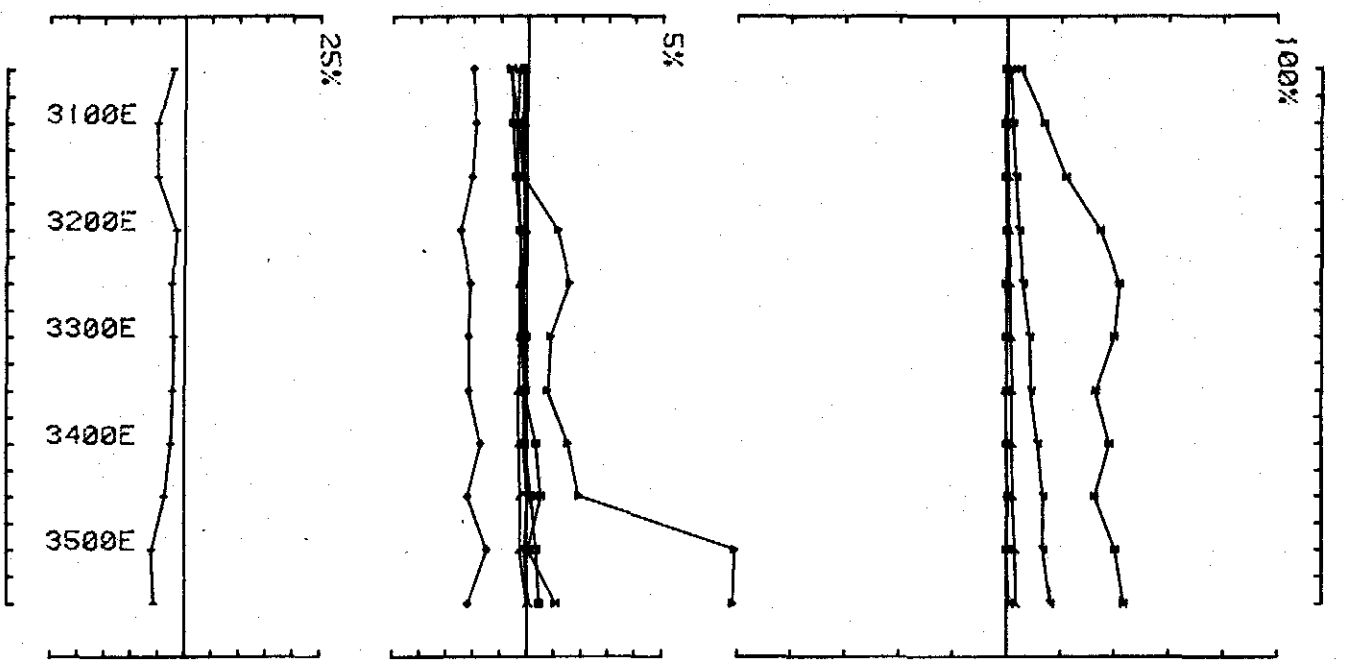
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 1000N component Hz secondary Ch 1

471

113472



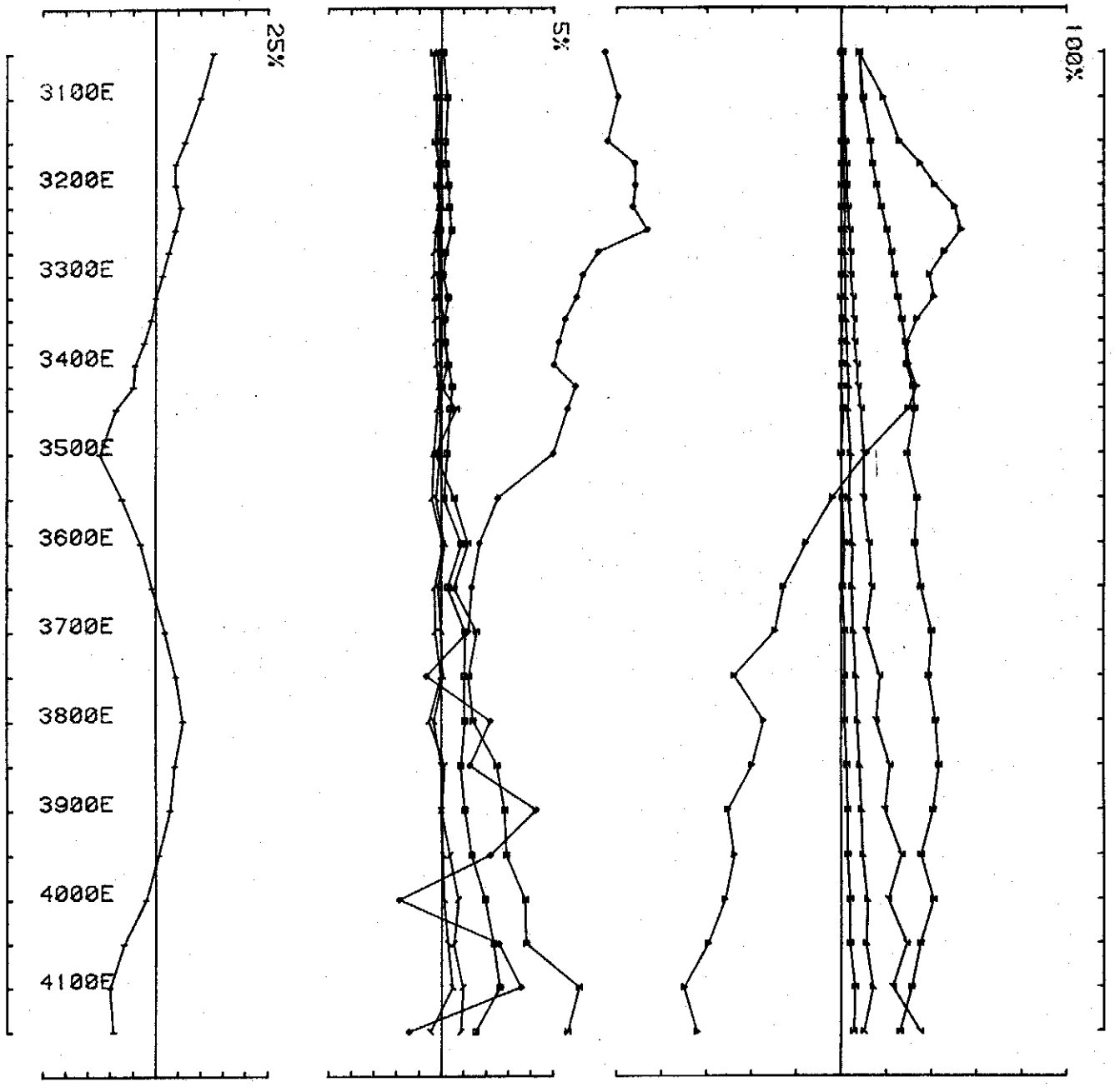
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 1400N component Hz secondary Ch 1

472

113473



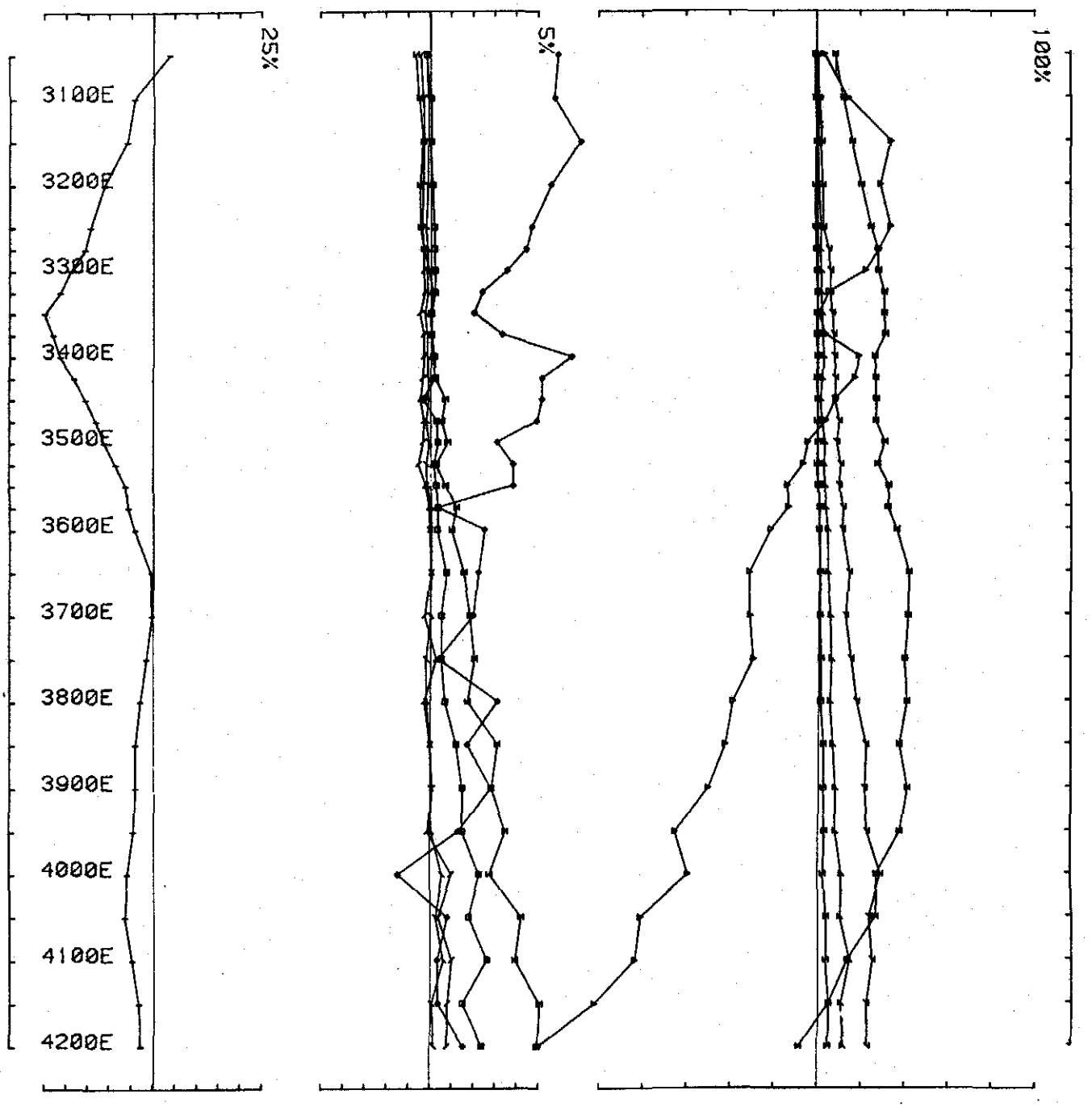
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 1600N component Hz secondary Ch 1

473

113474



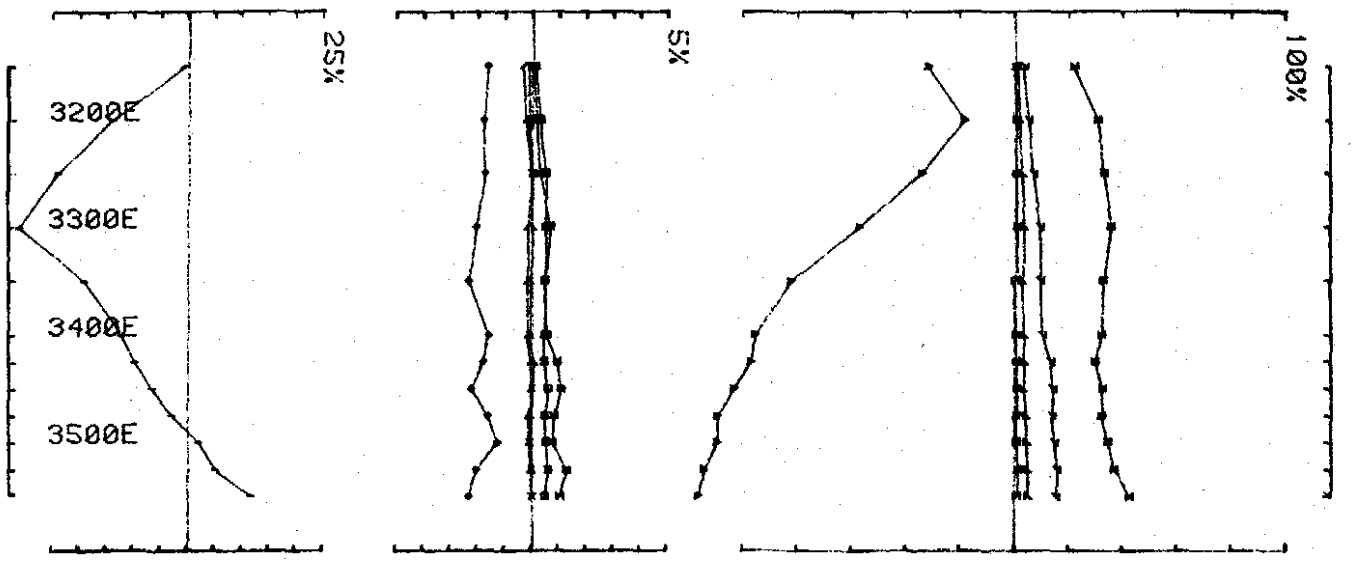
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 1800N component Hz secondary Ch 1 .

474

113475



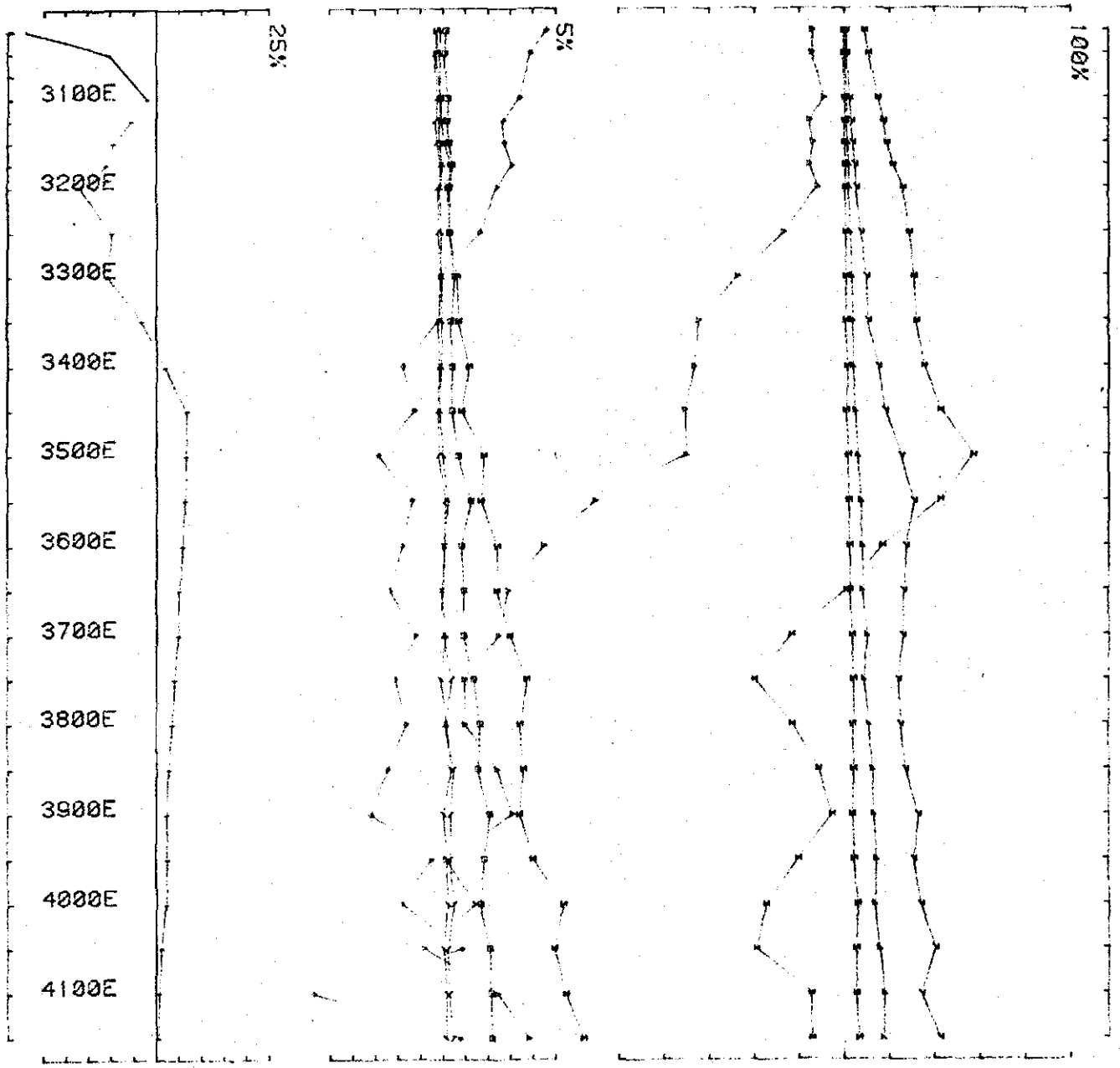
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 2000N component Hz secondary Ch 1

475

113476



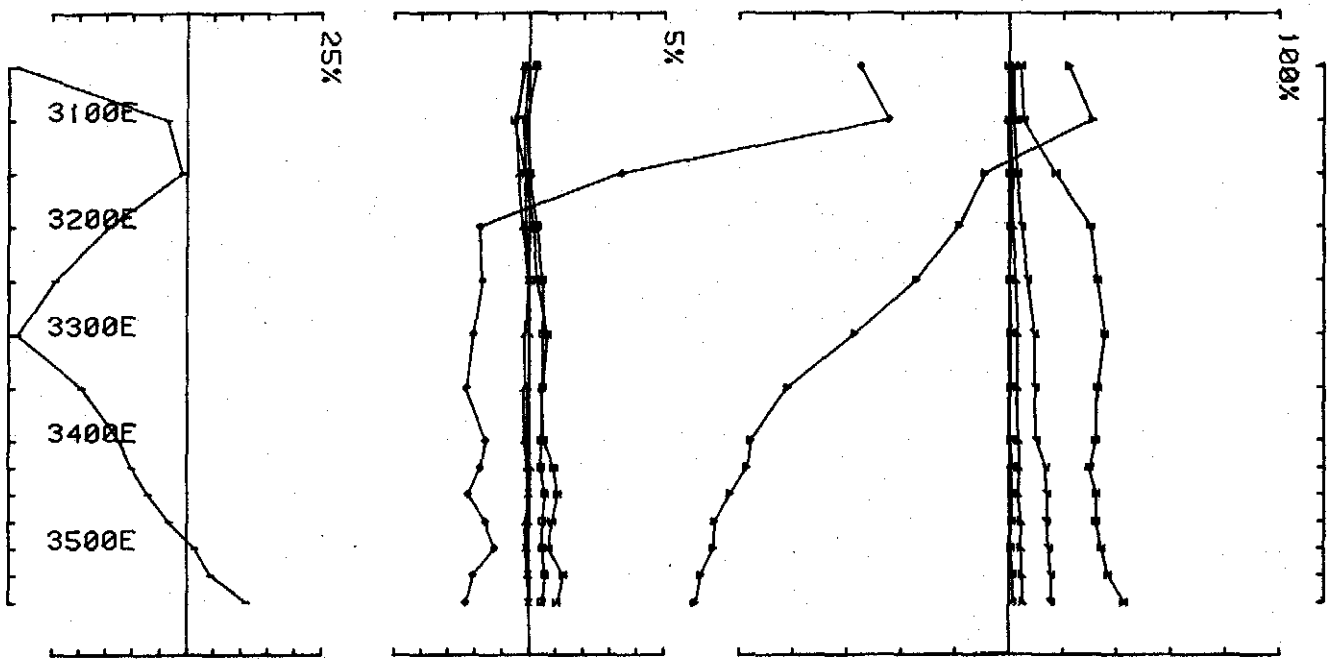
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 2200N component Hz secondary Ch 1

476

113477



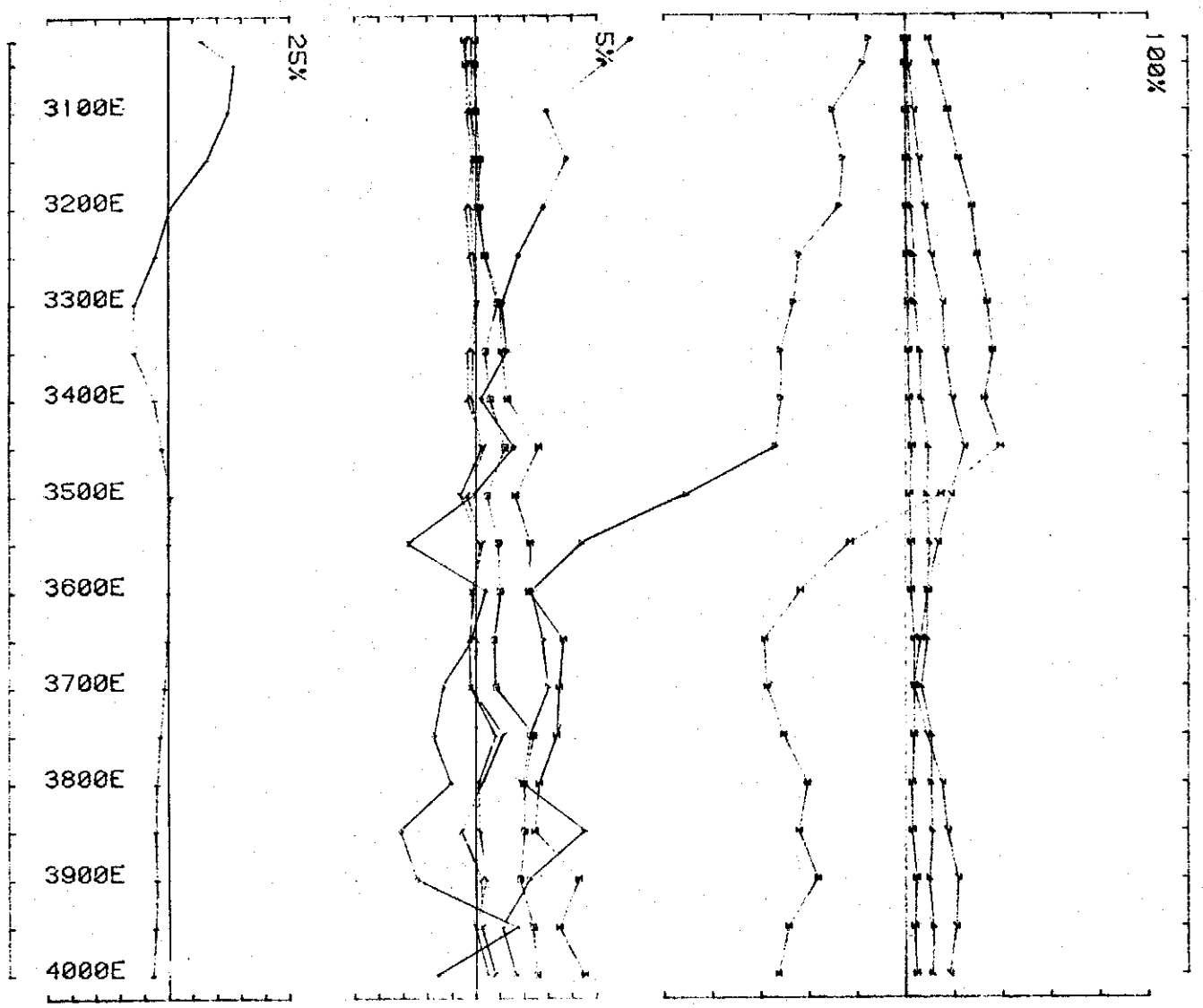
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 2000N component Hz secondary Ch 1

477

113478



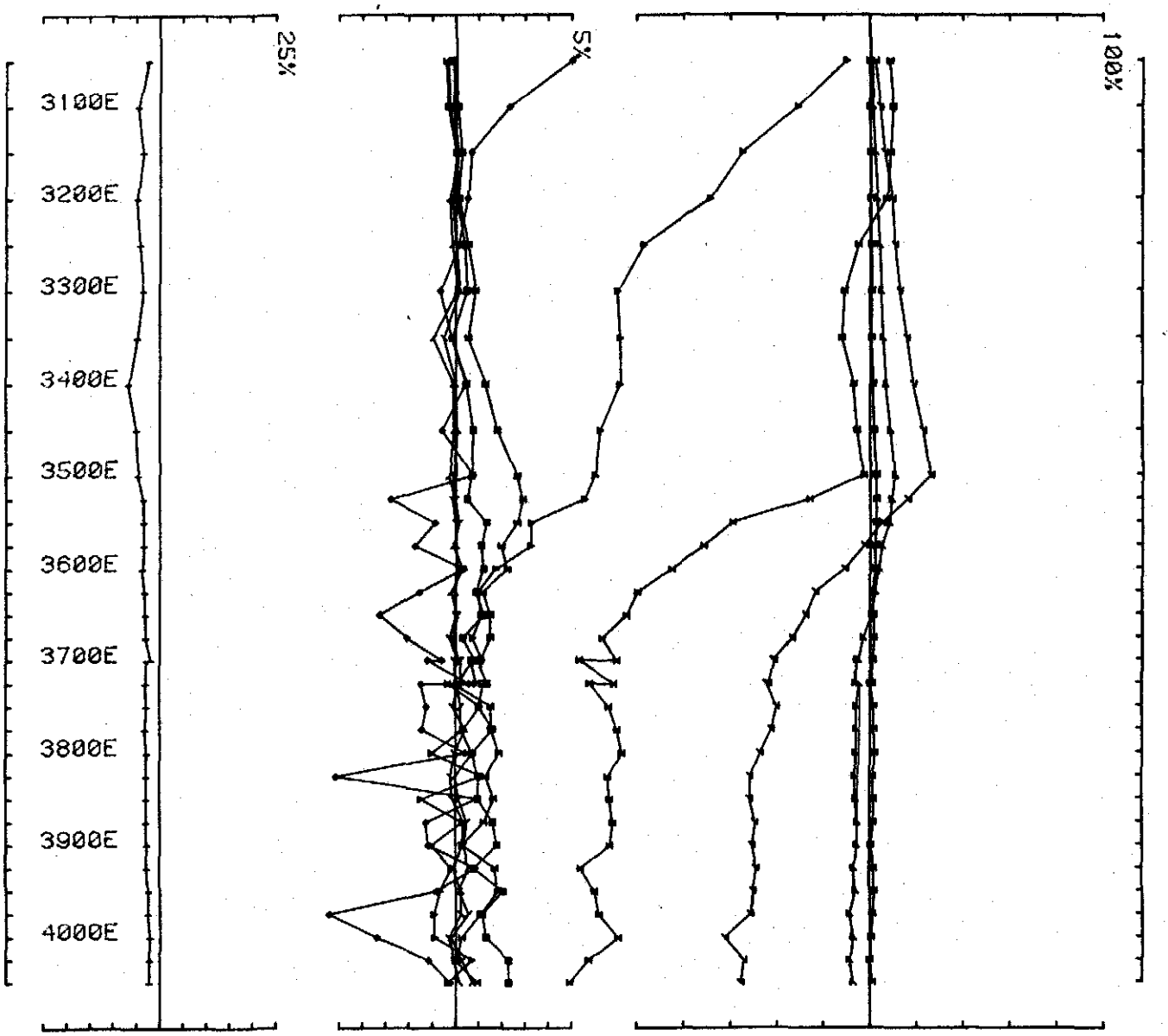
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0003 Line 2400N component Hz secondary Ch 1

478

113479



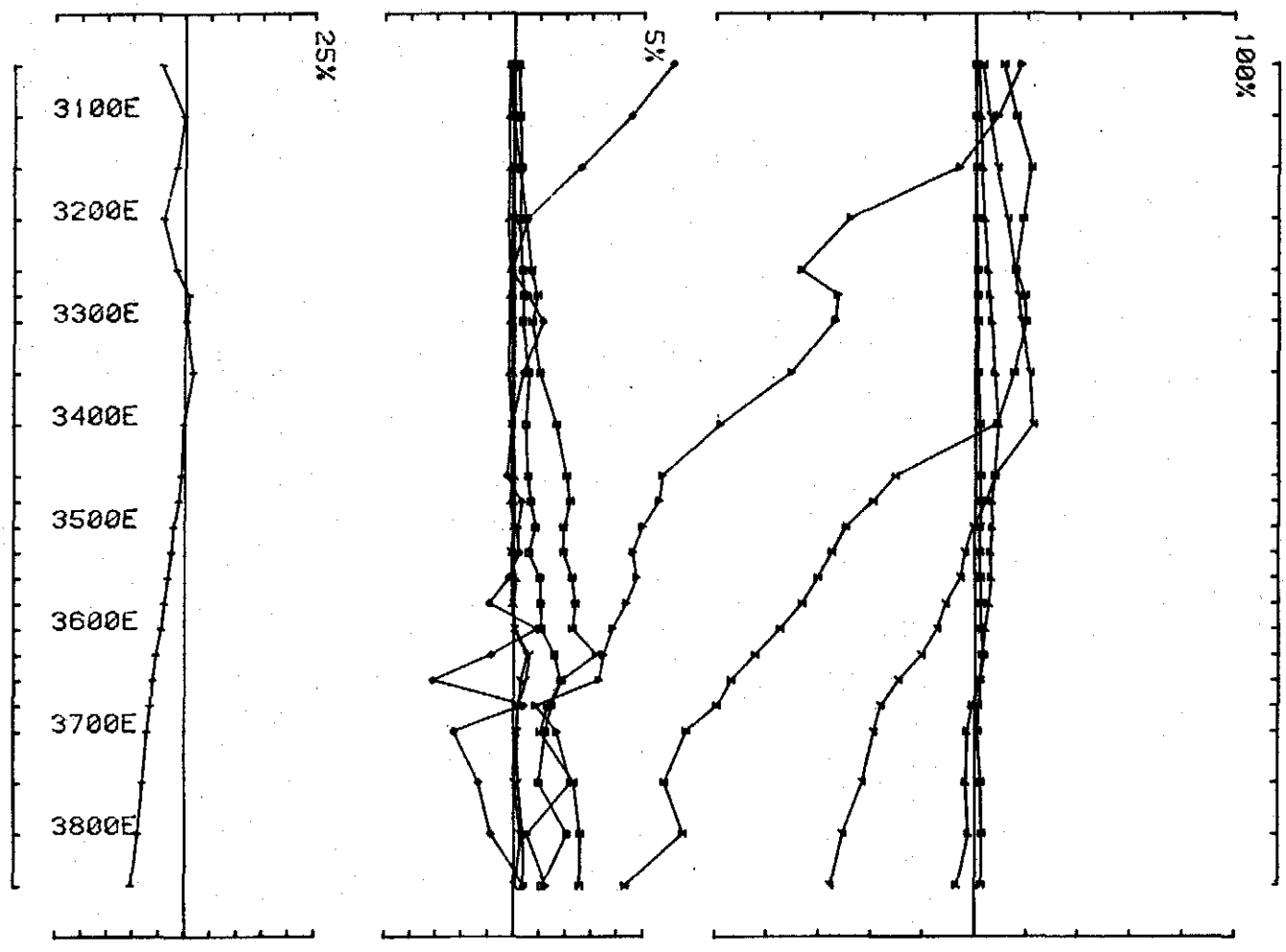
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0004 Line 2600N component Hz secondary Ch 1

479

113480



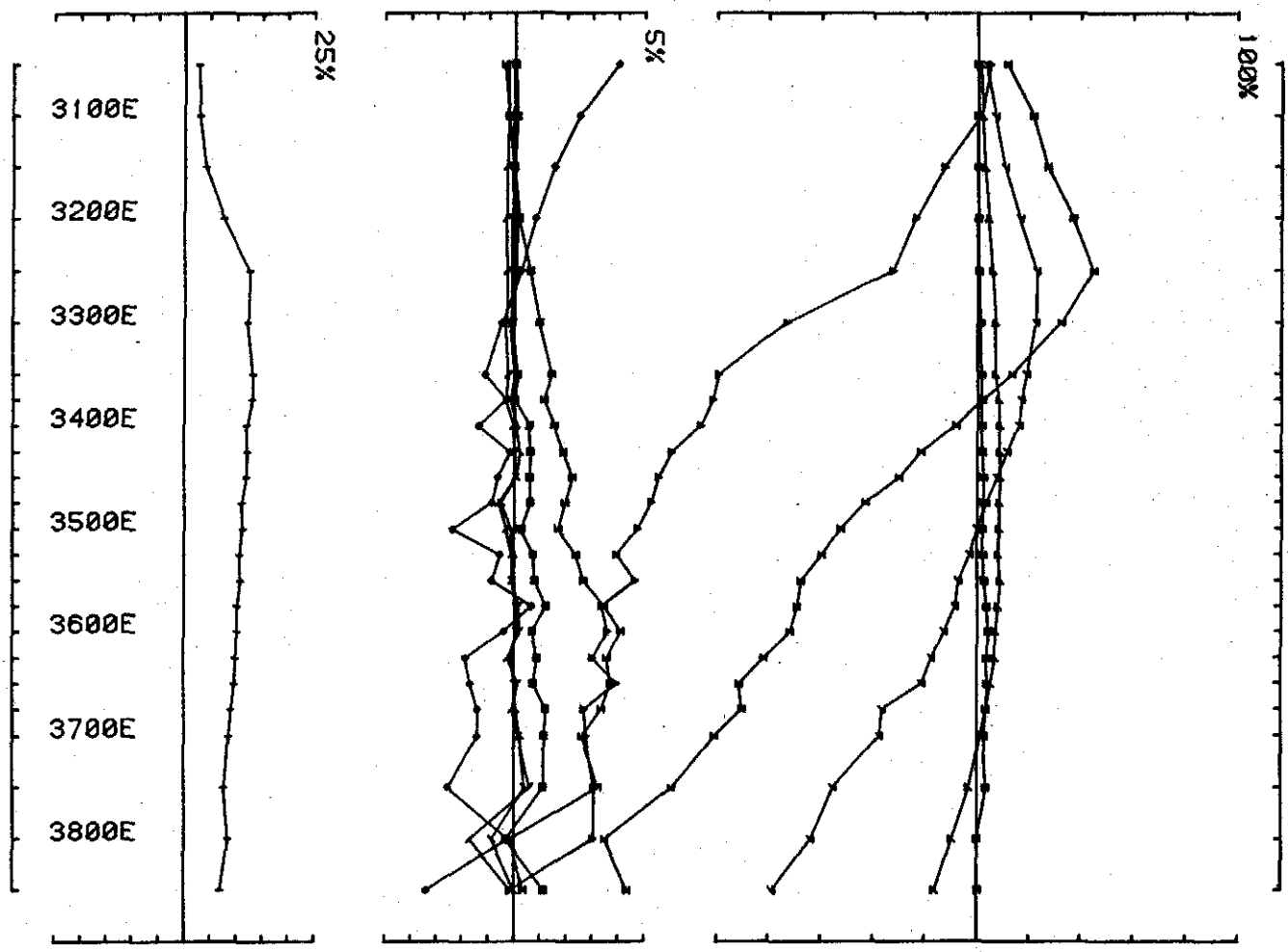
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

Loopno 0004 Line 3100N component Hz secondary Ch 1

480

113481



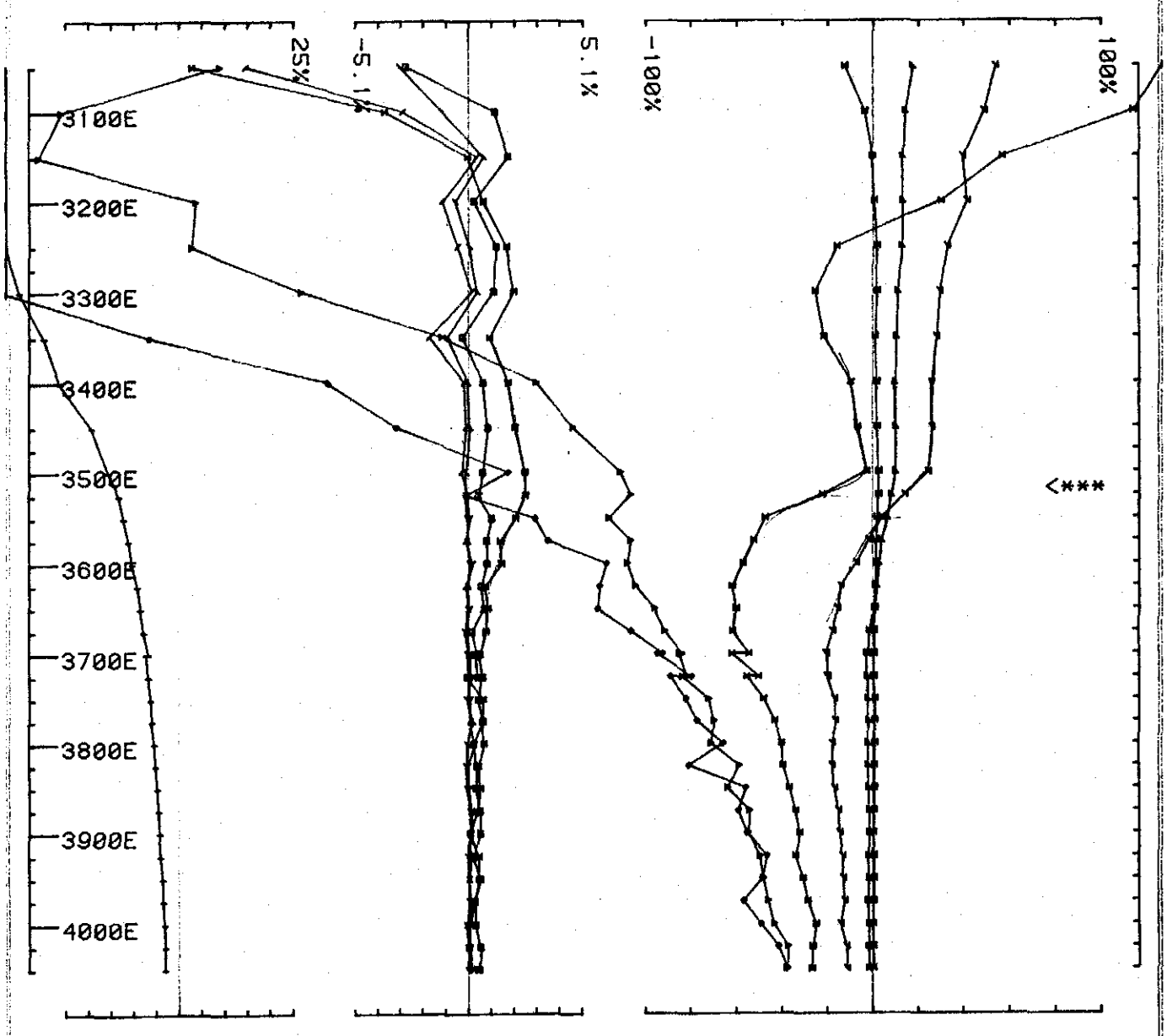
UTEM SURVEY conducted by PMM JCH Job 8502

Project Area Snake Spur Survey for Goldfields Exploration freq(hz) 26.230

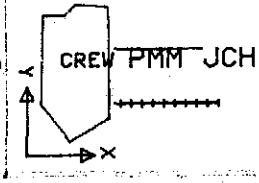
Loopno 0004 Line 3300N component Hz secondary Ch 1 .

481

113482



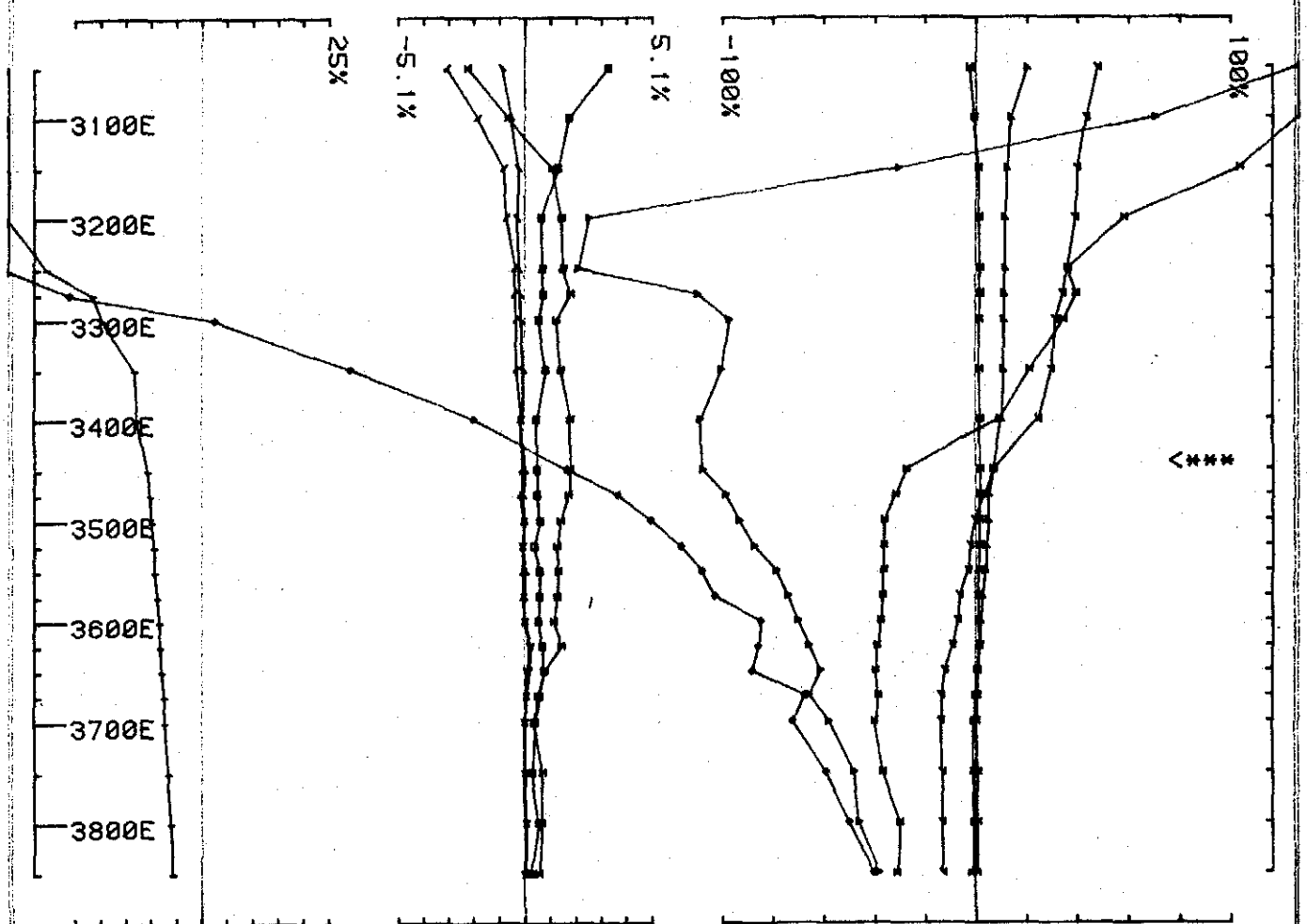
LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8502
AREA Snake Spur CLIENT Goldfields Exploration
L2600N Hz COMPONENT BASE FREQ. 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION



Snake Spur
LOOP 8004
LINE 2600N
Hz

482

113483



LAMONTAGNE GEOPHYSICS UTEM SURVEY JOB 8502
AREA Snake Spur CLIENT Goldfields Exploration
L3100N Hz COMPONENT BASE FREQ. 26.230HERTZ
SECONDARY FIELD POINT Ch 1 NORMALIZATION

CREW PMM JCH

Snake Spur
LOOP 8004
LINE 3100N
Hz

APPENDIX I

SAMPLE DESCRIPTIONS AND ASSAYS

for

Henty Project Area

Selina Area

Huxley Area

Snake Spur Area

Garfield-Flannigans Area

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: J. Joyce

PROJECT: TYNDALL PROSPECT: VARIOUS SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: SOIL + R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: SEPT. 1984.

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (ppm)								
				Au	Ag	Cu	Pb	Zn	As	Fe (%)	Hg	Au (ppb)
10962	Cutting in new Hydro Road		Bradshaws Rd. Pyrite Zone – rock chip.	<0·01	0·6	64	120	1200	95	4·8		
10963	"	"	" " " " – humus above sample 10962	0·06	<0·1	5	10	18	<5	0·2		
10964	"	"	Humus near 10963, but above barren volcanics.	<0·01	"	10	32	83	5	0·6		
10965	Hurley Road	Line 8S.	Unweathered dacitic tuff	"	"	11	22	46	<5	0·8		
10966	" "	"	Weathered soil above 10965.	"	"	8	17	10	"	0·5		
10967	" "	~9S, 700W.	Unweathered blue tuff.	"	"	4	8	32	"	0·9		
10968	" "	"	Weathered and leached rock above 10967.	"	"	5	8	7	"	0·1		
10969	" "	"	Unweathered blue tuff near 10967	"	"	3	7	22	"	0·5		
10970	" "	"	Weathered and leached rock above 10969.	"	"	6	7	11	"	0·2		
10971	Hurley Camp.		Stream sediment with abundant py. (Hurley R.)	"	0·2	96	30	100	100	5·3		
										Sb		
2936	HFZ. Costean.		leached material above massive sulphide. (a continuous chip sample.)	0·86 ↖ an average of 4 assays (0·79–0·97)	26·0	81	515	12	40	4·5	0·09	

485

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.A.R

PROJECT: TYNDALL EL9/16 PROSPECT: Henty Fault Zone SAMPLE STORAGE REQ'D: LABORATORY: GFEL/Genalysis DATE DISPATCHED: 13/9/84

1:250,000 SHEET: TYPE OF SAMPLE: Rock Chip SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	Cu	Pb	Zn	As	Sb	Hg
2936	Henty Fault	Gosteam	Leached massive sulfide. Minor remnant pyrite. Rest is vein quartz and a porous silica rock (@ carbonate?).	0.79	28.0	84	520	9	40	5	0.09
			See 2984, 2985 for petrology								

113486

486

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: PAR

PROJECT: TYNDALL PROSPECT: HENTY COSTEAN SAMPLE STORAGE REQ'D: LABORATORY: CMS DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: R. CHIP PETROLOGY SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION	DESCRIPTION	ANALYSES
2984	Henty Fault Prospect – Costean	Both samples are of leached cap over the massive sulfide exposed in the Henty costean "above" DDH HFZ 5.	
2985			

113487

487

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: N. POLTOCK.

PROJECT: TYNDALL PROSPECT: HENTY SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: POWER AUGER - BLACK SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION	(DEPTH)m	DESCRIPTION	ANALYSES (ppm) Au	Ag	As	Bi	Cu	Pb	Zn	Te	Hg
12126	LINE 7120N	7134E (0·8)	Cream-brown weathered rock	0·02	<0·1	<5	<1	54	45	37	<1	0·0.
12127	"	7136E (1·4)	Cream-brown-green weathered rock + soil.	0·02	0·2	"	4	25	50	36	"	0·02
12128	"	7138E (2·4)	Cream-green weathered rock + gritty soil. py?	0·06	1·3	20	<1	68	60	96	1	"
12129	"	7140E (2·2)	" " " " " " ?	0·03	0·1	20	2	15	25	195	<1	"
12130	"	7142·5E (3·5)	Grey, gritty weathered rock and soil. Abundant py. Silica?	0·21	1·2	55	18	200	520	360	8	0·04
12131	"	7145E (2·0)	" " " " " " Moderate py. "	0·36	2·3	25	18	1550	320	23	<1	0·02
12132	"	7147·5E (2·0)	" " " " " " No py.	0·14	1·4	15	10	350	550	31	"	"
12133	"	7150E (2·1)	" " " " " " "	0·02	0·1	<5	2	340	185	94	"	"
12134	"	7152·5E (2·0)	Grey clay and gritty bedrock. Minor py.	0·10	0·6	25	8	185	95	74	"	"
12135	"	7155E (3·6)	Blue-green clay + grit " " "	0·03	<0·1	<5	<1	80	20	75	"	<0·02
12136	"	7157·5E (4·3)	" " " "	0·01	"	<5	"	66	25	96	"	"
12137	"	7160E (?)	Pale grey-blue gritty clay.	0·03	"	5	"	55	15	74	"	"
12139	"	7165E (4·0)	" " " " "	<0·01	"	<5	"	27	20	56	"	"
12140	"	7167·5E (4·0)	" " " " "	"	"	"	"	26	25	55	"	0·02
12245	"	7172·5E (2·0)	" " " " "	0·01	"	"	"	6	10	45	"	<0·02
				N.B. Sb, Tl, Mo and WO_3 were all assayed for and were all below 1·0, 1·0, 2·0 and 2·0 respectively.								

1134488

488

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Parker

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: Nov. 84

1:250,000 SHEET: TYPE OF SAMPLE: Soil SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	0.01 Au	0.1 Ag	5 As	1 Cu	ANALYSES (ppm) Pb	Bi	Te		Detection Limit
14641	5 N	120 E	2.8 [illegible]				10	20				
14642	"	125 E	1.6 " "				16	20				
14643	"	130 E	2.2 [illegible]				25	20				
14644	"	135 E	2.0 [illegible]				9	15				
14645	"	140 E	1.8 [illegible]				19	15				
14646		145 E	2.3 [illegible]				26	20				
14647		150 E	2.1 [illegible]				6	10				
14648		155 E	2.0 [illegible]	0.01			24	30				
14649		160 E	2.6 " " "	0.02			15	15				
14650		165 E	2.4 [illegible]				11	15				
14651		170 E	2.9 " " "				4	5				
14652		175 E	2.7 " " "				18	10				
14653		180 E	3.8 [illegible]				28	20				
14654		[illegible]	2.7 [illegible]				62	50				
14655		190 E	2.4 [illegible]				13	15				
14656		195 E	2.2 [illegible]				36	10				
14657		200 E	2.0 " " "				29	9				
14658		205 E	2.5 [illegible]				52	30				
14659		210 E	4.0 [illegible]					5				
14660		215 E	5.2 [illegible]					5				
14661		220 E	5.0 [illegible]	0.02	1.8		125	640				

1134489

439

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Pocock

PROJECT: PROSPECT: Walker. SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: Nov '84.

1:250.000 SHEET: TYPE OF SAMPLE: SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		Chart 5-8 DESCRIPTION	.001 Au	0.1 Ag	5 As	1 Cu	ANALYSES (ppm) Pb	1 Bi	Te	Detection Limit	
14662	5 N.	225E	Cream / lgt U fan gritty c w/rock	0.14	0.2		23	45				
14663		230E	2.8 grey - cream gravels.				6	30				
14664	"	235E.	3.5 " " " ?				9	20				
14665	"	240E	5.6 " " " "	1.54	13.5		78	28				
							19	20				
14666	5 0 N.	035E.	2-6 grey gravels - no penetration									
	"	040E	No penetration - no sample									
	"	045E	" " " "									
14667		050E (a)	Cream w/rock - gravels.				5	10				
14668		050E (b.)	rock chip.									
14669		055E	" "				17	5				
14670		060E	" "					10				
14671		065E	1.2 lgt tan/grey gritty					10				
14672		070E	2.0 tan/Khaki gritty c w/rock.					10				
14673		075E.	3.8 " " " "					5				
14674		080E	3.0 " " " "				4	5				
14675		085E	3.4 grey/cream w/rock ?				2	15				
14676		090E	1.9 gravels - no penetration.				6	20				
14677		095E	3.4 mainly gravels + small grey sericite.				26	45				

1134490

490

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pocock

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Waker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	001 Au	0·1 Ag	5 As	1 Cu	ANALYSES (ppm) Pb	1 Bi	1 Te	Detection Limit	
14678	50N	100E.	4.9 grey + cream rotrock + gravels				11	10				
14679		105E	1-8 grey gravels-no penetration				4	10				
14680	"	110E	2-0 " " " "					10				
14681	"	115E	1-6 " " " "					5				
~~14682~~	"	120E	1-4 No samples Cc "									
14683	2 "	125E	1-8 " " " "					10				
~~14684~~	"	130E	No sample.									
14685	3 "	135E	1-3 Brown gravels "				4	10				
14686	4	140E	1-0 light grey gravels					5				
14685		145E.	1-5 " " "				2	20				
14686		150E.	1-6 " " "				3	35				
14687		160E.	1-5 " " "	0·54	3·2	50	490	30				
14688		170E.	1-5				4	5				
14689		180E.	1-0 " " "				2	5				
14690	48N	070E	2-4 tan - green rotrock?			10	23	20				
14691		075E	1-4 green + fragments - is/rock.			15	15	70				
14692		080E	1-9 Khaki rotrock.			10	12	15				
14693		085E	2-1 green rotrock			20	12	60				
~~14694~~		090E	Unable to penetrate - No sample									

113491

491

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Poltock

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: Nov. 84.

1:250.000 SHEET: TYPE OF SAMPLE: Bleacher SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	0·01	0·1	5	1	ANALYSES (ppm)		1	Detection limit	
				Au	Ag	As	Cu	Pb	Bi	Te		
	4 8N	0-75E	Middle of river - no sample.									
14694		100E	2·2 Lt grey/brown Khaki weathered			10	43	130				
14695		105E	3.0 Dirty grey gravels.			10	23	60				
14696		110E	2·7 - " - clayey gravels.			5	6	35				
14697		115E	·6 off white float rock					5				
14698		120E	2·3 Grey/brown gravels					10				
14699		125E	2·2 " " "				4	10				
14700		130E	2·5 Brown gravels.				6	20				
14701		135E	1·2 grey "									
14702		140E	1·8 " Khaki weathered.			10	14	15				
14703		145E	1·4 " "			10	39	25				
14704		150E	1·7 " "			5	17	15				
14705		155E	1·6 " "			10	26	20				
14706		160E	2·3 " /grey " "			5	25	70				
14709		165E	2·2 " " " "			5	16	210				
14708		170E	5·4 " " " "			10	30	65				
~~14709~~		175E	Unable to penetrate - no sample									
14709		180E	2·8 Khaki weathered.			10	35	15				
14710		185E	2·0 grey gravels.									
14711		190E	·5 " "									
14712		195E	·8 Fawn gravels.			10	6					

113492

492

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: POLTOCK

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		Depth	DESCRIPTION	0.01 Au	0.1 Ag	5 As	ANALYSES (ppm) Cu	Pb	Bi	Te	Detection Limit
14713	48N	200E	1.4	light grey gravels.				7	25			
14714		205E	1.3	" "								
14715		210E	1.2	grey to light clay gravels				4				
14716		215E	3.2	- sandy gravels.				3	10			
14717		220E	1.4	grey gravels.				3				
14718	47N	210E		Rock Chip. ?			15	30	50			
14719		215E	1.2	grey/grav w/rock.			5	16	35			
14720		220E	1.5	Grey w/rock?			10	20	10			
14721		225E	1.7	Khaki/ " "			15	40	10			
14722		230E		(a) Rock chip in crk ||ˡʸ line			100	25	120			
14723		230E		(b) 3ft av / Khaki clayy gravels.		0.5	15	29	95			
14724		235E	2.7	dirty grey clayy gravs.		0.9	20	54	190			
14725		240E	5.5	grey gritty w/rock?			10	4	5			
14726		245E	1.8	" " " "			35	13	20			
14727		250E	2.9	" " " "		0.6	30	68	190			
14728		255E	2.6	Clay gritty w/rock?			15	72	40			
14729		260E	2.4	" " " "			10	24	10			
14730		265E	.8	" " " "			25	14	30			

1134493

493

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: J Bolton

PROJECT: PROSPECT: Wacker SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: Nov 84

1:250.000 SHEET: TYPE OF SAMPLE: SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (ppm) Au 0.01	Ag 0.1	As 5	Cu 1	Pb 5	Bi 1	Te 1	Detection Limit
14731	47N	270E	1.7 Tan / cream w/rock?	0.06	4.3	25	21	300			
14732		275E	.9 " " " "		0.3	10	8	70			
14733		280E	1.0 " gritty w/rock?			10	62	400			
14734		285E	1.4 fawn gravels + grey w/rock?			10	21	180			
14735		290E	1.7 Brown + grey gravels.			5	17	25			
14736		295E	1.0 " " "			5	11	20			
14737		300E	1.4 " " "			15	23	45			
14738		305E	1.6 Tan, grey + maroon gravels.			10	23	35			
14739		310E	1.4 " " gravels.				4	5			
14740		315E	.7 Brown + grey w/rock gravels.				8	10			
14741		320E	1.1 Khaki / grey w/rock? + gravels.			10	15	15			
14742		325E	1.4 Brown/Khaki gritty clayy gravel.				8	10			
14743		330E	1.4 Khaki gritty & clayy w/rock?			10	8	10			
14744		335E	1.2 grey gritty gravels.					5			
14745		340E	2.9 green / grey w/rock.			5	7	10			
14746		345E	2.6 fawn gravels.					10			
14747		350E	1.0 grey gravels				7	60			
14748		355E	2.6 " "				2	25			
14749		360E	2.4 " "					10			

1134194

494

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Poetsch

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: Nov '84

1:250.000 SHEET: TYPE OF SAMPLE: Ubalkus SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (ppm) Au 0.01	Ag 0.1	As 5	Cu	Pb	Bi	Te	Detection Limit
14750	46N.	340E	1.8 cream/green w/rock.			5	4	10			
14751		335E	1.3 " " " "			5		10			
14752	325E	~~330E~~	Rock chip.			5		5			
14753		320 E	" "			10		5			
14754		315 E	.4 Cream w/rock.					5			
14755	X	310E	1.4 Cam/Khaki w/rock.			10	6	10			
14756		310E	.7 cream/Khaki w/rock.			10		5			
14757		305E	1.0 " /grey w/rock.			5	5	5			
14758		300E	.8 Cam/grey w/rock.		0.3	25	34	50			
14759		295E	.7 cream/light green w/rock			10	10	5			
14760		290E	.8 Cam/cream " "			10	20	15			
14761		285E	4.9 blue/grey gritty clayy w/rock? on top of Cam gritty w/rock?		0.9	50	180	330			
14762		280E	1.8 Khaki/Cam clayy w/rock.			20	11	10			
14763		275E	2.4 " " " "		0.3	40	44	330			
14764		270E	3.6 " " " "		0.7	200	14	920			
14765		265E	2.8 " " " "			95	15	350			
14766		345E	1.3 Cam/grey gritty w/rock?			5	2	15			
14767		350E	1.8 " " " " ?			10	16	50			
14768		355E	2.2 " " " "			5	11	25			
14769		360E	1.2 Light Khaki/cream w/rock			10		5			

113495

495

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: SOLTOCK.

PROJECT: PROSPECT: Macker SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (ppm) Detection Limit: 0.01 Au	0.1 Ag	5 As	1 Cu	5 Pb	1 Bi	1 Te		
14770	46N	365E	.8 Light/g Khaki/cream w/rock.			10.	6	10				
~~14771~~		370E	Unable to sample - c/g/cream Khaki									
14771		375E	1.0 Khaki/green w/rock.			5	12	15				
14772		380E	1.7 " " clayy w/rock			10	3	15				
14773		385E	1.4 " " " " "			10	23	15				
14774		390E	1.7 " " " " "			10	8	15				
14775		395E	2.4 green clayy w/rock			10	28	10				
14776		400E	2.5 " " " "			10	26	10				
14777		405E	2.9 " " " "			10	48	15				
14778		410E	1.2 Brown clayy grauds.				19	15				
14779		415E	2.6 " " "			5	42	20				
14800	45N	C1E.	1.4 Tan/green clayy grauds			5	2	15				
14780		C2E.	1.7 Cream/ light Khaki w/rock.			10		5				
14781		C3E.	1.5 Fawn/Tan w/rock.			10	7	25				
	NOTE		C1E is on Eastern Bank of									
			Henley C2E is 5m East of									
			Creek Bank & so on									

1134496

496

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: FOLTOCK

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	0·01 Au	01 Ag	5 As	1 Cu	ANALYSES (ppm) Pb	1 Bi	Te	Detection limit	
14782	45N	C4E.	1·8 fawn to khaki rock + grey clays			20	44	120				
14783		C5E	1·7 fawn / grey rock		0·3	15	56	145				
14784		C6E	1·1 " " "		0·2	15	16	40				
14785		C7E	·9 " " " ?			10	8					
14786		C8E.	·8 off white + fawn rock?			10		5				
14787		C9E.	1·0 light grey / cream rock.			10						
14788		C10E	·8 " " "			5		15				
14789		C11E.	·6 grey rock.			10	15					
14790		C12E.	1·0 " " ?			10		10				
14791		C13E.	1·6 grey + fawn gravels "				6	15				
14792		C14E	2·4 " " rock?				11	25				
14793		C15E	2·0 " " " ?			10	4	10				
14794		C16E	1·0 " " " ?					10				
14795		C17E.	·6 " " " ?				2	10				
14796		C18E	·8 " " " ?			10	9	10				
14797		C19E	1·4 grey clayey rock.			10	4	10				
14798		C20E	2·5 " " "			10	10	25				
14799		C21E	1·2 grey / grey rock.			5	10	10				
14801		C22E	1·3 " " " + gravels			10	15	20				
14802		C23E	1·4 Blue / grey gritty rock			10	23	15				
14803		C24E	1·3 " " "			15	35	10				

113497

497

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: POLTOCK

PROJECT: PROSPECT: SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Dacker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (ppm) Detection Limit: Au 0.01, Ag 0.1, As 5, Cu 1, Pb 5							
				Au	Ag	As	Cu	Pb	Bi	Te		
14804	45N	C25E	1.0 Blue/Khaki ~~ref~~ rock?			5	8	15				
14805		C26E	.8 green/blue ~~ref~~ rock			15	3					
14806		C27E	1.4 " " "			10	5	5				
14807		C28E	1.9 Lam/Khaki clayey gouge			5	74	65				
14808		C29E	2.7 " " "			15	560	580				
14809		C30E	2-0 fawn clayey gouge			5	8	16				
14810		C31E	1-8 " " "				9	10				

113498

498

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY Sokolich & Carlos

PROJECT Widdell PROSPECT Stanley Fault SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET TYPE OF SAMPLE: Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Hg	Te	Au	Ag	As	Bi	Cu	Pb	Zn
					1	0.01	0.1	5	1	1	1	1
18001	180E.	52N	1-0 Biscuit + tan streaky c. w/rock		<1	0·02	<0·1	15	<1	22	9	26
18002	185E.	"	1-4 tan / khaki c. w/rock + quartz frag.		"	<0·01	"	10	<1	25	12	45
18003	190E	"	2·2 light tan gritty w/rock.		"	0·03	"	<5	<1	24	28	27
18004	195E	"	1·9 Tan + brown c. w/rock.		"	<0·01	"	"	<1	105	34	155
18005	200E	"	2·1 light tan + brown c. w/rock.		"	"	"	10	<1	78	48	62
18006	205E.	"	·9 " " c/w/rock.		"	"	"	<5	<1	34	22	36
18007	210E	"	1·1 Biscuit colored c. w/rock.		"	"	"	"	<1	15	37	40
18008	215E	"	·9 Brown w/rock.		"	"	"	"	<1	110	7	180
18009	220E	"	·6 Tan c. w/rock with khaki fragment		"	"	"	"	<1	64	2	240
18010	225E	"	·5 Tan / light green + brown c. w/rock.		"	"	"	"	<1	50	4	43
18011	230E	"	1·6 light blue/green w/rock.		"	"	"	"	<1	64	3	60
18012	235E	"	1·9 " " " " " .		"	"	"	"	<1	8	4	66
18013	240E	"	2·3 as above + tan streaks + fragment		"	"	"	"	<1	5	2	36
18014	245E	"	2·9 light blue/grey w/rock with tan fragments		"	"	0·2	15	<1	115	11	14
18015	250E.	"	3·1 grey gritty w/rock		"	0·03	0·3	55	3	13	16	47
18016	255E	"	·8 grey/tan gritty w/rock? + qtz frag.		"	"	0·2	<5	<1	9	12	13
18017	260E	"	6 Dark grey, grey gravels or B/rock?	Sandy fs	"	"	<0·1	"	<1	49	11	6
18018	265E	"	1·3 Tan/Brown + grey gritty w/rock?	?	"	"	0·1	"	<1	110	29	28
18019	270E	"	·5 Sandy fs - grey gravels or B/rock	?	"	"	<0·1	"	<1	6	2	3
18020	275E	"	1·5 Biscuit brown c. w/rock	-	"	"	0·1	"	<1	96	13	12
18021	280E	"	1·8 as above + Blue/grey w/rock.		"	"	0·1	15	<1	195	12	8

1134469

493

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Lyndol PROSPECT: Hasty Fault SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: Sorrock

1:250,000 SHEET: TYPE OF SAMPLE: Loader SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: March 85

DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	D.L	1	0·01	0·1	ANALYSES				
					Te	Au	Ag	As	Bi	Cu	Pb	Zn
18022	285E	52N	1.0 2 alt-p.s grey gravels or B/rock?		<1	<0.01	<0.1	<5	<1	14	5	4 ✓
18023	290E	"	.4 as above.		"	"	"	"	"	7	16	8 ✓
18024	295E	"	.9 3 alt-p.s gravels.		"	"	"	"	"	50	14	17 ✓
18025	300E	"	3.2 cream-tan gritty w/rock?		"	"	"	"	"	43	10	5 ✓
18026	~~305E~~ 305E	"	1.8 as above.		"	"	0.1	5	"	98	12	7 ✓
18027	310E	"	.7 Brown c. w/rock.		"	0.19	0.1	<5	"	88	27	5 ✓
18028	315E	"	1.0 Cream-grey w/rock.		"	<0.01	<0.1	"	4	36	9	6 ✓
18029	320E	"	1.0 as above + tan flags s.		"	"	"	"	3	21	5	7 ✓
18030	325E	"	1.8 Buff/grey w/rock with tan sections.		"	"	"	"	<1	18	6	6 ✓
18031	330E	"	1.0 as above.		"	"	0.1	"	"	27	10	7 ✓
18032	335E	"	1.1 " "		"	"	<0.1	"	"	44	15	10 ✓
18033	340E	"	2.0 Cream/tan gritty c. w/rock.		"	"	"	"	"	50	9	7 ✓
18034	345E	"	1.8 Clayey gravels.		"	"	"	"	"	34	15	6 ✓
18035	350E	"	2.2 Cream/grey, tan/brown w/rock?		"	"	"	5	"	68	11	7 ✓
18036	355E	"	1.0 light tan-brown gritty w/rock?		"	"	0.1	<5	"	78	11	5 ✓
18037	360E	"	.8 light-grey/brown w/rock.		"	"	<0.1	"	"	9	3	5 ✓
18038	365E	"	1.1 as above.		"	"	"	"	"	33	4	6 ✓
18039	370E	"	.6 " "		"	"	"	"	"	39	7	17 ✓
18040	375E	"	.9 grey/fawn w/rock.		"	"	"	"	"	44	8	6 ✓
18041	380E	"	.4 light-grey, green-tan w/rock.		"	"	"	"	"	17	9	12
~~18042~~	~~385E~~	"			"	"	"	"				

113500

500

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Lyndall PROSPECT: Healy Fault COLLECTED BY: BETEKK.

1:250.000 SHEET: TYPE OF SAMPLE: Wacker. SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Detection Limit	1 Te	0·01 Au	0·1 Ag	ANALYSES As	1 Bi	1 Cu	1 Pb	1 Zn
18042	540E	53N.	1·8 Dark grey Cav + cream gritty w/rock.		<1	<0·01	0·2	10	<1	390	940	78
18043	535E	"	1·3 as above - darker grey.		"	"	0·3	<5	"	195	880	100
18044	530E	"	1·0 Cav/grey gritty c. w/rock.		"	"	0·2	5	"	27	64	270
18045	525E	"	·8 as above		"	"	0·1	<5	"	60	470	290
18046	520E	"	·7 grey w/rock.		"	"	0·1	"	"	15	84	10
18047	515E	"	·6 cream, Cav + brown gritty w/rock		"	<0·01	0·1	15	"	6	43	125
18048	510E	"	·8 " " " "		"	~~0·03~~ 0·03	0·4	10	"	38	90	76
18049	505E	"	·6 " " " "		"	<0·01	<0·1	10	"	37	64	180
18050	360E	54N	·3 light green/blue w/rock and grey clay		"	"	<0·1	<5	<1	9	7	22
18051	365E	"	·4 Green/Khaki c. w/rock		"	"	"	"	"	7	4	19
18052	370E	"	·4 as above.		"	"	"	"	"	31	10	175
18053	375E	"	·3 " "		"	"	"	"	"	135	5	150
18054	380E	"	·5 Grey w/rock.		"	"	"	"	"	8	3	8
18055	385E	"	·7 Cav/grey. brown gritty clayey w/rock		"	"	"	"	"	84	7	72
18056	390E	"	·5 " " "		"	"	"	"	"	9	2	35
18057	395E	"	·4 Green/grey w/rock.		"	"	"	"	"	9	2	115

113501

501

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT Tyndall. PROSPECT: Heavy Fault SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: Berry

1:250,000 SHEET TYPE OF SAMPLE: Chips SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: DATE DISPATCHED: March 85.

SAMPLE NUMBER	LOCATION		DESCRIPTION	Detection Limit	1 Te	0.01 Au	0.1 Ag	ANALYSES 1 As	1 Bi	1 Cu	1 Pb	1 Zn
18058	400E	54N.	.2 cream/grey wstock.		<1	<.001	<0.1	<5	<1	3	1	15
18059	405~~00~~E	"	.4 Sattery S - no pent. Grey Blacks.		"	"	"	"	"	4	4	3
18060	410E	"	.2 Cream/grey + Tan wstock.		"	"	"	"	"	5	6	22
18061	415E	"	2.2 grey wstock.		"	"	"	"	"	10	9	88
18062	420E.	"	1.2 Cream/grey + Tan wstock.		"	"	"	"	"	20	4	28
18063	425E	"	.5 as above.		"	"	"	"	"	15	4	29
18064	430E	"	.7 dark grey wstock.		"	"	"	"	"	52	2	105
18065	435E	"	1.4 grey, Tan - grey wstock		"	"	"	"	"	17	1	22
18066	440E	"	.5 - grey wstock.		"	"	"	"	"	35	1	88
18067	445E	"	2.6 Dark grey + Tan wstock		"	"	"	"	"	130	<1	88
18068	450E	"	.3 " " " "		"	"	"	"	"	150	5	88
18069	~~500E~~	455E "	.5 light grey/grey + cream wstock.		"	"	"	"	"	9	3	15
~~18070~~	~~505E~~	460E "	Numerous altery S - unable to pent.	NO SAMPLE								N.S
	465E	"	" " " " "	NO SAMPLE								N.S
18070	470E	"	.8 light-Blue/grey wstock + Tan wstock.		"	"	"	"	"	7	3	56
18071	475E	"	2.2 Tan/Khaki c. wstock.		"	"	0.3	40	"	11	430	860
18072	~~500E~~	480E "	.5 " " " "		"	"	<0.1	5	"	13	47	180
18073	485E	"	2.2 Dark grey, white flecked wstock	silicified dyke	"	"	0.2	95	"	27	62	165
18074	490E	"	1.3 cream/grey + light-Khaki gritty wstock.		"	"	<0.1	5	12	16	21	12
18075	495E	"	1.4 light grey to grey wstock.		"	"	"	15	<1	6	9	19
18076	500E	"	1.0 - Tan - grey gritty wstock.		"	"	"	<5	"	50	21	12

113502

502

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Petrick

PROJECT: Tyndall PROSPECT: Henty Fault SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Rock chips SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Detection Limit	ANALYSES 1 Te	0.01 Au	0.1 Ag	As	Bi	Cu	Pb	Zn
18077	505E	54N.	1-3 Clay/grey + brown gritty gravels?		<1	<0.01	0.5	15	<1	370	68	56
18078	510E	"	2-3 " " " " clays?		"	"	<0.1	10	"	125	25	86
18079	515E	"	2-7 Breccia - Clay/grey w/rock		"	0.03	0.1	10	"	130	19	15
18080	520E	"	-8 " " " "		"	<0.01	<0.1	<5	"	200	6	17
18081	525E	"	-3 brown/grey - Clay w/rock.		"	"	"	"	"	41	1	7
18082	530E	"	-5 as above - more grey.		"	"	"	"	"	13	2	4
18083	535E	"	-6 " " "		"	"	"	"	"	20	5	6
18084	540E	"	-4 Clay/grey w/rock		"	"	"	20	"	92	3	28
~~18085~~	545E	"	No penetration — no sample.	NO	SAMPLE						N.S.	
18085	550E	"	-6 gravels in crushed — no part.		"	"	0.1	<5	"	220	13	18
18086	555E	"	1-8 grey, maroon + Clay gritty w/rock.		"	"	0.1	"	"	84	82	74
18087	560E	"	-6 light Clay/grey gritty w/rock?		"	"	0.1	"	"	7	11	52
18088	500E	53N.	-6 light Clay/grey gritty w/rock.		"	0.03	<0.1	"	5	6	6	6
18089	495E	"	-5 as above.		"	0.01	"	"	<1	6	28	22
18090	490E	"	-6 " "		"	0.03	0.7	"	4	13	240	44
18091	485E	"	1-2 D/grey + light Clay gritty w/rock.		"	<0.01	0.2	25	3	20	84	140
18092	480E	"	-6 2 abbs grey w/rock + quartz frag.		"	0.02	<0.1	<5	3	3	17	8
18093	475E	"	1-6 Clay/grey gritty w/rock + qtz frags.		"	<0.01	0.5	5	4	28	33	19
18094	470E	"	1-5 Buff grey gritty w/rock		"	"	<0.1	<5	4	4	11	3

mm white m

1135503

503

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Tyndall - PROSPECT: Henty Fault - SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: Pocock.

1:250.000 SHEET: TYPE OF SAMPLE: Auger SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION		ANALYSES							
				Detection		0.01	0.1					
					Te	Au	Ag	As	Bi	Cu	Pb	Zn
18095	465E.	53N.	2·2 cream/grey gritty w/rock.		<1	<0·01	<0·1	10	<1	3	4	35
18096	460E	"	1.4 tan/brown, grey gritty grab?		"	"	"	<5	"	3	7	17
18097	455E	"	1·2 light grey green - cream w/rock subcrop grab.		"	"	"	"	8	6	13	2
18098	450E	"	1·4 cream/grey - light tan gritty w/rock.		"	"	0·1	"	2	5	33	31
18099	445E	"	1·2 as above.		"	"	0·1	"	<1	3	7	30
18100	440E	"	2·6 Blue/grey gritty w/rock.		"	"	0·5	40	9	32	60	86
18101	435E	"	1·8 dirty tan/brown gritty grab c/s?		"	"	0·3	95	<1	110	50	195
18102	430E	"	1·6 Blue/grey w/rock.		"	"	<0·1	10	"	6	9	47
18103	425E	"	·6 Green w/rock.		"	0·02	"	<5	"	37	3	86
18104	420E	"	·5 " " "		"	<0·01	"	"	"	14	3	160
18105	415E	"	1·4 Tan/green c. w/rock.		"	"	"	"	"	98	3	105
18106	410E	"	·5 dark grey - tan gritty w/rock.		"	"	"	"	"	10	5	44
18107	405E	"	1·1 as above.		"	"	"	10	"	270	31	105
18108	400E	"	·5 " "		"	"	"	<5	"	28	7	105
18109	395E	"	1·0 light tan/green w/rock subcrop grab. 50/50		"	"	"	"	"	34	3	94
18110	390E	"	1·4 tan/buff c. w/rock.		"	"	"	"	"	56	12	84
18111	385E	"	1·2 " / green w/rock.		"	"	"	"	"	12	17	15
18112	380E	"	·4 green w/rock		"	"	"	"	"	49	21	110
11813	375E	"	·5 tan/green w/rock?		"	"	"	"	"	31	3	90
11814	370E	"	·7 tan/grey + quartz frag. c/s rock?		"	0·03	"	"	"	14	5	23
11815	365E		·5 Cream/green gritty w/rock.		"	<0·01	"	"	4	10	5	18

113504

504

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pollock

PROJECT: Yandell PROSPECT: Hart Fault SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Chalcedonic Quartz SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	Weight	ANALYSES 1 Te	0.01 Au	0.1 Ag	1 As	1 Bi	1 Cu	1 Pb	1 Zn
118116	360E.	53N	1.1 Cream/grey gritty w/rock.		<1	<0.01	<0.1	<5	<1	6	7	44
118117	355E.	"	.9 Grey w/rock.		"	"	"	10	"	100	22	165
118118	350E.	"	.6 Cream/grey w/rock.		"	"	"	<5	"	6	2	13
118119	345E.	"	.8 Grey/tan " "		"	"	"	"	"	6	4	22
118120	340E.	"	.9 Tan/Khaki c. w/rock.		"	"	"	"	"	64	6	180
118121	290E.	51N	.9 Grade. Blocks unable to get. 2 bags		"	0.43	0.1	"	"	5	14	7
118122	285E.	"	1.2 " " " " 3 bags		"	<0.01	<0.1	"	"	5	10	5
118123	280E.	"	.9 " " " " 2 "		"	0.03	"	"	"	7	20	7
118124	275E.	"	.9 " " " "		"	<0.01	"	"	"	5	14	7
118125	270E.	"	.9 " " " "		"	"	"	"	"	4	11	5
118126	265E.	"	.9 " " " "		"	"	"	"	"	3	23	5
118127	260E.	"	.9 " " " "		"	"	"	"	"	3	13	4
118128	255E.	"	1.7 " " " "		"	"	"	"	"	4	9	4
118129	250E.	"	6.7 light grey. light tan w/rock?		"	"	0.4	5	"	27	19	26
118130	245E.	"	3.6 as above + quartz frag.?		"	"	<0.1	<5	"	18	4	3

11550S

505

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: FGF

PROJECT: TYNDALL PROSPECT: HENTY SAMPLE STORAGE REQ'D: LABORATORY: GENALYSIS DATE DISPATCHED: 28.3.85

1:250,000 SHEET: TYPE OF SAMPLE: ROCK SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4.4.85

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Cu	Pb	Zn	Ag	W	As	Bi	Au(AAS)
17054	L52N	228mE	Strongly cleaved green/blue sericitic schist (FW HFZ?)	34	3	26	<0.1	<2	<5	<1	<0.01
17055	L52N	310mE	Cleaved quartz phyric bleached volcanic, sericitic/siliceous	8	2	7	<0.1	<2	<5	<1	<0.01
17056	L52N	310mE	Sericitic schist after quartz phyric volcanic, siliceous	10	2	8	<0.1	<2	5	<1	<0.01
17057	L52N	410mE	Gritty arenaceous conglomerate, cleaved, sericitic	45	5	19	<0.1	<2	<5	<1	<0.01
17058	L53N	360mE	Cleaved green/grey felsic volcanic: banded sericite/silica/FeOx	11	6	47	<0.1	<2	<5	<1	<0.01
17059	L53N	600mE	Quartz porphyry, wkly altered	6	4	14	<0.1	4	<5	<1	<0.01
17060	100mN L53N	500mE	Strongly cleaved-crenulated pink fine grained volcanic, FeOx	46	4	18	<0.1	<2	<5	<1	<0.01
17061	L54N	420mE	Quartz-sericite schist, Minor FeOx	20	17	47	<0.1	<2	<5	<1	<0.01
17062	L54N	445mE	Pale grey sericitic schist, some silicification (FW HFZ?)	13	3	19	<0.1	<2	<5	<1	<0.01
17063	L54N	445mE	Gossanous chlorite/quartz veins within 17062	4	2	13	<0.1	<2	<5	<1	<0.01
17064	L54N	457mE	Green/grey brecciated volcanic. Chlorite veining reliict py	68	7	84	<0.1	<2	5	<1	<0.01
17065	L54N	490mE	Sericitic schist common, FeOx cement (Great Apollfault?)	12	24	110	<0.1	<2	20	<1	<0.01
17066	L54N	588mE	Crenulated sericitic schist - quartz augen (mylonite?)	4	7	4	<0.1	2	10	2	<0.01

113506

506

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: AJC.

PROJECT: TYNDALL PROSPECT: SELINA GRID SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: R/C CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85.

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14174	L. 104N	2150'W	Vein and veinlet material. Hematite-magnetite veins (flat-lying) with minor quartz in hematitic lavas. (Possibly metamorphic or intrusive related veining).	<0·01	0·6	<5	3	9	90	<1	<2	4750
14175	"	1615'W	Float. Pink, hematitic lava containing quartz phenocrysts. Veined with chlorite and magnetite. Weakly pyritic?	"	0·7	<5	5	20	62	"	2	3150
14176	"	80E	Float. Volcaniclastic with black angular fragments in a purple matrix. Probably Dora Clt.	"	0·1	<5	3	100	270	"	<2	1700
14177	"	180E	Volcaniclastic. Weathered, grey, foliated rock. Minor quartz crystals and clay weathered ~~rock~~ fragments. Not chloritic, (sericitic?), no lava fragments.	"	0·1	<5	3	62	135	"	"	410
14178	L. 112N	420E	Dark green-grey, v. hard conglomerate with minor, small, red lava fragments; large, dark purple, elongate, ovoid clasts. Strongly foliated.	"	<0·1	5	6	34	47	"	"	1400

113507

507

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: TYNDALL PROSPECT: SELINA GRID SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: ASC.

1:250,000 SHEET: TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: DATE RECEIVED: 4/85.

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14179	L. 112N	110E	Strongly weathered and foliated, purple conglomerate with black crystals. Dora Cgll.	<0.01	20.0	5	38	1900	640	<1	2	1650
14180	"	1100'W	Dark green-grey volcaniclastic containing dark green fragments (ex-lithics?) Chloritic and possibly siliceous. Strongly jointed.	"	5.2	10	6	520	150	"	<2	660
14181	"	1630'W	Massive lava. Probably rhyo-dacitic. Chloritic and hematitic, with magnetite veinlets developed.	"	<0.1	10	10	64	64	<1	<2	1450
14182	L. 120N	1980'W	Float. Green volcaniclastic with abundant, large, euhedral quartz and feldspar crystals. Siliceous and chloritic.	"	3.1	10	6	88	82	"	4	5000
14184	"	1130'W	Volcaniclastic, strongly chloritic with weak to moderate foliation developed. This unit is intercalated with massive lavas.	"	0.3	<5	9	160	640	"	<2	1400
14185	"	800'W	Massive lava. Brecciated with hematite and magnetite.	"	0.3	5	105	80	620	"	4	3300

113508

508

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: AJC

PROJECT: TYNDALL PROSPECT: SELINA GRID SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: RICHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85.

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14186	L.120N	400'W.	Brecciated lava - hematitic and chloritic, as a minor phase in an intercalated lava - volcaniclastic sequence.	<0.01	4.0	25	64	280	100	4	2	35
14187	"	"	Volcaniclastic - green chloritic sediment. Sampled next to 14186. Pyritic.	"	1.0	5	92	170	450	<1	2	690
14188	"	270'W	Green, strongly chloritic volcaniclastics. Quartz crystals are common. Foliated and weakly sericitic?	"	5.2	20	70	460	480	2	4	1300
14189	"	120E	Green, chloritic-sericitic volcaniclastics. Quartz phyric and strongly foliated. Not as altered as sample above, otherwise the same.	"	0.1	<5	7	160	250	<1	2	580
14190	L.128N	102E	Possible clast of Cambrian granite from Dean Cgl.	"	3.5	10	105	840	190	"	<2	1500
14191	L.144N	2700'W.	Pink-green, v. hard lava. Massive, chloritic and hematitic. In a predominantly volcaniclastic sequence.	"	<0.1	5	14	43	68	"	"	2250

113509

503

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: AJC

PROJECT: TYNDALL PROSPECT: SELINA GRID SAMPLE STORAGE REQ'D: LABORATORY: CCR. DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14192	L.144N	2460'W.	Brecciated lava. Weakly foliated and jointed, with minor quartz phenocrysts.	<0.01	<0.1	5	38	14	86	<1	<2	5100
14193	L.144N	750'W	Dora Conglomerate.	"	<0.1	5	13	86	230	"	2	850
14194	L.144N	40SE	Silicified volcaniclastic. Strong silica overprint obscures original features.	"	<0.1	125	11	44	16	"	14	480
14195	50m south of	144N/580E	Highly sheared, weathered, sericitic volcaniclastic Quartz phyric.	"	<0.1	<5	15	33	26	"	<2	1000
14196	L.136N	220E	Pale green volcaniclastics containing pink lava chips and quartz phenocrysts. Limonite-hematite staining on fissile fractures and metamorphic quartz veins is common.	"	3.3	<5	66	180	220	1	<2	850
14197	L.136N	137E	'Magnetite vein from massive lava' clast in Dora cgft.	"	0.3	20	13	80	490	<1	8	1550
14198	L.136N	1820'W	Massive lava. Stained with limonite-hematite.	"	1.2	20	38	270	60	"	6	2050

113510

510

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: ASC

PROJECT: TYNDALL PROSPECT: SELINA GRID SAMPLE STORAGE REQ'D: LABORATORY: GSN DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14199	L. 136N	2500W.	Green volcaniclastic with disseminated magnetite veinlets. Very fine grained.	<0.01	0.5	20	88	50	200	<1	8	210

113511

511

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P. ASHTON

PROJECT: PROSPECT: HULXLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Auger Auger Bedrock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DEPTH METRES	HORIZON	DESCRIPTION	ANALYSES Cu	Pb	Zn	Ag	Au (PPB)	As	Ba (PPB)
10978	2S	100W	-3	BEDROCK	Beige powdered rock.	6	5	15	<0.1	<0.01	<5	1450
10979	↑		-35	C+BEDROCK	" " + Beige Brown Copise clay.	78	26	25	"	"	"	480
10980			-9	B	Grey Brown gritty clay + Conglomerate frags	24	82	16	0.4	"	"	385
10981			-7	C+BEDROCK	Khaki green gritty clay + greenish rock chips	19	39	66	<0.1	"	"	640
10982		00	-3	BEDROCK	Outcrop Brown + white rock chips. 15 mins soaking clay	9	11	74	"	"	"	1750
10983			-6	BEDROCK	Black + Orangy brown powdered rock	92	15	110	0.2	"	"	2600
10984			1-1	BEDROCK	Khaki green weathered + powdered rock	42	42	68	0.1	"	"	660
10985			1-0	BEDROCK	" " " " + rock chips "	14	39	62	<0.1	"	"	750
10986		100E	-9	BEDROCK	" " powdered rock + chips	9	37	78	"	"	"	780
10987			-4	BEDROCK	" " " " " "	9	38	56	"	"	"	600
10988			-1	BEDROCK/OUTCROP?	Greyish green rock chips	6	18	15	"	"	"	1400
10989			2-0	C+BEDROCK	Orangy grey weathered + chips rock	10	130	105	"	"	10	1400
10990		200E	-5	BEDROCK	White/grey + some Orange chips	14	49	15	"	"	<5	595
10991			-4	BEDROCK? FLOAT?	" " + " " + Mud "	11	76	35	0.1	"	"	500
10992			-6	BEDROCK? FLOAT?	" " + Orange chips + Powdered rock	33	64	41	0.1	"	"	1100
10993	↓		-6	B+C	White/grey powdered/weathered Conglomerate?	4	21	7	<0.1	"	"	135
10994	2S	300E	-8	B	Greyish conglomerate frags. (Scree)	6	4	8	"	"	"	65

1135512

512

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P. ASHTON

PROJECT: PROSPECT: HUXLEY G210 SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: POWER AUGER. BEDROCK SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		Depth mtrs. DESCRIPTION	1 Cu	5 Pb	1 Zn	0.1 Ag	ANALYSES Au(AAS)	5 As	5 Ba(AAS)	Detection limit	
10995	00	300E	Outcrop in creek rock chips.	19	220	470	0.2	<0.01	20			
10996	↑		" " " " "	30	250	410	2.1	"	180			
10997			" " " " "	64	490	1150	0.3	"	10			
10998			" " " " "	140	290	680	0.2	"	15			
10999		200E	" " " " "	24	170	300	<0.1	0.03	<5			
10893			.4 Bedrock + 'C' Rock chips + Orange khaki weathered rock	10	32	13	"	<0.01	5	1050		
10894			Outcrop whitish rock some Orange staining	9	13	7	"	"	<5	900		
10895			" " " " " "	10	17	7	"	"	"	1050		
10896		100E	" " " " " "	9	34	15	"	"	"	1000		
10897			" " " " " + white rock chip	6	13	10	"	"	"	1300		
10898			Bedrock + 'C' 1-3m Khaki Orange clay + Blue/grey rock chips + white rock	64	21	135	"	"	"	1300		
10899			Outcrop Purplish/whitish rock chips + Ferter rock chips	16	14	4	"	"	"	1250		
12248		00	" " " " " + "	6	5	31	"	"	"	3500		
12249			" " " " " + "	8	25	37	"	"	"	2000		
12250			" " " " " + "	12	12	42	"	"	"	1350		
12251	↓		" " " " " + "	21	12	58	"	"	"	1150		
12252	00	100W	" " " " " + "	25	5	43	"	0.05m	"	1050		

1135513

513

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.A. SUTTON

PROJECT: PROSPECT: Huxley Creek SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Pulp, Power, Bedrock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES 1 Cu	5 Pb	1 Zn	0.1 Ag	0.01 Au (AAS)	5 As	5 Ba (AAS)	Detection Limit
12253	3N	200W	-4 Bedrock + 'c' Blue grey rock chips + khaki powdered rock	14	16	39	<0.1	<0.01	<5	1200	
12254	↑		1-2 'c'? Brown Orange clay with chips + frags + extra rock chips	9	8	33	"	"	"	1350	
12255			-5 B/c? " " " " " " " "	29	5	33	"	"	"	1300	
12256			-3 c/Bedrock Beige clay + chips + frags + extra rock chips	21	28	56	"	"	"	1300	
12257		100W	1-2 c/Bedrock? Orange beige powdered rock + chips	5	5	37	"	"	"	650	
12258			2-0 B + Bedrock? " " clay + " " grey chips	9	8	36	"	"	"	640	
12259			-3 c/Bedrock Orange beige powdered rock + chips	5	6	36	"	"	"	800	
12260			-9 c/Bedrock " " " " + "	19	15	25	"	"	"	900	
16201		00	-4 c/Bedrock? " " clay + chips + frags	31	40	30	"	"	"	1100	
16202			Outcrop rock chips from creek + extra rock chips	20	16	105	"	"	"	1450	
16203			" " " purplish grey + " "	41	17	48	"	"	"	1200	
16204		"	" " " greenish grey + " " "	7	7	30	"	"	"	1000	
16205		100E	" " " " " + " " "	10	17	11	"	"	"	1550	
16206			" weathered " " " " + " " "	12	10	35	"	"	"	1100	
16207	↓		-3 Conglomerate Sriec chips + frags	13	39	8	"	"	"	220	
16208	3N		-4 " " " " "	21	43	7	"	"	"	100	
16209	3N	200E	-4 " " " " "	8	27	9	"	"	"	75	
			"							"	

11351A

514

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P. ASHTON

PROJECT: PROSPECT: HUXLEY GRID POWERANGER REDZONE SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		Depth m	DESCRIPTION	1 Cu	5 Pb	1 Zn	<0·1 Ag	ANALYSES As(AAS)	5 As	5 Ba(AAS)	Detection limit
16210	1N	300E	·4	Whitish Sand with Conglomerate chips + frags (some ferug.)	38	52	6	<0·1	<0.01	<5	75	
16211	↑		·4	c/BEDROCK. Weathered pale green Iron rich chips	320	4900	2900	3·9	0.03 0.04	180	1.10%	
16212			OUTCROP	" " " " "	270	1700	840	7·3	0.14 0.16	80	2750	
16213			·3	Whitish Sand with Conglomerate chips + frags	25	80	17	0·1	<0·01	<5	110	
16214		200E	·2	" " " " " " (Ag rich)	45	180	10	0·1	"	"	80	
16215			·2	OUTCROP Pale greenish beige rock chips	10	20	8	<0·1	0.02	"	810	
[redacted]												
16216			·1	OUTCROP Pale greenish fawn powdered (iron staining) rock + chips	13	45	44	0.1	<0·01	"	950	
16217		[redacted]	OUTCROP	Creamy grey rock chips some brown staining (very fine fracture fills)	6	27	33	<0·1	"	5	1550	
16218		100E	OUTCROP	White + brownish chips (silcrete?) + pale rock	7	11	12	"	"	<5	1350	
16219			·3	BEDROCK " + " " (")	9	15	11	"	"	"	1100	
16220			1-3	c/BEDROCK Cream Weathered Powdered rock	72	29	44	"	"	"	1000	
16221		[redacted]	OUTCROP	" Pinkish chips + Pale rock	5	6	9	"	"	"	1250	
16222		00	·2	OUTCROP Orangy beige Powdered rock chips	10	9	4.7	"	"	"	900	
16223			·4	WEATHERED OUTCROP " " " " "	16	7	24	"	"	"	1350	
16224			·9	c/BEDROCK? Cream Grey Clay + rock chips	15	18	32	"	"	"	1000	
16225	↓		·6	B Orangy beige clay + chips + frags.	20	10	31	4·3	0.01	"	1150	
16226	1N	100W	·9	c/BEDROCK? Khaki Powdered rock + chips	14	11	49	0·2	<0·01	"	1100	

11565

515

GOLD FIELDS EXPLORATION PTY. LTD. Mt Ellen Grid — SAMPLE RECORD AND ANALYTICAL DATA SHEET

COLLECTED BY: N Pollock

PROJECT: TYNDALL PROSPECT: ~~Ellen~~ SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Washer SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Ba		
T1101	1000N	50E	2.8m	<0.01	0.5	<1	5	15	45	335		
T1102	"	100E	0.9m	<0.01	<0.5	<1	10	55	85	277		
T1103	"	150E	1.9m	<0.01	<0.5	<1	5	<5	5	783		
T1104	"	200E	5.2m	<0.01	<0.5	22	20	20	5	1110		
T1105	"	250E	0.5m	<0.01	0.5	16	140	15	15	526		
T1106	"	300E	1.5m	<0.01	<0.5	<1	35	5	70	340		
T1107	1100N	300E	0.7m	<0.01	2	11	35	505	35	840		
T1108	1075N	"	1.0m	<0.01	<0.1	<1	5	<5	5	394		
T1109	1050N	"	0.7m	<0.01	<0.1	18	85	5	15	510		
T1110	STANDARD											
T1111	1025N	300E	0.5m	0.02	<0.5	3	40	30	20	613		
T1112	975N	"	0.6m	<0.01	<0.1	3	15	5	10	632		
T1113	950N	"	0.6m									
T1114	925N	"	0.9m	<0.01	0.5	1	5	<5	20	524		
T1115	900N	"	0.9m	<0.01	<0.5	3	5	10	15	298		
T1116	875N	"	1.4m	<0.01	0.5	2	5	10	10	933		
T1117	850N	"	7.7m	<0.01	0.5	<1	10	5	10	945		
T1118	825N	"	0.7m	<0.01	<0.5	<1	5	5	5	502		
T1119	800N	"	2.9m	<0.01	0.5	4	10	10	25	470		
T1120	775N	"	3.0m	<0.01	0.5	16	10	10	50	883		
T1121	750N	"	4.3m	<0.01	1	6	75	30	145	576		

113516

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: N. Pollock

PROJECT: Tyndall PROSPECT: Mt Ellen Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: '85

1:250.000 SHEET: TYPE OF SAMPLE: Wacker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19964

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Sb		
T 1122			Standard									
T 1123	725N	300E	9.8m	<0.01	0.5	2	10	12	40	209		
T 1124	700N	"	4.6m	<0.01	<0.5	6	10	10	45	413		
T 1125	675N	"	1.8m	<0.01	<0.5	<1	85	75	40	584		
T 1126	650N	"	6.8m	<0.01	<0.5	1	10	5	95	128		
T 1127	625N	"	2.0m	<0.01	1	<1	20	80	5	820		
T 1128	600N	"	0.9m	<0.01	<0.5	<1	5	10	150	714		
T 1129	1000N	350E	0.8m	<0.01	0.5	11	110	40	35	648		
T 1130	"	400E	1.0m	<0.01	0.5	1	5	65	70	2070		
T 1132		450E	~~Standard~~ 0.8m	<0.01	<0.5	1	5	<5	5	756		
T 1133	"	500E	~~0.8m~~ 1.0 "	<0.01	<0.5	<1	5	5	10	897		
T 1134	"	1300E	~~1.0m~~ 5.3 "	<0.01	<0.5	<1	15	25	160	1250		
T 1135	"	1350E	~~5.3m~~ 5.4 "	<0.01	0.5	<1	5	10	40	331		
T 1136	"	1400E	~~5.4m~~ 3.4 "	<0.01	0.5	<1	5	10	60	504		
T 1137	"	1450E	~~3.4m~~ 1.0 "	<0.01	<0.5	<1	5	<5	80	655		
T 1138	"	1500E	~~1.0m~~ 1.2 m	<0.01	<0.5	<1	5	<5	60	1050		
T 1139	"	1550E	~~1.2m~~ 0.8m									
T 1140			Standard									
T 1141	"	1600E	~~0.8m~~ 0.6m	0.01	<0.5	<1	10	15	100	1260		
T 1142	"	1650E	1.0m	0.05	<0.5	1	5	25	90	525		
T 1143	1025N	1600E	3.3m	0.02	<0.5	<1	80	35	115	1350		

11351-3

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: N. Pollock

PROJECT: Tyndall PROSPECT: Mt Ellen Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: '85

1:250.000 SHEET: TYPE OF SAMPLE: Wacker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A199

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Ba		
T1144	1050N	1600E	0·8m	0·02	<0·5	3	50	30	120	1580		
T1145	1075N	"	1·4m	0·01	<0·5	1	30	10	140	1160		
T1146	1100N	"	0·5m	0·02	<0·5	<1	295	20	130	1980		
T1147	1125N	"	2·0m	<0·01	<0·5	<1	110	20	200	907		
T1148	1150N	"	1·2m	<0·01	<0·5	<1	10	10	60	952		
T1149	1175N	"	2·6m	<0·01	<0·5	<1	20	25	310	1280		
T1150			standard									
T1151	1200N	"	0·5m	0·01	<0·5	<1	5	10	220	914		
T1152	1225N	"	0·9m	<0·01	<0·5	1	15	40	170	931		
T1153	1250N	"	1·5m	<0·01	<0·5	2	15	375	60	467		
T1154	1275N	"	0·4m	<0·01	<0·5	1	10	20	95	851		
T1155	1300N	"	0·9m	<0·01	<0·5	<1	10	10	95	692		
T1156	1325N	"	1·6m	<0·01	<0·5	<1	10	20	95	639		
T1157	1350N	"	1·0m	<0·01	<0·5	<1	5	15	85	1130		
T1158	1375N	"	1·2m	<0·01	<0·5	<1	5	20	70	950		
T1159	1400N	"	1·4m	<0·01	<0·5	<1	5	5	55	540		
T1160	1425N	"	4·6m	<0·01	<0·5	17	35	505	85	333		
T1161	1450N	"	1·5m	<0·01	<0·5	8	100	720	355	236		
T1162	1475N	"	4·6m	<0·01	<0·5	3	35	65	85	472		
T1163	1500N	"	5·5m	<0·01	<0·5	2	15	15	95	784		
T1164	975N	"	0·7m	<0·01	<0·5	<1	10	15	40	520		

518

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Tyndall PROSPECT: Mt Ellen Grid SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: N. Pollard

1:250,000 SHEET: TYPE OF SAMPLE: "Wacker" SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: 85

DATE RECEIVED: A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Ba	
T 1165	~~950N~~	~~1600E~~	Standard								
T 1166	950 N	1600 E	0·8m	<0.01	<0.5	<1	5	10	50	704	
T 1167	925 N	"	2·5m	<0.01	<0.5	1	10	10	45	1060	
T 1168	900 N	"	0·6m	<0.01	<0.5	1	10	20	90	1060	
T 1169	875 N	"	1·4m	0.01	<0.5	<1	10	15	100	585	
T 1170	850 N	"	1·3m	<0.01	<0.5	1	10	15	90	461	
T 1171	825 N	"	1·5m	0.03	0.5	<1	5	15	5	39	
T 1172	800N	"	1·0m	<0.01	0.5	<1	10	20	50	492	
T 1173			Standard								

T1165 to T1173

519

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pollock

PROJECT: EL 9166 PROSPECT: Mt Elkin SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET TYPE OF SAMPLE: Soil, Rock, Pan con -80 SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	WT	ANALYSES Au	Ag	As	Cu	Pb	Zn	Ba	Fe %	W
T 00427			Pan con Silt 1 12000gm Au 1 63g		6·8	0·4	3	8	52	62	7220	–	<10
00428			-80#		0·01	0·2	18	60	93	40	488	–	"
00429			Pan con Silt 1 12000 gm Au 77.6		11·5	0·7	1	3	6	12	186	–	"
00430			-80#		0·04	0·3	2	18	16	11	199	–	"
00431			Pan con Silt 1 12000 gm Au 81.9		0·07	<0·1	3	10	39	44	335	–	"
00432			-80#		<0·01	0·3	7	76	52	49	337	–	"
00433	Mt Elkin Grid 1000N	50E	Soil .7m B-C		"	<0·1	1	18	18	19	280		
434		75E	" .5 B		0·01	"	<1	10	<1	13	425		
435		100E	" .6 B		<0·01	"	"	18	4	17	I/S		
436		125E	" .7 B		"	"	"	32	20	22	243		
437		150E	" .3 A Quartz lag		I/S	"	"	32	14	18	435		
438		175E	" .3 B-C		<0·01	"	"	11	<1	9	I/S		
439		200E	" 1·0 B-C		"	"	1	17	"	8	936		
440		225E	" .5 B-C		"	"	<1	6	"	4	688		
441		250E	* Rock massive fine grained sed or felsic lava		"	<0·5	<1	<1	5	<1	570		
442		275E	Soil .50 B-C		"	<0·1	7	8	57	20	414		
443		300E	" .5 B		0·01	0·2	2	20	21	36	399		
444	1015N	300E	* Rock Chl py mag alteration trend NNE		0·15	1	27	565	25	40	168		
445	1025N	300E	Soil .4 B-C		0·03	<0·1	2	32	26	31	I/S		
446	1050N		" .6 B-C		<0·01	<0·1	<1	22	11	8	312		
447	1065N		* Rock weak chl alteration.		"	<0·5	1	80	10	20	327		

1135520

520

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Pollock

PROJECT: EL 966 Mt Ellen PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Rock -80 Soil PAN CON SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Dy	Hg	As	Cu	Pb	Zn	Ba	
100448	1075N	300E	Soil B-C	<0.01	<0.1	<1	9	<1	6	353	
449	1100N		" .3 C	"	"	"	19	36	12	649	
450	975N	300E	" .3 C	"	"	"	11	2	8	I/S	
451	STANDARD										
452	950N		Soil .4 B-C	"	"	"	33	23	13	523	
453	925N		" .4 B-C	"	"	"	52	7	15	I/S	
454	900N		" .5 B	"	"	1	17	12	10	"	
455	875N		" .5 B	"	"	7	21	7	14	509	
456	850N		" .7 B	I/S	"	<1	12	7	21	I/S	
457	825N		" .4 B-C	"	"	"	15	4	10	420	
458	800N		" .6 B-C	<0.01	0.1	1	7	3	5	297	
459	775N		" .4 B	"	<0.1	7	14	14	29	699	
460	750N		" 1.0 B	"	0.5	2	42	25	83	750	
461	725N		" 1.0 B	"	<0.1	5	12	2	31	93	
462	STANDARD										
463	675N		* Rock med grained qtz/fld phyric, <chl.	"	<0.5	<1	35	65	45	452	
464	650N		Soil .3 B-C	I/S	<0.1	"	19	7	42	I/S	
465	625N		" .4 B	<0.01	0.2	"	11	11	6	769	
466	600N		" .4 B-C	"	<0.1	"	26	13	77	I/S	
467	1000N	325E	* Rock mod volc with py and calc	0.12	<0.5	61	560	10	<5	373	
468		375E	Soil .5 B-C	0.01	<0.1	1	18	47	15	1220	

1135921

521

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: POLTOCK

PROJECT: EL 9/66 PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Soil, Rock, Pan Con SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Mo	As	Cu	Pb	Zn	Ba		
100469	1000N	400E	Soil -7 B	0·01	0·5	<1	15	586	54	1150		
470		425E	* Rock fine vein with qtz phenos, limonite joints	<0·01	<0·5	42	55	15	105	398		
471		450E	Soil -5 A-B	0·01	<0·1	1	12	6	7	I/S		
472		475E	" -4 B	<0·01	"	<1	20	9	13	351		
473		500E	" -6 B-C	"	"	"	19	10	11	I/S		
474		525E	" -4 B-C	"	"	"	11	4	14	328		
475		550E	Rock Pulverised qtz phyric vein, with qtz veins									
476		575E	Soil -4 A-B	I/S	0·1	"	11	2	17	356		
477		600E	" -3 A-C	"	<0·1	"	35	15	20	412		
478		625E	" -4 A-C	<0·01	0·2	"	20	6	15	I/S		
479		650E	" -4 A-C	I/S	<0·1	"	44	22	19	891		
480		675E	" -3 A-C	"	0·2	"	30	13	16	368		
481		700E	" -4 A-C	"	0·1	1	25	15	19	462		
482		725.E	" -5 A-B	"	0·2	<1	23	13	13	351		
483		750E	" -6 B-C	0·01	<0·1	2	14	34	77	909		
484		775E	" -7 B	<0·01	0·2	1	16	15	15	360		
485		800E	" -5 A-B	"	0·1	<1	13	5	13	429		
486		STANDARD										
487		825E	Soil -7 B-C	"	0·2	"	12	5	12	463		
488		850.E	" -5 B-C	0·01	0·1	"	42	21	17	I/S		
489		875.E	-3 B-C	<0·01	0·1	<1	28	10	12	I/S		

1135522

522

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: PoLTock

PROJECT: EL 9166 PROSPECT: Mt Ellen Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Soil -Bo Rock Pan Con SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Ba		
100490	1000N	925E	Soil -4 B-C	<0.01	0.1	<1	7	<1	12	461		
491		950E	" -3 B-C	0.01	0.2	"	25	12	11	385		
492		975E	" -3 B-C	<0.01	0.2	"	11	1	8	686		
493		1000E	" .7 B-C	"	0.4	"	5	<1	6	1020		
494		1025E	" .3 B-C	"	0.2	"	20	10	12	554		
495		1050E	" .4 B-C	"	0.2	"	20	6	12	I/S		
496		1075E	" .6 B	"	"	1	12	26	21	396		
497		1100E	" 1.0 B	"	0.1	8	36	34	17	2883		
498		1125E	" .7 B-C	<0.01	0.3	1	18	11	17	874		
499		1150E	" .4 B-C	"	0.1	<1	15	11	26	I/S		
500		1175E	" .5 B	"	0.1	<1	16	13	39	806		
100526	STANDARD											
527	1000N	1200E	Soil .6 B-C	I/S	0.1	1	37	123	110	824		
528		1225E	" .5 A-C	I/S	0.1	<1	40	17	23	574		
529		1250E	" .4 B-C	<0.01	0.1	<1	17	5	21	753		
530		1275E	" .6 B-C	0.01	<0.1	1	30	17	148	945		
531		1300E	" .5 B-C	<0.01	<0.1	<1	12	9	40	519		
532		1325E	" .6 B-C	<0.01	0.2	<1	7	3	15	859		
533		1350E	" .6 B-C	0.01	<0.1	<1	15	8	37	I/S		
534	STANDARD											
535		1375E	" .5 B-C	0.01	<0.1	<1	22	21	36	I/6		

113523

523

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: POLTOCK

PROJECT: EL 9/66 PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil -80 Rock PAN CON SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION			ANALYSES							
						Au	Ag	As	Cu	Pb	Zn	Bi	
100536	1000 N	1400 E	Soil	.4	B-C	<0.01	0.1	3	6	5	36	279	
537		1425E	"	.5	B-C	I/S	0.1	<1	42	18	28	265	
538		1450E	"	.5	B-C	0.02	0.1	<1	25	9	37	I/S	
539		1475E	"	.4	B-C	0.02	<0.1	<1	18	13	159	I/S	
540		1500E	"	.5	B-C	0.01	0.2	<1	7	4	35	544	
541		1525E	"	.5	B	<0.01	0.1	<1	10	5	28	696	
542		1550E	"	.3	A-B	<0.01	0.2	2	18	14	23	653	
543		1575E	"	.3	A-B	I/S	0.1	8	32	23	19	299	
544		1600E	"	.5	B	<0.01	0.1	2	11	5	17	518	
545	Mt Ellen LINE 1025N	1600E	"	.8	B	0.01	0.1	<1	12	11	30	I/S	
546	1050 N		"		A	<0.01	0.1	<1	17	10	13	447	
547	1075 N		"	1.0	B	<0.01	0.1	1	8	4	24	307	
548	1100 N		"	.7	B-C	0.01	0.1	2	24	15	61	I/S	
549	STANDARD												
550	1125N		Soil	.7	A	I/S	<0.1	2	34	22	20	286	
551	1150N		"	1.0	B	0.01	<0.1	1	27	16	22	I/S	
552	1175N		"	.5	B	0.02	<0.1	1	22	18	16	269	
553	1200N		"	.4	B-C	0.02	<0.1	2	20	13	25	168	
554	1225N		"	.3	B-C	I/S	<0.1	3	34	10	69	657	
555	1250 N		"	.5	B-C	I/S	<0.1	1	25	23	37	570	
556	STANDARD												

1135524

524

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: POLTOCK

PROJECT: EL 916 PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil -80 Rock PAN CON SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION			ANALYSES Au	Ag	Pb	Cu	Ni	Zn	Ba
T00557	1275N	1600E	Soil	.8	B	0.04	<0.1	<1	27	16	35	I/S
558	1300N		"	.5	B	0.02	<0.1	<1	27	3	26	I/S
559	1325N		"	1.0	B	<0.01	<0.1	<1	6	<1	<15	247
560	1350N		"	.4	B-C	0.03	<0.1	1	19	16	18	385
561	1375N		"	.4	A-B	0.03	<0.1	1	45	47	19	168
562	1400N		"	.5	B-C	0.03	<0.1	<1	14	11	25	242
563	1425N		"	.7	B	<0.01	<0.1	3	19	45	22	I/S
564	1450N		"	.8	B	I/S	<0.1	10	42	510	124	46
565	1475N		"		A-C	I/S	<0.1	2	28	56	64	213
566	1500N		"	.6	B-C	I/S	<0.1	2	14	13	44	617
567	975N	1600E	"	.4	B-C	<0.01	<0.1	<1	21	10	24	I/S
568	950N		"	.4	B-C	<0.01	<0.1	<1	7	2	28	634
569	925N		"	.2	A-C	<0.01	<0.1	<1	27	13	25	450
570	900N		"	.3	A	I/S	<0.1	1	50	25	26	359
571	875N		Rock	felsic	lava with amygdules?	<0.01	0.5	<1	5	5	90	1220
572	850N		Soil	.4	A	0.03	<0.1	1	21	8	14	I/S
573	STANDARD											
574	800N		Soil	.4	A-B	0.03	0.1	1	23	3	17	148
575	1000N	1625E	"	.3	B-C	0.02	<0.1	<1	17	6	23	I/S
576		1650E	"	.6	B-C	<0.01	<0.1	<1	10	2	25	316
577		1675E	"	.6	B	0.02	<0.1	<1	8	<1	16	376

113523

525

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Pol Tock

PROJECT: EL 9166 PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

250.000 SHEET: TYPE OF SAMPLE: Soil Rock Float SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Ba		W
00829	610N	2400E	Rock feldsp phyric volc	<0.01	<0.5	2	<5	15	10	908		
830	610N	"	-soff sed' + detritus com Qtz	0.01	0.3	2	22	48	22	512		10
831	600N	"	Soil .5m B	0.02	<0.1	<1	8	9	45	T/S		
832	575N	"	Rock feldsp phyric volc	<0.01	<0.5	2	5	30	95	1100		
833	650N	"	-soff stream sed'	"	0.1	1	16	30	17	330		<10
834	715.N	"	" "	0.05	0.3	1	18	23	15	161		<10

11535226

526

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pollock

PROJECT: EL 9166 PROSPECT: Mt Ellen SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil Rock -80 sect SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A1996

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Ba		
100578	1000N	1700E	Rock massive felsic lava	<0.01	0.5	2	<5	<5	30	726		
579	"	1725E	" " " "	0.01	<0.5	<1	5	5	35	415		
580	"	2100E	Soil .5m B Qtzn derived glac?	<0.01	<0.1	<1	9	1	6	<10		
581	1025N	2400E	Rock felsic lava/ignimbrite?	0.02	<0.5	<1	5	<5	65	994		
582	1050N	"	Soil .5m B clay.	I/S	<0.1	5	77	32	57	737		
583	1075N	"	Rock lava/ignim, pink, felsp phyric	<0.01	0.5	<1	5	<5	45	1410		
584	1100N	"	" " "	"	"	2	<5	"	60	1150		
585	1125N	"	Soil .6m B grey-yel clay.	I/S	<0.1	1	24	19	60	633		
586	1140N	"	Rock fine grained grey vol sed?									
587	1150N	"	Soil .3m B cream/yel.	0.01	<0.1	1	24	12	39	619		
588	STANDARD											
589	1165-1175N	"	Rock fine grained felsic volc									
590	1175N	"	Soil .5m B	I/S	<0.1	1	29	13	33	560		
591	1200N	"	" .6m B-C	0.01	<0.1	2	20	9	25	921		
592	1210N	"	Rock fine grained felsic volc									
593	1225N	"	Soil .3m B yel brn	I/S	<0.1	1	29	20	63	I/S		
594	1237	"	Rock fine felsic volc with qtz limonite vein	<0.01	<0.5	2	5	20	105	1160		113527
595	1250N	"	Soil .4 B pale brn	I/S	<0.1	6	30	19	38	804		
596	1275N	"	Rock felsp phyric volc med grained	<0.01	<0.5	1	<5	5	35	593		
597	1300N	"	Soil .5m B-C cream-white	0.01	<0.1	<1	50	21	28	624		
598	1325N	"	" .5m A.	0.01	0.1	1	48	30	24	387		

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: EL 9166 PROSPECT: Mt Ellen COLLECTED BY: Poltock

250.000 SHEET: TYPE OF SAMPLE: Soil, Rock -80 SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES Au	Ag	As	Cu	Pb	Zn	Ba	Be
100599	1350 N	2400 E	Soil .3m A-B white	I/S	<0.1	<1	47	26	31	461	
00600	1375 N	"	Rock foliated porcelanic feldsphyric volc	<0.01	<0.5	<1	5	<5	30	5610	
00811	1400 N	2400 E	Rock foliated felsic volc . chl/sericite	<0.01	<0.5	<1	<5	<5	40	859	
812	1425 N	"	Soil 1.0m, B-C	"	<0.1	3	28	20	53	I/S	
813	1450 N	"	" .7m "	"	0.2	2	13	8	25	356	
814	1475 N	"	Rock rhyl lava massive minor magnetite	"	<0.5	1	5	10	45	1040	
815	1500 N	"	Soil .3m A-B	0.01	0.1	1	24	14	20	471	
816	1525 N	"	" .6m B-C	<0.01	0.2	1	13	9	28	749	
817	1550 N	"	" .6m B	0.01	0.1	<1	8	4	25	438	
818	1575 N	"	Rock rhyl lava massive, minor mag', grt veining	<0.01	<0.5	1	10	20	60	1020	
819	1600 N	"	Soil B-C .5m.	0.01	0.2	10	10	15	54	I/S	
820	1625 N	"	" .4m B-C	"	"	3	13	34	37	482	
821	1650 N	"	" .5m A-B	"	0.1	<1	23	38	30	I/S	
822	1675 N	"	" .2m A	I/S	0.2	<1	41	29	27	296	
823	875 N	"	Rock foliated feldsp phyric volc	<0.01	<0.5	<1	<5	10	35	2200	
824	850 N	"	Soil .4m A	I/S	0.1	"	48	31	25	675	
825	STANDARD										
826	800 N	2400 E	Soil .5m B	0.01	<0.5	"	14	12	109	I/S	
827	725 N	"	" 1.0m A-B flac soils	I/S	0.1	1	24	26	29	"	
828	712 N	"	Rock feldsp phyric volc	<0.01	0.5	6	<5	5	40	1280	

528

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: F.G.F

PROJECT: TYNDALL PROSPECT: MT ELLEN SAMPLE STORAGE REQ'D: LABORATORY: GENALYSIS DATE DISPATCHED: 28.3.85

1:250,000 SHEET: TYPE OF SAMPLE: ROCK SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4.4.85

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Cu	Pb	Zn	Ag	W	As	Bi	Au(PPB)
17051	Costean ≃175m S. of	Mt Ellen workings	Massive felsic porph. lava. Minor specularite	41	18	16	<0.1	2	<5	<1	0.01
17052	depression ≃150m	NW Mt Ellen	Purple massive felsic lava. Weathered, mod mag.	38	9	50	<0.1	<2	<5	<1	<0.01
17053	crest of ridge ≃250m	N Mt Ellen	Massive felsic lava, silicified?	10	14	42	<0.1	<2	<5	<1	<0.01

113529

529

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: ASC

PROJECT: TYNDALL PROSPECT: SNAKE SPUR GRID SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: 7/85.

1:250.000 SHEET: (TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14151	1000N	3495E	Volcaniclastic. Dark grey-greenish, weakly chloritic and poss. silicified. Very fine-grained with few lithic? fragments.	<0·01	<0·1	<5	11	2	29	<1	<2	1550
14152	1000N	3460E	Volcaniclastic. Highly weathered off-white-pale green sericitic - weakly chloritic very fine-grained rock. Lithic clasts present.	"	"	"	3	96	64	"	"	1050
14153	1000N	3195E	Volcaniclastic. Green-grey, chloritic, very fine-grained rock with lithics. Foliated.	"	0·1	10	22	26	76	"	"	900
14154	1410N	3000E	Volcaniclastic. Green-grey, chloritic rock with small lithic and quartz clast in a very fine grained matrix. Strongly foliated.	"	0·2	<5	7	140	34	"	"	510
14155	S. Spur Costean.		Highly sheared, hematitic, fine-grained volcaniclastic.	"	0·3	"	84	11	6	"	"	950
14156	S. Spur	Costean.	Grey, weakly sericitic, very fine grained clastic rock – chert or siltstone.	0·08	0·6	5	120	11	5	26	"	1050

113530

530

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: ASC

PROJECT: TYNDALL PROSPECT: SNAKE SPUR GRID SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85.

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14157	Snake Spur	Costean.	Green-red, chloritic and weakly hematitic breccia or conglomerate.	<0·01	0·4	<5	105	11	36	5	<2	335
14158	Snake Spur	Costean.	Highly sheared, strongly chloritic, fine-grained volcaniclastic.	"	1·1	"	560	8	58	2	"	130
14159	Snake Spur	Costean	Strongly hematitic chert or siltstone.	"	0·5	"	74	5	8	2	"	680
14160	Snake Spur	Costean	Volcaniclastic and very fine grained sediment (chert) with stringers of pyrite and chalcopyrite	0·05	4·7	"	1·35%	5	43	1	"	190
14161	20m above S.S.	Costean.	Dawn sandstone. A hematitic, gritty sandstone. Purple.	<0·01	<0·1	"	125	6	7	<1	"	345
14162	1800N	3050E	Moderately sheared/foliated, green volcaniclastic, with feldspar? crystals and lithic clasts in a fine grained matrix.	"	0·1	"	14	70	78	"	"	660
14163	2000N	3115E	A highly foliated, very fine-grained, weakly sericitic volcaniclastic. Well jointed. A phyllitic rock.	"	<0·1	"	86	2	8	"	"	610

113531

531

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: ASC

PROJECT: TYNDALL PROSPECT: SNAKE SPUR GRID SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 4/85.

SAMPLE NUMBER	GRID LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Bi	W	Ba
14166	1600N	3000E	Dacitic? lava. Feldspar phyric, massive, hard and unfoliated. Cut by numerous metamorphic quartz veins.	<0.01	<0.1	<5	10	18	88	<1	<2	530
14167	1760N	3000E	As above. Strongly jointed.									
14168	2200N	3110E	Sheared, hematitic volcaniclastic. Weakly sericitic.	"	"	10	3	12	6	"	"	620
14169	3470N	3000E	Sheared, green, chloritic and possibly sericitic volcaniclastic. Weathered.	"	"	30	20	19	48	"	"	350
14170	3300N	3180E	Pale purple-green, fine-grained sandstone. Oxen sandstone.	"	"	<5	7	6	3	"	"	45
14171	3300N	3180E	More intensely altered version of 14170, wallrock next to a large quartz vein.	"	1-1	20	18	52	3	"	"	380

113532

532

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: JOCTOCK.

PROJECT: Tindall. PROSPECT: Sinkers Lane SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Auger SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION				ANALYSES (all ppm) Au	Ag	As	Cu	Pb	Zn
16101	3100E	2400N	2.4 Clay gritty w/rock - grey rock fragments.				0.17	<0.1	5	54	18	56
16102	3125E	" (a)	.8 grey/grn w/rock under 1m clay				0.42	"	<5	37	8	82
16103	3125E	" (b)	2.8 " " " " " "				0.07	"	"	48	6	60
16104	3150E	"	.8 " " " " " "				0.08 (19)	0.1	"	185	12	52
1610 Sample	3175E	"	3 alter ps & ls Residual - unable to part.									
" "	3200E	"	2 " " flood plain " "									
16105	3225E	"	4.6 light grey clayey w/rock.				0.05	<0.1	15	19	37	46
16106	3250E	"	5.5 light grey/grn clay w/rock, dk grey sections - quartz frags.				0.15	"	45	32	9	130
16107	3275E	"	2.3 grey gritty w/rock ? + gravels				0.13	"	<5	6	15	7
16108	3300E	"	2.1 grn/brown " ? under grey dirty gravels				0.10	"	"	9	13	10
16109	3325E	"	2.9 " " " " " "				0.09	0.1	"	11	5	5
16110	3350E	"	3.1 grey/brown gravels?				0.06	"	"	18	8	6
16111	3375E	"	1.4 grey/white gritty qtz. gravels?				0.13	"	"	4	2	4
16112	3400E	"	1.0 white sandy w/rock + fragments.				0.09	<0.1	"	5	"	"
16113	3300E	2700N	5.1 light grey w/rock ?				0.12	"	"	4	4	3
16114	3275E	"	1.4 Pink sandy w/rock ?				0.03	"	"	"	1	"
16115	3250E	"	3.2 " " " " " "				0.06	"	"	"	"	"
16116	3225E	"	4.9 Blue/grey w/rock.				0.21	"	"	22	7	82
16117	3200E		3.7 Clay w/rock and quartz gravels				0.10	"	15	19	19	9

115533

533

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Lockock

PROJECT: Tyndall PROSPECT: Snake Spur SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Auger SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (all ppm)					
				Au	Ag	As	Cu	Pb	Zn
16118	3175E.	2400N.	3.0 Pale clayey w/rock under Cainozoic gravels.	0.25	<0.1	<5	13	10	10
16119	3150E	"	1.5 light tan w/rock.	0.12	"	"	21	33	21
16120	3125E	"	5.5 grey w/rock with light tan bands.	0.18	"	5	13	52	41
16121	3100E	"	1.4 Gravels unable to penetrate	0.20	0.1	<5	4	4	4
N/Sample	3075E	"	Creek. No penetration.						
16122	3050E	"	3.5 grey clayey w/rock.	0.10	0.2	40	35	33	64
16123	3025E	"	3.6 light tan w/rock under tan c. w/rock.	0.11	<0.1	<5	24	14	54
16124	3000E	"	7.1 Mauve - grey clayey w/rock.	0.22	"	"	54	13	24
16125	3000E	2200N	1.9 Dark grey w/rock under tan sandy clays.	<0.01	0.3	85	42	170	30
16126	3025E	"	2.8 2 alternate grey w/rock	0.12	<0.1	<5	9	18	41
16127	3050E	"	4.0 grey w/rock.	0.09	0.1	15	33	12	44
16128	3075E	"	1.2 light green/grey w/rock under grey clayey gritty gravels.	0.20	<0.1	<5	6	3	4
16129	3100E	"	.8 light grey w/rock.	0.15	"	"	3	6	5
16130	3125E	"	.7 as above with mauve tinge.	0.16	"	"	"	2	3
16131	3150E	"	3.0 Maroon clayey w/rock under tan/grey gritty clays.	0.21	"	"	7	5	4
16132	3175E	"	1.0 wt. conglomerate?	0.14	"	"	50	9	5
16133	3200E	"	.9 " " ?	0.06	"	"	5	3	3
16134	3225E	"	1.7 light grey w/rock with fine white veining under buff gravels	<0.01	"	"	4	5	3
16135	3250E		1.6 grey sandy gritty w/rock? under gravels.	<0.01	"	"	5	15	4

113534

534

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pollock.

PROJECT: Tyndall PROSPECT: Snaky Spur SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (all ppm)						
				Au	Ag	As	Cu	Pb	Zn	
16136	3300E	Loc'n	1.0 grey/brown gritty w/rock.	<0.01	<0.1	<5	7	7	3	
16137	3275E	"	2.8 Maroon w/rock.	0.02	"	"	33	27	"	
16138	3250E	"	3.9 light grey w/rock with maroon section	<0.01	0.1	"	5	8	2	
16139	3225E	"	.9 grey w/rock.	"	0.4	"	21	21	6	
16140	3200E	"	.5 " " "	"	<0.1	"	10	22	"	
16141	3175E	"	.6 " " "	"	"	"	6	20	7	
~~16142~~	3150E	"	No sample.							
16142	3120E	"	1.7 grey/biscuit coloured w/rock.	0.06	"	"	120	2	4	
16143	3100E	"	2.7 greenish/grey w/rock.	0.02	"	"	13	-	21	
16144	3075E	"	.9 " " " under Can cleys.	0.03	"	"	15	8	8	
16145	3050E	"	.5 " " " with Can tinge.	0.02	"	"	4	13	4	
16146	3100E	1800N	1.4 grey w/rock under Can w/rock.	<0.01	"	"	15	68	6	
16147	3125E	"	1.2 " " " " "	0.04	"	"	17	9	5	
16148	3150E	"	.9 Biscuit clayey w/rock.	0.02	"	"	62	20	8	
16149	3175E	"	1.8 grey w/rock. with dark grey sections	<0.01	"	"	42	35	15	
16150	3200E	"	.7 as per 16149 with Can tinge.	0.03	0.1	"	46	9	3	
~~16151~~ 16151	3225E	"	.9 grey/green gritty w/rock.	0.03	<0.1	"	16	4	4	
~~16152~~ 16152	3250E	"	.8 main quartz, grade-2 gossan. No pendant	0.05	0.1	"	33	11	5	
~~16153~~ 16153	3275E	"	.6 Dark/green w/rock.	0.09	0.3	"	86	6	16	

11535

535

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET** — COLLECTED BY: Pocock.

PROJECT: Tyndall — PROSPECT: Snake Spur. — SAMPLE STORAGE REQ'D: — LABORATORY: GENALYSIS — DATE DISPATCHED:

1:250,000 SHEET — TYPE OF SAMPLE: Auger — SAMPLE PREP. REQ'D: — ANALYSIS REQ'D: — DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (all ppm) Au	Ag	As	Cu	Pb	Zn
16304	3300 E	1600 N.	-8 Maroon/grey no/rock.	0.10	0.5	<5	2400	7	2
16305	3325E	"	-5 Pink no/rock.	0.07	<0.1	"	14	3	"
16306	3350E	"	-7 Maroon no/rock under gritty gravels.	0.12	0.1	"	"	9	3
16307	3375E	"	.5 gravels - 2 attempts - unable to penetrate	0.03	<0.1	"	5	1	2
16308	3400E	"	1.6 Tan/grey gritty sandy gravels	0.06	"	"	8	5	3
16309	3450E	1600N	1-0 Pink/grey no/rock.	0.05	"	"	5	2	2
16310	3425E	"	-8 grey + Tan sandy no/rock?	0.12	"	"	10	6	3
16311	3400E	"	-5 2 attempts - grey no/rock.	<0.01	"	"	9	4	5
16312	~~3425E~~	3375E	-5 Buff/grey no/rock.	0.01	"	"	11	2	8
16313	3350E	"	2-1 Dark grey no/rock.	0.02	0.5	"	620	9	15
16314	3325E	"	-8 2 attempts - Buff/grey no/rock.	"	<0.1	"	34	5	4
16315	3300E	"	1-1 light grey no/rock with greenish tinge.	<0.01	"	"	18	"	"
16316	3275E	"	.8 green/grey no/rock under buff/g clay.	0.02	<0.1	"	72	10	16
16317	3250E	"	5-0 light grey no/rock.	0.04	0.1	"	17	11	7
16318	3225	"	-8 light grey/green no/rock under buff clay.	0.02	<0.1	"	10	250	"
16319	3200E	"	-7 grey sandy no/rock with Tan tinge - 3 attempts.	<0.01	"	"	5	4	4
16320	3175E	"	1.8 grey/green no/rock under Buff clays	0.03	"	"	6	9	10
16321	3150E	"	.4 - " - " - "	<0.01	"	"	5	17	12
~~16322~~	~~3125E~~	"							

113536

536

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Pocock.

PROJECT: Lyndall. PROSPECT: Snake Spring SAMPLE STORAGE REQ'D: LABORATORY: GEN. DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Wacks SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION				ANALYSES (all ppm)					
							Au	Ag	As	Cu	Pb	Zn
16322	3200E	1400N	grey wstock with green + tan tinge				0.03	<0.1	<5	9	80	12
16323	3225E	-	1.6 tan clayey wstock + quartz fragments				"	"	10	10	33	13
16324	3250E	-	1.1 Dark grey wstock? and conglomerate blocks - float				Plai	0.2	30	92	84	42
16325	3275E	-	1.6 green - cream flecky wstock.				<0.01	0.1	15	140	76	390
16326	3300E	-	3.9 = 1 grey wstock				"	<0.1	<5	125	31	430
16327	3325E	-	2-3 tan sandy gravels - grey fragments - float				places of creek. "	0.1	"	31	27	38
16328	3350E	-	1.1 grey gritty wstock. - 2 attempts				"	"	"	15	60	15
16329	3375E	-	1.7 " " " ?				"	0.4	"	16	8	3
16330	3400E	-	.8 green/tan wstock.				"	<0.1	5	145	23	70
16331	3425E	-	.7 " " " - more green.				0.02	0.1	<5	115	11	35
16332	3450E	-	.6 grey wstock.				<0.01	<0.01	"	5	2	3
16333	3475E	-	1.2 gravels - no penetration.				0.02	"	"	12	1	"
16334	3500E	-	1.4 " " ? "				0.01	"	"	6	5	"
16335	3600E	1050N	1.7 Pink sands - no penetration				0.04	"	"	5	1	6
16336	3575E	-	2.6 grey wstock - quartz fragments.				<0.01	"	"	4	4	1
16337	3550E	-	.5 Conglomerate - 2 attempts.				"	"	"	5	"	3
16338	3525E	-	.7 grey wstock?				"	"	"	9	5	"
16339	3500E	-	.8 tan/khaki wstock in creek bed.				"	"	20	72	2	33
16340	3475E	-	.6 grey wstock with tan tinge.				"	0.2	<5	6	21	9

11553

537

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: Estock

PROJECT: Tyndall PROSPECT: Snake Jew SAMPLE STORAGE REQ'D: LABORATORY: GENALYSIS DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 3/85.

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (all ppm)							
							Au	Ag	As	Cu	Pb	Zn
16341	3450E	5000N	.5 Grey wstock with clay fringe				<0.01	<0.1	<5	3	3	20
16342	3425E	-	.6 as above + quartz block.				0.20	"	"	"	74	41
16343	~~3400E~~	3400E	.5 " " — no quartz.				0.09	"	"	2	250	470
16344	3375E	"	.3 " "				0.18	0.1	"	3	185	1300
16345	3350E	"	2.6 " "				0.21	0.3	"	5	90	410
16346	3325E	"	.8 grey wstock				0.20	0.1	"	8	50	41
16347	3300E	"	2.8 " "				0.28	0.1	"	6	14	23
16348	3275E	"	1.1 light green wstock				0.26	0.2	"	7	94	76
16349	3250E	"	3.6 " "				<0.01	0.1	"	3	35	19
16350	3225E	"	.5 grey wstock.				"	<0.1	"	9	12	14
16351	3200E		.6 " clayey wstock?				0.03	"	"	6	9	13
16352	3245E	2400N	1.8 vingl.rock: green rock fragments under gravels				0.04	"	"	10	6	16
16353	3475E	"	.6 Cayl. blocks: gravels — no penetration.				0.02	"	"	6	4	5
16354	3500E	"	1.1 grey/green r. fragments under gravels — block?				0.04	"	"	7	3	9
16355	3525E	"	1.6 gravels + blocks — no penetration.				<0.01	"	"	9	9	6
16356	3550E	"	1.1 green wstock under blocks + gravels.				0.02	"	"	6	6	11
16357	3575E	"	5' at top 5'-4'-6' "				<0.01	"	"	7	2	2
16358	3600E	"	3' "				"	"	"	5	4	3
16359	3625E	"	.9 Sink sands - no pen.				"	"	"	4	1	2

113538

538

GOLD FIELDS EXPLORATION PTY. LTD. — **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: Rotrock

PROJECT: Tyndall | PROSPECT: Spoke Spur. | SAMPLE STORAGE REQ'D: | LABORATORY: GENALYSIS. | DATE DISPATCHED: 3/TS.

1:250,000 SHEET: | TYPE OF SAMPLE: Wacker. | SAMPLE PREP. REQ'D: | ANALYSIS REQ'D: | DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES (all ppm)								
							Au	Ag	As	Cu	Pb	Zn
16360	3650E	2400N	1-2 Cam/Rokki w/rock under Blacks gravels.				0·02	<0·1	<5	11	4	6
16361	3650E	2200N	.7 Dalton's Blacks + gravels.				<0·01	"	"	5	1	1
16362	3625E	"	1·6 Buff clayey sandy w/rock?				0·02	"	"	6	14	5
16363	3600E	"	7-0 = sample — unable to reach B/rock.				0·08	"	"	4	11	7
16364	3575E	"	1·4 Dalton's maroon, tan, grey fragments + gritty clay				<0·05	"	"	"	3	3
16365	3550E	"	1·3 Buff, pink, grey sandy gravels.				0·04	"	"	"	"	4
~~16366~~	3525E	"	Creek unable to open. — no sample									
16366	3500E	"	1·6 Dalton's. Buff/brown gritty gravels.				0·11	"	"	17	"	"
16367	3475E	"	1·8				0·04	"	"	48	5	2
16368	3450E	"	2·1 Brown/buff sandy w/rock?				0·10	"	"	74	7	"

113539

539

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: PAN.CON + ROCK CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	Weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14008	GARFIELD	SHEET	Pan.con. Largely qtz sand, 2-3% dark heavies. Site rating 3-4. ?% locally derived. 3 pans. Au seen:- 1 grain >1mm; 1 grain <1mm.	41·0	0·16	0·5	<5	20	5	6	2
14009	"	"	Pan.con. Largely qtz.sand, <1% heavies. Site rating 3-4. ?% locally derived. 3 pans. Au seen:- nil.	59·5	<0·01	<0·1	<5	10	6	14	<2
14010	"	"	Pan.con. Largely qtz sand, 1% heavies. Site rating 2-3. All locally derived. 3 pans. Au seen:- 1 grain >1mm; 7 grains <1mm.	52·2	47·0	5·2	<5	5	10	5	8
14011	"	"	R/chip. Quartz veined sandstone, includes green mineral within sandstone and on joint surface. Float.		<0·01	<0·1	35	7	3	<1	2
14012	"	"	Pan.con. Qtz + feldspar sand, 1-2% black heavies. Site rating 2-3, all locally derived. 3 pans. Au seen:- nil.	60·3	4·84	<0·1	45	4	9	25	2

113540

540

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: MN.CON + R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	Weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14013	GARFIELD	SHEET	Bleached, white, fine-grained ?volcanic. Very finely porphyritic. Float. - Rock chip.		0·01	<0·1	<5	2	4	<1	2
14014	"	"	Rock chip. Yellow-brown, limonitic ironstone. Probably a transported gossan.		<0·01	0·3	290	25	34	420	<2
14015	"	"	Pan. con. Sandy:- qtz/feldspar/lithic; <1% heavy mineral. Site rating 3, all locally derived. 2 pans. Au seen:- 5 grains <1 mm.	63·3	11·4	0·5	<5	4	8	5	<2
14016	FLANNIGANS	SHEET	Pan. con. Sandy - quartz/feldspar/lithic; <1% heavy minerals. Site rating 3, all locally derived. 3 pans. Au seen:- nil.	67·0	<0·01	<0·1	<5	4	13	15	<2
14017	"	"	Rock chip. Pale grey-green, yellow-brown, partly limonite stained, foliated quartz-porphyritic volcanic.		"	"	15	7	14	60	"
14018	"	"	Pan con. Sandy:- quartz/feldspar/lithics <1% heavy minerals. Site rating 1-2, all locally	50·3	0·07	<0·1	<5	3	15	8	2

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541

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: PAN.CON.+R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84.

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
			derived. 3 pans. Au seen:- nil.								
14019	FLANNIGANS	SHEET	Pan.con. Sand:- quartz, pale lithics ± feldspars; virtually no heavy minerals. Site rating 2, all locally derived. 1 pan. Au seen:- 3 grains <1mm.	34.3	5.71	1.0	<5	4	8	5	2
14020	"	"	Pan.con. Sand:- quartz/feldspar/lithics, 5% black heavies (?chromite). Site rating 1, all locally derived. 1 pan. Au seen:- nil.	22.2	<0.01	<0.1	5	5	5	16	<2
14021	"	"	Pan.con. Sand:- quartz, lithics, 1% black heavies. Site rating 1, all locally derived. 1 pan. Au seen:- nil.	24.9	0.04	<0.1	<5	4	6	4	2
14022	"	"	Pan. con. Sand:- quartz, feldspar, lithics; <1% heavy minerals Site rating 1, all locally derived, 3 pans. Au seen:- nil.	46.6	0.03	<0.1	<5	18	21	7	2
14023	"	"	Pan. Con. Sand:- quartz?, feldspar, lithics, virtually no heavy minerals. Site rating 3-4, all	34.8	<0.01	<0.1	<5	5	6	4	<2

113542

542

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: ANN-CON + R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
			locally derived. 1 pan. Au seen: - nil.								
14024	FLANNIGANS	SHEET	Pan. con. Sand: - quartz ? feldspars, lithics; a trace of heavy minerals. Site rating 1-2, all locally derived. 3 pans. Au seen: - nil.	47·7	<0·01	<0·1	<5	5	10	6	<2
14025	GARFIELD	SHEET	Pan. con. Quartz/feldspar/lithics; <1% heavy minerals. Site rating 1-2, all locally derived. 3 pans. Au seen: - nil.	52·9	<0·01	<0·1	<5	3	11	6	<2
14026	"	"	Rock chip. Yellow-brown, soft, weathered, very limonitic, foliated volcanic.		"	0·1	40	7	32	300 ~~400~~	<2
14027	"	"	Rock chip. Pale yellow-green, grey-green, weakly foliated, quartz porphyritic volcanic. Minor limonite staining.		"	<0·1	10	<1	23	11	<2
14028	"	"	Rock chip. Pale grey-green, strongly foliated, quartz porphyritic volcanic. A sericite schist. No visible pyrite.		0·04	"	<5	"	35	5	"

113543

543

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: P.R. IAC.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: ANN.CAV. RAB/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84.

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	Weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14029	GARFIELD	SHEET	Rock chip. As for 14028 except slightly softer, more weathered.		<0·01	<0·1	<5	<1	3	<1	<2
14030	"	"	Rock chip. White (leached) to very pale green-ish-grey, foliated quartz (? and feldspar) porphyritic volcanic with minor limonite staining. No visible pyrite.		"	0·1	5	"	7	"	"
14031	FLANNIGANS	SHEET	Rock chip. Pale grey and white (leached), strongly foliated, quartz porphyritic volcanic. A sericite schist. Possibly some rare, very fine-grained pyrite.		"	0·2	<5	"	15	"	"
14032	"	"	Rock chip. White to very pale green-grey, leached, foliated, quartz porphyritic volcanic. No visible pyrite.		"	<0·1	"	"	4	"	"
14033	"	"	Rock chip. Pale green-grey, quartzose grit in a very fine-grained tuffaceous matrix.		"	"	"	"	2	"	"

1135444

544

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: A.C.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: ROCKCHIP + PAN. CON. SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84.

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	Weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14034	FLANNIGANS	SHEET	Rock chip. Fissile, laminated, very fine grained pale grey and pale green alternating silt-stone beds. Weak hematitic filled fractures developed across bedding.		<0·01	1·4	<5	520	44	5	<2
14035	"	"	Pan con. Quartz/feldspar/minor limonitic lithics; <1% dark heavies. Site rating 2-3, not all locally derived. 3 pans. Au seen - 1 grain <1mm.	27·3	0·32	<0·1	10	5	5	27	<2
14036	"	"	Rock chip. As for 14033 but containing ~20cm thick, vuggy quartz veins surrounded by a weak alteration halo.		<0·01	0·5	5	160	2	3	8
14037	"	"	Rock chip. Dark green, gritty conglomerate. Quartz veining common in outcrop; strongly chloritic alteration developed. Pink hematitic and green chloritic angular fragments present. Possibly a Tyndall Gp. rock		<0·01	<0·1	10	6	3	6	2

113545

545

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: A.C.

PROJECT: TYNDALL PROSPECT: GARFIELD VALLEY SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: R/CHIP + PAN-CON, SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84.

SAMPLE NUMBER	LOCATION (1:8000 STANDARD SHEETS)		DESCRIPTION	Weight (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14038	FLANNIGANS	SHEET	Pan.con. Fine grained quartzose sediments with 1-5% dark heavies. Site rating 2, locally derived. 1 pan. Au seen :- nil.	25.3	2.85	<0.1	5	10	10	800	
14039	"	"	Pan.con. Quartz/feldspar sands; <1% light brecolcured heavies, no dark dark colcured. Site rating 1-2, locally derived. 2 pans. Au seen :- nil.	36.7	0.27	<0.1	<5	6	<5	6	
14040	"	"	Pan.con. Fine quartz/lithic sand; <<1% dark heavies. Site rating 1, all locally derived. 2 pans. Au seen :- nil.	38.0	0.04	<0.1	<5	<5	<5	4	
14041	"	"	Pan.con. Fine quartz/feldspar/lithic sand; ~1% dark heavies (?chromite). Site rating 4, not all locally derived 2 pans. Au seen:- nil.	5.0	0.11	<0.1	5	80	15	94	
14042	"	"	Pan.con. Very fine quartzose sediment with <1% dark heavies (+ possible pyrite). Site rating 3-4, locally derived. 2 pans. Au seen:-nil.	82.0	0.60	<0.1	<5	3	<1	3	2

113546

546

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: A.C.

PROJECT: TYNDALL PROSPECT: GARFIELD RIVER SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: PAN conc + R/CHIP SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 11/84

SAMPLE NUMBER	LOCATION (1:5000 STANDARD SHEETS)		DESCRIPTION	WEIGHT (gms)	ANALYSES (ppm) Au	Ag	As	Cu	Pb	Zn	W
14043	FLANNIGANS	SHEET	Rock chip. As for 14034. Attitude is similar also:- 65° to north (bedding).	"	<0·01	<0·1	<5	<1	9	4	<2
14044	"	"	Rock chip. Medium-coarse grained very poorly sorted conglomerate/breccia. Cream (leached) and limonite stained - moderately weathered. Clasts occur in a weakly foliated/sericitic matrix.		"	"	"	13	3	43	<2
14045	"	"	Rock chip. As for 14044 but weakly altered also, and containing 5-10cm thick quartz veins.		"	1·1	"	420	10	31	4
14046	"	"	Pan. con. Fine grained quartz/lithic; <1% dark heavies. Site rating 1-2, all locally derived. 2 pans. Au seen:- 3 grains <1mm, 2 grains >1mm.	51·0	138·0	14·0	<5	5	<1	5	4
14047	"	"	Pan. con. Fine grained quartzose sediment, <1% dark heavies. Site rating 2-3, all locally derived. 2 pans. Au seen:- nil.	46·0	3·22	0·2	<5	3	<1	2	2

113547

547

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: N. Pollock

PROJECT: Tyndall PROSPECT: Flannagins Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: '85

250.000 SHEET: TYPE OF SAMPLE: Wacher SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Fe%	Ba	
T301	2600N	660E	1·3m	0·053	<0·1	2	5	<1	96	6·10	560	
T302	"	680E	rock chip	0·005	"	6	3	"	47	3·70	900	
T303	"	640E	2·5m	0·002	"	3	3	<1	60	3·10	770	
T304	"	620E	0·8m	0·007	"	<1	6	13	64	1·80	1000	
T305	"	600E	2·5m	0·029	"	14	13	26	40	3·20	440	
T306	"	580E	0·5m	0·018	"	1	5	<1	83	3·50	450	
T307	"	560E	1·4m	0·024	"	2	4	"	100	4·50	420	
T308	"	540E	1·5m	0·012	"	1	6	"	92	7·40	320	
T309	"	530E	0·4m	0·032	"	1	6	"	86	4·80	330	
T310	"	520E	0·4m	0·022	0·2	<1	5	11	50	2·40	880	
T311	"	510E	0·8m	0·025	0·1	1	4	14	102	5·00	630	
T312			Standard									
T313	"	500E	0·9m	0·087	<0·1	3	9	25	31	0·80	550	
T314	"	490E	4·3m	0·118	"	44	6	20	29	0·80	420	
T315	"	480E	1·4m	0·024	"	6	15	31	64	1·80	750	
T316	"	470E	2·2m	0·085	"	9	8	14	20	0·53	1000	
T317	"	460E	0·8m	0·006	"	<1	6	4	11	0·26	1000	
T318	"	450E	1·0m	0·039	"	6	5	<1	14	0·24	1000	
T319	"	440E	1·1m	0·013	"	11	5	3	10	0·29	540	
T320			Standard									
T~~321~~ 321	"	430E	5·0m	0·180	"	4	11	2	18	0·52	780	

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548

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: N. Pelton

PROJECT: Tanami PROSPECT: Flannigans Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: '85

1:250,000 SHEET: TYPE OF SAMPLE: Wacker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Fe%	Ba	
T322	2600N	420E	2·5	0·006	<0·1	3	3	1	3	0·25	70	
T323	"	410E	2·5	0·042	"	19	13	8	13	0·46	1000	
T324	"	400E	5·2	0·107	0·1	16	11	2	13	0·90	1500	
T325	"	390E	7·8	0·460	<0·1	550	38	16	55	4·60	730	
T326	"	380E	0·8	0·021	"	6	6	3	13	0·38	800	
T327	"	370E	1·0	0·042	"	6	9	4	54	0·39	600	
T328	"	360E	1·4	0·034	"	3	50	220	70	1·60	560	
T329	"	350E	0·6	0·036	"	2	87	1160	146	1·30	1000	
T330	"	~~340~~	Standard									
T331	"	340E	4·5	0·019	0·3	9	10	14	32	1·90	660	
T332	"	330E	4·1	0·030	<0·1	7	7	72	16	1·00	1000	
T333	"	320E	1·7	0·017	<0·1	2	3	4	18	0·90	420	
T334	"	310E	5·6	0·020	<0·1	21	24	40	60	8·20	790	
T335	"	300E	4·8	0·009	"	3	15	3	64	4·30	820	
T336	"	290E	3·6	0·025	"	6	8	15	36	5·00	1000	
T337	"	280E	5·8	0·010	"	<1	3	<1	38	2·50	530	
T338	"	270E	2·5	0·008	0·2	"	3	"	11	0·63	780	11 6549
T339	"	260E	6·0	0·018	0·1	6	9	30	41	4·60	550	
T340	"		Standard									
T341	"	250E	11·8	0·011	<0·1	2	8	18	34	1·70	540	
T342	"	240E	8·6	0·024	"	4	9	38	23	2·30	710	

549

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Tyndrum PROSPECT: Flanningans Grid SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: N. Pollock

250,000 SHEET: TYPE OF SAMPLE: Washer SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: 85 - DATE DISPATCHED: A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Fe%	Ba	
T343	2600N	230E	3·4m	0·032	<0·1	<1	3	<1	2	0·17	75	
T344	"	220E	2·1m	0·014	<0·1	"	5	3	5	0·19	85	
T345	"	210E	1·4m	0·005	"	"	3	2	2	0·14	15	
T346	"	200E	1·3m	0088	"	"	3	<1	3	0·14	15	
T347	3400N	400E	3·3m	0·018	"	2	8	5	20	0·43	590	
T348	"	390E	1·8m	0·27	I/S	I/S	I/S	I/S	I/S	I/S	I/S	
T349	"	380E	1·5m	0·005	0·1	1	7	3	19	0·34	540	
T350			Standard									
T351	"	370E	0·7m	0·074	<0·1	2	11	4	37	2·10	710	
T352	"	360E	1·4m	0·038	"	7	7	1	61	4·30	580	
T353	"	330E	2·0m	0·022	"	5	35	4	32	1·70	625	
T354	"	320E	0·9m	0·016	"	14	9	<1	92	13·50	285	
T355	"	310E	1·7m	0·062	"	3	7	"	44	3·40	240	
T356	"	300E	2·6m	0·050	"	5	8	6	50	5·40	110	
T357	"	290E	2·0m	0·059	"	4	9	<1	53	4·90	225	
T358	"	280E	5·5m	0·002	"	3	4	"	59	~~1·20~~ 1·70	360	
T359	"	270E	5·3m	0·018	"	2	4	1	37	3·00	130	
T360			Standard									
T361	"	260E	4·2m	0·018	"	1	4	4	42	1·50	265	
T362	"	250E	3·0m	0·074	"	1	3	6	35	0·59	110	
T363	"	240E	6·0m	<0·001	0·5	25	22	43	66	3·10	240	

T1163

550

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Tyndall PROSPECT: Flanagans Grid SAMPLE STORAGE REQ'D: LABORATORY: COLLECTED BY: Pollard

1:250.000 SHEET: TYPE OF SAMPLE: Wacker SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE DISPATCHED: DATE RECEIVED: '85

A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Fe%	Ba	
T 364	3400N	230E	4·4m	0·086	<0·1	2	30	3	52	0·37	130	
T 365	"	220E	1·2m	0·001	"	10	30	5	64	4·70	305	
T 366	"	210E	4·6m	<0·001	"	8	21	10	53	3·60	305	
T 367	"	410E	1·3m	0·017	<0·1	1	5	<1	37	0·61	710	
T 368	"	420E	1·4m	0·020	"	1	25	4	35	2·80	355	
T 369	"	430E	3·5m	0·021	"	1	7	11	37	1·30	420	
T 370			Standard									
T 371	"	440E	5·8m	0·084	"	<1	12	2	25	1·80	350	
T 372	"	450E	2·4m	0·069	"	1	12	<1	51	5·40	600	
T 373	"	460E	0·8m	0·026	"	1	18	"	37	5·00	580	
T 374	"	470E	1·0m	0·050	"	1	8	"	42	3·30	565	
T 375	"	480E	0·8m	0·017	"	2	10	"	45	6·40	340	
T 376	"	490E	0·7m	0·026	"	1	3	"	40	2·40	1050	
T 377	"	500E	0·6m	0·019	"	<1	3	"	22	1·60	390	
T 378	"	520E	1·0m	0·091	"	1	8	3	59	2·40	465	
T 379	1400N	500E	-	0·022	"	<1	5	5	25	1·00	515	
T 380												
T 381	"	490E	1·2m	0·014	"	1	3	6	8	0·23	165	
T 382	"	480E	3·0m	0·037	"	<1	4	4	17	0·48	285	
T 383	"	470E	1·6m	0·013	"	"	4	3	65	3·90	225	
T 384	"	460E	0·6m	0·016	"	"	3	4	68	3·20	300	

1163

551

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

COLLECTED BY: N Bolted

PROJECT: Tyndall PROSPECT: Flanagans Grid SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: 85

1:250,000 SHEET: TYPE OF SAMPLE: Washer SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

A19967

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Fe%	Ba
T395	1400N	450E	1.3m	0.037	<0.1	1	4	7	77	3.70	345
T386	"	440E	0.9m	0.030	0.2	1	3	2	48	2.60	355
T387	"	430E	5.5m	0.043	<0.1	3	9	54	73	3.40	520
T388	"	420E	5.3m	0.031	"	1	9	20	62	2.40	1000
T389	"	410E	5.6m	0.015	"	2	4	12	55	1.80	395
T390			Standard								
T391	"	400E	3.6m	0.045	"	4	8	19	93	5.60	550
T392	"	390E	3.5m	0.022	"	4	7	2	83	4.80	355
T393	"	380E	3.0m	0.018	"	1	6	14	19	0.90	530
T394	"	370E	0.9m	0.016	"	9	4	6	84	0.80	450
T395	"	360E	2.9m	0.034	"	21	74	5	123	0.38	490
T396	"	350E	3.1m	0.050	"	3	18	17	47	0.90	900
T397	"	340E	1.4m	0.015	"	<1	5	7	19	0.41	1200
T398	"	330E	1.6m	0.025	"	"	4	11	11	0.28	620
T399	"	320E	1.2m	0.039	"	"	7	10	29	0.90	460
T400	"	310E	7.6m	0.098	"	2	8	6	29	1.80	650
T501	"	300E	4.9m	0.072	"	13	16	22	35	3.20	465
T502	"	290E	6.8m	0.044	"	6	13	19	55	4.70	435
T503	"	280E	7.5m	0.042	"	5	5	<1	39	4.10	300
T504	"	270E	7.8m	0.053	I/S	I/S	I/S	I/S	I/S	I/S	I/S
T505	"	260E	11.2m	0.099	<0.1	290	8	<1	49	6.30	90

11355

552

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET**

PROJECT: Tyndall PROSPECT: Flannigan Grid COLLECTED BY: N. Polton

1:250.000 SHEET: TYPE OF SAMPLE: Loader SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED: 85

SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED: A19962

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES								
				Au	Ag	As	Cu	Pb	Zn	Fe %	Ba	
TS06	1400N	250E	11.5m	0.017	<0.1	3	7	3	23	1.30	130	
TS07		240E	4.4m	0.043	"	1	3	4	12	0.50	200	
TS08		230E	9.2m	0.045	IS	IS	IS	IS	IS	IS	IS	
TS09		220E	8.4m	0.014	<0.1	34	27	58	35	3.40	110	
TS10			Standard									
TS11		210E	3.3m	0.018	"	2	3	7	8	0.35	290	
TS12		200E	3.7m	0.013	"	1	1	<1	4	0.16	100	
TS13		190E	1.4m	0.015	"	"	2	1	3	0.15	10	
TS14		180E	2.6m	0.015	"	<1	2	3	4	0.16	80	
TS15		170E	5.7m	0.006	"	"	2	<1	5	0.16	85	
TS16		160E	0.8m	0.008	"	"	2	2	4	0.19	55	
TS17		150E	0.7m	0.013	"	"	2	<1	3	0.25	55	
TS18		520E	1.4m	0.017	"	3	12	11	80	1.60	890	
TS19		540E	4.8m	0.021	"	4	9	11	25	1.10	560	
TS20		560E	6.4m	0.014	"	1	6	16	35	1.40	860	
TS21		580E	6.1m	0.028	"	10	4	8	104	0.33	880	
TS22		600E	1.6m	0.018	"	<1	1	<1	4	0.13	15	
TS23		620E	3.0m	0.020	"	10	34	31	25	2.20	435	
TS24		640E	0.9m	0.018	0.5	13	13	8	11	2.30	I/S	
TS25			Standard.									

11553
53
53

553

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Pollock

PROJECT: EL 9166 PROSPECT: FLANNIGANS SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Soil / Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Ba	Fe %
T 00111			Rock med grained feld porc airfall volcanic								
T00 112			Rock vol/clastic conglomerate								
T00 113		"	" shale - cherty minor py.	<0.02	<0.1	11	23	13	78	750	1.3
00114		"	" " " silicified.	"	"	5	10	2	27	780	1.0
00115		"	" 1m thick chert - silicified	"	"	2	4	<1	20	780	1.0
00116		"	" tuffac sediment pyritic	"	"	13	9	18	31	1050	1.8
00117		"	" vol/clastic, conglom, silicified minor py	"	"	2	6	3	52	670	2.5
00118		"	" silt str — vol comp, " sericite, minor py	"	"	9	9	6	24	640	1.5
00119		"	" med-coarse vol/clastic sericite, silic, minor py	"	"	3	5	<1	9	4400	0.6
00120	2600N	700E	* Rock silt str - shale	"	"	22	8	30	29	820	1.5
00121	"	680E	Soil .3m, B/c	0.013	0.3	9	135	21	31	310	3.10
00122	"	660E	" .5m, B/c	<0.001	0.1	6	46	13	30	300	1.70
00123	"	640E	" .3m, B	0.003	0.2	2	17	10	27	345	1.20
00124	"	620E	" .3m, B	0.005	0.2	2	20	12	30	340	1.00
00125	"	600E	" .4m, B-c	0.007	0.2	10	17	67	34	280	2.30
00126	"	580E	" .3m, A	0.010	<0.1	3	15	7	33	460	1.70
00127	"	580E	* Rock vol/clastic ? silicific glass frags	<0.02	"	2	8	2	37	670	1.7
00128	"	—	STANDARD								
00129	"	560E	Soil .3m, B	0.017	0.1	2	15	5	33	240	1.20
00130	"	540-560E	* Rock vol/clastic ? chloritic glass frags	<0.02	<0.1	6	4	<1	51	1000	2.8
00131	"	540E	Soil .3m B-c	0.010	0.1	3	50	3	48	235	3.80

115554

554

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Pollock

PROJECT: EL 9166 PROSPECT: Flanigans SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Rock/Soil SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION			ANALYSES							
						Au	Ag	As	Cu	Pb	Zn	Ba	Fe %
T00132	2600N	530E	Soil	.5m	B-C	0.002	0.1	6	20	5	33	175	3.60
00133	"	520E	"	.3m	A	0.001	0.3	4	33	16	20	380	0.65
00134	"	510E	"	.2m	A-C	"	0.1	5	15	10	27	430	1.30
00135	"	500E	"	.4m	A-C	<0.001	0.3	4	23	21	29	410	0.60
00136	"	490E	"	.5m	B	0.021	0.1	3	12	33	21	690	0.47
00137	"	480E	"	1.0m	B	0.002	0.3	13	55	114	110	560	0.72
00138	"	470E	"	.5m	B	I/S	0.3	11	16	9	22	730	0.56
00139	"	460E	"	.5m	B-C	0.017	0.2	2	7	5	10	210	0.23
00140	"	450E	"	.5m	B-C	0.004	0.1	2	26	8	15	510	0.33
00141	"	440E	"	.8m	B-C	0.002	<0.1	1	8	2	9	115	0.26
00142	"	430E	"	.9m	A-B	<0.001	"	2	11	6	10	20	0.20
00143	STANDARD												
00144		420E	"	1.0m	B, transported?	<0.001	0.1	<1	5	3	5	70	0.14
00145		410E	"	1.0m	B-C	0.006	0.1	2	9	2	12	400	0.36
00146		400E	"	.7m	C	0.255	0.2	40	24	7	22	700	0.79
00147		390E	"	.6m	C	0.058	0.3	16	41	11	33	1800	2.30
00148		380E	"	.5m	B-C	0.003	0.1	11	41	22	22	1100	0.53
00149		370E	"	.5m	B-C	0.002	0.1	<1	7	2	9	115	0.28
00150		360E	"	.7m	A-B	0.004	<0.1	1	13	8	83	420	2.00
00151		350E	"	.2m	C	0.002	"	"	36	935	120	710	1.70
00152		340E	"	1.0m	B	0.004	0.2	"	20	19	24	620	0.56

1135555

555

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Pollock

PROJECT: EL 9166 PROSPECT: Flannigans SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250,000 SHEET: TYPE OF SAMPLE: Soil/Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Ba	Fe%
100153	2600 N	330 E	Soil, 0.8, B-C	0·044	0·2	5	11	25	22	1250	1·00
00154		320 E	" ·7m B	0·004	0·1	4	9	3	20	90	1·40
00155		310 E	" ·7m B scree soil	0·013	0·2	6	9	56	18	180	2·00
00156		300 E	" ·5m A " "	0·003	<0·1	1	4	4	3	25	0·24
00157		290 E	" 1·2m A°-A " "	0·005	"	<1	10	9	6	35	0·16
00158		280 E	" ·7m B	0·004	0·2	6	15	16	48	440	3·20
00159	STANDARD										
00160		270 E	" ·6m A°-A skeletal soil	0·003	<0·1	2	9	8	9	40	0·27
00161		260 E	" ·5m A. " "	0·006	"	<1	9	7	6	25	0·16
00162		250 E	" ·5m A°-A " "	<0·001	"	1	9	4	6	20	0·20
00163		240 E	" ·5m " " " "	0·005	I/S	I/S	I/S	I/S	I/S	20	I/S
00164		230 E	" ·5m " " " "	0·002	<0·1	<1	13	10	9	20	0·17
00165		220 E	" ·5m " " " "	0·001	"	"	11	8	9	25	0·15
00166		210 E	" ·5m A-B " "	<0·001	"	"	5	2	4	20	0·14
00167		200 E	" ·5m A°-A " "	0·002	"	1	11	10	10	25	0·14
00168	3400N	400 E	" ·5m A°-A	<0·001	0·5	2	36	10	33	500	0·55
00169		390 E	" ·5m B-C	0·001	<0·1	1	11	9	17	630	0·62
00170		380 E	" ·4m B	0·004	<0·1	1	11	9	21	670	0·80
00171		370 E	" ·6m B	0·002	<0·1	2	15	7	27	510	1·70
00172		360 E	" ·5m B	0·002	"	"	18	10	20	420	0·75
00173		350 E	x Rock med grained mk/biotite	<0·02	"	4	3	<1	87	640	4·7

1135936

556

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R Pitch

PROJECT: EL 9/86 PROSPECT: FLANNIGANS SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil/Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Sb	Fe%
100174	3400N	350E	Soil -5m B	0·003	<0·1	3	20	6	38	270	4·90
00175		340E	" -5m B	0·006	"	4	25	13	27	300	3·00
00176		340E*	Rock red ground v.f/c lstc	<0·002	"	4	4	<1	95	490	6·8
00177		330E	Soil ·4m B	0·003	"	6	29	14	47	160	7·90
00178		320E	" ·5m B	0·003	"	5	21	16	51	195	6·70
00179		310E	" ·4m B	0·002	"	7	18	8	37	130	6·90
00180		300E	" ·3m B	0·005	"	6	27	12	31	90	7·50
00181		290E	" ·5m B	<0·001	"	5	14	12	25	150	4·20
00182		280E	" ·5m A-B	"	"	2	15	14	29	115	2·50
00183		270E	" ·6m A°-A shallow soil	"	"	<1	28	18	29	35	0·28
00184		260E	" ·8m B	0·002	"	3	20	14	26	120	1·50
00185		250E	" ·8m A-B	<0·001	"	1	12	8	24		0·80
00186		240E	" 1·0m A°-A	"	"	1	8	10	10	45	0·15
00187		230E	" ·4m B	0·001	"	7	19	14	32	185	3·00
00188		220E	" ·4m B	0·011	"	5	24	6	35	165	3·00
00189		210E	" ·5m B	0·002	"	15	18	6	26	300	3·30
00190		200E	" ·8m B	"	"	15	15	14	31	310	3·10
00191		200E*	Rock grey calthra	<0·002	"	11	36	9	38	420	3·9
00192		190E*	" " "	"	"	10	29	6	34	400	3·5
00193		180E*	" " "	"	"	16	25	6	28	320	2·9
00194		170E*	" qtz float	"	"	3	5	3	7	65	0·8

113551

557

GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Bullock

PROJECT: EL 9166 PROSPECT: FLANNIGANS SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil / Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION			ANALYSES							
						Au	Ag	As	Cu	Pb	Zn	Ba	Fe %
00195	3400N	160E	* Rock	quartzite float		<0.02	<0.1	1	7	<1	6	70	0.7
00196	STANDARD												
00197	3400N	410E	Soil	.5m	B-C	0.001	"	"	7	5	18	475	0.80
00198		420E	"	.5m	B	0.003	"	<1	11	9	23	245	1.00
00199		430E	"	.4m	B	0.004	"	2	9	11	35	400	2.30
00200		440E	"	.7m	B	0.001	<0.1	3	18	10	38	370	4.40
00401		450E	"	.7m	B	0.003	<0.1	5	18	16	36	230	4.60
00402		460E	"	.4m	B	0.002	<0.1	1	16	12	20	260	1.80
00403		470E	"	.5m	B	<0.001	"	"	11	11	28	240	3.40
00404		480E	"	.4m	B	0.009	"	4	7	7	19	185	2.20
00405		490E	"	.5m	B	0.002	"	4	13	14	40	290	3.30
00406		500E	"	.6m	B	0.007	"	1	12	11	23	340	0.80
00407		520E	"	.5m	B	<0.001	"	2	22	27	29	335	1.40
00408		535E	* Rock	coarse vol/clastic - limonitic joints		<0.02	"	3	6	<1	60	310	3.4
00409		540E	Soil	.5m	B	0.001	"	4	10	36	44	320	2.70
00410		560E	* Rock	vol/clastic qtz rich		<0.02	"	1	8	4	21	400	0.9
00411		560E	Soil	.5m	B	0.001	"	1	10	12	33	340	1.10
00412		580E	"	.4m	A°-A	skeletal	<0.001	"	<1	26	32	45	220
00413		580E	* Rock	tuffaceous		<0.02	"	1	9	5	53	900	2.7
00414		590E	* "	qtz veining		"	"	"	8	2	42	380	1.4
00415		600E	* "	f-med grained, dacitic - lava?		"	"	4	11	17	28	950	1.4

11556

558

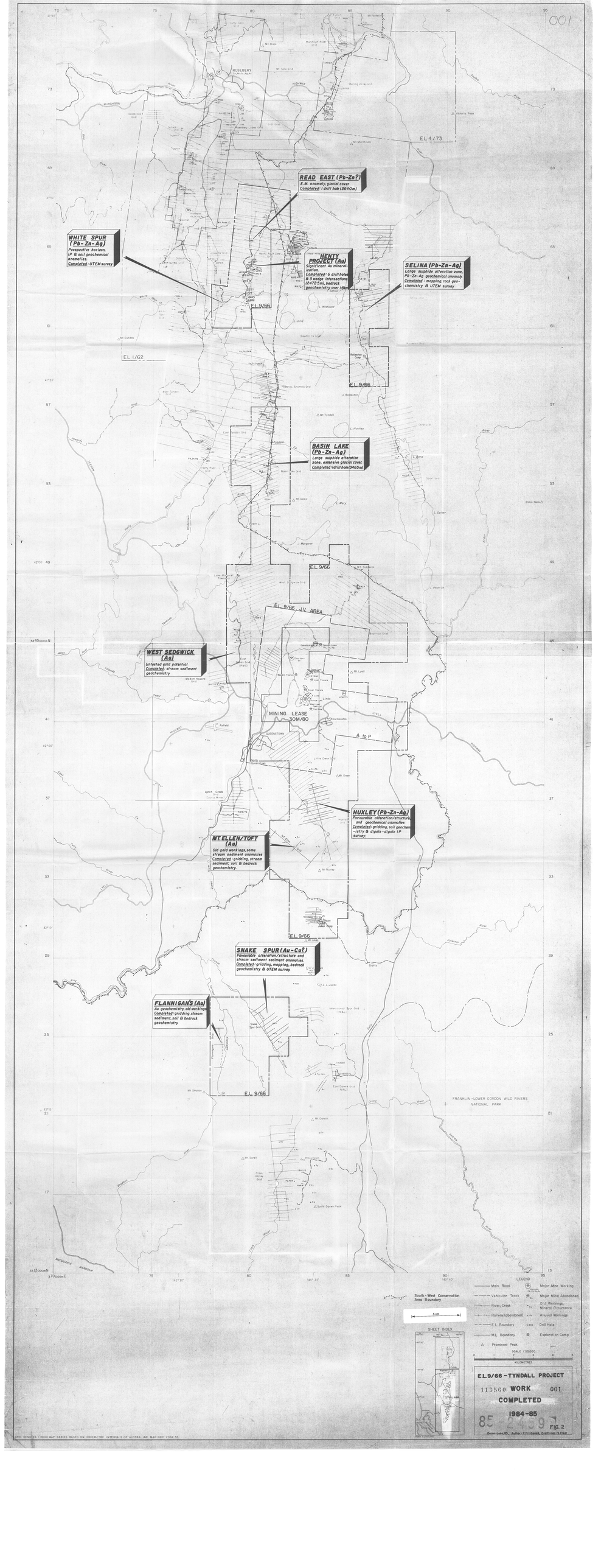
GOLD FIELDS EXPLORATION PTY. LTD. **SAMPLE RECORD AND ANALYTICAL DATA SHEET** COLLECTED BY: R. Pollock

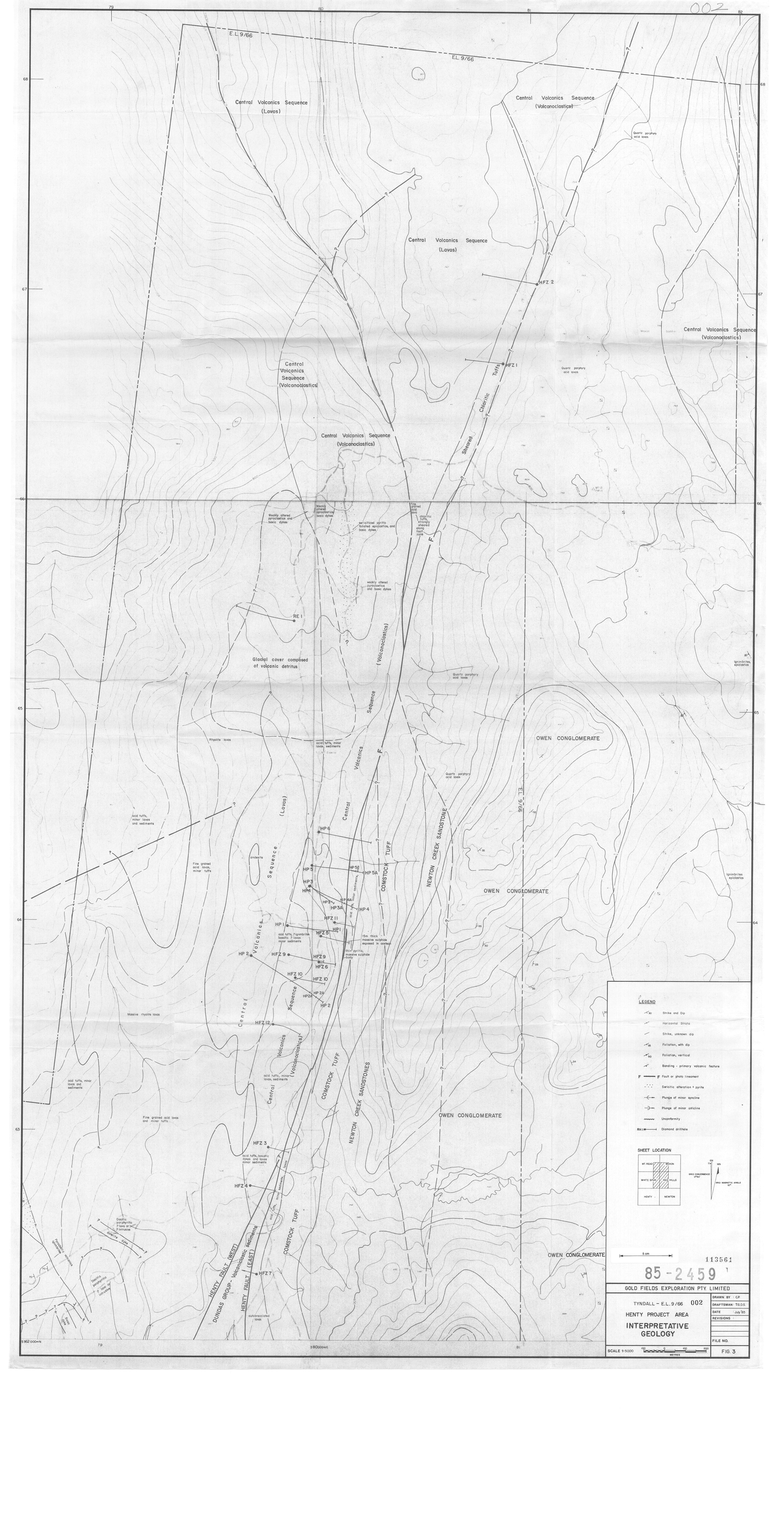
PROJECT: EL 9/86 PROSPECT: FLANNIGANS SAMPLE STORAGE REQ'D: LABORATORY: DATE DISPATCHED:

1:250.000 SHEET: TYPE OF SAMPLE: Soil / Rock SAMPLE PREP. REQ'D: ANALYSIS REQ'D: DATE RECEIVED:

SAMPLE NUMBER	LOCATION		DESCRIPTION	ANALYSES							
				Au	Ag	As	Cu	Pb	Zn	Bi	Fe%
00446	3400N	600E	Soil -6m B	<0.001	<0.1	1	21	19	39	370	1.40
00447		620E	" -5m B	0.001	"	4	8	11	41	340	2.00
00448		640E	" -4m B	0.003	"	2	13	14	46	345	2.70
00449		640E	Rock silicified	<0.002	"	11	15	16	20	740	1.4
00450		660E	Soil -6m B	0.003	"	6	14	18	31	230	2.00
00451		660E	Rock med grained vol/clastic? talc rich	<0.002	"	7	19	6	25	220	2.6
00452		680E	Soil -6m B	0.002	"	1	17	14	36	400	0.80
00453		680E	Rock med grained - vol/clastic	<0.002	"	3	13	2	41	530	2.0
00454		700E	Soil -5m A°-A	<0.001	"	<1	10	4	24	20	0.12
00455	STANDARD										
00456			Rock volcanic - talc/sericite	<0.002	"	1	4	2	7	1000	0.2

11355


READ EAST (Pb-Zn?)
E.M. anomaly, glacial cover
Completed: 1 drill hole (364.0m)
WHITE SPUR (Pb-Zn-Ag)
Prospective horizon, IP & soil geochemical anomalies.
Completed: UTEM survey
HENTY PROJECT (Au)
Significant Au mineralisation.
Completed: 6 drill holes (8 3 wedge intersections (2472.5m), bedrock geochemistry over 1Sq.km
SELINA (Pb-Zn-Ag)
Large sulphide alteration zone, Pb-Zn-Ag geochemical anomaly
Completed: mapping, rock geochemistry & UTEM survey
BASIN LAKE (Pb-Zn-Ag)
Large sulphide alteration zone, extensive glacial cover.
Completed: 1 drill hole (540.5m)
WEST SEDGWICK (Au)
Untested gold potential
Completed: stream sediment geochemistry
HUXLEY (Pb-Zn-Ag)
Favourable alteration/structure and geochemical anomalies
Completed: gridding, soil geochemistry & dipole-dipole I.P survey.
MT. ELLEN/TOFT (Au)
Old gold workings, some stream sediment anomalies
Completed: gridding, stream sediment, soil & bedrock geochemistry.
SNAKE SPUR (Au-Cu?)
Favourable alteration/structure and stream sediment sediment anomalies.
Completed: gridding, mapping, bedrock geochemistry & UTEM survey.
FLANNIGAN'S (Au)
Au geochemistry, old workings
Completed: gridding, stream sediment, soil & bedrock geochemistry
EL 4/73
EL 9/66
EL 1/62
EL 9/66 - LV. AREA
MINING LEASE 30M/80
FRANKLIN-LOWER GORDON WILD RIVERS NATIONAL PARK
ROSEBERY
QUEENSTOWN
Zeehan
Strahan
Macquarie Harbour
Mt. Block
Mt. Sole Grid
Mt. Murchison
Victoria Peak
Mt. Dundas
Mt. Tyndall
Mt. Gell
Mt. Lyell
Mt. Owen
Mt. Huxley
Mt. Darwin
Mt. Sorell
South Darwin Peak
Elliot Peak
Lake Margaret
Lake Burbury
Lake Selina
Lake Rhona
Lake Jukes
Lake Pedder
Lake Gordon
Lake Pieman
Lake Murchison
Lake Dora
Lake Plimsoll
Lake Huxley
Lake Darwin
Lake Sorell
Lake Vera
Lake Tiberias


002
E.L. 9/66
Central Volcanics Sequence (Lavas)
Central Volcanics Sequence (Volcanoclastics)
Quartz porphyry acid lavas
HFZ 1
HFZ 2
Chloritic Tuffs
Shears
Weakly altered porcellanites and basic dykes
Weakly altered porcellanites and basic dykes
Weakly altered pyroclastics and basic dykes
Glacial cover composed of volcanic detritus
RE 1
Rhyolite lavas
acid tuffs, minor lavas, sediments
Fine grained acid lavas, minor tuffs
andesite
HP 6
HP 5
HP 5B
HP 5A
HP 3
HP 4
HP 3A
HP 4A
HP 4
HFZ 11
HP 1
HFZ 5
HP 1
HP 2
HFZ 9
HFZ 9
HFZ 6
HFZ 10
HFZ 10
HP 2A
HP 2
HFZ 12
Massive rhyolite lavas
acid tuffs, minor lavas and sediments
Fine grained acid lavas and minor tuffs
HFZ 3
acid tuffs, basaltic lithics and lavas minor sediments
HFZ 4
HFZ 7
Dacitic porphyritic flows or hypabyssal intrusive
Dacitic porphyritic flows or hypabyssal intrusive
autobrecciated lavas
Central Volcanics Sequence (Volcanoclastics)
COMSTOCK TUFF
NEWTON CREEK SANDSTONE
OWEN CONGLOMERATE
HENTY FAULT (WEST)
HENTY FAULT (EAST)
DUNDAS GROUP - Volcaniclastic sediments
F
Sheared, silicified pyritic tuffs, strongly sheared along contact zone
Silicified pyritic foliated agglomerates, and basic dykes
weakly altered pyroclastics and basic dykes
Igneous Complex
Ignimbrites, epiclastics
Quartz porphyry acid lavas
acid tuffs, minor lavas and sediments
Rhyolite lavas
Fine grained acid lavas, minor tuffs
andesite
acid tuffs, pyroclastic lithics minor sediments
5m thick massive sulphide exposed in outcrop
thin pyritic massive sulphide body
acid tuffs, minor lavas, sediments
acid tuffs, basaltic lithics and lavas minor sediments
acid lava flow
autobrecciated lavas
Dacitic porphyritic flows or hypabyssal intrusive
Schistosity 034
Dacitic porphyritic flows or hypabyssal intrusive
Schistosity
Bedding
Foliation
Lineation
Fault
Shear
Fold axis
Fold axis
Fold axis

64 400 m N | 64 300 m N | 64 200 m N | 64 100 m N | 64 000 m N | 63 900 m N | 63 800 m N | 63 700 m N | 63 600 m N | 63 500 m N | 63 400 m N

APPLIED POTENTIAL ANOMALY

600 m R L

COSTEAN 1·5m 1·7% Cu
1·7% Pb
0·2% Zn
95g/t Ag
1·5g/t Au

500 m R L

HFZ 11
'Zone A absent'

HFZ 5
'Zone A absent'

HFZ 6
0·4m @ 2·g/t Au
11% Cu
4% Pb
7% Zn
85g/t Ag

400 m R L

HP 6
'No Zone recognised'

HP5A • HP5
6·8m @ 0·2g/t Au — 0·02% Cu, 0·04% Pb, 0·01% Zn, 6·6g/t Ag
6·8m @ 0·2g/t Au — 0·05% Cu, 0·06% Pb, < 0·01% Zn, 6·9g/t Ag

HP4A • HP4
1·6m @ 0·2g/t Au — 0·27% Cu, 0·6% Pb, 0·74% Zn, 54g/t Ag
1·6m @ 2·6 g/t Au — 0·41% Cu, 0·64% Pb, 0·27% Zn, 112g/t Ag

HP 1
0·8m @ 11g/t Au
0·08% Cu
0·07% Pb
< 0·01% Zn
22g/t Ag

HFZ9
0·8m @ 14 g/t Au
112 g/t Cu
1·06% Pb
2·15% Zn
40 g/t Ag

HFZ 10
0·5m @ 72 g/t Au
3·7% Cu
1·50% Pb
0·56% Zn
120g/t Ag

300 m R L

HP2
'Zone A absent'

HFZ 12
0·8 m @ 0·3 g/t Au
0·09% Cu
0·35% Pb
0·62% Zn
40 g/t Ag

200 m R L

100 m R L

113562

5 cm

85-2459

• Drill hole intersection with Zone A

NOTES

(1) Projection line coincides with metric grid baseline (see 1:2000 Diamond Drilling Plan) and bears 012° AMG

(2) All widths shown are true widths

(3) Vertical lines indicate where AMG North lines cross the projection line

(4) All Au assay calculations from fire assay determinations

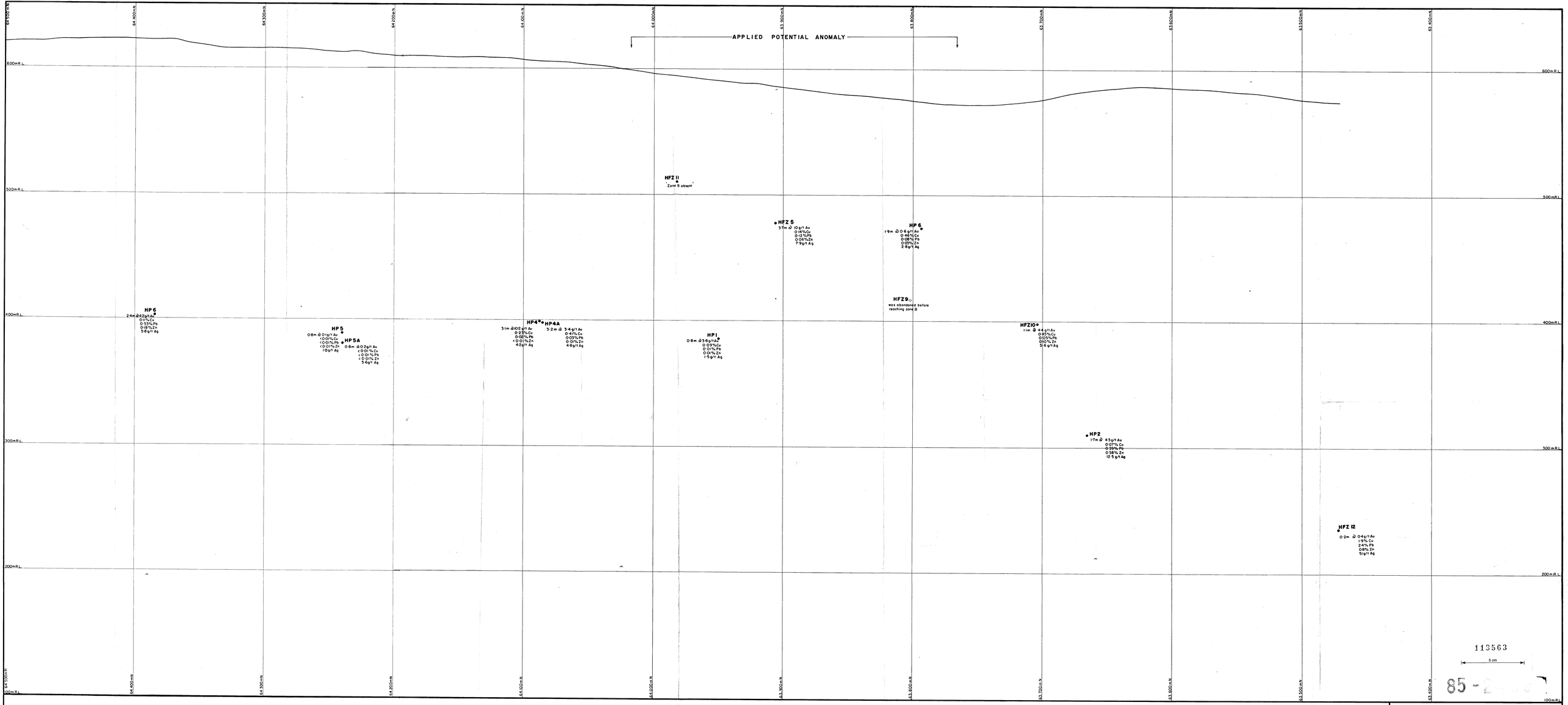
GOLD FIELDS EXPLORATION PTY. LIMITED

LONGITUDINAL PROJECTION
HENTY FAULT ZONE
PROSPECT
ZONE A
003

DRAWN BY : P.R.
DRAFTSMAN : S.F.
DATE : May, 84
REVISIONS :
C. Prose - June, 1985
FILE NO.

SCALE 1:1000 — 20 10 0 20 40 METRES

FIG. 4



113563

5 cm

85 - [illegible]

• Drill hole intersection with Zone B

NOTES

(1) Projection line coincides with metric grid baseline (see 1:2000 Diamond Drilling Plan) and bears 012° AMG

(2) All widths shown are true widths

(3) Vertical lines indicate where AMG North lines cross the projection line

GOLD FIELDS EXPLORATION PTY LIMITED

LONGITUDINAL PROJECTION
HENTY FAULT ZONE
PROSPECT 004
ZONE B

DRAWN BY	P.R.
DRAFTSMAN	S.F.
DATE	May.84
REVISIONS	
C.Reese - June.85	
FILE NO	

SCALE 1:1000 — 20 10 0 20 40 METRES

FIG 5

005

79 600mE | 80 000mE | 80 400mE | 80 800mE | 81 200mE

65 500mN | 65 100mN | 64 700mN | 64 300mN | 63 900mN | 63 500mN

RE 1

MT 12 (631 541)

54N | 53N | 52N | 51N | 50N | 7120N | 48N | 47N

HP6 | HP5 | HP5A | HP4 | HP4A | HP3 | HP3A | HP2 | HP1

HFZ11 | HFZ5 | HFZ9 | HFZ6 | HFZ10 | HFZ12

700 | 800 | 900 | 600 | 870 | 864 | 877 | 996 | 965 | 951 | 945 | 867 | 812 | 825 | 828 | 658 | 655

The Gooseneck

H8 | H9 | H10

Mt Read 1:5000 | Mason 1:5000 | White Spur 1:5000 | Read-Rhin 1:5000 | Henty 1:5000 | Newton 1:5000

SHEET REFERENCE

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

SHEET H9 005

HENTY PROJECT

GOLD GEOCHEMISTRY

(g/t)

85 - 2459

DRAWN BY C.P.

DRAFTSMAN S.F./E.V.

DATE July, 85

REVISIONS

FILE NO.

SCALE 1:2000 — METRES

FIG. 6

006

79 600 mE | 80 000 mE | 80 400 mE | 80 800 mE | 81 200 mE

65 500 mN | 65 100 mN | 64 700 mN | 64 300 mN | 63 900 mN | 63 500 mN

RE 1

MT 12 (631 541)

54N | 53N | 52N | 51N | 50N | 7120N | 48N | 47N

The Gooseneck

700 | 800 | 900 | 600

.870 | .864 | .877 | .996 | .965 | .951 | .945 | .867 | .812 | .825 | .828 | .692 | .658 | .655

HP 1 | HP 2 | HP 3 | HP 3A | HP 4 | HP 4A | HP 5 | HP 5A | HP 6 | HFZ 5 | HFZ 6 | HFZ 9 | HFZ 10 | HFZ 11 | HFZ 12 | HP7A

5 cm

SHEET REFERENCE

GOLD FIELDS EXPLORATION PTY LIMITED

SHEET H9 006

HENTY PROJECT

SILVER GEOCHEMISTRY

(g/t)

85-2459

SCALE 1:2000 — METRES

DRAWN BY C.P.

DRAFTSMAN S.F./E.V.

DATE July,85

REVISIONS

FILE NO.

FIG 7

113565

007

79 600 mE
80 000 mE
80 400 mE
80 800 mE
81 200 mE
33 65 500 mN
33 65 100 mN
33 64 700 mN
33 64 300 mN
33 63 900 mN
33 63 500 mN

54N
53N
52N
51N
50N
7120N
48N
47N

The Gooseneck

MT 12 (631 54)

HP6
HP5
HP5A
HP4
HP4A
HP3
HP3A
HP2
HP1
HFZ 11
HFZ 5
HFZ 9
HFZ 6
HFZ 10
HFZ 12

700
800
900
600

.870
.864
.877
.996
.965
.951
.945
.867
.812
.825
.828
.692
.658
.655

5 cm

D E F G H

7
8
9
10
11

Mt Read 5000
Nelson 5000
White Spur 5000
H8
H9
H10
Red Rock 5000
Henty 5000
Newton 5000

SHEET REFERENCE

113566

GOLD FIELDS EXPLORATION PTY. LIMITED

SHEET H9 007
HENTY PROJECT
COPPER GEOCHEMISTRY
85 - 2459 1 (p.p.m.)

DRAWN BY C.P.
DRAFTSMAN S.F./E.V.
DATE July, 85
REVISIONS
FILE NO.

SCALE 1:2000 40 30 20 10 0 10 20 30 40 METRES

FIG. 8

113567

GOLD FIELDS EXPLORATION PTY LIMITED

DRAWN BY C.R.

SHEET H 9 008

HENTY PROJECT

DRAFTSMAN S.F./E.V.

DATE July,85

LEAD GEOCHEMISTRY

REVISIONS

85 - 2 p.p.m.

FILE NO.

SCALE 1:2000 FIG 9

SHEET REFERENCE

5 cm

The Gooseneck

6 400mE

6 600mE

6 800mE

7 000mE

7 200mE

7 400mE

7 600mE

6 363 900mN

6 364 300mN

6 364 700mN

6 365 100mN

6 365 500mN

47N

48N

712ON

50N

51N

52N

53N

54N

DMT 12.631 341

009

79 600 m E
80 000 m E
80 400 m E
80 800 m E
81 200 m E
65 500 m N
65 100 m N
64 700 m N
64 300 m N
63 900 m N
63 500 m N

54 N
53 N
52 N
51 N
50 N
48 N
47 N
7120 N

The Gooseneck

MT 12 (631 541)

HP 1, HP 1A, HP 2, HP 3, HP 4, HP 4A, HP 5, HP 5A, HP 6, HP 7, HP 8, HP 9, HP 10, HP 11, HP 12

HFZ 5, HFZ 6, HFZ 9, HFZ 10, HFZ 12

700, 800, 900, 600

.870, .864, .877, .996, .965, .951, .945, .867, .812, .825, .828, .692, .658, .655

5 cm

SHEET REFERENCE

H8, H9, H10

GOLD FIELDS EXPLORATION PTY LIMITED

SHEET H9
HENTY PROJECT 009
ZINC GEOCHEMISTRY
(p.p.m.)
85 - 2459

DRAWN BY
DRAFTSMAN
DATE
REVISIONS
FILE NO.

SCALE 1:2000 METRES

FIG 10

113568

010

HFZ 12

46N

45N

HFZ 3

HFZ 4

MT 15
(586·25)

Mount Julia

GOLD FIELDS EXPLORATION PTY. LIMITED

SHEET H10 010

HENTY PROJECT

GOLD GEOCHEMISTRY

(g/t)

85-2459

DRAWN BY : C.P.

DRAFTSMAN : S.F./E.V.

DATE July.85

REVISIONS

FILE NO.

SCALE 1:2000

METRES

FIG 11

SHEET REFERENCE

113569

011

79 600mE 80 000mE 80 400mE 80 800mE 81 200mE

7763 500mN

7763 100mN

7762 700mN

7762 300mN

7761 900mN

7761 500mN

HFZ 12

HFZ 3

HFZ 4

46N

45N

MT 15
(586 25)

Mount Julia

600 700 800 900 1000

113570

SHEET REFERENCE

5 cm

GOLD FIELDS EXPLORATION PTY LIMITED

SHEET M10 011

HENTY PROJECT

SILVER GEOCHEMISTRY

(g/t)

85-2459

DRAWN BY : C.P

DRAFTSMAN : S.F./E.V.

DATE July, 85

REVISIONS :

FILE NO.

FIG. 12

SCALE 1:2000

METRES

012

HFZ 12

HFZ 3

HFZ 4

46N

45N

MT 15
(586.25)

Mount Julia

79 600mE

80 000mE

80 400mE

80 800mE

81 200mE

55 63 500mN

55 63 100mN

55 62 700mN

55 62 300mN

55 61 900mN

55 61 500mN

5 cm

SHEET REFERENCE

1135?1

GOLD FIELDS EXPLORATION PTY. LIMITED

SHEET H10 012

HENTY PROJECT

COPPER GEOCHEMISTRY

(p.p.m.)

85 2459

SCALE-1:2000 METRES

DRAWN BY C.P.

DRAFTSMAN S.F./E.V.

DATE July,85

REVISIONS

FILE NO.

FIG.13

013

79 600mE
80 000mE
80 400mE
80 800mE
81 200mE
63 500mN
63 100mN
62 700mN
62 300mN
61 900mN
61 500mN

HFZ 12
HFZ 3
HFZ 4
46N
45N
MT 15
(586 25)
Mount Julia
600
700
800
900
564
553
567
565
591
585
653
636
642
539
669
844
883

H8
H9
H10

5 cm

SHEET REFERENCE

GOLD FIELDS EXPLORATION PTY. LIMITED

SHEET H10 013
HENTY PROJECT
LEAD GEOCHEMISTRY
(p.p.m.)
85 - 2459

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DRAFTSMAN S.F./E.V.
DATE July, 85
REVISIONS
FILE NO.

SCALE 1:2000 — 40 20 0 40 80 METRES

FIG.14

112572

014

53 63 500mN
79 600mE
80 000mE
80 400mE
80 800mE
81 200mE
53 63 100mN
53 62 700mN
53 62 300mN
53 61 900mN
53 61 500mN
HFZ 12
HFZ 3
HFZ 4
46N
45N
600
700
800
009
564
553
567
565
591
585
653
636
642
539
669
844
883
553
MT 15
(586.25)
Mount Julia
5 cm
SHEET REFERENCE
H8
H9
H10

GOLD FIELDS EXPLORATION PTY LIMITED

SHEET H10 014

HENTY PROJECT

ZINC GEOCHEMISTRY

(p.p.m.)

85-2459

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DATE July, 85
REVISIONS
FILE NO.

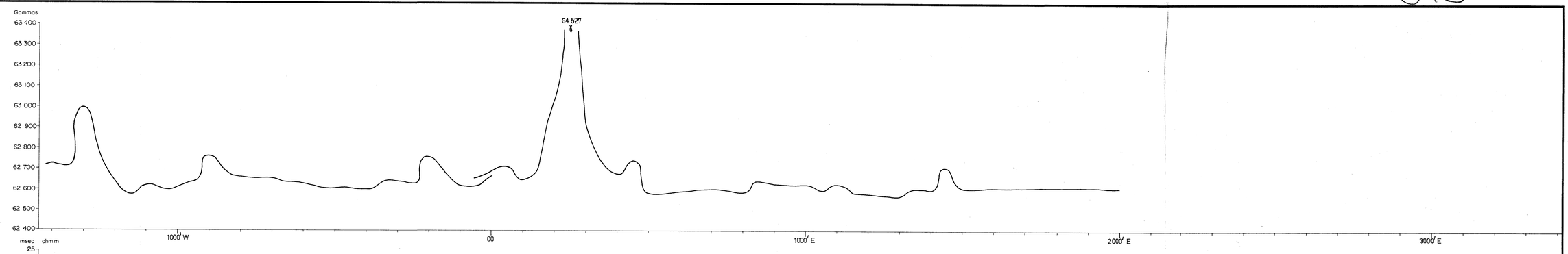
SCALE 1:2000 METRES

FIG. 15

113573

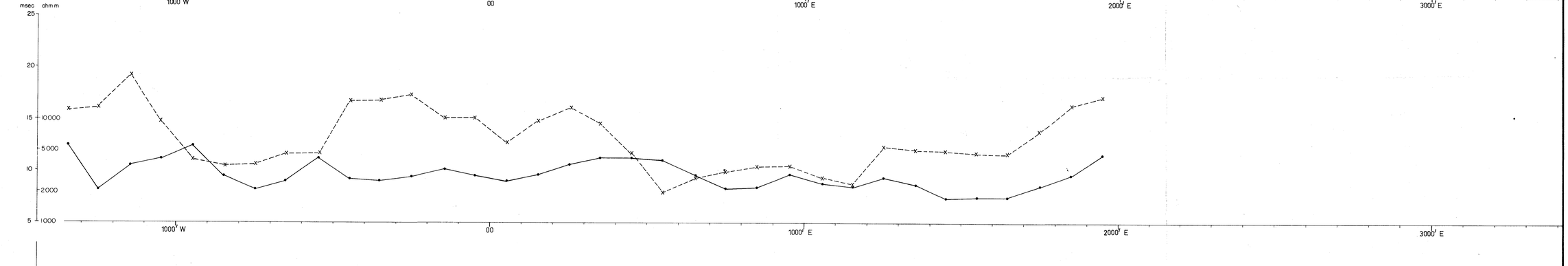
015

TOTAL FIELD MAGNETICS



GRADIENT ARRAY I.P.

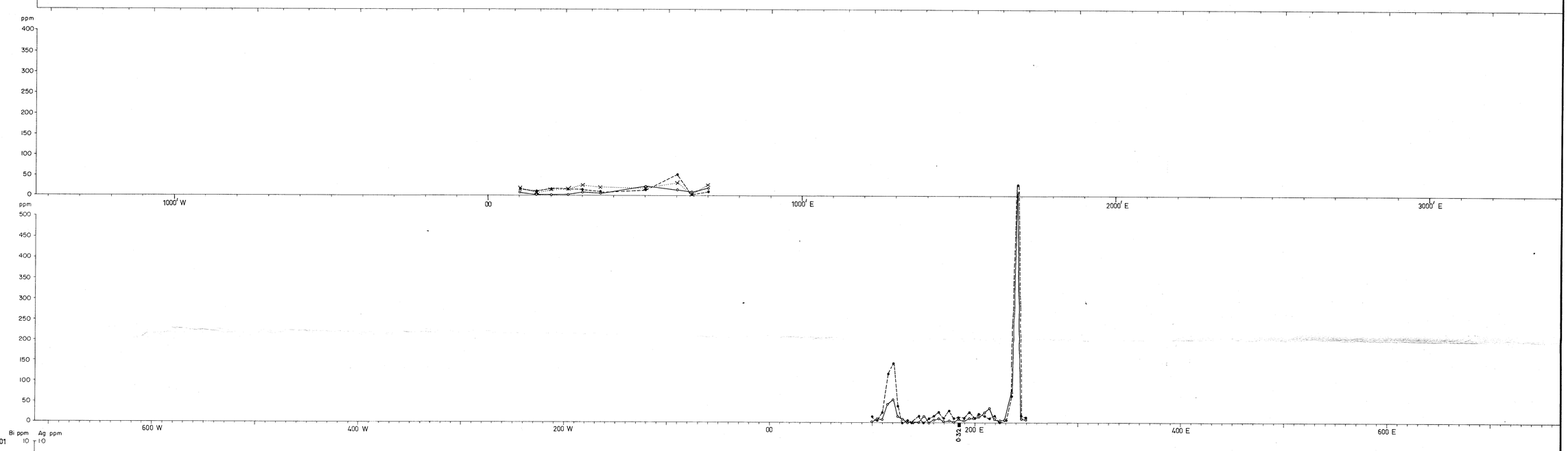
CHARGEABILITY
RESISTIVITY



DIPOLE – DIPOLE I.P.

SOIL GEOCHEMISTRY

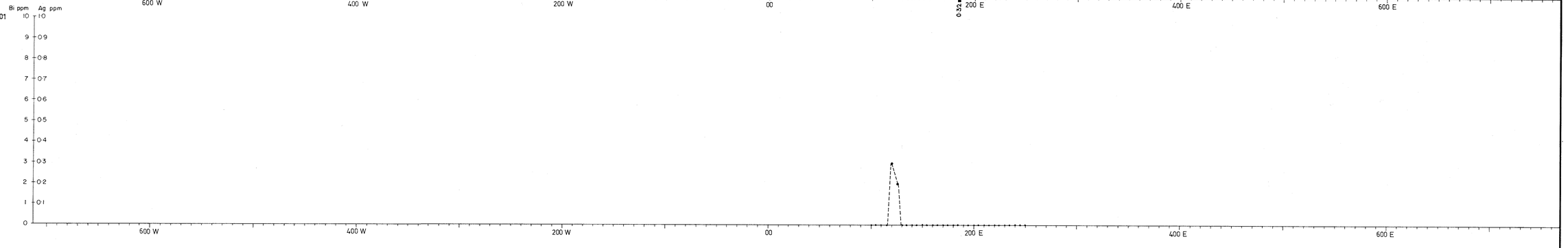
Cu
Pb
Zn



BEDROCK GEOCHEMISTRY

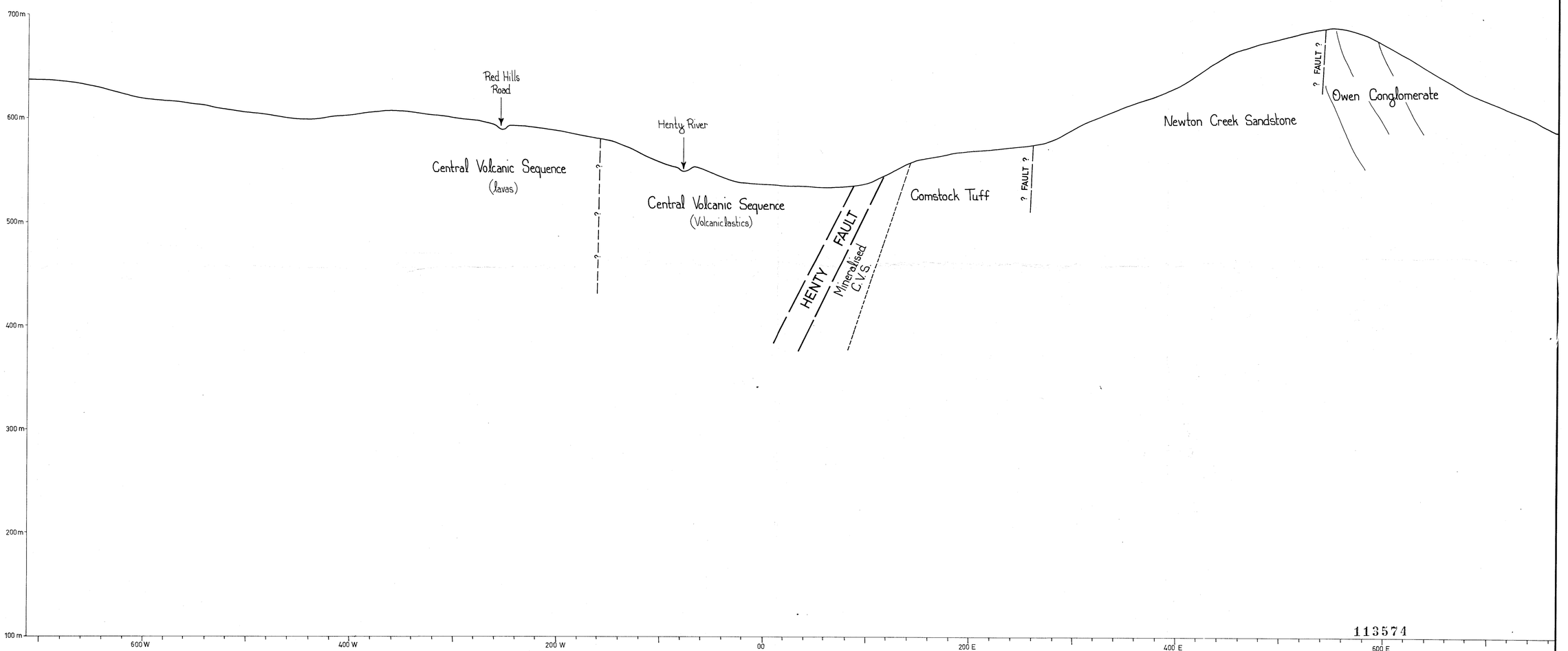
Au
▲ >0·1
□ <0·1
No Symbol = <0·01

Bi
Ag



TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL



113574

5 cm

85 2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 015

LINE 45 N

LOOKING NORTH

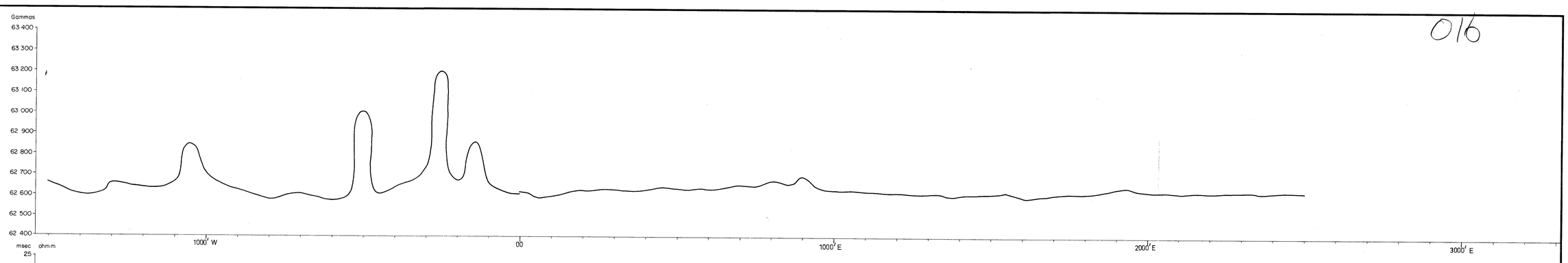
SCALE 1:2000 — 40 20 0 20 40 60 80 METRES

DRAWN BY	C.F.D.P.
DRAFTSMAN	E.V.
DATE	July, 1985
REVISIONS	
FILE NO.	

FIG. 16

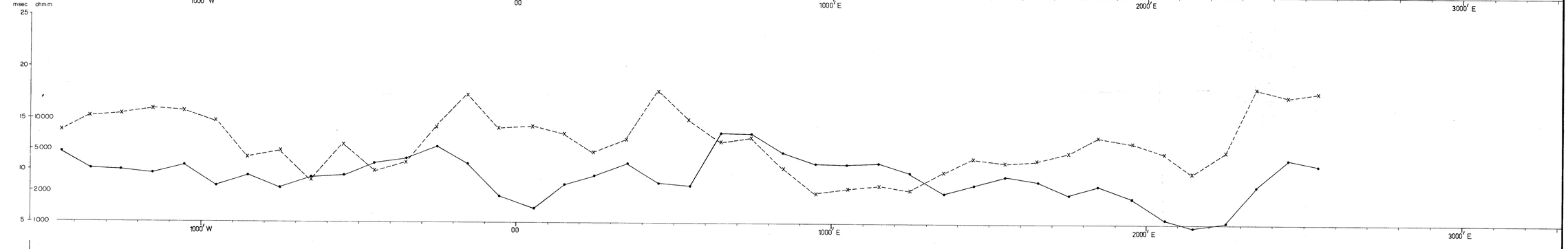
016

TOTAL FIELD MAGNETICS



GRADIENT ARRAY I.P.

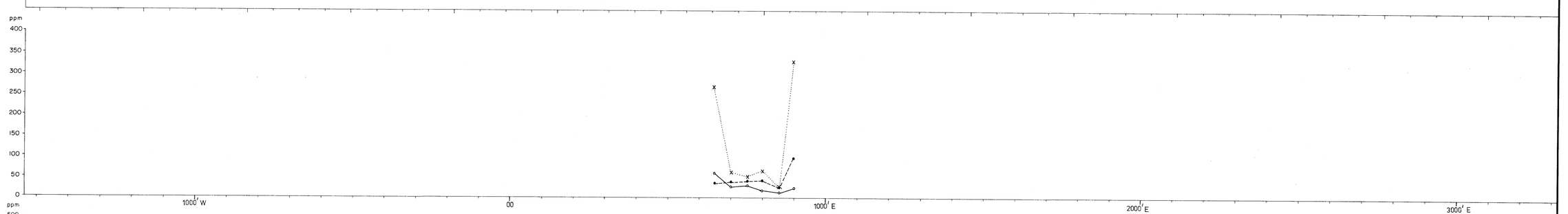
CHARGEABILITY
RESISTIVITY



DIPOLE – DIPOLE I.P.

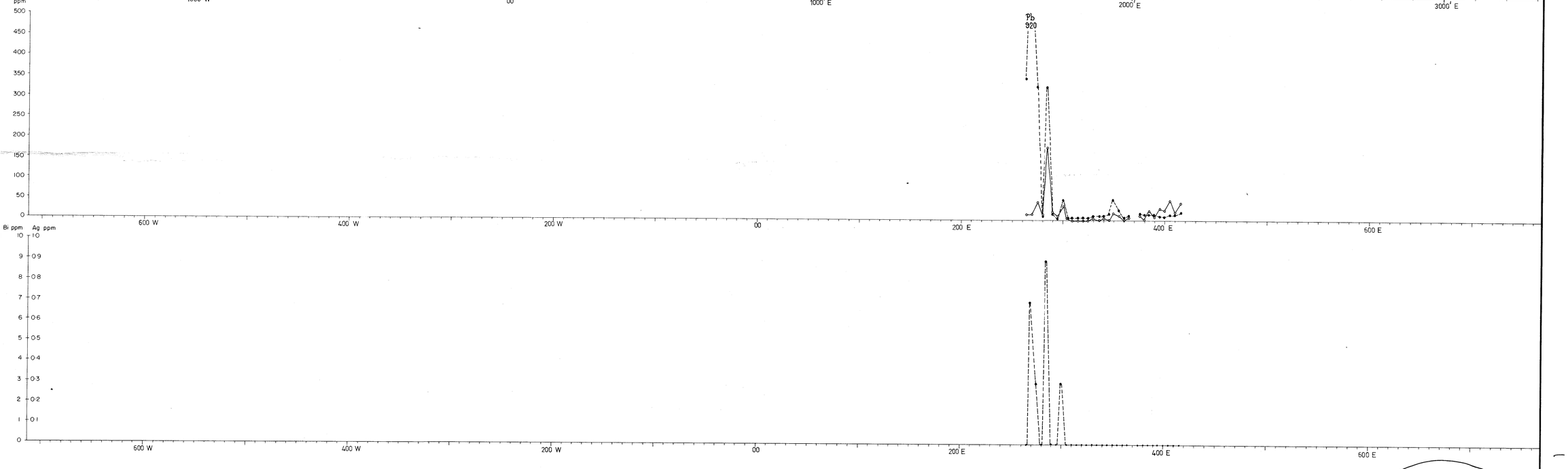
SOIL GEOCHEMISTRY

Cu
Pb
Zn



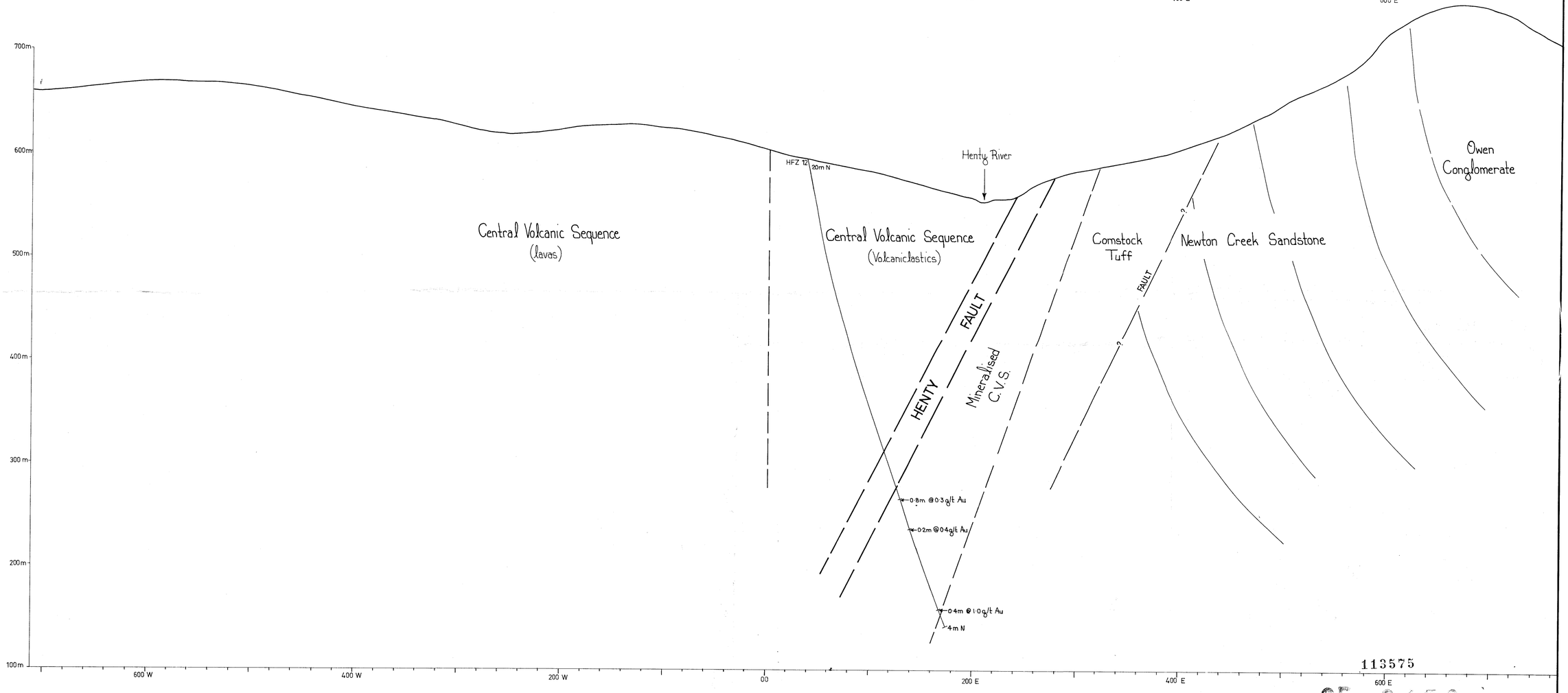
BEDROCK GEOCHEMISTRY

Cu
Pb
Zn
Au
0·1
<0·1
No Symbol = <0·01
Bi
Ag



TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL



5 cm

113575

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 016

LINE 46 N

LOOKING NORTH

SCALE 1:2000 (40 20 0 20 40 60 80 METRES)

DRAWN BY	C.F.D.P.
DRAFTSMAN	E.V
DATE	July, 1985
REVISIONS	
FILE NO.	

FIG. 17

017

TOTAL FIELD MAGNETICS

Gammas
63 400
63 300
63 200
63 100
63 000
62 900
62 800
62 700
62 600
62 500
62 400
63 594
1000' W
00
1000' E
2000' E
3000' E

GRADIENT ARRAY I.P.

msec ohm m
CHARGEABILITY
RESISTIVITY
25
20
15
10
5
10000
5000
2000
1000
1000' W
00
1000' E
2000' E
3000' E

DIPOLE - DIPOLE I.P.

SOIL GEOCHEMISTRY

Cu
Pb
Zn
ppm
400
350
300
250
200
150
100
50
0
1000' W
00
1000' E
2000' E
3000' E

BEDROCK GEOCHEMISTRY

Cu
Pb
Zn
ppm
500
450
400
350
300
250
200
150
100
50
0
600 W
400 W
200 W
00
200 E
400 E
600 E

Au
■ ≥0·1
T <0·1
No Symbol = <0·01

Bi
Ag
Bi ppm
10
9
8
7
6
5
4
3
2
1
0
Ag ppm
1·0
0·9
0·8
0·7
0·6
0·5
0·4
0·3
0·2
0·1
0
0·06
Ag 4·3
600 W
400 W
200 W
00
200 E
400 E
600 E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

700 m
600 m
500m
400m
300 m
200m
100 m

Red Hills Road
Henty River
? FAULT
Owen Conglomerate
Central Volcanic Sequence (lavas)
Central Volcanic Sequence (Volcaniclastics)
HENTY FAULT
Mineralised C.V.S.
Comstock Tuff
FAULT
?
Newton Creek Sandstone
50m N
1·7m @ 4·3 g/t Au
0·5m @ 0·5 g/t Au
HP 2
17m S

600 W
400 W
200 W
00
200 E
400 E
600 E

85-2459

5 cm

113576

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 017

LINE 47 N

LOOKING NORTH

SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY	C.F.D.P
DRAFTSMAN	E.V.
DATE	July, 1985
REVISIONS	
FILE NO.	
FIG.	18

018

TOTAL FIELD MAGNETICS

Gammas
63 400
63 300
63 200
63 100
63 000
62 900
62 800
62 700
62 600
62 500
62 400

1000' W | 00 | 1000' E | 2000' E | 3000' E

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

msec | ohm m
25
20
15 — 10000
10 — 5000
5 — 2000
1000

1000' W | 00 | 1000' E | 2000' E | 3000' E

DIPOLE - DIPOLE I.P.

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm
400
350
300
250
200
150
100
50
0

1000' W | 00 | 1000' E | 2000' E | 3000' E

BEDROCK GEOCHEMISTRY

Cu
Pb
Zn

ppm
500
450
400
350
300
250
200
150
100
50
0

Au
▲ >0·1
□ <0·1
No Symbol = <0·01

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

Bi
Ag

Bi ppm | Ag ppm
10 | 1·0
9 | 0·9
8 | 0·8
7 | 0·7
6 | 0·6
5 | 0·5
4 | 0·4
3 | 0·3
2 | 0·2
1 | 0·1
0

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

800 m
700 m
600 m
500 m
400 m
300 m
200 m

Red Hills Road

HFZ 9

HFZ 6
4m S

Henty River

Central Volcanic Sequence
(Lavas)

Central Volcanic Sequence
(Volcaniclastics)

HENTY FAULT

Mineralised C.V.S.

0·4m @ 2·0 g/t Au
1·3m @ 0·6 g/t Au
3m N
0·8m @ 1·4 g/t Au
3m N

Comstock Tuff

FAULT

Owen Conglomerate

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

5 cm

113577

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 018

LINE 48 N

LOOKING NORTH

SCALE 1:2000 — 40 20 0 20 40 60 80 METRES

DRAWN BY	C.F.D.P.
DRAFTSMAN	E.V.
DATE	July, 1985
REVISIONS	
FILE NO.	

FIG. 19

019

TOTAL FIELD MAGNETICS

Gammas
63 400
63 300
63 200
63 100
63 000
62 900
62 800
62 700
62 600
62 500
62 400

00 1000' E 2000' E 3000' E

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

msec ohm m
25
20
15 10000
5000
10 2000
5 1000

2719

00 1000' E 2000' E 3000' E

DIPOLE - DIPOLE I.P.

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm
400
350
300
250
200
150
100
50
0

00 1000' E 2000' E 3000' E

ppm
500
450
400
350
300
250
200
150
100
50
0

Cu 1550
Pb 520 Pb 550

600 W 400 W 200 W 200 E 400 E 600 E

BEDROCK GEOCHEMISTRY

Cu
Pb
Zn

Au
0.1
<0.1
No Symbol = <0.01

Bi
Ag

Bi ppm
10
9
8
7
6
5
4
3
2
1
0

Ag ppm
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1

Ag 23
Bi 18
Ag 12 Bi 16 Ag 14
Bi 10

600 W 400 W 200 W 00 200 E 400 E 600 E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

800 m
700 m
600 m
500 m
400 m
300 m
200 m

Red Hills Road
Henty River
HFZ 5
Central Volcanic Sequence (lavas)
Central Volcanic Sequence (Volcaniclastics)
Mineralised C.V.S.
HENTY FAULT
3·7m @ 10 g/t Au
Comstock Tuff
FAULT ?
Newton Creek Sandstone
Owen Conglomerate

600 W 400 W 200 W 00 200 E 400 E 600 E

5 cm

113578

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 9/66 – TYNDALL PROJECT

HENTY GRID 019

LINE 49 N

LOOKING NORTH

SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY C.F.D.P.
DRAFTSMAN E.V.
DATE July, 1985
REVISIONS
FILE NO.

FIG. 20

020

TOTAL FIELD MAGNETICS

Gammas
63 400
63 300
63 200
63 100
63 000
62 900
62 800
62 700
62 600
62 500
62 400

00 1000' E 2000' E 3000' E

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

msec ohm m
25
20
15 10000
5000
10
2000
5 1000

00 1000' E 2000' E 3000' E

DIPOLE - DIPOLE I.P.

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm
400
350
300
250
200
150
100
50
0

00 1000' E 2000' E 3000' E

BEDROCK GEOCHEMISTRY

Cu
Pb
Zn

Au
●0·1
□<0·1
No Symbol= <0·01

Bi ppm
10
9
8
7
6
5
4
3
2
1
0

Ag ppm
1·0
0·9
0·8
0·7
0·6
0·5
0·4
0·3
0·2
0·1

Bi
Ag

ppm
500
450
400
350
300
250
200
150
100
50
0

0.54

Ag 3·2

600 W 400 W 200 W 00 200 E 400 E 600 E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

900 m
800 m
700 m
600 m
500 m
400 m
300 m

Henty Red Hills Road
Henty River
HP 4 @ 15m N
Central Volcanic Sequence (lavas)
Central Volcanic Sequence (Volcaniclastics)
HENTY FAULT
Mineralised C.V.S.
FAULT ?
Comstock Tuff
Newton Creek Sandstone
Owen Conglomerate
1·6m @ 26·1 g/t Au
1·5m @ 10·2 g/t Au (HP4A)
3·1m @ 10·3 g/t Au
3·2m @ 3·4 g/t Au (HP4A)
Owen "Finger" 0·8m @ 5·0 g/t Au
25mS

600 W 400 W 200 W 00 200 E 400 E 600 E

5 cm

113579

85 - 2439

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 020

LINE 50 N

LOOKING NORTH

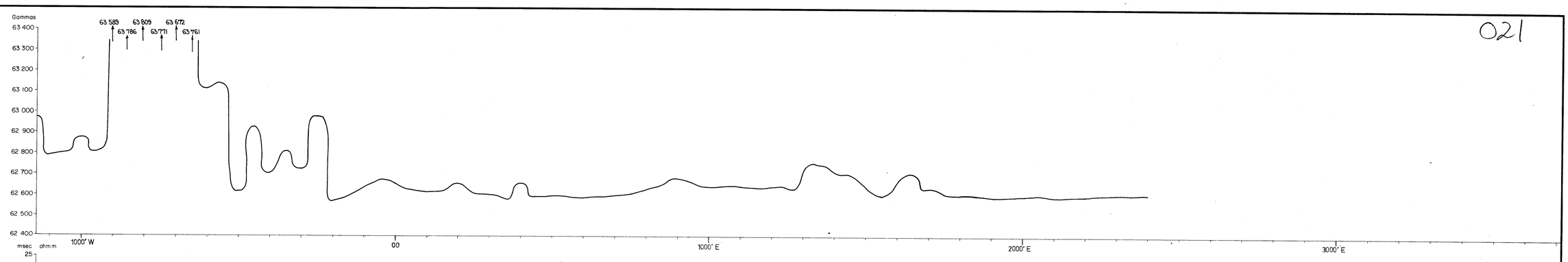
SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY C.F.D.P.
DRAFTSMAN E.V.
DATE July, 1985
REVISIONS
FILE NO.

FIG. 21

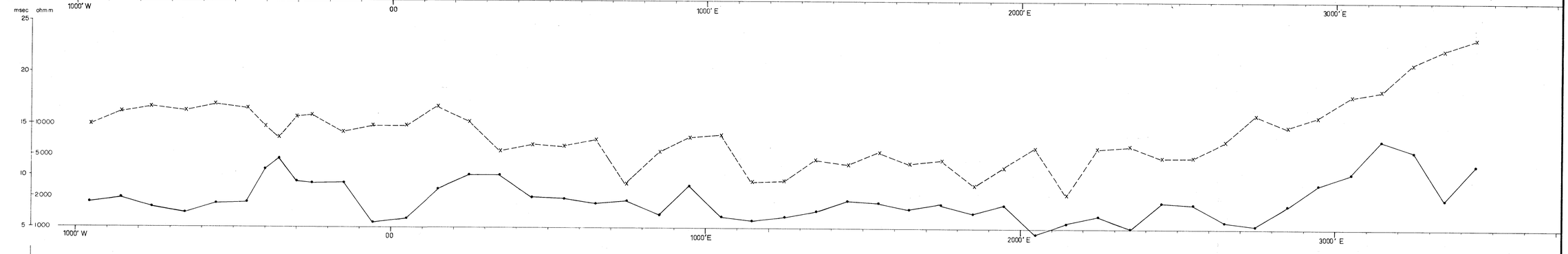
021

TOTAL FIELD MAGNETICS

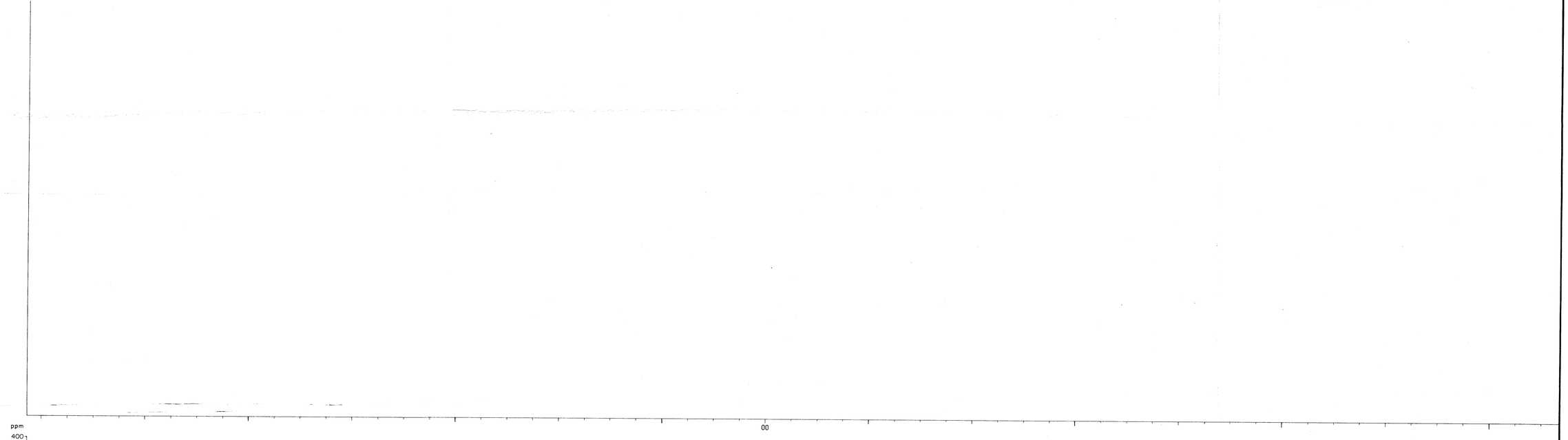


GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

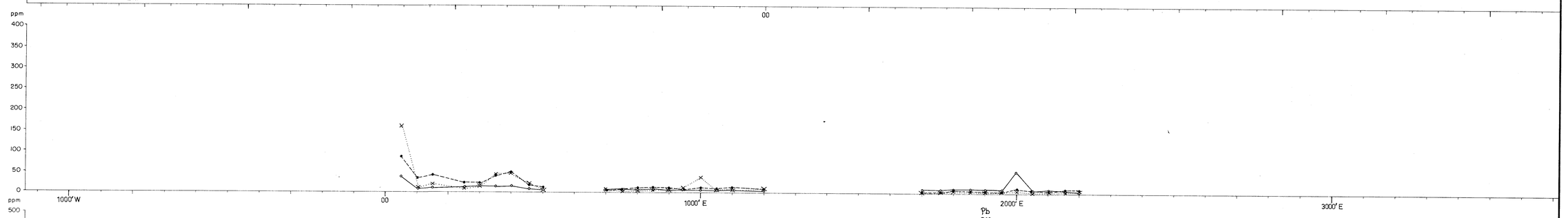


DIPOLE - DIPOLE I.P.



SOIL GEOCHEMISTRY

Cu
Pb
Zn

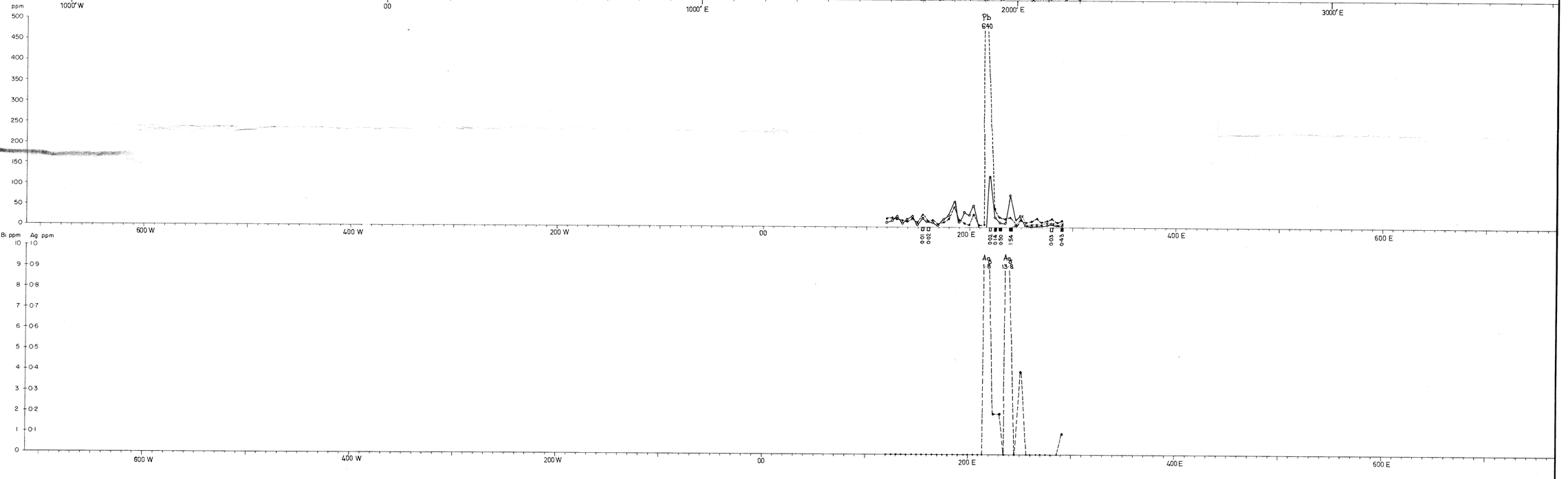


BEDROCK GEOCHEMISTRY

Cu
Pb
Zn

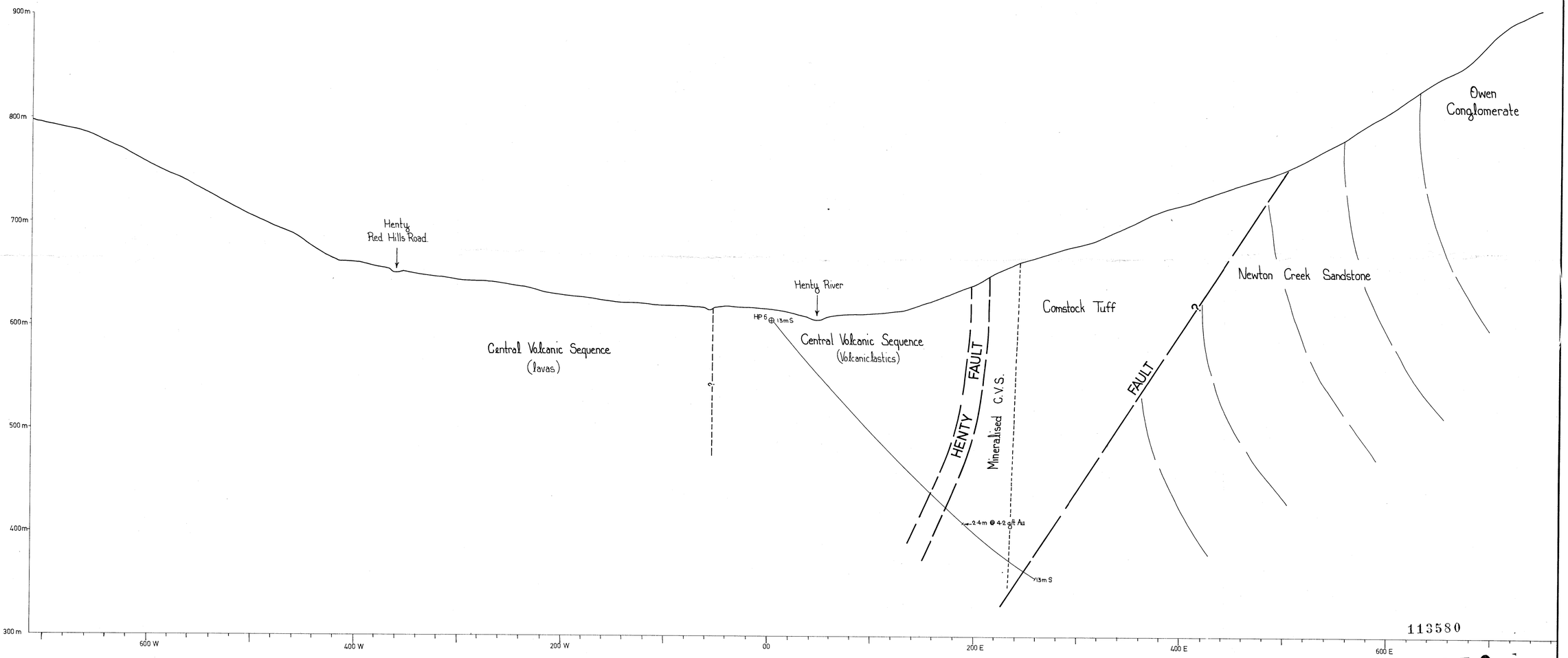
Au
>0·1
<0·1
No Symbol = <0·01

Bi
Ag



TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL



113580

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 021

LINE 51 N

LOOKING NORTH

SCALE 1:2000 40 20 0 20 40 60 80 METRES

5 cm

DRAWN BY C.F.D.P.
DRAFTSMAN E.V.
DATE July, 1985
REVISIONS
FILE NO.

FIG. 22

022

TOTAL FIELD MAGNETICS

Gammas
63 400
63 300
63 200
63 100
63 000
62 900
62 800
62 700
62 600
62 500
62 400

2000' W | 1000' W | 00 | 1000' E | 2000' E

GRADIENT ARRAY I.P.

CHARGEABILITY •——•
RESISTIVITY x- - - -x

msec | ohm m
25
20
15
10
5
10000
5000
2000
1000

Results from check survey (1979).

2000' W | 1000' W | 00 | 1000' E | 2000' E

DIPOLE – DIPOLE I.P.

SOIL GEOCHEMISTRY

Cu •——•
Pb •- - -•
Zn x·····x

ppm
400
350
300
250
200
150
100
50
0

2000' W | 1000' W | 00 | 1000' E | 2000' E

BEDROCK GEOCHEMISTRY

Cu •——•
Pb •- - -•
Zn x·····x

ppm
500
450
400
350
300
250
200
150
100
50
0

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

Au
•——• >0·1
□——□ <0·1
No Symbol = <0·01

Bi ppm | Ag ppm
10 | 1·0
9 | 0·9
8 | 0·8
7 | 0·7
6 | 0·6
5 | 0·5
4 | 0·4
3 | 0·3
2 | 0·2
1 | 0·1
0 | 0·1

Bi x——x
Ag •- - -•

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

900m
800m
700m
600m
500m
400m
300m

Creek
Henty Red Hills Road
Henty River

Central Volcanic Sequence (lavas)
Central Volcanic Sequence (Volcaniclastics)
Mineralised C.V.S. ?
Comstock Tuff
Newton Creek Sandstone
Quartz Porphyry Lavas (Tyndall Group)
Owen Conglomerate

HENTY FAULT ? ?
FAULT ? ?
FAULT ? ?
CONFORMABLE ? ?

600 W | 400 W | 200 W | 00 | 200 E | 400 E | 600 E

5 cm

113581

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 – TYNDALL PROJECT

HENTY GRID 022

LINE 52 N

LOOKING NORTH

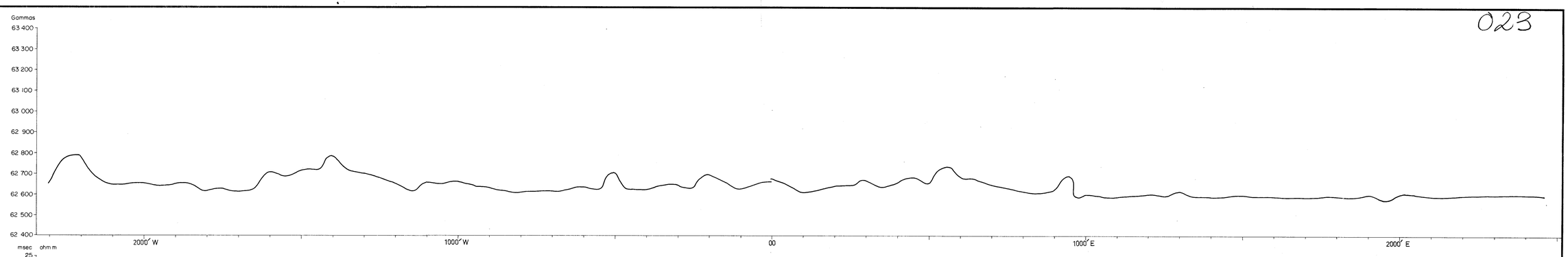
SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY	C.F.D.P.
DRAFTSMAN	E.V.
DATE	July, 1985
REVISIONS	
FILE NO.	

FIG. 23

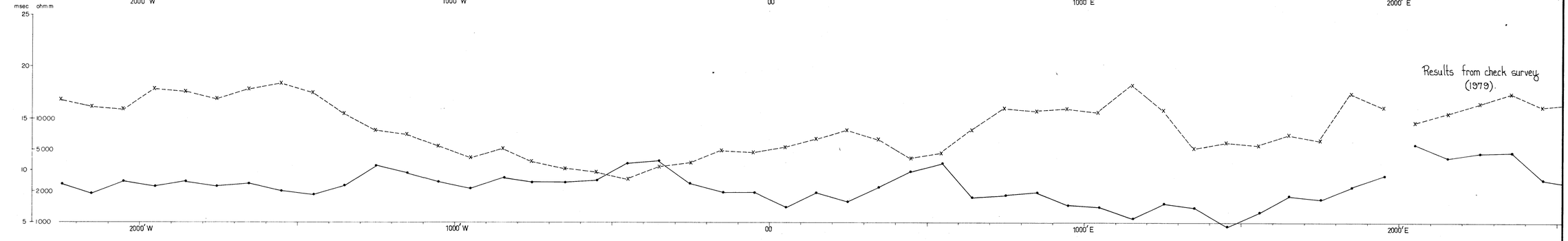
023

TOTAL FIELD MAGNETICS

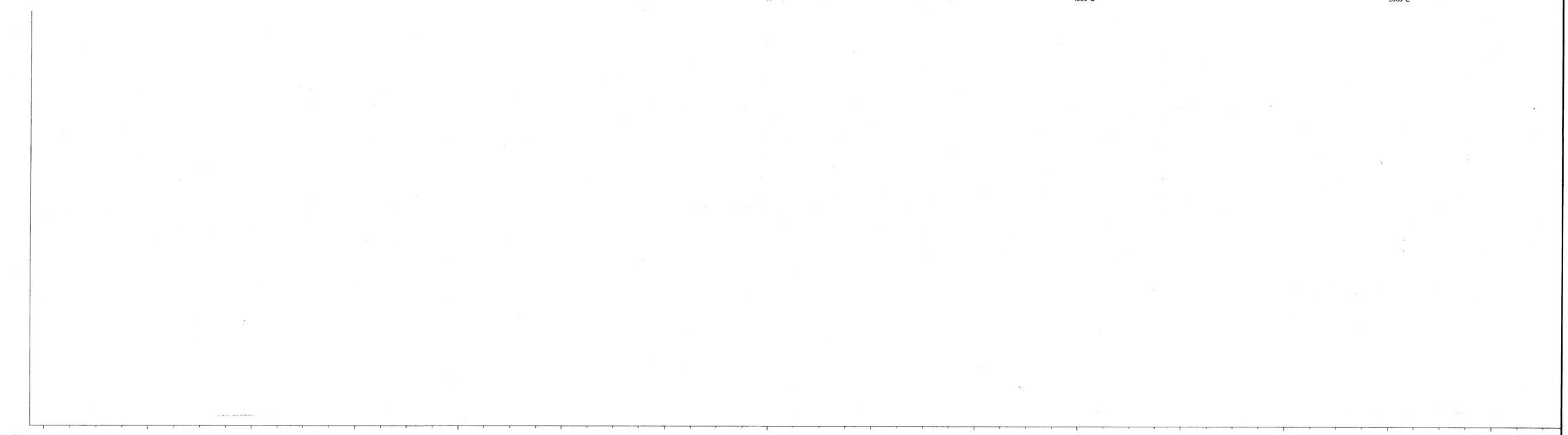


GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

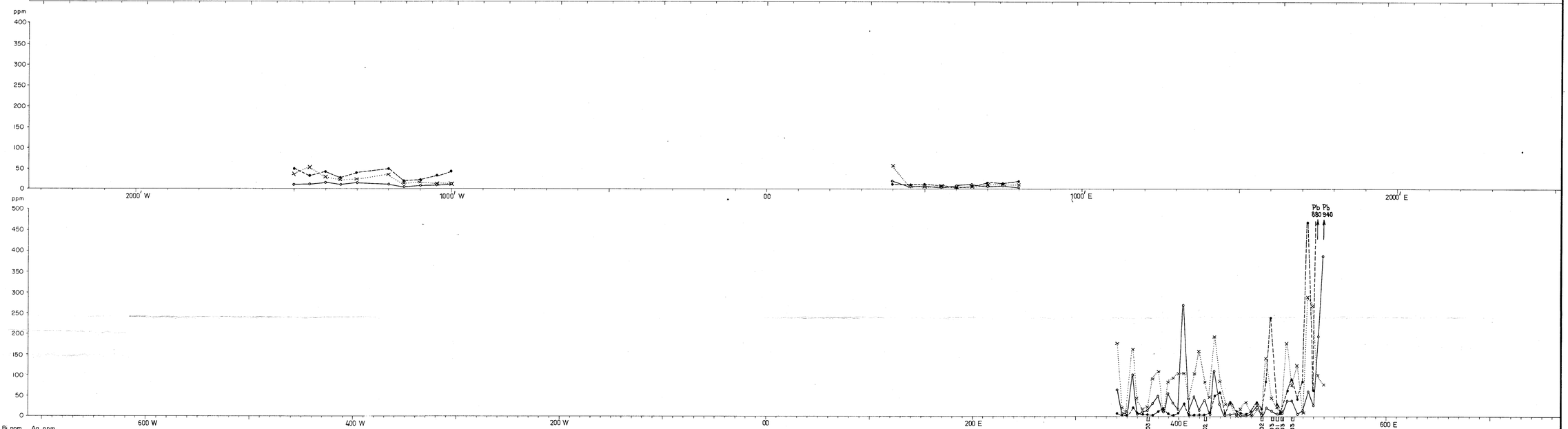


DIPOLE – DIPOLE I.P.



SOIL GEOCHEMISTRY

Cu
Pb
Zn

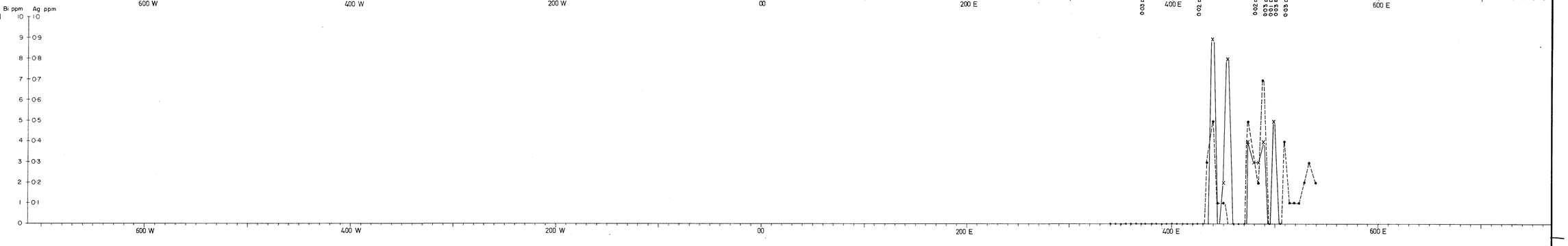


BEDROCK GEOCHEMISTRY

Cu
Pb
Zn

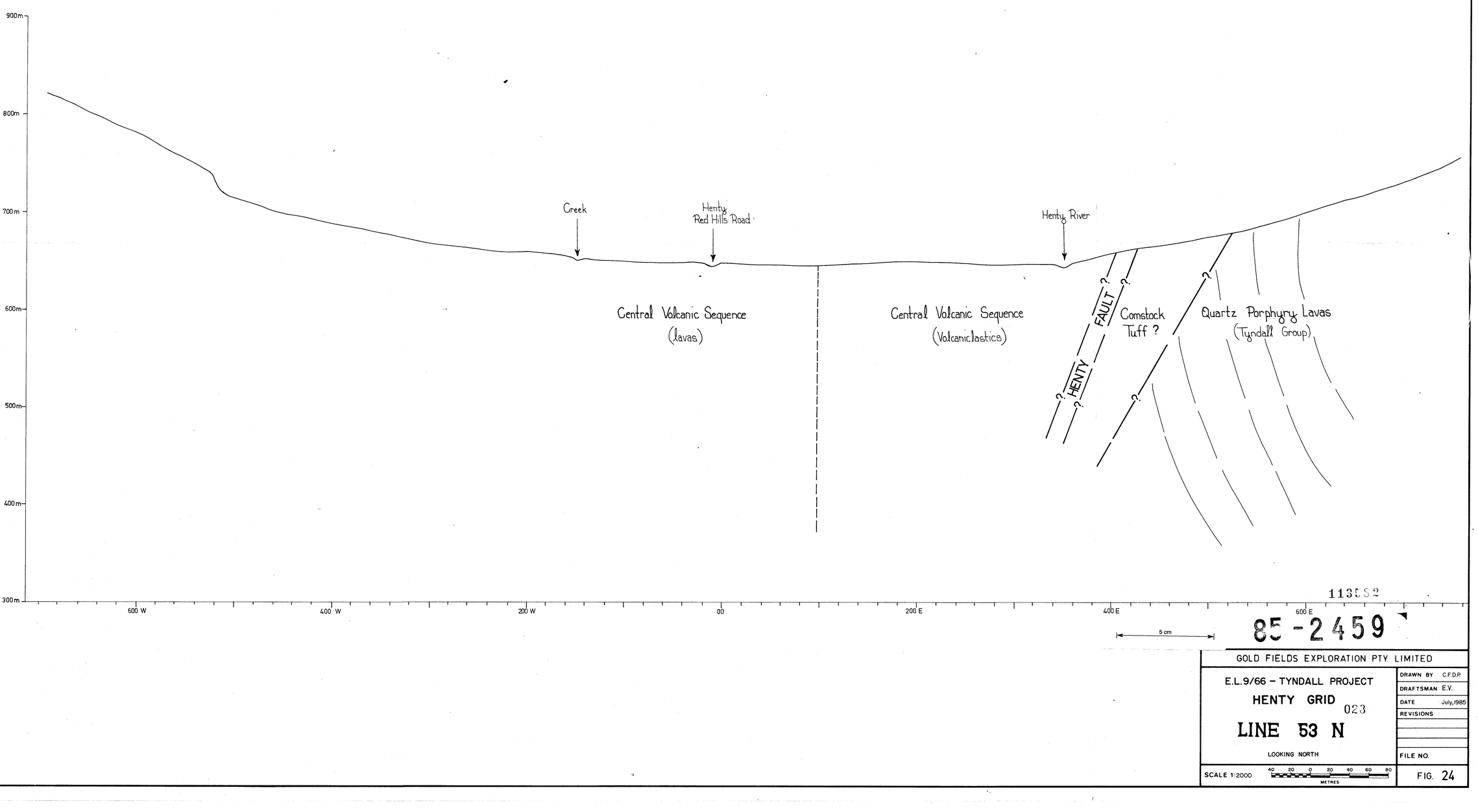
Au
■ ≥0·1
□ <0·1
No Symbol = <0·01

Bi
Ag



TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL



113082

85-2459

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 023

LINE 53 N

LOOKING NORTH

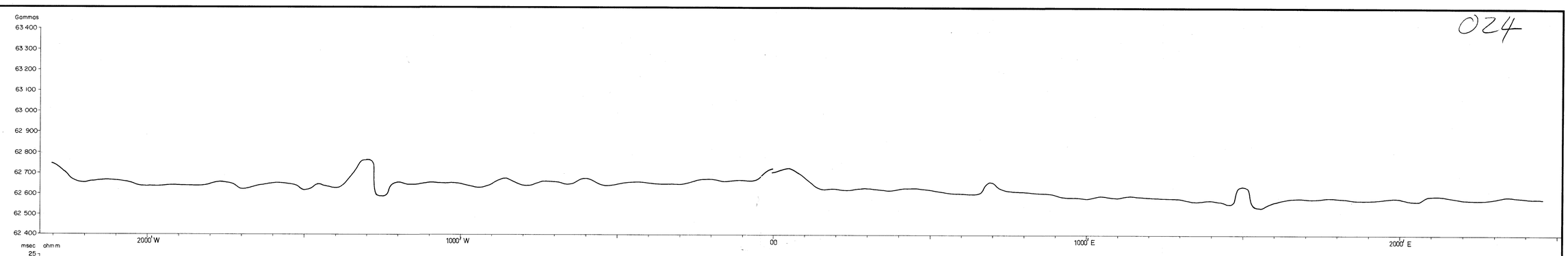
SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY C.F.D.P.
DRAFTSMAN E.V.
DATE July, 1985
REVISIONS
FILE NO.

FIG. 24

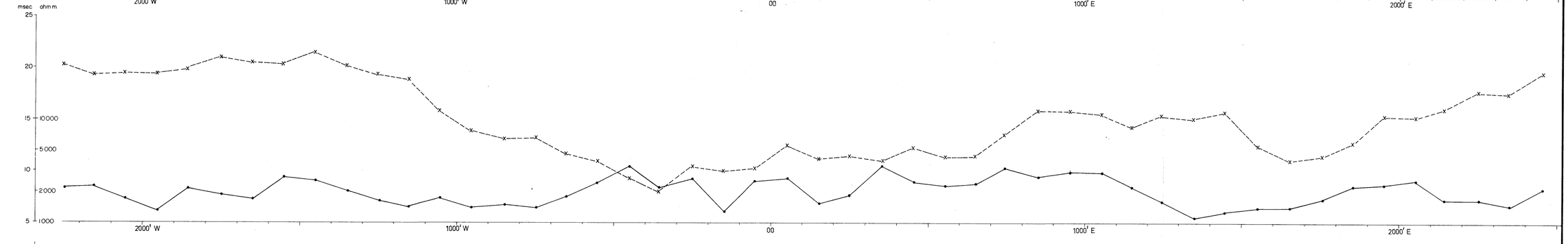
024

TOTAL FIELD MAGNETICS.



GRADIENT ARRAY I.P.

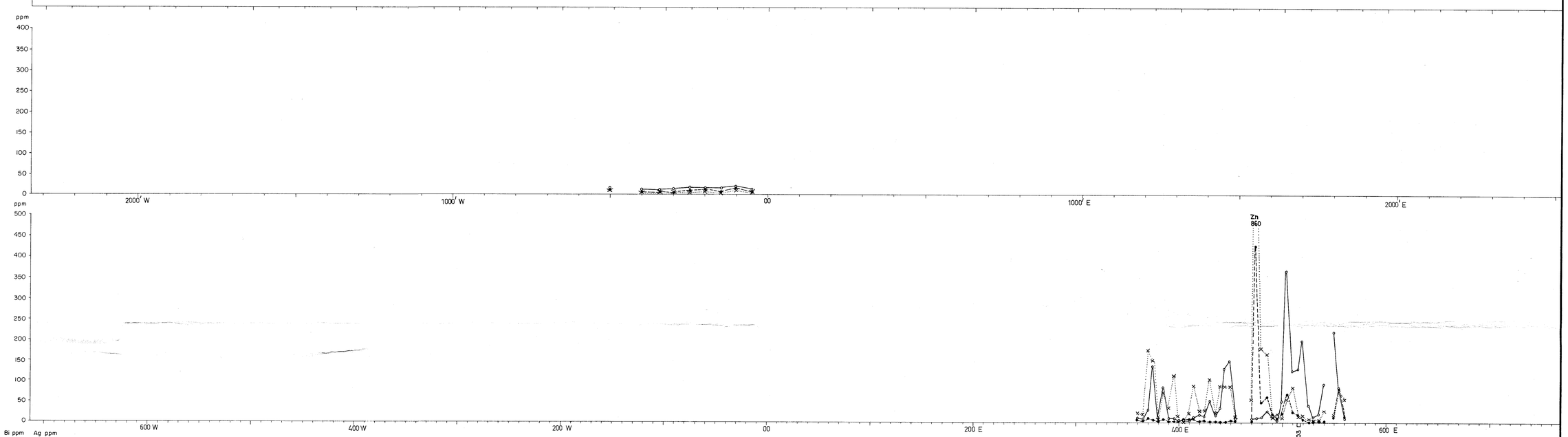
. ——— . CHARGEABILITY
* - - - - * RESISTIVITY



DIPOLE - DIPOLE I.P.

SOIL GEOCHEMISTRY

o ——— o Cu
• - - - - • Pb
x ····· x Zn

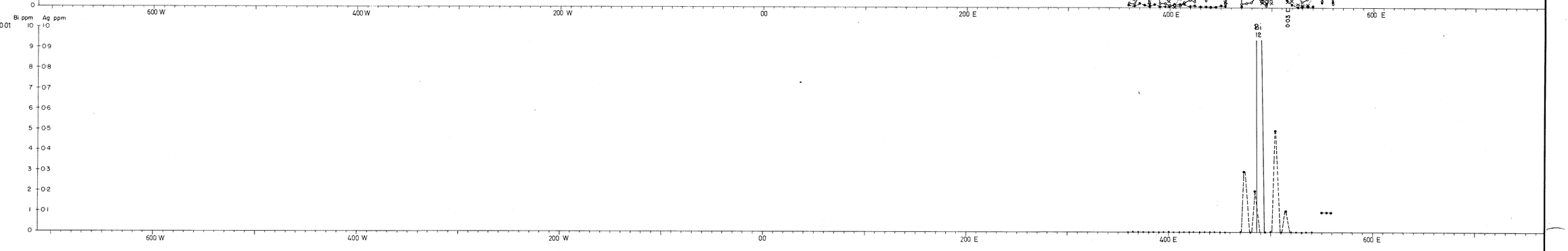


BEDROCK GEOCHEMISTRY

o ——— o Cu
• - - - - • Pb
x ····· x Zn

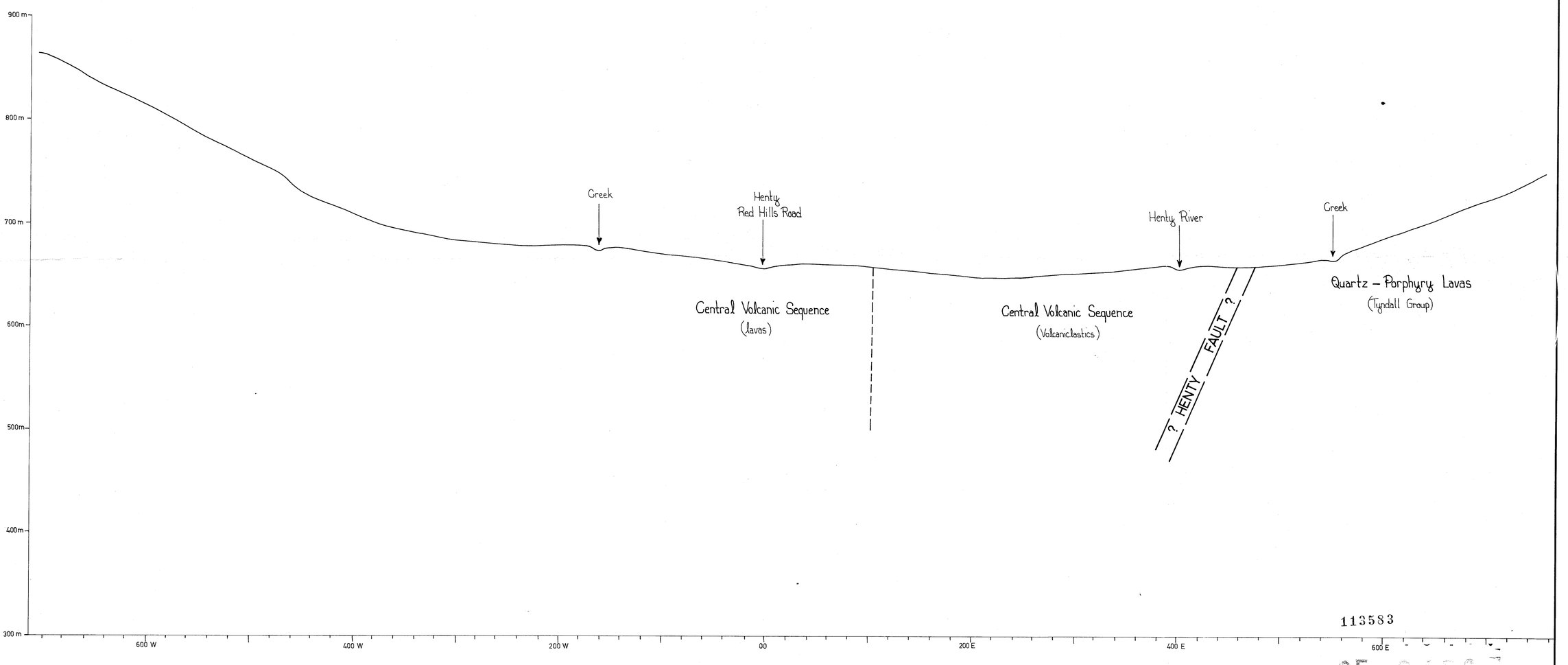
Au
■ >0.1
□ <0.1
No Symbol = <0.01

x ——— x Bi
• - - - - • Ag



TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL



113583

85-2[illegible]

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

HENTY GRID 024

LINE 54 N

LOOKING NORTH

SCALE 1:2000 40 20 0 20 40 60 80 METRES

DRAWN BY C.F.D.P.
DRAFTSMAN E.V.
DATE July, 1985
REVISIONS
FILE NO.

FIG. 25

025

386 000mE
387 000mE
388 000mE
5 364 000mN
5 363 000mN
5 362 000mN
5 361 000mN
5 360 000mN

Proposed Anthony Dam

L.S.12
L.S.10
L.S.9
L.S.6
L.S.5
L.S.4
L.S.7
L.S.1
L.S.2
L.S.3

160N
152N
144N
136N
148N
132N
128N
124N
120N
116N
112N
108N
104N
96N
56N
48N
40N

SELINA GRID

STRONG PYRITIC ZONE

PYRITIC

△ MOUNT SELINA
767

DORA CGLT. / JUKES BRECCIA

STICHT RANGE BEDS
(SUCCESS CREEK GROUP CORRELATES)

VOLCANICLASTICS WITH MINOR EPICLASTICS

VOLCANICLASTIC WITH LAVA FRAG. CONTENT INCREASING

AUTOBRECCIATED MASSIVE RHYO-DACITIC LAVAS WITH MINOR VOLCANICLASTIC LENSES

GLACIALS

DORA / JUKES

OWEN CGLT CONTACT BENEATH GLACIALS

△ MT 23

E.L. 9/66 BOUNDARY

ANTHONY Lake

Proposed H.E.C.

113584

5 cm

85 - 2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT
SELINA GRID 025
INTERPRETIVE GEOLOGY

DRAWN BY : A.C.
DRAFTSMAN : T.G.D.S.
DATE : JUNE '85
REVISIONS :
FILE NO.

SCALE 1:5000
100 50 0 50 100 150 200
METRES

FIG. 26

026

SELINA GRID

160N
152N
144N
136N
132N
128N
124N
120N
116N
112N
108N
104N
96N
148N
56N
48N
40N

LS1
LS2
LS3
LS5
LS6
LS7
LS12

MT 23

MOUNT SELINA

ANTHONY

E.L. 9/66 BOUNDARY

5 364 000mN
5 363 000mN
5 362 000mN
5 361 000mN
5 360 000mN

385 000mE
386 000mE
387 000mE
388 000mE

113585

NOTE

SAMPLE No.	DATA SOURCE
S290 - S558	Hutton, 1980-82
1168 - 1195	Review, 1983
2746 - 3716	Purvis, 1983-84
14174 - 14199	Cartwright, 1984-85

5 cm

85 - 459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT
SELINA GRID 026
ROCK CHIP
SAMPLE LOCATION

DRAWN BY : A.C.
DRAFTSMAN : T.G.D.S.
DATE : June '85
REVISIONS :
FILE NO.

SCALE 1: 5000 METRES

FIG. 27

027

E 386 000mE

E 387 000mE

E 388 000mE

S 364 000mN

S 363 000mN

S 362 000mN

S 361 000mN

S 360 000mN

160N

152N

144N

136N

132N

128N

124N

120N

116N

112N

108N

104N

100N

96N

56N

48N

40N

148N

SELINA GRID

MOUNT SELINA

E.L. 9/66 BOUNDARY

ANTHONY

LS1

LS2

LS3

LS4

LS5

LS6

LS7

LS8

LS12

MT23

113586

5 cm

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID 027

ROCK CHIP GEOCHEM

Cu

DRAWN BY A.C.

DRAFTSMAN T.G.D.S.

DATE June '85

REVISIONS :

FILE NO.

SCALE 1: 5000

METRES

FIG. 28

028

386 000mE

387 000mE

388 000mE

5 364 000mN

5 363 000mN

5 362 000mN

5 361 000mN

5 360 000mN

160N

152N

144N

136N

148N

132N

128N

124N

120N

116N

112N

108N

104N

96N

56N

48N

40N

SELINA GRID

E.L. 9/66 BOUNDARY

MOUNT SELINA

ANTHONY

LS0

LS1

LS2

LS3

LS4

LS5

LS6

LS7

MT23

113587

5 cm

85 59

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

028

ROCK CHIP GEOCHEM

Pb

DRAWN BY A.C.

DRAFTSMAN: G.D.S.

DATE June '85

REVISIONS :

FILE NO.

SCALE 1:5000

METRES

FIG. 29

029

SELINA GRID

E.L. 9/66 BOUNDARY

MOUNT SELINA

ANTHONY

MT 23

LS1 LS2 LS3 LS4 LS5 LS6 LS7 LS8 LS9 LS10 LS11 LS12

160N 152N 144N 136N 132N 128N 124N 120N 116N 112N 108N 104N 96N 56N 48N 40N

385 000mE 386 000mE 387 000mE 388 000mE

5 364 000mN 5 363 000mN 5 362 000mN 5 361 000mN 5 360 000mN

113588

5 cm

85 - 2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID 029

ROCK CHIP GEOCHEM

Zn

DRAWN BY A.C.

DRAFTSMAN T.G.D.S.

DATE June '85

REVISIONS :

FILE NO.

SCALE 1: 5000 METRES

FIG. 30

030

SELINA GRID

E.L. 9/66 BOUNDARY

MOUNT SELINA

ANTHONY

160N
152N
144N
148N
136N
132N
128N
124N
120N
116N
112N
108N
104N
96N
56N
48N
40N

LS12
LS5
LS6
LS10
LS7
LS1
LS20
LS13
MT23

5 364 000mN
5 363 000mN
5 362 000mN
5 361 000mN
5 360 000mN
386 000mE
387 000mE
388 000mE

113589

5 cm

85-1589

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

ROCK CHIP GEOCHEM

Ag 030

DRAWN BY A.C.

DRAFTSMAN G.D.S.

DATE June '85

REVISIONS :

FILE NO.

SCALE 1: 5000 METRES

FIG. 31

031

386 000mE
387 000mE
388 000mE
5 364 000mN
5 363 000mN
5 362 000mN
5 361 000mN
5 360 000mN

160N
152N
144N
136N
132N
128N
124N
120N
116N
112N
108N
104N
96N
56N
148N
40N

SELINA GRID

LS 12
LS 10
LS 9
LS 6
LS 5
LS 4
LS 7
LS 1
LS 2
LS 3

C 9-7
9-8
B 2-3
D 9-8
9-8
10-8
9-8
C
B
A 9-8
? 2-4
? ?
E ? 4-5
10-9
D
9-8
5
E
9(?)-8
A

Tx 1

E.L. 9/66 BOUNDARY

ANTHONY

85-2459

Legend

single line response

9-7— channels on which response is observed

UTEM COVERAGE

part of anomalous zone

5 cm

possible prospective zone

unprospective zone

SURVEY BY : LAMONTAGNE GEOPHYSICS
DATE : FEB., 1985

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 031
SELINA GRID
UTEM INTERPRETATION

REF: GF/MG 85/10

SCALE 1:5000 100 50 0 100 200 METRES

DRAWN BY : J.R.B.
DRAFTSMAN : S.F.
DATE : July, 85
REVISIONS :
FILE NO.

FIG. 32

113590

TOTAL FIELD MAGNETICS

Gammas
69 000
68 000
67 000
66 000
65 000
64 000
63 000
62 000
61 000
60 000

UTEM

HILBERT FILTER %
CHANNEL 5
CHANNEL 8

% 1·8 1·6 1·4 1·2 1·0 0·8 0·6 0·4 0·2 0
% 45 40 35 30 25 20 15 10 5 0

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

mV/V 70 60 50 40 30 20 10 0
Ohm m 20000 10000 5000 2000 1000 500 200 100

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm 900 800 700 600 500 400 300 200 100 0

12 Ag
No Sample

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

700mRL
600mRL
500mRL
400mRL
300mRL
200mRL

Road

4000'W 3500'W 3000'W 2500'W 2000'W 1500'W 1000'W 500'W 00 100mE 200mE 300mE 400mE 500mE 600mE 700mE 800mE 900mE 1000mE

113591
85-2159

5 cm

LEGEND

- Glacial Deposits
- Gwen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite-Pyrite Zone, Shale Lens

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

LINE 96N. PROFILE

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	July, '85
REVISIONS	
FILE NO.	
FIG	33

033

TOTAL FIELD MAGNETICS

Gammas

UTEM

HILBERT FILTER %

CHANNEL 5

CHANNEL 8

GRADIENT ARRAY I.P.

CHARGEABILITY

RESISTIVITY

SOIL GEOCHEMISTRY

Cu

Pb

Zn

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

LEGEND

- Glacial Deposits
- Owen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lavas, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite - Pyrite Zone, Shale Lens

113592

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED	
E.L.9/66 - TYNDALL PROJECT	DRAWN BY A.C.
SELINA GRID	DRAFTSMAN T.G.D.S.
LINE 104N. PROFILE	DATE July,'85
LOOKING N.	REVISIONS
SCALE 1:2000	FILE NO. 033
	FIG 34

034

TOTAL FIELD MAGNETICS

Gammas
69 000
68 000
67 000
66 000
65 000
64 000
63 000
62 000
61 000
60 000

UTEM

HILBERT FILTER %
CHANNEL 5
CHANNEL 8

%
1·8 — 45
1·6 — 40
1·4 — 35
1·2 — 30
1·0 — 25
0·8 — 20
0·6 — 15
0·4 — 10
0·2 — 5
0

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

mV/V
70
60
50
40
30
20
10
0

Ohm m
20000
10000
5000
2000
1000
500
200
100

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm
900
800
700
600
500
400
300
200
100
0

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

700mRL
600mRL
500mRL
400mRL
300mRL
200mRL

LS 7
Road

4000'W 3500'W 3000'W 2500'W 2000'W 1500'W 1000'W 500'W 00 100mE 200mE 300mE 400mE 500mE 600mE 700mE 800mE 900mE 1000mE

113593
85-2459

GOLD FIELDS EXPLORATION PTY LIMITED	
E.L.9/66 - TYNDALL PROJECT	DRAWN BY A.C.
SELINA GRID	DRAFTSMAN T.G.D.S.
LINE 112 N. PROFILE	DATE July, 85
LOOKING N.	REVISIONS
SCALE 1:2000 40 0 40 80 METRES	FILE NO.
	FIG 35

5cm

LEGEND

- Glacial Deposits
- Gwen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite - Pyrite Zone, Shale Lens

034

035

TOTAL FIELD MAGNETICS

Gammas
69 000
68 000
67 000
66 000
65 000
64 000
63 000
62 000
61 000
60 000

UTEM

HILBERT FILTER %
CHANNEL 5
CHANNEL 8

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY
Array 3
Array 6

SOIL GEOCHEMISTRY

Cu
Pb
Zn

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

LS4

LEGEND

- Glacial Deposits
- Gwen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite - Pyrite Zone, Shale Lens

113594
05-2459

GOLD FIELDS EXPLORATION PTY LIMITED	
E.L.9/66 - TYNDALL PROJECT	DRAWN BY A.C.
SELINA GRID	DRAFTSMAN T.G.D.S.
LINE 12ON. PROFILE	DATE July,'85
LOOKING N.	REVISIONS
SCALE 1:2000	FILE NO
	FIG 36

035

036

TOTAL FIELD MAGNETICS

Gammas

UTEM

HILBERT FILTER %

CHANNEL 5

CHANNEL 8

GRADIENT ARRAY I.P.

CHARGEABILITY

RESISTIVITY

Array 3

Array 5

N.R.

SOIL GEOCHEMISTRY

Cu

Pb

Zn

ppm

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

LS 5

Reid

5 cm

113595

LEGEND

- Glacial Deposits
- Owen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite-Pyrite Zone, Shale Lens

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

LINE 128N. PROFILE

LOOKING N.

SCALE 1:2000

DRAWN BY A.C.

DRAFTSMAN T.G.D.S.

DATE July,'85

REVISIONS

FILE NO. 036

FIG 37

037

TOTAL FIELD MAGNETICS

Gammas

UTEM

HILBERT FILTER %

CHANNEL 5

CHANNEL 8

GRADIENT ARRAY I.P.

CHARGEABILITY

RESISTIVITY

SOIL GEOCHEMISTRY

Cu

Pb

Zn

Ag ppb

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

Road

LS9 LS6

5 cm

113596

85-2459

LEGEND

- Glacial Deposits
- Owen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite-Pyrite Zone, Shale Lens

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

LINE 136N. PROFILE

LOOKING N.

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	July,'85
REVISIONS	
FILE NO.	
FIG	38

SCALE 1:2000 (60 0 60 80 METRES)

037

038

TOTAL FIELD MAGNETICS

Gammas
69 000
68 000
67 000
66 000
65 000
64 000
63 000
62 000
61 000
60 000

UTEM

HILBERT FILTER %
CHANNEL 5
CHANNEL 8

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY
mV/V
Ohm m
Array 2
Array 5

SOIL GEOCHEMISTRY

Cu
Pb
Zn
ppm
Ag oz

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL
LS 10
Road
5 cm

113597

3500'W 3000'W 2500'W 2000'W 1500'W 1000'W 500'W 00 100mE 200mE 300mE 400mE 500mE 600mE 700mE 800mE 900mE 1000mE

LEGEND

- Glacial Deposits
- Owen Conglomerate
- Dora Conglomerate - Jukes Breccia
- Sticht Range Beds
- Coarse Volcaniclastics with Lava Fragments
- Rhyo-Dacitic Lava, Massive-Autobrecciated with Minor Volcaniclastic Lenses
- Volcaniclastics with Minor Epiclastics
- Strong Sericite-Pyrite Zone, Shale Lens

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

SELINA GRID

LINE 144N. PROFILE

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	July,'85
REVISIONS	
FILE NO.	038
FIG	39

039

TURAM EM

PHASE SHIFT
FIELD STRENGTH

Frequency: 800 Hz

4° 2° 0 -2° -4° -6°
1·05 1·00 0·95

300mW 100mW 00 100mE

HORIZONTAL LOOP EM

IN PHASE
OUT OF PHASE

Frequency: 1777 Hz

%
2 1 0 -1 -2 -3

300mW 200mW 100mW 00 100mE

VLF EM

DIP ANGLE
FIELD STRENGTH

degrees percent
55 50 45 40 35 30 25 20 15 10 5
160 150 140 130 120 110 100 90 80 70 60

msec ohm m
300mW 200mW 100mW 00 100mE

GRADIENT ARRAY I.P.

CHARGEABILITY
RESISTIVITY

40 30 20 10 0
10000 5000 2000 1000

1000'W 500'W 00 500'E

GROUND MAGNETICS

Gammas
62 720 62 700 62 680 62 660 62 640 62 620 62 600 62 580 62 560 62 540 62 520 62 500

1000'W 500'W 00 500'E

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm
250 200 150 100 50 0

1000'W 500'W 00

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

700mRL 650mRL 600mRL 550mRL 500mRL

Creek Creek

RE I

Henry - Red Hills Road

GLACIAL DEPOSITS

Henry Fe Mn Dp

FELSIC VOLCANICS - MAFIC INTRUSIVES SEQUENCE
mainly reworked
mostly core loss

FELSIC WELDED IGNIMBRITE
Felsic mafic clasts
weakly altered

Minor Veins
Qtz ± Cp

Contact

MIXED SEQUENCE - MAFIC INTERMEDIATE INTRUSIVES & FELSIC PORPHYRITIC LAVAS
mainly weakly altered
intrusives calcareous

MIXED SEQUENCE - FELSIC INTERMEDIATE INTRUSIVES & MAFIC - INTERMEDIATE INTRUSIVES
mainly Qtz - Py veins
most at 45° to core axis direction

MIXED SEQUENCE - MAFIC - INTERMEDIATE INTRUSIVES & FELSIC PORPHYRITIC LAVAS
mainly felsic dikes/veins intrusives

MIXED SEQUENCE - MAFIC - INTERMEDIATE INTRUSIVES & EPICLASTICS
mainly altered

DIP PROFILE

LEGEND

Bedding (or contact) angle
Foliation angle

282°AMG
45° DIP

PLAN

RE I
5365 600mN
602 60mE

5365 400mN
602 80mE

113598

85-2459

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 – TYNDALL PROJECT

READ EAST 039

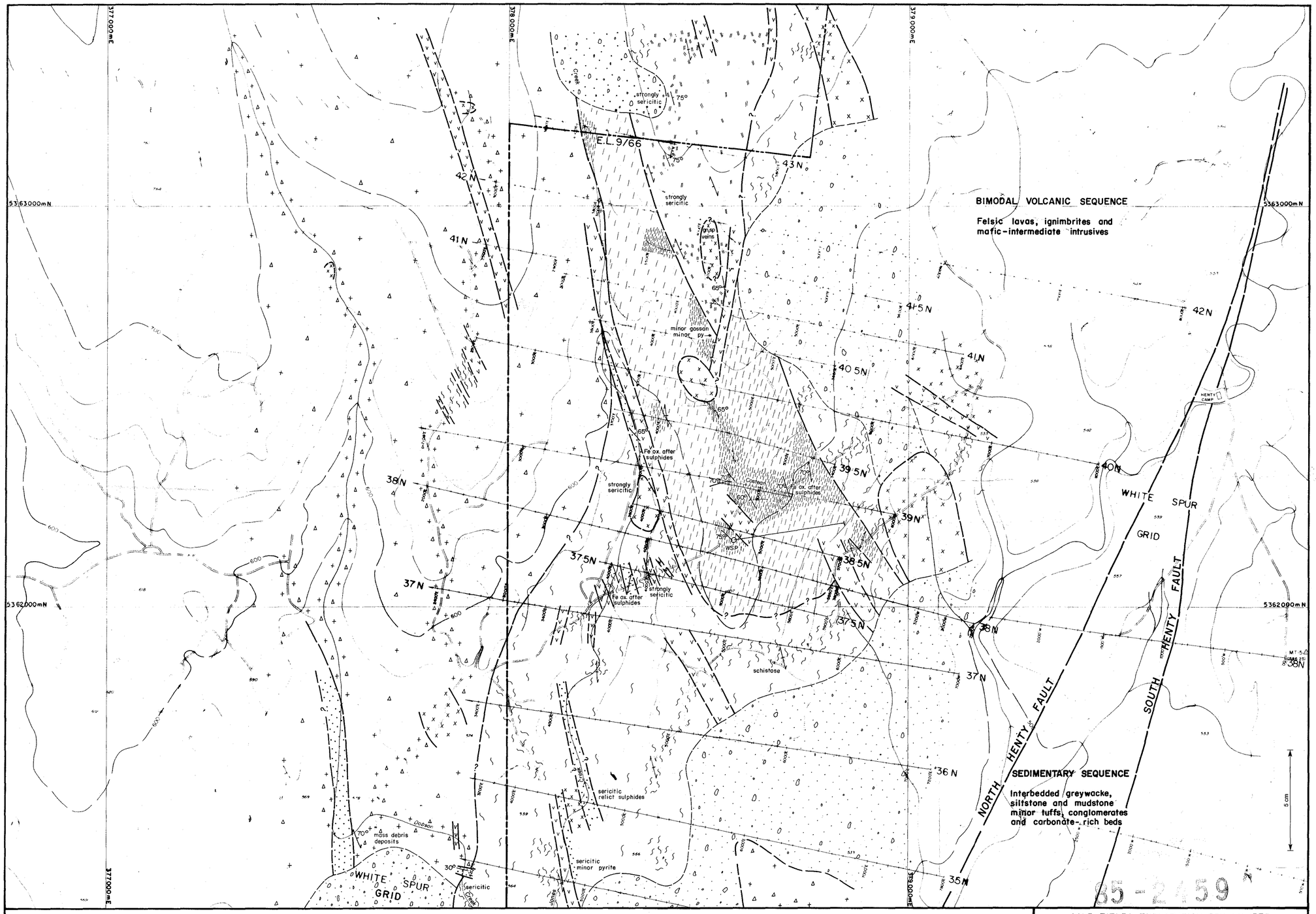
DRILLING PROFILE LINE 55S.

D.D.H. RE I

DRAWN BY : F.F.
DRAFTSMAN : T.G.D.S.
DATE : June '85
REVISIONS :
FILE NO.

SCALE 1:1000 20 10 0 20 40 METRES

FIG. 40



GEOLOGICAL LEGEND

GLACIAL DEPOSITS : Unconsolidated mostly thin veneer (<10m.)

BASIC VOLCANICS Either fine grained basaltic and possible lava flows or coarser grained dolerific dykes Typically unaltered, strongly magnetic.

SUB-VOLCANIC INTRUSIVES : (quartz porphyry, dacites ?) Small felsic-intermediate bodies, virtually unaltered and unmineralised

SCHISTS: Possibly after epiclastic and/or fine grained pyroclastic lithologies. Completely detextured, quartz-sericite schists, minor disseminated sulphide min.

EPICLASTIC ROCKS Predominantly finer grained grey shales and tuffaceous siltstones, minor interbedded coarser crystal tuffs - sandstones. Often finely laminated even cross-bedded, also massive, usually cleaved Variable alteration, locally intense quartz - sericite ± chlorite

PYROCLASTIC VOLCANICS (predominantly ignimbritic rocks) Variable fine to coarse grained, sometimes lithic, often welded and massive or foliated. Variable alteration, locally moderate to strong sericitic ± chlorite, often quite cleaved. Minor disseminated and veinlet sulphide mineralisation.

ASHY PYROCLASTICS - Inferred air-fault pyroclastics Often fine-grained vitric deposits, massive or finely layered occasional coarser lithic layers. Variable alteration mostly weak pervasive sericite, mostly unmin

FELSIC LAVA BRECCIAS - Massive pyroclastics Striking pink and dark green blotchy, massive hard outcrops Much disruption of initial lava into blocks within vitric (?) matrix Typically weakly altered and unmineralized

FELSIC LAVAS Massive, rhyolitic, sometimes flow-banded dome-like features, aphanitic, slightly porphyritic Typically weakly altered and unmineralised

70° Bedding - strike and dip

Cleavage and/or prominent foliation within pyroclastic lithologies

Banding - prominent primary volcanic lineation

13599

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

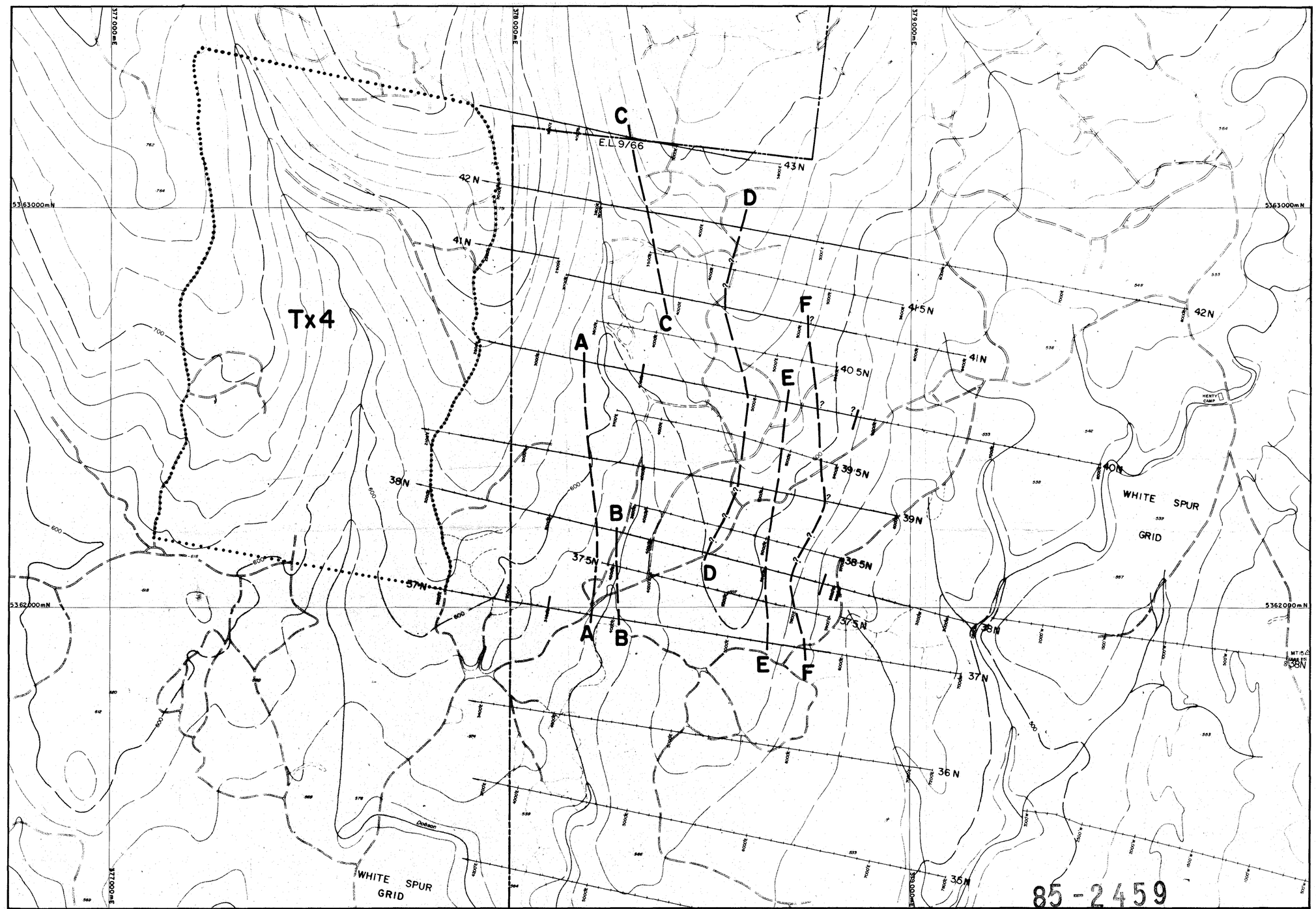
WHITE SPUR 040

GEOLOGICAL INTERPRETATION

DRAWN BY	F.G.F.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	

SCALE 1:5000 100 50 0 100 200 METRES

FIG 41


377000mE
378000mE
379000mE
5363000mN
5362000mN
Tx4
C
E.L. 9/66
43N
42N
41N
40N
39N
38N
37N
36N
D
C
F
A
E
B
D
A
B
E
F
40.5N
39.5N
38.5N
37.5N
41.5N
HENTY CAMP
WHITE SPUR GRID
WHITE SPUR GRID
Dobson
MT 15.0 Gold Rd 3.8N
700
600
500
400
300
200
100
85-2459
LEGEND
SURVEY BY : LAMONTAGNE GEOPHYSICS
DATE : FEB.1985
UTEM COVERAGE
Possible Utem response
Single line Anomaly
B
113600
5 cm
GOLD FIELDS EXPLORATION PTY. LIMITED
E.L. 9/66 - WHITE SPUR
UTEM INTERPRETATION
041
REF-GF/MG85/06
DRAWN BY : J.B.
DRAFTSMAN : S.F.
DATE : May,85
REVISIONS
FILE NO.
SCALE 1:5000
100 50 0 100 200
METRES
FIG. 42

5362000mN

5358000mN

5354000mN

375000mE

380000mE

E.L.9/66

E.L.9/66

NORTHERN HENTY FAULT

DUNDAS GROUP (?) SEDIMENTS greywackes, shales, intermediate - basic volcanics

HENTY FAULT ZONE

MASSIVE ANDESITIC LAVAS, IGNIMBRITES AND MINOR SEDIMENTARY LENSES

CENTRAL ANDESITIC PORPHYRY ZONE

felsic lavas & agglomerates

GREAT LYELL FAULT

TYDALL GROUP ?

WESTERN SEQUENCE sediments & ignimbrites

HF28/

Tyndall Mine
(Cu, Pb, Zn, Ag)

Zinc Anomaly

Rio Tinto Gossan

Bedded Massive Sulphide

Southern Sulphide Zone

Bradshaw's Road Pyrite Zone

Leech Hill Pyrite Zone

HA8 HA7 HA3 HA6 HA4 HA2 HA5

TYN1 TYN2

BL1 BL2 BL3 BL4 BL5 BL801 BL802

Lake Julia

Lake Tyndall

Basin Lake

Power Line

Howards Road

Henty River

Bradshaw's Road

limit of thick glacial cover

LEGEND

QUATERNARY

Thick Glacial Cover (approx. >20m.)

UPPER CAMBRIAN – LOWER ORDOVICIAN

Owen Conglomerate
including Newton Creek Sandstone Member

CAMBRIAN (MT. READ VOLCANICS)
Key Zones

Tyndall Group
felsic lavas, agglomerates & tuffs

Silver Zone:
hematite-carbonate (±Ag Central Howards area) sediments & pyroclastics
shallow sub aqueous oxidizing environment

Sulphide Zone
bedded sulphides in altered pyritic tuffaceous sediments
deeper sub aqueous reducing environment

Principal shale lenses within main Sulphide Zone

Gradient Array Chargeability Anomalies (Bishop, 1982)
30m sec contour except No. 5 Basin Lake (20m sec)

Principal Fault

Diamond Drill Hole

5 cm

113601

85 - [illegible]

Geology modified after Komyshan 1982

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HOWARDS ANOMALY-
BASIN LAKE AREAS

INTERPRETATIVE GEOLOGY

042

REVISIONS

SCALE 1:20000	DRAWN BY F.G.F.
DATE MAY 1983	DRAFTSMAN T.G.D.S.

FIG. 43

043

GROUND MAGNETICS

Gammas

63000
62800
62600
62400

5500'E 6000'E 6500'E 7000'E

GRADIENT ARRAY I.P.

CHARGEABILITY (msec)
RESISTIVITY (ohm m)

40
30
20
10
0

10000
5000
2000
1000

5500'E 6000'E 6500'E 7000'E

DIPOLE - DIPOLE I.P.

Note: Profile Scale V:H = 1:2

CHARGEABILITY mV/V

N=1 N=2 N=3 N=4

5500'E 6000'E 6500'E 7000'E

RESISTIVITY Ωm

N=1 N=2 N=3 N=4

5500'E 6000'E 6500'E 7000'E

GENIE E.M.

x——x 315 Hz
·——· 995 Hz

%

12 11 10 9 8 7 6 5 4 3 2 1 0

5500'E 6000'E 6500'E 7000'E

SOIL GEOCHEMISTRY

Cu
Pb
Zn

ppm

100 80 60 40 20 0

Soil Horizon: G C C C C C N/S C N/S A A A A A A A A A A A A A A A A A A A A

5500'E 6000'E 6500'E 7000'E

TOPOGRAPHY & GEOLOGY

HEIGHT ABOVE SEA LEVEL

500m R.L.
450m R.L.
400m R.L.
350m R.L.
300m R.L.

Creek

BL 5
-51°

40mN

Qs Qg Glacials

Hornblende Andesite intrusive
chl.-calc-epidote

Siltstone
Andesite Lava
Black Shale calc.
Andesite Breccia calc. cement
Black Shale calc.
Andesitic Tuff str. calc.
Black Shale calc.

2-4% py
100m
3-5% py typ
5% py typ

Andesite Lava
brecciated (pheratic?)
minor epidiomatic lenses
calc. breccia fill

200m

Black Shale - Siltstone str. calc.
Andesitic Tuff
Shale Siltstone

5-10% py
pyritic schist up to 20% py

1·8m at 340ppm Cu
157 ppm Pb
615 ppm Zn
3·5ppm Ag
<0·01 ppm Au

Conglomeratic Epiclastic (Dacite fissure)
chl.-hem.-calc.

Andesite Lava
(partly reworked)
chl.-hem.-calc. veins

Mixed Epiclastics
calc & hem.-chl.-ser.

Porphyritic Andesite

Mixed Epiclastics
str. ser.

Quartz-Pyritic Lode

1·2% py locally 10% in cement

300m

up to 10% py

6m at 75ppm Cu
615ppm Pb
1720ppm Zn
0·8ppm Ag
0·01ppm Au

5-15% py

348.5m

On Section

380,600mE
5,353,700mN

75° AMG
51° DIP

PLAN

DIP PROFILE

LEGEND

Bedding angle
Foliation angle
Fault (prominent)

ALTERATION TYPE

calc. Calcareous
chl. Chloritic
hem. Hematitic
ser. Sericitic
sil. Siliceous

113602

85-2459

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 – TYNDALL PROJECT

043

BASIN LAKE GRID

DRILLING PROFILE LINE 36S.

D.D.H. BL 5

DRAWN BY : F.F.
DRAFTSMAN : T.G.D.S.
DATE : June '85
REVISIONS :
FILE NO.

SCALE 1:1000 — 20 10 0 20 40 METRES

FIG. 44

044

80 81 82 83 84 85

54 53 52 51 50

E.L. 9/66

15763 Au (5)
5,2,5 <0.01
Cu 15, Zn 23 %
15764
2,3 (001)
Cu 15, Zn 0.36%

15761 Au (0)
5,1,4 (0.01)
Cu 15, Zn 0.27%

DATA SOURCE

Samples with prefix 27- from Henty-Yolande Survey, Komyshan 1981-83.
Samples with prefix 12-, 13-, 15- from Poltock 1984-85.

LEGEND

/ minus 80 mesh stream sediment
• Pan concentrated stream sediment
Au(n) n is the number of gold colours (grains) counted in the panned sample
- Element not determined

Assays given in ppm unless otherwise shown :

	15725 Au(0)	Sample No. no gold colours
example,	16, 34, 12, 0·06	Cu, Pb, Zn, Au
	16, <5, 6, 0·96%	Ag, As, W, Fe

NOTE 1. Gold assays in panned samples are corrected for concentration factor, other elements are not corrected.
2. All elements assayed by AAS.
3. Samples with prefix 12, 13, 15 all assayed for Sb, Te and Tl and all results <1 ppm.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

GEIKIE

113603

Photography - Lands Department Nhill etc.
South West Prom. 1 Feb.
Photogrammetry Associated Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre intervals of the Australian Map Grid Zone 55.
Grid Values are Shown in Full Only at the South West Corner of the Map.
Horizontal Datum - Australian Geodetic Datum 1966
Vertical Datum - Australian Height Datum-Tasmanian
Transverse Mercator Projection

GE 23376

100 0 100 200 300 400 500
Metres

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

E.L. 9/66 - TYNDALL PROJECT
GEIKIE SHEET 044
STREAM SEDIMENT GEOCHEMISTRY

SCALE 1:5000 DRAWN BY RP
DATE 17th MARCH 1980, JULY 85 DRAFTSMAN M.D.J., E.V.

REVISIONS

FIG.45

380000mE 81 82 83 84 85
5050000mN

045

E.L. 9/66

RIVER

HENTY

LANGDON

RASTA LAKE

28938 <10,10,10,-
28939 <10,10,10,-
28937 <10,10,10,-
28936 <10,10,10,-
28935 <10,10,20,-
28934 <10,10,30,-
28933 <10,10,10,-

5,2,6,0.01
(0.1,15,2,0.4%
Au(0) 15765

15766
4,3,3,0.01
(0.1,15,24,0.44%

2.2.5.30? Fraction #

DATA SOURCE

Samples with prefix 27- from Henty-Yolande Survey, Komyshan 1981-83.
Samples with prefix 12-, 13-, 15- from Poltock 1984-85.

LEGEND

/ minus 80 mesh stream sediment
• Pan concentrated stream sediment
Au(n) n is the number of gold colours (grains) counted in the panned sample
- Element not determined

Assays given in ppm unless otherwise shown :

	15725	Au(0)	Sample No. no gold colours
example,	16, 34, 12, 0·06		Cu, Pb, Zn, Au
	16, 15, 6, 0·96%		Ag, As, W, Fe

NOTE 1. Gold assays in panned samples are corrected for concentration factor, other elements are not corrected.
2. All elements assayed by AAS.
3. Samples with prefix 12-,13-,15- all assayed for Sb, Te and Tl and all results <1 ppm.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

LANGDON

GN
MN
GRID CONVERGENCE 1.1°
GRID MAGNETIC ANGLE 12°

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Values current for 1985. Annual change in G.D. Grivel's Station

5 cm

113604

Photography Lands Department 1978-81
South West Project F617
Photogrammetry Associated Aerial Surveys Pty. Ltd. 1985

Grid Lines are 1000 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map.
Horizontal Datum Australian Geodetic Datum 1966
Vertical Datum Australian Height Datum Tasmania
Transverse Mercator Projection

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

E.L. 9/66 - TYNDALL PROJECT
LANGDON SHEET 045

STREAM SEDIMENT GEOCHEMISTRY

REVISIONS

SCALE 1:5000 DRAWN BY R.P.
DATE 17th MARCH 1980/JULY 85 DRAFTSMAN H.D.F./E.V.

FIG. 46

5350000mN 375000mE

046

E.L. 9/66

LAKE MARGARET

ZEEHAN HIGHWAY

LANDSDOWN RIVER

YOLANDE RIVER

Margaret Creek

Pipeline

Leader Creek

Creek

Creek

047

80 81 82 83 84 85

50 49 48 47 46

LAKE MARGARET

E.L. 9/66

E.L. 9/66

0.2,45,0.01
Cu 15,2,>10%
1 • 15725 Au(0)
15758
10,23,88,0.01
Cu 15,2,1.67%

23391 NE

2,148,64,0.01
Cu 8,12,4.03%
Au(8) 15708

5,15,5,0.01
Cu 15,12,0.52%
15705 Au (3) NE

15706
25,52,52,0.01
Cu 5,12,1.39%

15704
2,34,11,0.01
Cu 5,6,1.06%

15,44,90,0.01
Cu 13,12,1.22%
13904 Au(1)
15905 NW
52,62,178,0.01
Cu 15,8,4.47%

16,88,38,0.01
Cu 20,4,1.88%
13901
Au(1) 15906
15,87,26,0.01
Cu 13,12,2.95%

6,21,8,0.01
Cu 6,9,1.53%
Au(1) 15701
15702
8,41,12,0.01
Cu 10,8,1.09%

22,50,52,0.01
Cu 15,12,1.45%
13908 Au(1)
13909
49,46,24,0.01
Cu 10,8,2.21%

19,32,28,0.01
Cu 15,12,1.75%
Au (1) 13902
13903
22,62,52,0.01
Cu 20,12,2.04%

23391 Feature No
– 23406

DATA SOURCE

Samples with prefix 27- from Henty-Yolande Survey, Komyshan 1981-83.
Samples with prefix 12-, 13-, 15- from Pollock 1984-85.

LEGEND

/ minus 80 mesh stream sediment
• Pan concentrated stream sediment
Au(n) n is the number of gold colours (grains) counted in the panned sample
- Element not determined

Assays given in ppm unless otherwise shown :

example, 15725 Au(0) — Sample No. — no gold colours
16, 34, 12, 0.06 — Cu, Pb, Zn, Au
16, 15, 6, 0.96% — Ag, As, W, Fe

NOTE 1. Gold assays in panned samples are corrected for concentration factor, other elements are not corrected.
2. All elements assayed by AAS.
3. Samples with prefix 12,13, 15 all assayed for Sb, Te and Tl and all results <1 ppm.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT Depth metres
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

Longdon	Jethe	Spicer
Yolande	MARGARET	Beatrice
Diamond	Mine	Lyell

5 cm

Photographs : Lands Department Norwich
South West Flight Feb'85
Photogrammetry : Aboriginal Aerial Surveys Pty. Ltd. 1985

113606

Grid Lines are 100 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map.
Horizontal Datum : Australian Geodetic Datum 1966
Vertical Datum : Australian Height Datum Tasmanian Transverse Mercator Projection

23391 – 405

100 0 100 200 300 400 500
Metres

85 - 2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD

E.L. 9/66 – TYNDALL PROJECT

MARGARET SHEET 047

STREAM SEDIMENT GEOCHEMISTRY

REVISIONS

SCALE 1: 5000 — DRAWN BY RP
DATE 17th MARCH 1980, JULY 85 — DRAFTSMAN H.D.J., E.V.

FIG. 48

7346000mN
380000mE

048

M.L. 30M/80

E.L. 9/66

E.L. 9/66

M.L. 30M/80

23407 - 23465 Cells Rotorua NC

DATA SOURCE

Samples with prefix 27- from Henty-Yolande Survey, Komyshon 1981-83.
Samples with prefix 12-, 13-, 15- from Pollock 1984-85.

LEGEND

/ minus 80 mesh stream sediment
• Pan concentrated stream sediment
Au(n) n is the number of gold colours (grains) counted in the panned sample
- Element not determined

Assays given in ppm unless otherwise shown :

example, 15725 Au(1) Sample No. no gold colours
16, 34, 12, 006 Cu, Pb, Zn, Au
16, (5, 6, 0·96% Ag, As, W, Fe

NOTE 1. Gold assays in panned samples are corrected for concentration factor, other elements are not corrected.
2. All elements assayed by AAS.
3. Samples with prefix 12, 13, 15 all assayed for Sb, Te and Tl and all results <1 ppm.

5 cm

SHEET INDEX

YOLANDE	MARGARET	BEATRICE
DAMORO	MINE	LYELL
AIRPORT	TOWNSHIP	PRINCESS

23407 - 23465

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic North is where a compass lies. Annual change is 0.0° 0.0 mrad Easterly

113607

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 9/66 - TYNDALL PROJECT
MINE SHEET 048
STREAM SEDIMENT GEOCHEMISTRY

DRAWN BY R.P.
DRAFTSMAN E.V.
DATE JULY 85
REVISIONS
FILE NO.

SCALE 1:5000 (100 50 0 100 200 300 METRES)

FIG 49

049

23466 – 23478

23470 Fe2+ in GS

DATA SOURCE

Samples with prefix 27- from Henty-Yolande Survey, Komyshan 1981-83.
Samples with prefix 12-, 13-, 15- from Pollock 1984-85.

LEGEND

/ minus 80 mesh stream sediment
• Pan concentrated stream sediment
Au(n) n is the number of gold colours (grains) counted in the panned sample
- Element not determined

Assays given in ppm unless otherwise shown :

	15725	Au(O)	Sample No. no gold colours
example,	16, 34, 12, 0·06		Cu, Pb, Zn, Au
	16, 15, 6, 0·96%		Ag, As, W, Fe

NOTE 1. Gold assays in panned samples are corrected for concentration factor, other elements are not corrected.
2. All elements assayed by AAS.
3. Samples with prefix 12, 13, 15 all assayed for Sb, Te and Tl and all results <1ppm.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY, TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER, CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN, TRENCH
- ADIT
- SHAFT (Depth metre)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

YOLANDE	MARGARET	
DIAMOND	MINE	
AIRPORT	TOWNSHIP	

5 cm

113608

Photography Lands Department 1979-80
South West Project P617
Photogrammetry Associated Aerial Surveys Pty Ltd 1980

Grid Lines are 1000 Metre intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map
Horizontal Datum Australian Geodetic Datum 1966
Vertical Datum Australian Height Datum Tasmania
Transverse Mercator Projection

23466 – 78

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

E.L. 9/66 – TYNDALL PROJECT

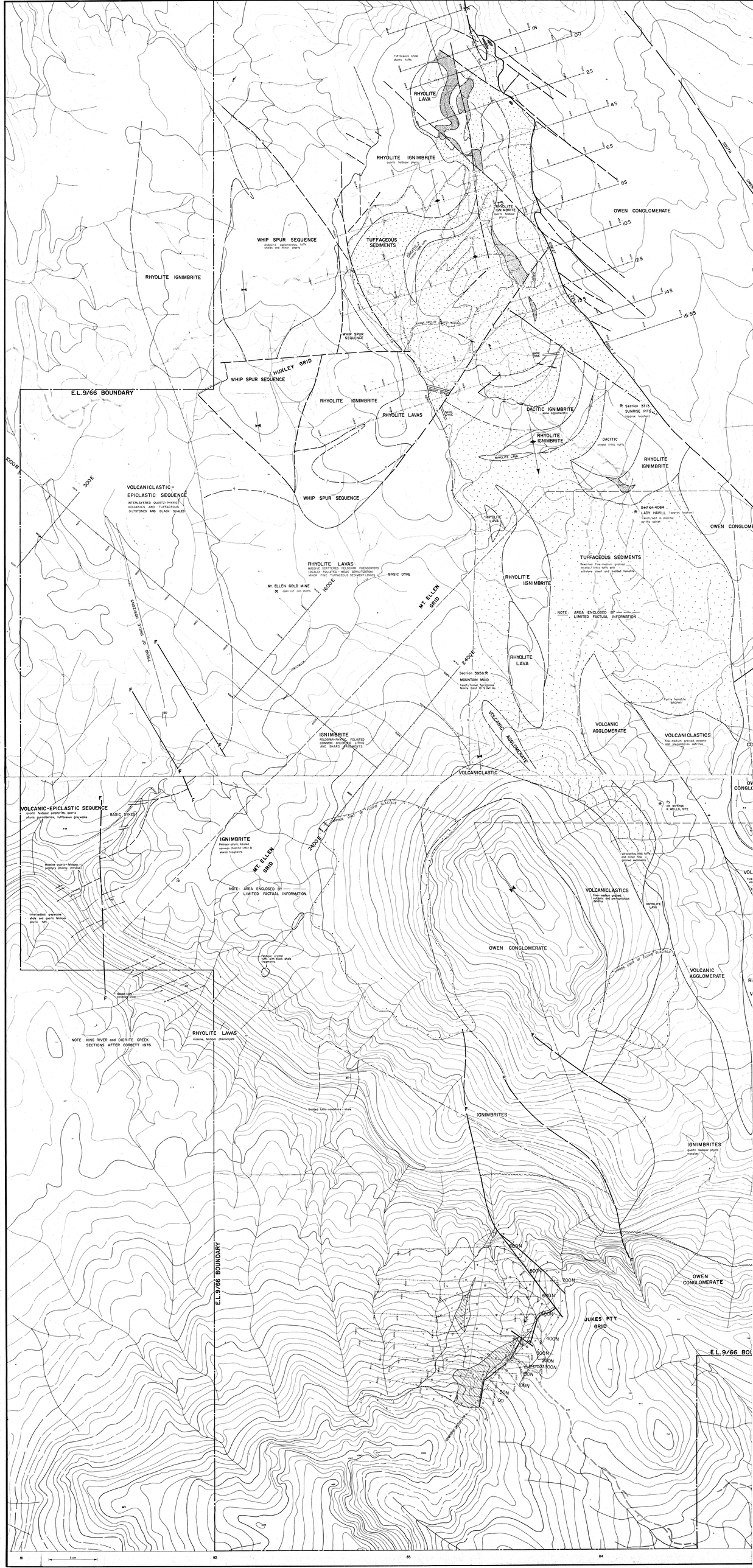
DIAMOND SHEET 049

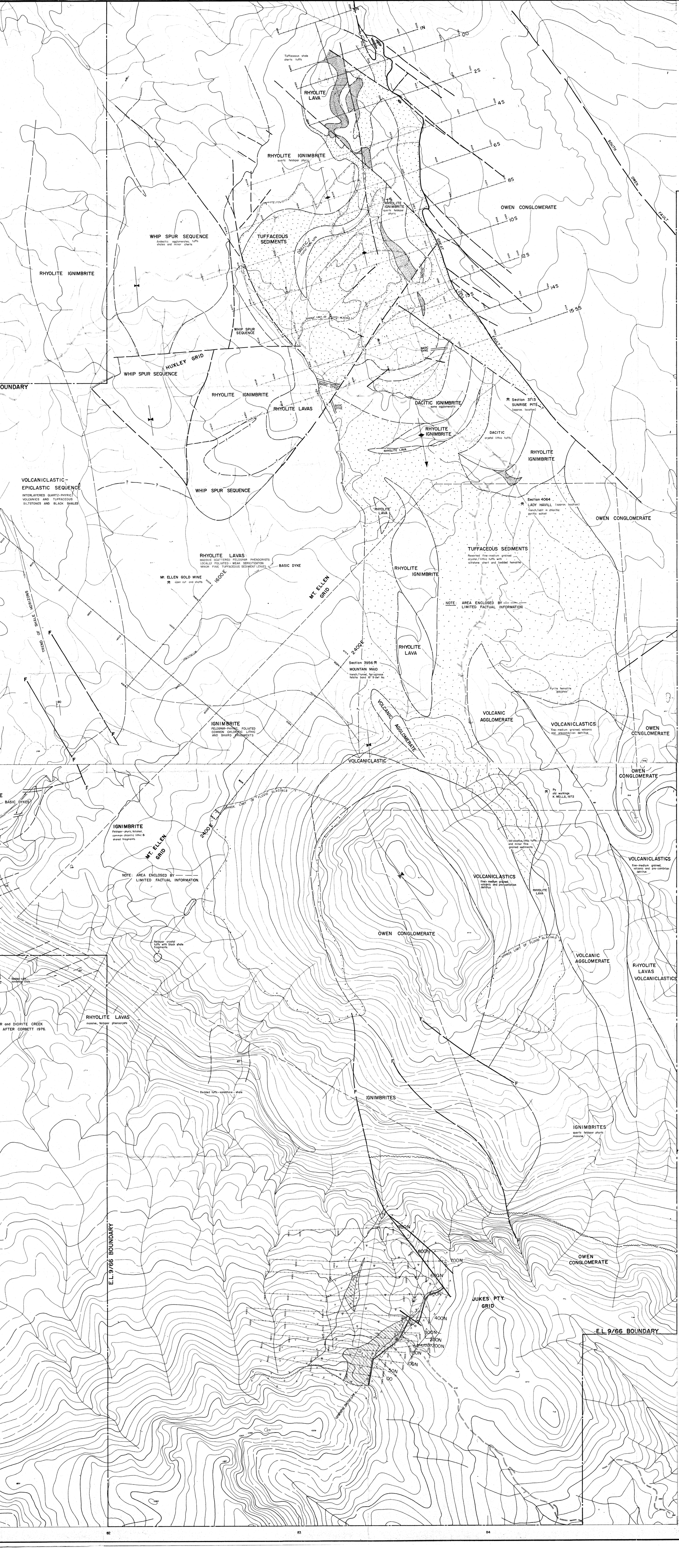
STREAM SEDIMENT GEOCHEMISTRY

SCALE 1:5000 DRAWN BY R.P.
DATE 17th MARCH 1980 JULY 85 DRAFTSMAN M.D.J. E.V.

REVISIONS

FIG. 50


RHYOLITE LAVA
RHYOLITE IGNIMBRITE
quartz feldspar phyric
OWEN CONGLOMERATE
WHIP SPUR SEQUENCE
Andesitic agglomerates, tuffs, shales and minor cherts
TUFFACEOUS SEDIMENTS
DACITIC IGNIMBRITE
some agglomerate
RHYOLITE IGNIMBRITE
HUXLEY GRID
WHIP SPUR SEQUENCE
E.L.9/66 BOUNDARY
RHYOLITE IGNIMBRITE
RHYOLITE LAVAS
BASIC DYKE
DACITIC IGNIMBRITE
some agglomerate
Section 3715
SUNRISE PITS
(approx location)
RHYOLITE IGNIMBRITE
DACITIC
crystal lithic tuffs
RHYOLITE LAVA
RHYOLITE IGNIMBRITE
VOLCANICLASTIC-
EPICLASTIC SEQUENCE
INTERLAYERED QUARTZ-PHYRIC VOLCANICS AND TUFFACEOUS SILTSTONES AND BLACK SHALES
WHIP SPUR SEQUENCE
RHYOLITE LAVA
Section 4064
LADY HAVILL (approx location)
bench/adit in chlorite-pyritic schist
OWEN CONGLOMERATE
RHYOLITE LAVAS
MASSIVE SCATTERED FELDSPAR PHENOCRYSTS
LOCALLY FOLIATED - WEAK SERICITIZATION
MINOR FINE TUFFACEOUS SEDIMENT LENSES
BASIC DYKE
TUFFACEOUS SEDIMENTS
Reworked fine-medium grained crystal / lithic tuffs with siltstone chert and bedded hematite
MT. ELLEN GOLD MINE
open cut and shafts
MT. ELLEN GRID
RHYOLITE IGNIMBRITE
NOTE: AREA ENCLOSED BY ——— LIMITED FACTUAL INFORMATION
RHYOLITE LAVA
Section 3956
MOUNTAIN MAID
trench/convex ferruginous hematite band 10' to 5m thick
Pyrite hematite BRECCIA
VOLCANIC AGGLOMERATE
VOLCANICLASTICS
fine-medium grained, volcanic and precambrian detritus
IGNIMBRITE
FELDSPAR-PHYRIC, FOLIATED COMMON CHLORITIC LITHIC AND SHARD FRAGMENTS
VOLCANICLASTIC
VOLCANIC-EPICLASTIC SEQUENCE
quartz feldspar porphyries, quartz phyric arenaceous, tuffaceous greywacke
BASIC DYKES
IGNIMBRITE
Feldspar-phyric foliated common chloritic lithic & shard fragments
MT. ELLEN GRID
NOTE: AREA ENCLOSED BY ——— LIMITED FACTUAL INFORMATION
Py old workings K. WELLS, 1972
Massive quarts-feldspar porphyry (shallow intrusive)
Interbedded greywacke shale and quartz feldspar phyric tuff
Feldspar crystal tuffs, some black shale fragments
Dipping into drilling core
NOTE: KING RIVER and DIGRITE CREEK SECTIONS AFTER CORBETT 1976.
RHYOLITE LAVAS
massive, feldspar phenocrysts
Bedded tuffs-sandstone-shale
IGNIMBRITES
IGNIMBRITES
quartz feldspar phyric massive
OWEN CONGLOMERATE
JUKES PTY. GRID
E.L.9/66 BOUNDARY
E.L.9/66 BOU
VOLCANIC AGGLOMERATE
RHYOLITE LAVA
Vol-clastics, lithic tuffs, and minor fine to medium sediments
VOLCANICLASTICS
fine-medium grained, volcanic and precambrian detritus
OWEN CONGLOMERATE
VOLCANIC AGGLOMERATE
300E
1600E
2400E
3200E
4000N
3600N
3200N
2800N
2400N
2000N
1600N
1200N
800N
400N
0N


050
RHYOLITE LAVA
RHYOLITE IGNIMBRITE
quartz feldspar phyric
OWEN CONGLOMERATE
SOUTH OWEN FAULT
WHIP SPUR SEQUENCE
Andesitic agglomerates, tuffs, shales and minor cherts
TUFFACEOUS SEDIMENTS
RHYOLITE IGNIMBRITE
HUXLEY GRID
WHIP SPUR SEQUENCE
RHYOLITE IGNIMBRITE
RHYOLITE LAVAS
DACITIC IGNIMBRITE
some replacements
Section 3713
SUNRISE PITS
(approx location)
RHYOLITE IGNIMBRITE
DACITIC
crystal lithic tuffs
RHYOLITE IGNIMBRITE
VOLCANICLASTIC-
EPICLASTIC SEQUENCE
INTERLAYERED QUARTZ-PHYRIC VOLCANICS AND TUFFACEOUS SILTSTONES AND BLACK SHALES
WHIP SPUR SEQUENCE
Section 4064
LADY HAVILL (approx location)
trench/adit in chloritic pyritic schist
OWEN CONGLOMERATE
RHYOLITE LAVAS
MASSIVE SCATTERED FELDSPAR PHENOCRYSTS LOCALLY FOLIATED - WEAK SERICITIZATION MINOR FINE TUFFACEOUS SEDIMENTARY LENSES
BASIC DYKE
TUFFACEOUS SEDIMENTS
Reworked fine-medium grained crystal/lithic tuffs with siltstone chert and bedded hematite
RHYOLITE IGNIMBRITE
Mt. ELLEN GOLD MINE
open cut and shafts
IGLOOLE
MT. ELLEN GRID
NOTE AREA ENCLOSED BY ——— LIMITED FACTUAL INFORMATION
RHYOLITE LAVA
Section 3956
MOUNTAIN MAID
trench/tunnel, ferruginous felsite bold at 9 bel Au
VOLCANIC AGGLOMERATE
VOLCANICLASTICS
Fine-medium grained, volcanic and pre-cambrian detritus
OWEN CONGLOMERATE
IGNIMBRITE
FELDSPAR-PHYRIC, FOLIATED COMMON CHLORITIC LITHIC AND SHARD FRAGMENTS
VOLCANICLASTIC
OWEN CONGLOMERATE
BASIC DYKES
IGNIMBRITE
Feldspar-phyric, foliated, common chloritic lithic & shard fragments
MT. ELLEN GRID
NOTE: AREA ENCLOSED BY ——— LIMITED FACTUAL INFORMATION
VOLCANICLASTICS
Fine-medium grained, volcanic and pre-cambrian detritus
RHYOLITE LAVA
OWEN CONGLOMERATE
VOLCANIC AGGLOMERATE
RHYOLITE LAVAS VOLCANICLASTICS
Feldspar crystal tuffs with black shale fragments
Bedded tuffs - sandstone - shale
RHYOLITE LAVAS
massive, feldspar phenocrysts
IGNIMBRITES
IGNIMBRITES
quartz feldspar phyric massive
E.L. 9/66 BOUNDARY
JUKES PTY. GRID
OWEN CONGLOMERATE
E.L. 9/66 BOUNDARY
600N
500N
400N
300N
200N
100N
0
JUKES PTY LEGEND
Owen Conglomerate
MT. READ VOLCANICS
Weakly sericitic + chloritic subbrecciated lava with minor pyroclastics
Intensely chloritised and mineralised volcaniclastics
Strongly hematitic-silicic-chloritic brecciated lavas with minor volcaniclastics
Moderately hematitic-silicic-chloritic brecciated lavas with minor volcaniclastics
Sericitic and chloritic lava with minor volcaniclastics
Intrusive quartz porphyry
Unconformity
Fault
Contact
LEGEND
Geological boundary
Interpreted geological boundary
Fault
Unconformity
Bedding
0-30°
30-60°
>60°
Folds
Syncline
Anticline
Plunge
Alteration
Pyritic sericite/chlorite
Hematite sericite
SEALED ROAD BRIDGE
VEHICULAR TRACK
LOGGING TRACK BULLDOZER SCAR
WALKING TRACK
RAILWAY TRAMWAY ABANDONED
PROMINENT PEAK
TRIG STATION
BENCH MARK
SPOT ELEVATIONS
RIVER CREEK
LAKE
SWAMP
POWER LINE & PYLONS
BUILDING
FLYING FOX
PIT
COSTEAN TRENCH
ADIT
SHAFT (Depth metres)
OPEN CUT
ALLUVIAL WORKINGS
DUMP
MAP INDEX
Photography: Lands Department 1976-81
South West Project 1:50
Photogrammetry: Aerosurvey Aerial Surveys Pty Ltd. 1981
Grid Lines are 1000 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection
5 cm
GEOLOGICAL SOURCE: Hutton & Foster 1982
Cartwright 1984
Pollock 1984-85
GOLD FIELDS EXPLORATION PTY LIMITED
TYNDALL – E.L. 9/66
050
HUXLEY AREA
INTERPRETATIVE GEOLOGY
DRAWN BY A.J.C.
DRAFTSMAN T.G.S.
DATE July 86
REVISIONS
FILE NO.
SCALE 1:5000
METRES
FIG 51
82
83
84
85

051

E.L. 9/66 BOUNDARY

STREAM TRAVERSES OUTCROP JUST EXPOSED BENEATH MANTLE OF OWEN DERIVED FLUVIO GLACIALS.

LEGEND

FLUVIOGLACIALS

- Owen Conglomerate / quartzite detritus

ORDOVICIAN – SILURO/DEVONIAN

- Siltstones and micaceous sandstone
- Gordon Limestone
- Owen Conglomerate / sandstone

CAMBRIAN

VOLCANICLASTICS

- Medium - coarse crystal sediments varying degree leaching + quartzose pC detritus
- Fine-medium grained, crystal lithic tuffs interbedd with siltstone and chert lenses
- Shales tuffaceous, cherts.

RHYOLITIC VOLCANICS

- Massive - flowbanded, feldspar phyric lavas.
- Agglomerates blocks to 30cm.
- Ignimbrites quartz feldspar phyric, scattered lithics.

ALTERATION

- Pyritic sericite / chlorite
- Hematite sericite (Near Owen Congl. Contact)
- Rock Samples
- Stream Sediment Location
- Bedding
- Foliation

23527 – 23610 Footie No 615
23676-80

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

113610

Photography: Lands Department 1974-80
South West Project F.637
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection

23527 – 610
23678 – 80

5 cm

85 - 2459

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L. 9/66
OWEN 051
OUTCROP GEOLOGY & SAMPLE LOCATIONS

DRAWN BY: R.Pollock
DRAFTSMAN: T.G.D.S.
DATE: May '84
REVISIONS: R.Pollock June 1985
FILE NO.

SCALE 1:5000 — METRES

FIG. 52

052

E.L.9/66 BOUNDARY

E.L.9/66 BOUNDARY

LEGEND

FLUVIOGLACIALS
- Qwan Conglomerate / quartzite detritus

ORDOVICIAN – SILURO/DEVONIAN
- Siltstones and micaceous sandstone
- Gordon Limestone
- Owen Conglomerate / sandstone

CAMBRIAN

VOLCANICLASTICS
- Medium coarse grained sediments varying degree bedding + quartzites pC detritus
- Fine-medium grained, crystal tuffs, bedded with siltstone and chert lenses
- Shales tuffaceous, cherts

RHYOLITIC VOLCANICS
- Massive / flowbanded, feldspar phyric lavas
- Agglomerates blocks to 30cm
- Ignimbrites quartz feldspar phyric, weathered clinics

ALTERATION
- Pyritic sericite / chlorite
- Haematite sericite (near Owen Congl. Contact)
- Rock Sample
- Stream Sediment Location
- Bedding
- Foliation

23477-23526 - Frame No 615

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

Lynchford	Owen	Taft
Newell	HUXLEY	King
Barfield	Jukes	Digby

113611

Photography Lands Department 1979-80
South West Project F.67
Photogrammetry Associated Aerial Surveys Pty Ltd 1980

Grid Lines are 1000 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map
Horizontal Datum Australian Geodetic Datum 1966
Vertical Datum Australian Height Datum (Tasmania)
Transverse Mercator Projection

23477 - 526

5 cm

85-2439

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L. 9/66
HUXLEY 052
OUTCROP GEOLOGY & SAMPLE LOCATIONS

DRAWN BY	R.Pollock
DRAFTSMAN	T.G.D.S.
DATE	May '84
REVISIONS	R.Pollock June 1985
FILE NO.	

SCALE 1:5000 — 100 0 100 200 METRES

FIG. 53

053

80 81 82 83 84 85

38 37 36 35 34

Nadia Knob

Ridge

Spur

Creek

Samples
Stream Sediment
Rock Chip
Panned Concentrate
Order of Assays – Cu, Pb, Zn, Ag, Sn, W, Au
all in ppm
Dash indicates element not determined

113612

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD

TYNDALL – E.L. 9/66

053

OWEN

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

Drawn: A.C.
Date: May, 1984
Surveyed: S.F.

FIG. 54

5134000mN 380000mE

80 81 82 83 84 85

34 33 32 31 30

53 50 000mN 380000mE

Samples
- Stream Sediment
- × Rock Chip
- ● Panned Concentrate

Order of Assays – Cu, Pb, Zn, Ag, Sn, W, Au
all in p.p.m.

Dash indicates element not determined.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (DEPTH metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

113613

MAP INDEX

Lyndsford	Owen	Tofft
Newall	HUXLEY	King
Garfield	Jukes	Crotty

5 cm

Topography, Lands Department Maps
South West Project 1:63
Photogrammetric Aerial Survey No. 1-3 Feb

Grid Lines are 1000 Metres interval, of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum - Tasmania
Transverse Mercator Projection

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD

TYNDALL – E.L. 9/66 054

HUXLEY

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SCALE 1:5000 drawn by A.C.
DATE May, 1984 plan/trans. S.F.

FIG. 55

055

80 81 82 83 84 85

38 37 36 35

Nooty knob

Ridge

Windy

Creek

Conglomerate

Diorite

SAMPLES

- Stream Sediment
- x Rock Chip
- • Panned Concentrate

ORDER OF ASSAYS — As, Sb, Bi, Te, Tl, Ba, Fe %

NOTE: Where a dash is shown the element has not been assayed for.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZED NEAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG. STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER, REF.
- CAVE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FENCING
- PIT
- CUTTING
- ADIT
- SHAFT (DISCONTINUED)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

113614

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

TYNDALL — E.L. 9/66

Owen 055

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

Scale 1:5000

June 1985

Drawn C.P.

Checked E.V.

FIG. 56

5534000mN 380000mE

056

80 81 82 83 84 85

34 33 32 31 30

SAMPLES
- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS – As, Sb, Bi, Te, Tl, Ba, Fe%

NOTE: Where a dash is shown the element has not been assayed for.

- ROAD SEALED INCL. BRIDGE
- ROAD VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY, TRAMWAY, ABANDONED
- PROMINENT PEAK
- TRIG. STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER, CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FENCING, FOX
- PIT
- OUTCROP, TREE
- ROCK
- GRAVEL OR SAND
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

Lynchford	Owen	Tatin
Newell	HUXLEY	King
Garfield	Johns	Oatly

5 cm

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

TYNDALL – E. L. 9/66

Huxley 056

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

SCALE 1:1000 DRAWN BY C.P.

DATE June 1985 DRAWING E.V.

FIG. 57

11361S

530000mN 380000mE

057

HUXLEY GRID

MT. ELLEN GRID

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected — non-slope corrected

- ROCK CHIP SAMPLE
- SOIL SAMPLE
- STREAM SEDIMENT SAMPLE
- PORTABLE PERCUSSION SAMPLE

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- Ø--Ø POWER LINE & PYLONS
- BUILDING
- x——x FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYRCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

GRID MERIDIAN 0°

MAG MERIDIAN 11°

The true relationship between True North as shown on the Map (i.e. the Grid Meridian) and Magnetic North is correct for 1986. Annual change is 10' (Decrease).

G.I.S. GS special report - 22-581
83-1975

Photographs: Lands Department 1976-80
South West Project Field
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre Intervals of the Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum (Tasmania)
Transverse Mercator Projection

113616

100 0 100 200 300 400 500

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY AREA 057

SAMPLE NUMBER LOCATIONS

5 cm

SCALE 1:5000 — DRAWN BY C.P.

DATE July, 1985 — DRAFTSMAN H.U./S.R./E.V.

REVISIONS

FIG. 58

058

80 81 82 83 84 85

38 37 36 35 34

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

1N 1OOS 2S 4S 6S 8S 10S 12S 14S 15S 15SS 7S

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected non-slope corrected

× ROCK CHIP SAMPLE

• SOIL SAMPLE

⊁ STREAM SEDIMENT SAMPLE

° PORTABLE PERCUSSION SAMPLE

> 2 p.p.m. - Ag

> 20 p.p.m. - Ag

> 100 p.p.m. - Ag

SEALED ROAD BRIDGE

VEHICULAR TRACK

LOGGING TRACK BULLDOZER SCAR

WALKING TRACK

RAILWAY TRAMWAY ABANDONED

PROMINENT PEAK

TRIG STATION

BENCH MARK

SPOT ELEVATIONS

RIVER CREEK

LAKE

SWAMP

POWER LINE & PYLONS

BUILDING

× — × FLYING FOX

PIT

COSTEAN TRENCH

ADIT

SHAFT (Depth metres)

OPEN CUT

ALLUVIAL WORKINGS

DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Photography (Lands Department Perth)
South West Project Area
Mosaic prepared, Rectified and Reproduced by Aerial Surveys Pty. Ltd. Perth

Grid Values are Metric Values of the
Australian Map Grid Zone 50
Grid Values are Shown in Full Only at the
South West Corner of the Map.
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum-Tentative
Transverse Mercator Projection

113617

100 0 100 200 300 400 500

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD

058

HUXLEY AREA

Au GEOCHEMISTRY

SCALE 1:500 DRAWN BY

DATE DRAWING NO. 7

REVISIONS

FIG. 59

059

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected non-slope corrected

× ROCK CHIP SAMPLE

• SOIL SAMPLE

⨯ STREAM SEDIMENT SAMPLE

◦ PORTABLE PERCUSSION SAMPLE

> 2 p.p.m. - Ag

> 20 p.p.m. - Ag

> 100 p.p.m. - Ag

SEALED ROAD BRIDGE

VEHICULAR TRACK

LOGGING TRACK, BULLDOZER SCAR

WALKING TRACK

RAILWAY TRAMWAY ABANDONED

PROMINENT PEAK

TRIG STATION

BENCH MARK

SPOT ELEVATIONS

RIVER CREEK

LAKE

SWAMP

POWER LINE & PYLONS

BUILDING

X---X FLYING FOX

PIT

COSTEAN TRENCH

ADIT

SHAFT (Depth metres)

OPEN CUT

ALLUVIAL WORKINGS

DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Photographs, Lands Department (1978-9)
South West Project (1:6000)
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum (Tasmania)
Transverse Mercator Projection

113618

100 0 100 200 300 400 500

Metres

85 - 2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

059

HUXLEY AREA

Ag GEOCHEMISTRY

SCALE 1:5000 (at 1)

DRAWN BY: GRAPHICS H.O.J.

FIG. 60

060

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected — non-slope corrected

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

× ROCK CHIP SAMPLE

• SOIL SAMPLE

⚡ STREAM SEDIMENT SAMPLE

° PORTABLE PERCUSSION SAMPLE

> 100 p.p.m.

> 300 p.p.m.

> 500 p.p.m.

SEALED ROAD BRIDGE

VEHICULAR TRACK

LOGGING TRACK BULLDOZER SCAR

WALKING TRACK

RAILWAY TRAMWAY ABANDONED

PROMINENT PEAK

TRIG STATION

BENCH MARK

SPOT ELEVATIONS

RIVER CREEK

LAKE

SWAMP

POWER LINE & PYLONS

BUILDING

FLYING FOX

PIT

COSTEAN TRENCH

ADIT

SHAFT (DEPTH METRES)

OPEN CUT

ALLUVIAL WORKINGS

DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Metres

113619

85

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD

HUXLEY AREA 060

Cu GEOCHEMISTRY

DRAWN BY RK

DRAWING NO. 70385F

FIG. 61

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

1N

2S

4S

6S

8S

7S

10S

12S

14S

15S

15 55S

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected non-slope corrected

× ROCK CHIP SAMPLE

• SOIL SAMPLE

⚹ STREAM SEDIMENT SAMPLE

° PORTABLE PERCUSSION SAMPLE

> 100 p.p.m.

> 300 p.p.m.

> 500 p.p.m.

SEALED ROAD BRIDGE

VEHICULAR TRACK

LOGGING TRACK BULLDOZER SCAR

WALKING TRACK

RAILWAY TRAMWAY ABANDONED

PROMINENT PEAK

TRIG. STATION

BENCH MARK

SPOT ELEVATIONS

RIVER CREEK

LAKE

SWAMP

POWER LINE & PYLONS

BUILDING

FLYING FOX

PIT

COSTEAN TRENCH

ADIT

SHAFT (Depth metres)

OPEN CUT

ALLUVIAL WORKINGS

DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

113620

Photography: Lands Department 1979-80
South West Project 1 (SX)
Photogrammetry: Australasian Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum (Tasmania)
Transverse Mercator Projection

100 0 100 200 300 400 500

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

061

HUXLEY AREA

Pb GEOCHEMISTRY

SCALE 1: 5000

DRAWN BY

DRAWING No.

FIG 62

062

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected	non- slope corrected

× ROCK CHIP SAMPLE

• SOIL SAMPLE

⚹ STREAM SEDIMENT SAMPLE

○ PORTABLE PERCUSSION SAMPLE

□ > 100 p.p.m.

□ > 300 p.p.m.

□ > 500 p.p.m.

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT(Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Photogrammetry: Lands Department Kalgoorlie
South West Project Field
Photogrammetry Associated Aerial Surveys Pty. Ltd. 1969

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 51.
Grid Values are Shown in Full Only at the
South West Corner of the Map.
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Fremantle
Transverse Mercator Projection

113621

100 0 100 200 300 400 500

Metres

85 [illegible]

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY AREA

062

Zn GEOCHEMISTRY

SCALE 1" 5000	DRAWN BY P.K.
DATE	DRAWING No. H.D./ 8.S.F.

REVISIONS

FIG. 63

063

MT. ELLEN GRID

2400E

JUKES PTY. GRID

860N
800N
700N
600N
500N
400N
300N
250N
200N
150N
100N
50N
00

× Rock Chip
○ "Wacker" Samples
○ Soil Samples

SEALED ROAD BRIDGE
VEHICULAR TRACK
LOGGING TRACK BULLDOZER SCAR
WALKING TRACK
RAILWAY TRAMWAY ABANDONED
PROMINENT PEAK
TRIG STATION
BENCH MARK
SPOT ELEVATIONS
RIVER CREEK
LAKE
SWAMP
POWER LINE & PYLONS
BUILDING
FLYING FOX
PIT
COSTEAN TRENCH
ADIT
SHAFT(Depth metres)
OPEN CUT
ALLUVIAL WORKINGS
DUMP

MAP INDEX

Lyndsford	Deer	Tiger
Tharsis	Mt. Ellen	King
Garfield	Julius	Crotty

5 cm

Photographs - Lands Department Hobart
South West Project 1971
Photogrammetry Associated Aerial Surveys Pty. Ltd. 1968

Grid Lines are Grid Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmanian
Transverse Mercator Projection

113622

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.
TYNDALL — E.L. 9/66
063
Huxley
SAMPLE NUMBERS
SCALE 1:5000
DATE JULY 1985
DRAWN BY C.P.
DRAWN BY E.V.
REVISIONS
FIG. 64

064

MT. ELLEN GRID

2400E

860N
800N
700N
600N
500N
400N
300N
200N
100N
0
50N

JUKES PTY. GRID

× Rock Chip
∘ 'Wacker' Samples
• Soil Samples

SEALED ROAD BRIDGE
VEHICULAR TRACK
LOGGING TRACK, BULLDOZER SCAR
WALKING TRACK
RAILWAY TRAMWAY ABANDONED
PROMINENT PEAK
TRIG STATION
BENCH MARK
SPOT ELEVATIONS
RIVER CREEK
LAKE
SWAMP
POWER LINE & PYLONS
BUILDING
FLYING FOX
PIT
COSTEAN TRENCH
ADIT
SHAFT (Depth metres)
OPEN CUT
ALLUVIAL WORKINGS
DUMP

MAP INDEX

Lyndsford | Orpic | Tyrrh
Wilmah | HUXLEY | Wing
Ben Field | Jukes | Dearly

5 cm

Photography: Lands Department 1974-81
South West Project Pty Ltd
Photogrammetry: Aboucaland Aerial Surveys Pty Ltd 1982

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum (Tasmania)
Transverse Mercator Projection

113623

100 0 100 200 300 400 500
Metres

85 2439

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.
TYNDALL — E.L. 9/86

Huxley 064

Au GEOCHEMISTRY

SCALE 1:5000 DRAWN BY C.P.
DATE JULY 1985 DRAFTSMAN E.V.

REVISIONS

FIG. 65

065

MT. ELLEN GRID

2400E

860N
800N
700N
600N
500N
400N
300N
200N
100N
0N

JUKES PTY. GRID

x Rock Chip
° 'Wacker' Samples
• Soil Samples

SEALED ROAD BRIDGE
VEHICULAR TRACK
LOGGING TRACK BULLDOZER SCAR
WALKING TRACK
RAILWAY TRAMWAY ABANDONED
PROMINENT PEAK
TRIG STATION
BENCH MARK
SPOT ELEVATIONS
RIVER CREEK
LAKE
SWAMP
POWER LINE & PYLONS
BUILDING
FLYING FOX
PIT
COSTEAN TRENCH
ADIT
SHAFT (Depth metres)
OPEN CUT
ALLUVIAL WORKINGS
DUMP

MAP INDEX

Lyndsford	Gnon	Tyrrh
Raven	Huxley	King
Rat Pass	James	Crotty

5 cm

Photography: Lands Department 1978-80
South West Project 1981
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1982

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55.
Grid Values are Shown in Full Only at the
South West Corner of the Map.
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection

113624

100 0 100 200 300 400 500
Metres

85 - 2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.
TYNDALL — E L 9/66

Huxley 065

Ag GEOCHEMISTRY

SCALE 1:5000
DATE JULY 1985
DRAWN BY C.P.
DRAUGHTSMAN E.V.

FIG. 66

066

MT. ELLEN GRID

2400E

860N
800N
700N
600N
500N
400N
300N
250N
200N
150N
100N
50N
90

JUKES PTY. GRID

× Rock Chip
○ "Wacker" Samples
• Soil Samples

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT/Depth metres
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

Lyndahurst	Owen	Tyler
Stewart	HUXLEY	King
Gordon	Jukes	Chitty

5 cm

Photographs: Lands Department 1978 (b)
South West Project Test
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1980

Grid Lines are 1000 Metre intervals of the
Australian Map Grid Zone 55
Grid Values shown in full only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection

113625

100 0 100 200 300 400 500
Metres

85 - 59

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.
TYNDALL — E.L. 9/86

Huxley 066

Cu GEOCHEMISTRY

SCALE 1:5000 — Drawn by C.P.
DATE JULY 1985 — Draughtsman E.V.

FIG. 67

067

MT. ELLEN GRID

2400E

JUKES PTY. GRID

860N
800N
700N
600N
500N
400N
300N
200N
100N
0
50N

x Rock Chip
∘ "Wacker" Samples
∘ Soil Samples

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

Lyndsford	Orpa	Tyrn
Wandi	HUXLEY	King
Garfield	Jukes	Darby

5 cm

Topography: Lands Department 1974-81
South West Project 1681
Photogrametry: Associated Aerial Surveys Pty Ltd 1980

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection

113626

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.
TYNDALL — E.L. 9/66

Huxley 067

Pb GEOCHEMISTRY

SCALE 1:5000 | DRAWN BY C.P.
DATE JULY 1985 | DRAWING No. FIG. 68

068

MT. ELLEN GRID

2400E

860N
800N
700N
600N
500N
400N
300N
250N
200N
150N
100N
50N
0

JUKES PTY. GRID

× Rock Chip
○ "Wacker" Samples
• Soil Samples

SEALED ROAD BRIDGE
VEHICULAR TRACK
LOGGING TRACK BULLDOZER SCAR
WALKING TRACK
RAILWAY TRAMWAY ABANDONED
PROMINENT PEAK
TRIG STATION
BENCH MARK
SPOT ELEVATIONS
RIVER CREEK
LAKE
SWAMP
POWER LINE & PYLONS
BUILDING
FLYING FOX
PIT
COSTEAN TRENCH
ADIT
SHAFT (Depth metres)
OPEN CUT
ALLUVIAL WORKINGS
DUMP

MAP INDEX

Lyndhurst | Owen | Tetti
Rawdon | HUXLEY | King
Garfield | Judah | Crotty

5cm

Photography: Lands Department 1979-81
South West Project 1983
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1985

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum-Tasmania
Transverse Mercator Projection

113627

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

TYNDALL - EL 9/85

068

Huxley

Zn GEOCHEMISTRY

SCALE 1:1000
DATE JULY 1985
DRAWN BY C.P.
DRAWING No. E.V.

FIG. 69

069

LEGEND

HUXLEY GRID & MT. ELLEN GRID
slope corrected non-slope corrected

SURVEY DATA

Survey by : Scintrex
Date : Jan.,1985
Dipole : 50m(to n=5)
Data : Channel 6.IPR II

Resistivity anomaly
IP Coverage
Chargeability anomaly

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY, TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER, CREEK
- LAKE
- SWAMP
- ⌀-⌀ POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN, TRENCH
- ADIT
- SHAFT (Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Photographs, Lands Department 1979-80
South West Project F247
Photogrammetry Associated Aerial Surveys Pty Ltd 1980

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 55
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum Australian Geodetic Datum 1966
Vertical Datum Australian Height Datum (Tasmania)
Transverse Mercator Projection

113628

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY GRID 069

IP INTERPRETATION PLAN

Ref. GF/MG 85/07

SCALE 1:5000 | DRAWN BY J.R.B.
DATE July, 1985 | DRAWING No. M 07/75 E

FIG.70

070

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

Centreline

LEGEND

HUXLEY GRID & MT. ELLEN GRID
slope corrected — non-slope corrected

SURVEY DATA

Survey by: Scintrex
Date : Jan.1985
Dipole : 50m (to n=5)
Data : Channel 6, IPR 11

- SEALED ROAD, BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY, TRAMWAY, ABANDONED
- PROMINENT PEAK
- TRIG. STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER, CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN, TRENCH
- ADIT
- SHAFT(Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5cm

Topography: Lands Department Plans (L.
South West Project, PAST
Photogrammetry: Associated Aerial Surveys Pty. Ltd. 1981

Grid Lines are 1000 Metre intervals of the
Australian Map Grid Zone 54
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum Ellipsoid
Vertical Datum: Australian Height Datum-Tasmania
Transverse Mercator Projection

113629

100 0 100 200 300 400 500
Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY IP 070

AVERAGED CHARGEABILITIES

Values averaged after Fraser, D.C., 1981

Ref: GF/MG85/07

Scale 1:5000 — Drawn by: J.B.
Date June.85 — Drawing No. M.G.2.58

FIG. 71

071

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

LEGEND

HUXLEY GRID & MT. ELLEN GRID

slope corrected — non-slope corrected

SURVEY DATA

Survey by: Scintrex

Date : Jan., 1985

Dipole : 50m (to n=5)

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK, BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT/Depth metres
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOFFT
NEWALL	HUXLEY	KING

5 cm

Topography: Lands Department 1974-76
South West Project Field
Photogrammetry: Aerial and Aerial Surveys Pty Ltd 1980

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 50
Grid Values are Shown in Full Only at the
South West Corner of the Map
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum Tasmania
Transverse Mercator Projection

113630

100 0 100 200 300 400 500

Metres

85-2459

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY IP 071

AVERAGED RESISTIVITIES

Values averaged after Fraser, D.C., 1981

Ref.: GF/MG 85/07

SCALE: 1:5000 — DRAWN BY: AB

DATE: June, 85 — DRAWING No.: HO7-SF

REVISIONS

FIG. 72

072

HUXLEY GRID

MT. ELLEN GRID

1000N

300E

1600E

2400E

LEGEND
HUXLEY GRID & MT. ELLEN GRID
slope corrected non- slope corrected

SURVEY DATA

Survey by : Scintrex
Date : Jan.1985
Dipole : 50m(to n=5)
Data : Channel 6, IPR11

Metal Factor = $\frac{\text{Chargeability}}{\text{Resistivity}} \times 1000$

- SEALED ROAD BRIDGE
- VEHICULAR TRACK
- LOGGING TRACK BULLDOZER SCAR
- WALKING TRACK
- RAILWAY TRAMWAY ABANDONED
- PROMINENT PEAK
- TRIG. STATION
- BENCH MARK
- SPOT ELEVATIONS
- RIVER CREEK
- LAKE
- SWAMP
- POWER LINE & PYLONS
- BUILDING
- FLYING FOX
- PIT
- COSTEAN TRENCH
- ADIT
- SHAFT(Depth metres)
- OPEN CUT
- ALLUVIAL WORKINGS
- DUMP

MAP INDEX

AIRPORT	TOWNSHIP	PRINCESS
LYNCHFORD	OWEN	TOYFT
NEWALL	HUXLEY	KING

5 cm

Photographs : Lands Department 1974-80
South West Project F017
Photogrammetry : Aerial and Aerial Surveys Pty. Ltd. Perth

Grid Lines are 1000 Metre Intervals of the
Australian Map Grid Zone 50.
Grid Values are Shown in Full Only at the
South West Corner of the Map.
Horizontal Datum: Australian Geodetic Datum 1966
Vertical Datum: Australian Height Datum-Tasmania
Transverse Mercator Projection

113631

100 0 100 200 300 400 500
Metres

86-3-50

THE MOUNT LYELL MINING & RAILWAY COMPANY LTD.

HUXLEY IP 072

AVERAGED METAL FACTORS

Values averaged after Fraser, D.C., 1981

Ref.: GRMG 85/07

SCALE 1: 5000 | DRAWN BY J.B.
DATE June.85 | DRAWING No. H 0 3 5X

REVISIONS

FIG. 73

topographic profile

modelled surface

position

200 W 100 W 00 100 E 200 E 300 E

-5 -4 -3 -2 -1 0 1 2 3 4 5

electrodes

RESISTIVITY

PERCENT FREQUENCY EFFECT

METAL FACTOR
(Values to nearest whole number)

5 cm

Model : homogeneous half space with topography.

85 - 2459

Ref: GF/MG85/07

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66 073

HUXLEY GRID

IP MODELLING

Line 00

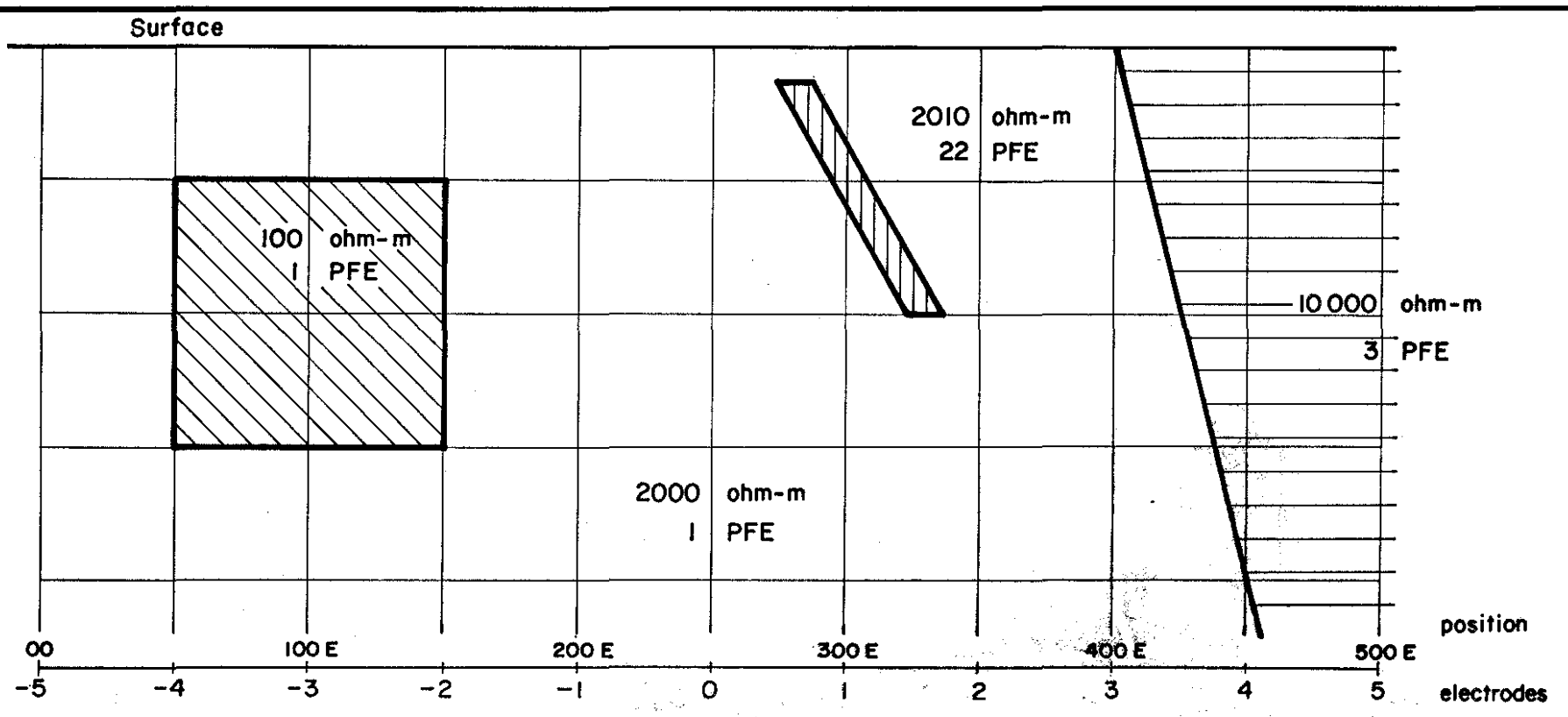
DRAWN BY : J.B.
DRAFTSMAN: T.G.D.S.
DATE : July '85
REVISIONS :
FILE NO.

SCALE 1:2500 25 0 25 50 Metres

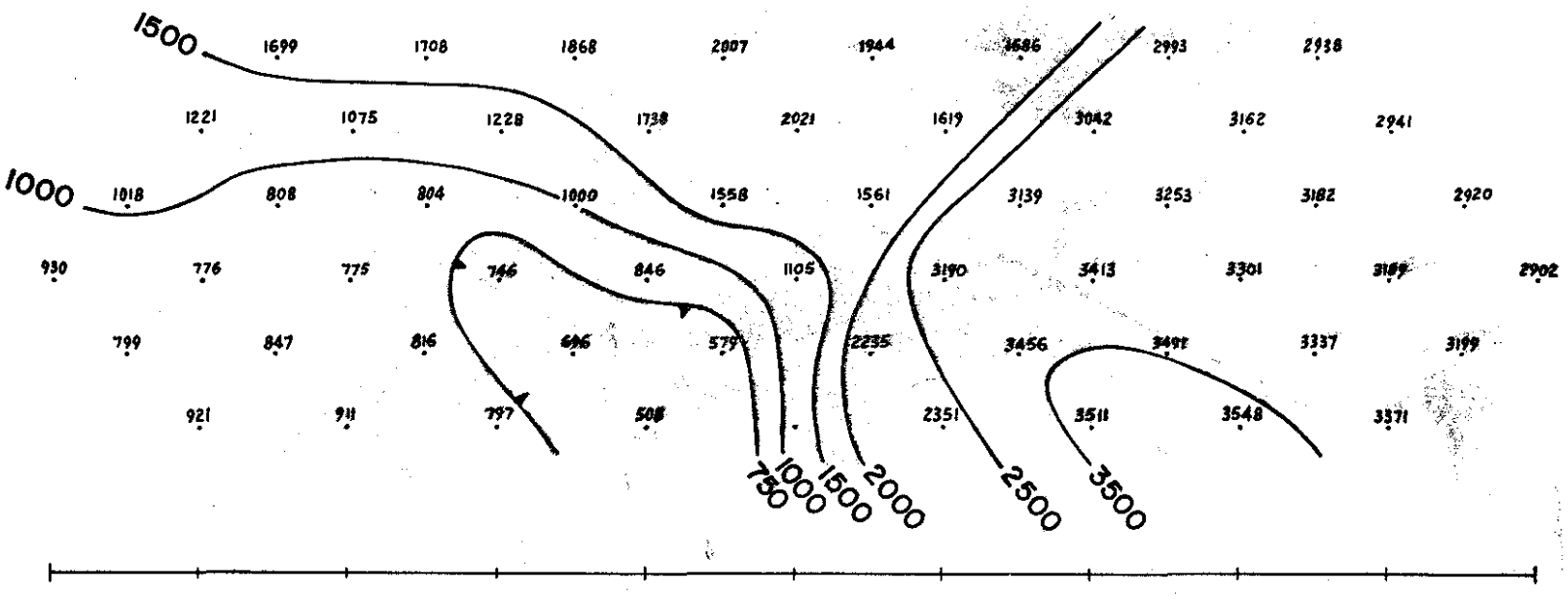
FIG. 74

A136632

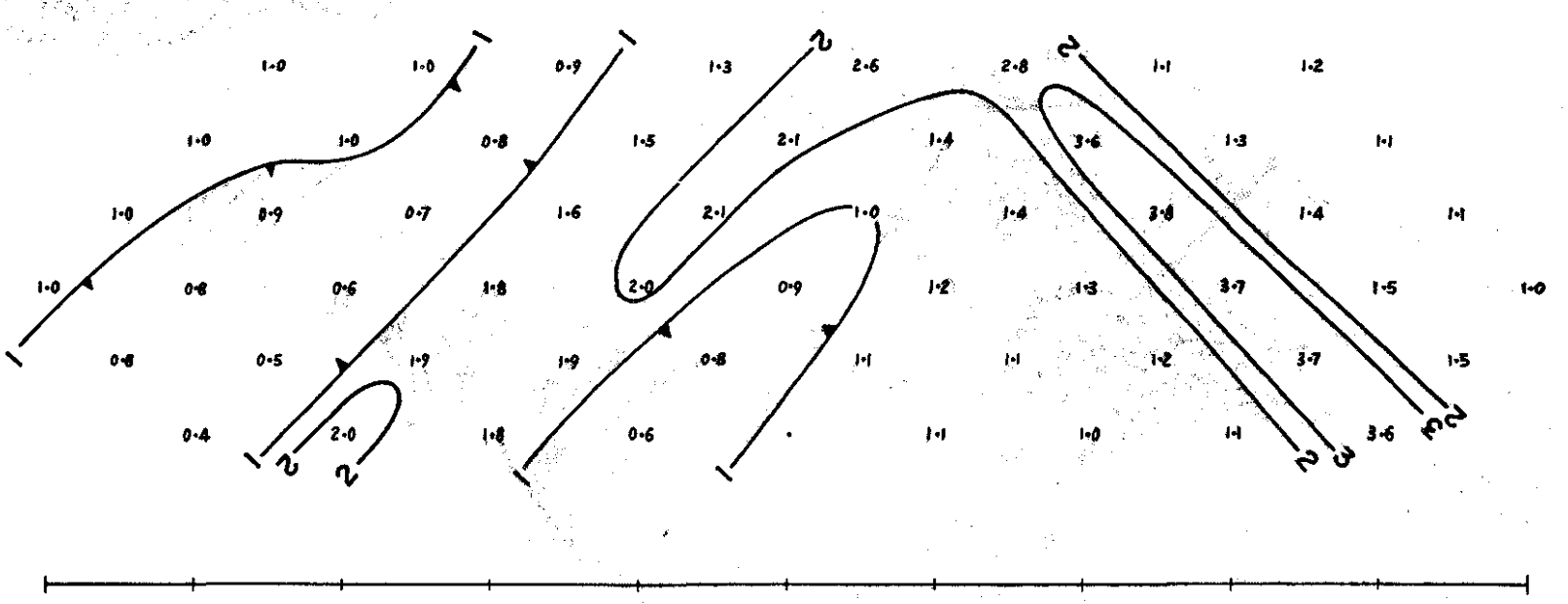
Model



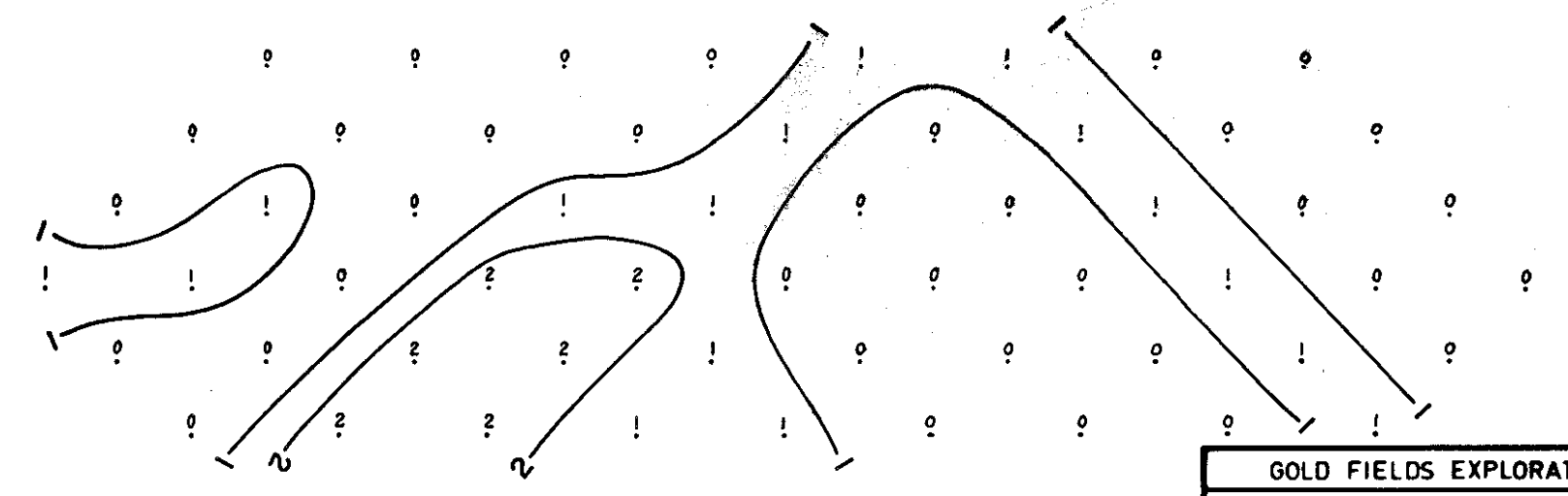
RESISTIVITY



PERCENT FREQUENCY EFFECT



METAL FACTOR
(Values to nearest whole number)



Model: Zone 1

85-2469

5 cm

Ref: GF/MG85/07

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66
HUXLEY GRID 074
IP MODELLING
Line 00

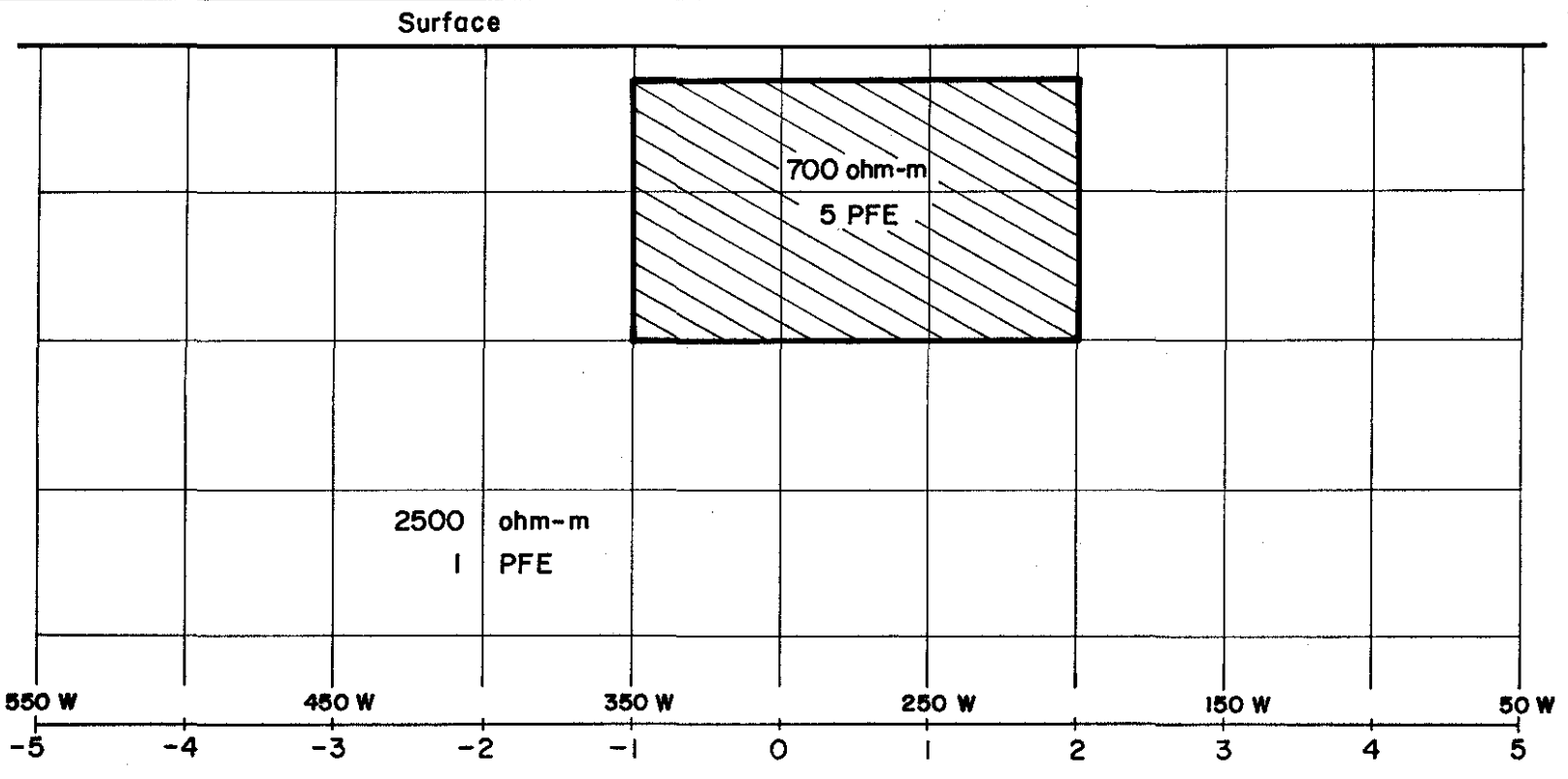
DRAWN BY : J.B.
DRAFTSMAN: T.G.D.S.
DATE : July '85
REVISIONS :
FILE NO.

SCALE 1:2500 (25 0 25 50 Metres)

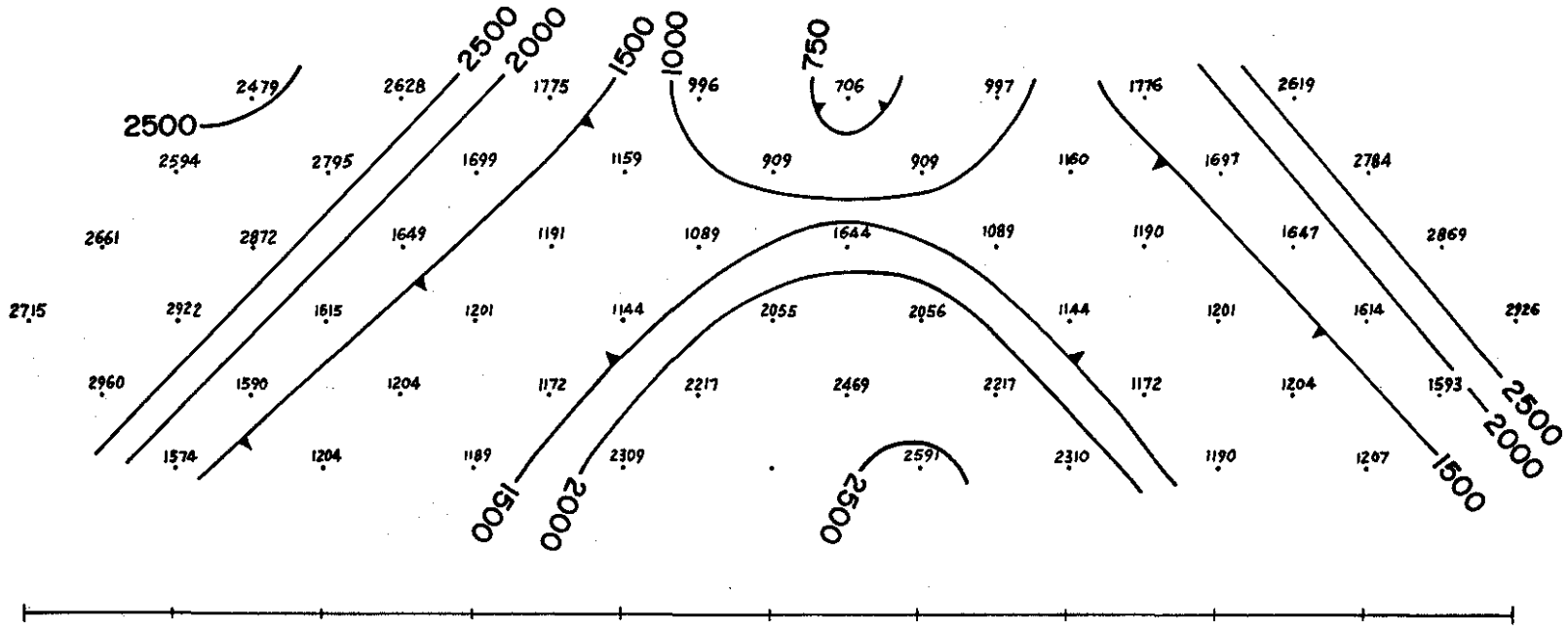
FIG. 75

13363

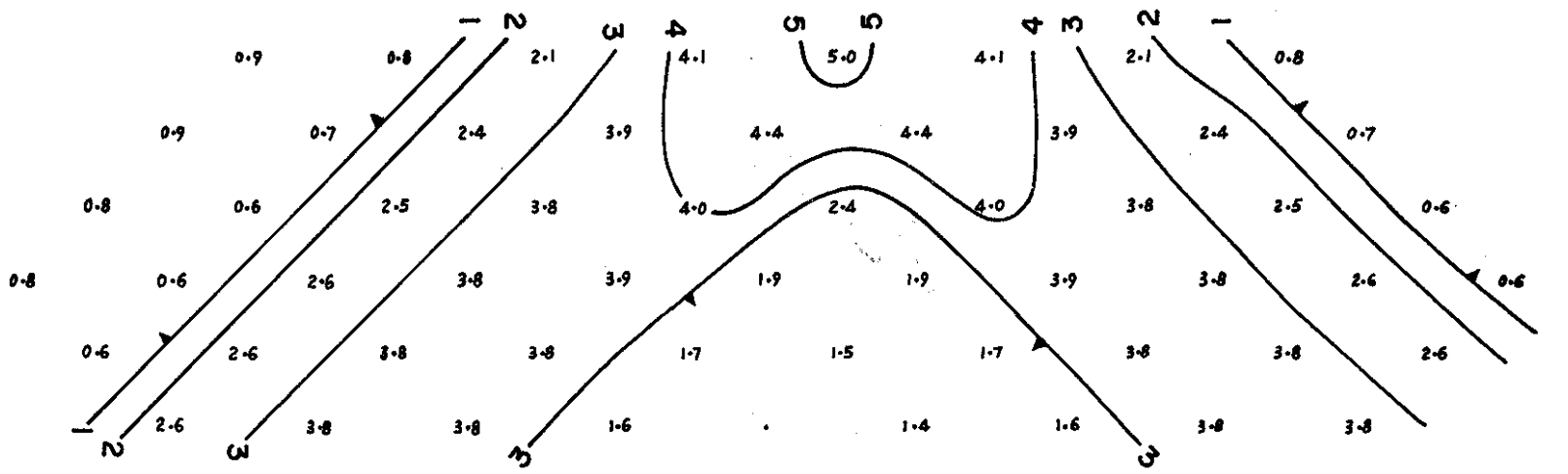
Model



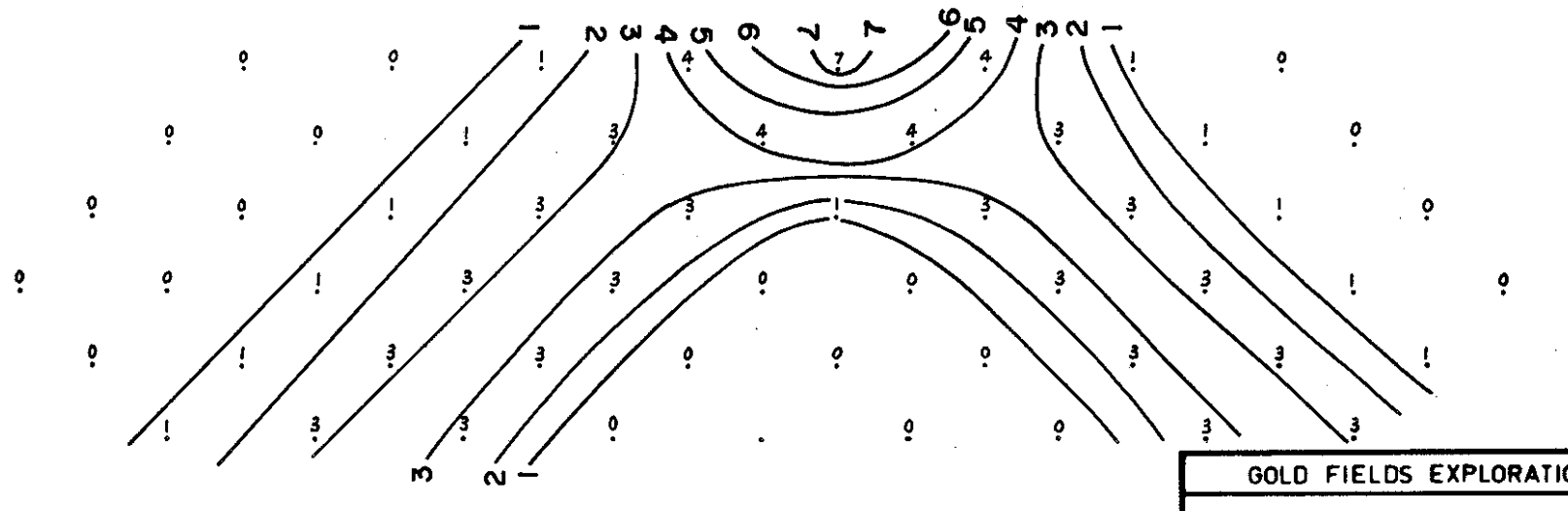
RESISTIVITY



PERCENT FREQUENCY EFFECT



METAL FACTOR
(Values to nearest whole number)



5 cm

Model: Zone 2

85-2459

Ref: GF/MG85/07

1136634

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66

HUXLEY GRID 075

IP MODELLING

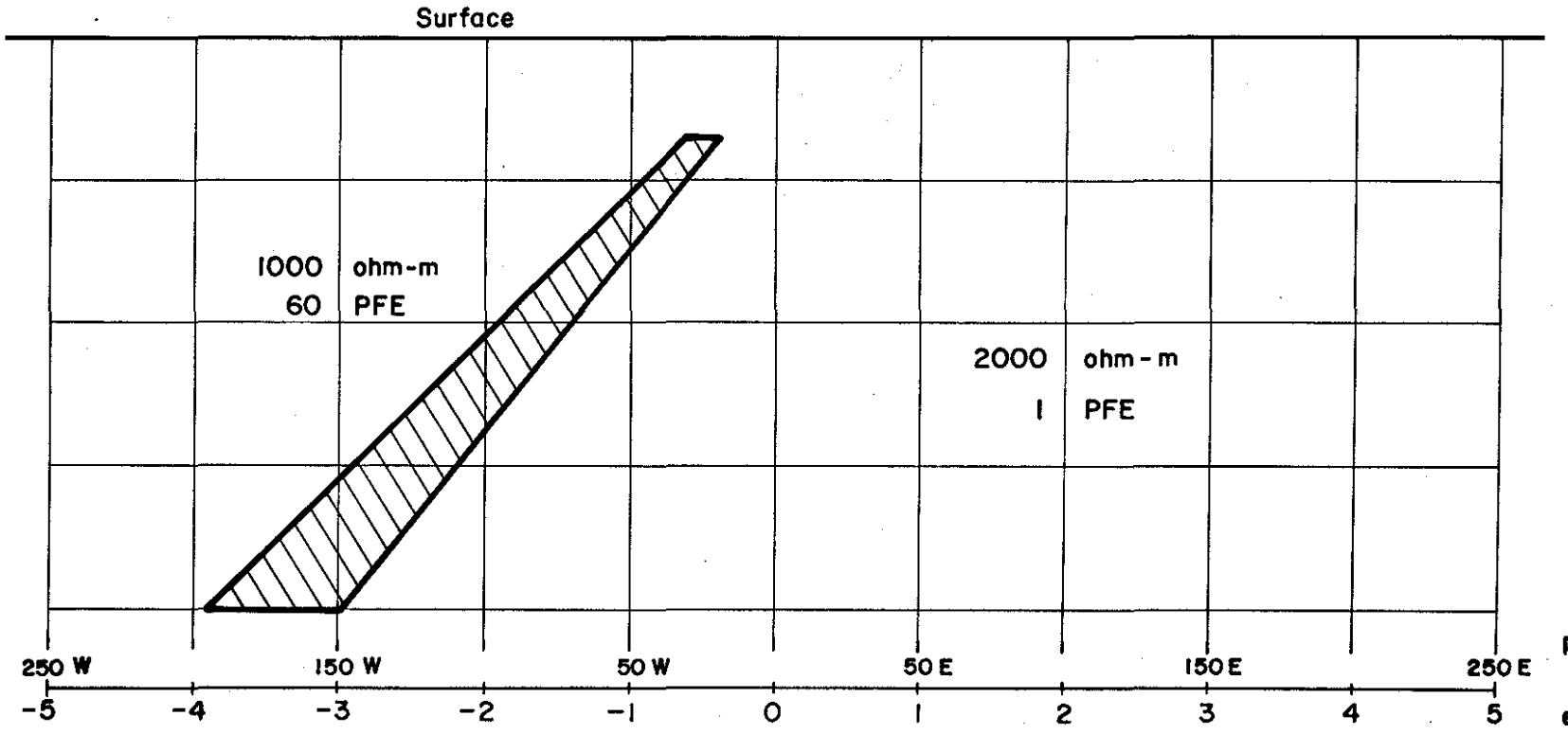
Line 6S

DRAWN BY : J.B.
DRAFTSMAN: T.G.D.S.
DATE : July '85
REVISIONS :
FILE NO.

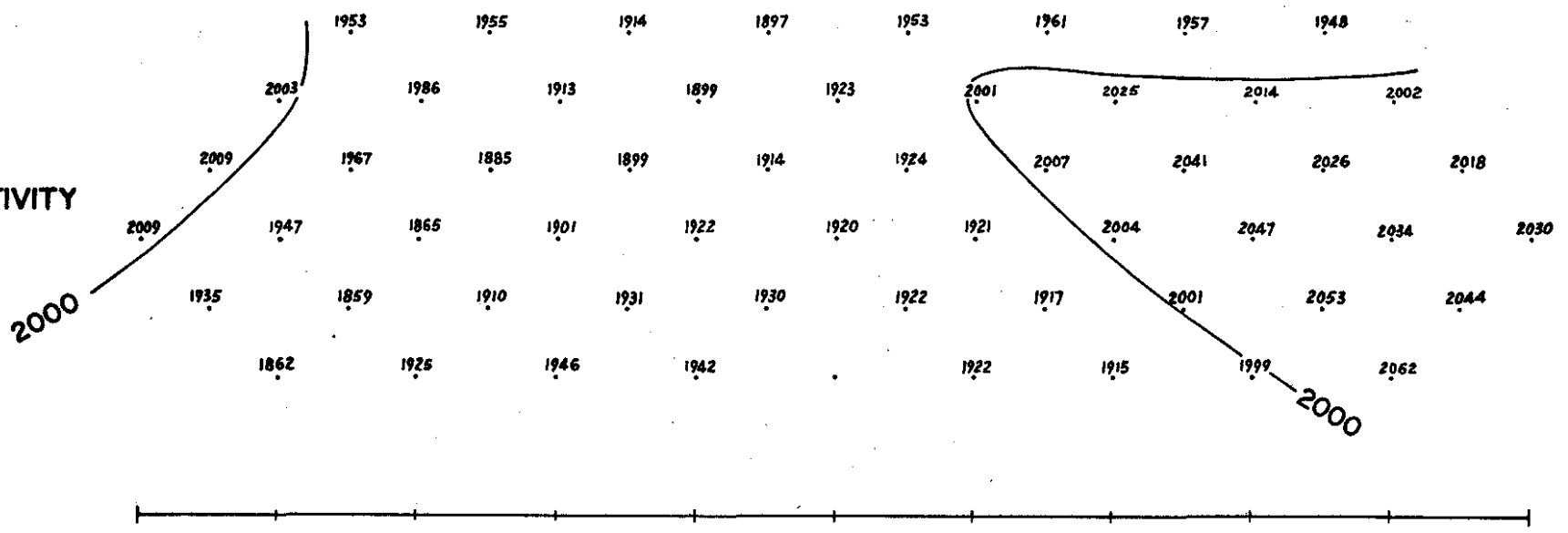
SCALE 1:2500 (25 0 25 50 Metres)

FIG. 76

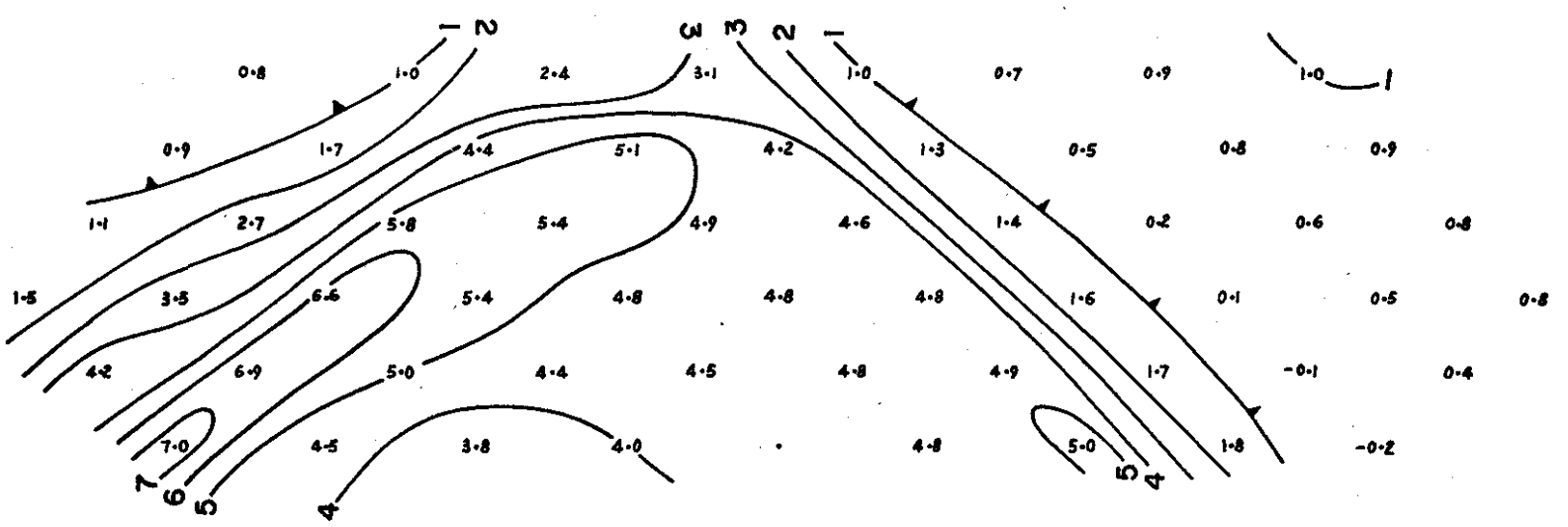
Model



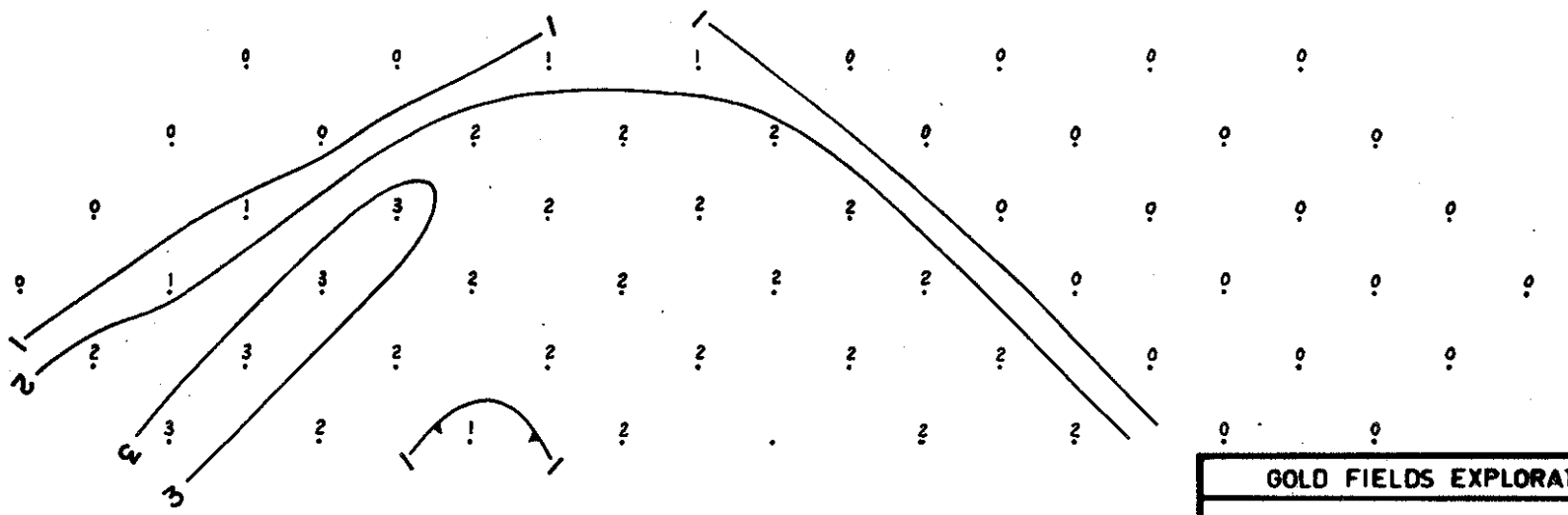
RESISTIVITY



PERCENT FREQUENCY EFFECT



METAL FACTOR
(Values to nearest whole number)



Model: Zone 3

5 cm

85 - 59

Ref: GF/MG85/07

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66

HUXLEY GRID 076

IP MODELLING

Line 12 S

DRAWN BY : J.B.
DRAFTSMAN: T.G.D.S.
DATE : July '85
REVISIONS :
FILE NO.

SCALE 1:2500 (25 0 25 50 Metres)

FIG. 77

1136635

E.L. 9/66 BOUNDARY

SNAKE SPUR - GARFIELD RIVER SEQUENCE

GORDON LIMESTONE (INFERRED)

FLANIGANS GOLD

LIMIT OF ALLUVIAL WORKINGS

LIMIT OF FLUVIO GLACIALS

OWEN/ELDON GROUP ?

SILTSTONE

SANDST micaceous

QUARTZITE OWEN OR ELDON GROUP?

GORDON LIMESTONE (INFERRED)

COARSE VOLCANICLASTICS

TUFFACEOUS SILTSTONE

OWEN CONGLOMERATE - SANDSTONE

VOLCANICLASTICS

VOLCANICLASTIC CONGLOMERATE

POST CAMBRIAN QUARTZITE

West facing

OWEN OR ELDON GROUP ?

FLANNIGANS OWEN CONGLOMERATE

IGNIMBRITE

TUFFACEOUS GRID EPICLASTICS

UNDIFFERENTIATED VOLCANICS

PREDOMINANTLY VOLCANICLASTICS

SILTSTONE

TUFFACEOUS SILTSTONE

1400N

OWEN CONGLOMERATE - SANDSTONE

Flannigans

FLAT LYING

VOLCANICLASTIC CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

SHALE / CHERTS

SANDY SILICIFIED SHALE - MASSIVE

SHALE

COARSE VOLCANICLASTICS

TUFFACEOUS SHALE

COARSE VOLCANICLASTICS

Quartz feldspar phyric volcanics medium grained, foliated sericitized, pyrite.

RHYOLITE LAVA qtz biotite porphyritic

SANDY SILIC' SHALE massive

COARSE VOLCANICLASTICS

SHALE

RHYOLITE LAVA qtz biotite porphyry

RHYOLITE LAVA ?

RHYOLITE LAVA qtz biotite porphyritic

SHALE

SHALE

SNAKE SPUR/GARFIELD RIVER SEQUENCE

fine-coarse grained volcaniclastics minor rhyolitic lavas

QUARTZ SERICITE SCHISTS

Qtz feldspar phyric volcanics fine-medium grained subaerial-water laid lithologies frequently pyritic.

Section 2688

Approx. location Shaft, tunnel, trenching

Section 2688 Approx. location Shaft, tunnel, trenching

RHYOLITE LAVAS, IGNIMBRITES SUBAERIAL VOLCANICS DOMINANT

alteration minor, massive

RHYOLITE feldspar phenocrysts

IGNIMBRITE feldspar phyric with ash, fine tuffaceous lenses

IGNIMBRITE Feldspar phyric. Ash, fine tuff lenses

IGNIMBRITE quartz feldspar phyric

ANDESITE LAVA hornblend porphyritic

ANDESITE LAVA hornblend porphyritic

RHYOLITE, LAVAS, IGNIMBRITES MASSIVE SUBAERIAL VOLCANICS DOMINANT alteration minor

RIVER

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

FLAT LYING

VOLCANICLASTIC CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

WESTERN LIMIT OF FOLIATED SERICITIZED OR CHLORITIZED VOLCANICS

WESTERN LIMIT OF FOLIATED / SERICITIZED VOLCANICS

E.L. 9/66 BOUNDARY

GLACIALS

TUFFACEOUS SHALE

GORDON LIMESTONE

OWEN CONGLOM.

GORDON LIMESTONE (OWEN CONG.)

LIMIT OF EXTENSIVE FLUVIO GLACIALS

FLUVIO GLACIALS

OWEN CONGLOMERATE

GORDON LIMESTONE

CAMBRIAN UNDIFFERENTIATED

VOLCANICLASTICS massive medium grained

GLACIALS

COARSE VOLCANICLASTICS

SNAKE SPUR/ GARFIELD RIVER SEQUENCE

QUARTZ SERICITE SCHISTS

Qtz feldspar phyric volcanics fine-medium grained subaerial-water laid lithologies frequently pyritic.

Section 2688

Approx. location Shaft, tunnel, trenching

IGNIMBRITE

feldspar phyric fine ash ground mass

SHALES/FINE TUFFACEOUS SEDIMENTS

SNAKE SPUR GRID

SHALE

QUARTZ SERICITE SCHISTS

Quartz feldspar phyric volcanics fine-medium grained subaerial water laid lithologies frequently pyritic.

IGNIMBRITE

feldspar phyric fine ash ground mass

INTERCALATED DACITIC LAVAS AND VOLCANICLASTICS Chl.ser.

Hematitic medium grained clastics

FINE PYRITIC TUFFACEOUS SEDIMENTS

RHYOLITE LAVA

Quartz veining in lavas

Ash

SHALE

VOLCANICLASTIC MED-COARSE GRAINED

Qtz

Ash

Axis of overturned Owen

Sandstone beds and lenses, hem. silica

Section 2101 approx. position Tunnel, trenches in pyritic schist

Qtz. veining

PROBABLE FAULTED CONTACT

CAMBRIAN UNDIFFERENTIATED

Qtz

Approx. Trend of SHALE/ LAVAS

Rhyolite lava massive

RHYOLITE LAVA

IGNIMBRITE ? qtz feldspar phyric

SHALE TUFFACEOUS SEDIMENTS

RHYOLITE LAVA massive, some feldspar phyric

IGNIMBRITE ? Qtz feldspar phyric, massive fine glassy ground mass variable lithic component foliated, sericitized.

Fine tuffaceous chloritized sediment

Fine tuffaceous sediment

CAMP SITE

CUT TRACK

SHALE LENSES

EASTERN CLARK VALLEY SHALE/LAVA SEQUENCE

E.L. 9/66 BOUNDARY

GLACIALS

ASH

RHYOLITE LAVA

CAMBRIAN UNDIFFERENTIATED

LIMIT OF EXTENSIVE FLUVIO GLACIALS

GLACIALS

Tuffaceous sediments

RHYOLITE LAVAS massive, microspherulitic texture, feldspar phyric

GORDON LIMESTONE

OWEN CONGLOMERATE

IT IS HIGHLY LIKELY THAT A THIN FINGER OF GORDON LIMESTONE OCCURS IN THE CENTRE OF THIS SYNCLINE, HIDDEN BENEATH THE GLACIALS

Sericitic volcanics Sailor Jacks (opora) pink quartzite

GLACIAL COVER (~20-30m thick in the west, thinning eastwards)

IGNIMBRITES/MINOR ASH, LAVAS SUBAERIAL

Ignimbrites, massive, feldspar phyric with lithics & flamme

SNAKE SPUR GRID

SNAKE SPUR/ GARFIELD RIVER SEQUENCE

LIMIT OF EXTENSIVE FLUVIO GLACIALS

Carbonaceous mudstone related to limestone ?

Section 2275 - Approx. position Pyritic gossan with specular hematite near Owen Contact. Schist slate with galena joint faces

OWEN CONGLOMERATE

Section 4587 Approx. position pyritic schist barite hematite veining

RHYOLITE

massive, microspherulitic texture, feldspar phyric

IGNIMBRITE feldspar phyric fine ash ground mass

Snake Spur Costean Section 3025

SHALE

FINE PYRITIC TUFFACEOUS SEDIMENTS

RHYOLITE LAVA

Ash

Qtz

Ash

VOLCANICLASTIC MED-COARSE GRAINED

Section 2101 approx. position Tunnel, trenches in pyritic schist

Sandstone beds and lenses, hem. silica

Qtz. veining

OWEN CONGLOMERATE - SAN

PROBABLE FAULTED CONTACT

CAMBRIAN UNDIFFERENTIATED

Approx. Trend of SHALE/ LAVAS

Rhyolite lava massive

RHYOLITE LAVA

IGNIMBRITE ? qtz feldspar phyric

SHALE TUFFACEOUS SEDIMENTS

RHYOLITE LAVA massive, some feldspar phyric

SHALE LENSES

EASTERN CLARK VALLEY SHALE/LAVA SEQUENCE

113636

SHEET LOCATI

Garfield

Flannigans

5 cm

85

GOLD FIELD

TYNDALL

FLANNIGANS-S

INTERP

GEO

SCALE 1:5000

E.L. 9/66 BOUNDARY

SNAKE SPUR - GARFIELD RIVER SEQUENCE

GLACIALS

TUFFACEOUS SHALE

COARSE VOLCANICLASTICS

SHALE

SANDY SILICIOUS SHALE - MASSIVE

Quartz feldspar phyric volcanics medium grained, foliated sericitized, pyrite.

ALLUVIAL WORKINGS

RHYOLITE LAVA qtz biotite porphyritic

GORDON LIMESTONE

(INFERRED)

SANDY SILIC' SHALE massive

COARSE VOLCANICLASTICS

RHYOLITE LAVA qtz feldspar phyric

RHYOLITE LAVA qtz biotite porphyry

OWEN CONGLOMERATE - SANDSTONE

SILTSTONE

VOLCANICLASTICS

SNAKE SPUR/GARFIELD RIVER SEQUENCE
fine-coarse grained volcaniclastics minor rhyolitic lavas

FLANNIGANS OWEN CONGLOMERATE

TUFFACEOUS EPICLASTICS

IGNIMBRITE

SILTSTONE

TUFFACEOUS SILTSTONE

OWEN CONGLOMERATE - SANDSTONE

VOLCANICLASTIC CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

VOLCANICLASTIC CONGLOMERATE

FLAT LYING

WESTERN LIMIT OF PLANETED SERICITIZED VOLCANICS

WESTERN LIMIT OF FOLIATED SERICITIZED VOLCANICS

Fine tuffaceous chloritized sediment

IGNIMBRITE ?
Qtz feldspar phyric, massive fine glassy ground mass variable lithic component foliated, sericitized.

Fine tuffaceous sediment

CUT TRACK

CAMP SITE

RHYOLITE LAVAS, IGNIMBRITES
SUBAERIAL VOLCANICS DOMINANT
alteration minor, massive

RHYOLITE feldspar phenocrysts

IGNIMBRITE feldspar phyric with ash, fine tuffaceous lenses

IGNIMBRITE Feldspar phyric. Ash, fine tuff lenses

IGNIMBRITE quartz feldspar phyric

ANDESITE LAVA hornblend porphyritic

ANDESITE LAVA hornblend porphyritic

RHYOLITE, LAVAS, IGNIMBRITES
MASSIVE SUBAERIAL VOLCANICS DOMINANT
alteration minor

GARFIELD

RIVER

Qtz

IGNIMBRITE

TUFFACEOUS EPICLASTICS

GRID

SNAKE SPUR GRID

5 cm

E.L. 9/66 BOUNDARY

GORDON LIMESTONE

GORDON LOWER CONGL.

GORDON LIMESTONE

OWEN CONGLOM.

FLUVIO GLACIALS

EXTENSIVE

LIMIT OF EXTENSIVE FLUVIO GLACIALS

OWEN CONGLOMERATE

CONGLOM.

VOLCANICLASTICS massive medium grained

GLACIALS

CAMBRIAN UNDIFFERENTIATED

COARSE VOLCANICLASTICS

QUARTZ SERICITE SCHISTS
Qtz feldspar phyric volcanics fine-medium grained subaerial-water laid lithologies frequently pyritic.

SNAKE SPUR/GARFIELD RIVER SEQUENCE

Section 2688
Approx. location
Shaft, tunnel, trenching

IGNIMBRITE
feldspar phyric fine ash ground mass

SHALES/FINE TUFFACEOUS SEDIMENTS

IGNIMBRITE
feldspar phyric fine ash ground mass

IT IS HIGHLY LIKELY THAT A THIN FINGER OF GORDON LIMESTONE OCCURS IN THE CENTRE OF THIS SYNCLINE, HIDDEN BENEATH THE GLACIALS.

Sericitic volcanics
Sailor Jacks (approx)
pink quartzite

GLACIAL COVER
(~20-30m thick in the west, thinning eastwards)

Section 2275 - Approx. position
Pyritic schist with specular hematite near Owen Contact. Schist slate with galena joint faces

Carbonaceous mudstone related to limestone?

OWEN CONGLOMERATE

Snake Spur Costean
Section 3025

Hematitic medium grained clastics

TRENCH

FINE PYRITIC TUFFACEOUS SEDIMENTS

RHYOLITE LAVA

Axis of overturned Owen

Ash

Quartz veining in lavas

SHALE

VOLCANICLASTIC MED-COARSE GRAINED

Qtz

INTERCALATED DACITIC LAVAS AND VOLCANICLASTICS
Chl. ser.

Section 2101 approx position
Tunnel, trenches in pyritic schist.

Sandstone beds and lenses, hem, silica

Qtz. veining

PROBABLE FAULTED CONTACT

QUARTZ SERICITE SCHISTS
Quartz feldspar phyric volcanics fine-medium grained subaerial water laid lithologies frequently pyritic.

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

Approx. Trend of SHALE/LAVAS

E.L. 9/66 BOUNDARY

Rhyolite lava massive

RHYOLITE LAVA

IGNIMBRITE ? qtz feldspar phyric

SHALE TUFFACEOUS SEDIMENTS

RHYOLITE LAVA
massive, some feldspar phyric

SHALE LENSES

EASTERN CLARK VALLEY SHALE/LAVA SEQUENCE

ASH

RHYOLITE LAVA

CAMBRIAN UNDIFFERENTIATED

LIMIT OF EXTENSIVE FLUVIO GLACIALS

GLACIALS

Tuffaceous sediments

RHYOLITE LAVAS
massive, microspherulitic texture, feldspar phyric

HYDES ADIT

HAL JUKES ADIT

PART OF CENTRAL FLOW DOME COMPLEX
massive, microspherulitic texture occasionally feldspar phyric.

IGNIMBRITES/MINOR ASH, LAVAS SUBAERIAL
Ignimbrites, massive, feldspar phyric with lithics & flamme

Section 4587 Approx. position
pyritic schist barite hematite veining

IGNIMBRITE, LAVA ASH

RHYOLITE LAVAS
massive, microspherulitic texture, feldspar phyric

Massive rhyolite lava

IGNIMBRITE qtz phyric lithics to 50m

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

PROBABLE FAULTED CONTACT

5000N 3000E 2500N 2400N 2200N 2000N 1800N 1600N 1400N 1000N

179 000mE 180 000mE 181 000mE 182 000mE 183 000mE

126 000mN 125 000mN 124 000mN 123 000mN 122 000mN

LEGEND:

- Geological boundary
- Interpreted geological boundary
- Fault
- Unconformity

Bedding
- 0-30°
- 30-60°
- >60°

Folds
- Syncline
- Anticline
- Plunge

Alteration
- Pyritic sericite/chlorite
- Hematite sericite

113636

SHEET LOCATION

Garfield | Jukes | Flannigans | Snake

GRID CONVERGENCE 0°ed

GRID MAGNETIC ANGLE 12°

5 cm

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66 077

FLANNIGANS-SNAKE SPUR AREA

INTERPRETATIVE GEOLOGY

DRAWN BY :

DRAFTSMAN : TGDS

DATE : July 85

REVISIONS :

FILE NO.

SCALE 1:5000 100 0 100 200 METRES

FIG. 78

078

SECTION 2688 - 93m
(NOT LOCATED - 990m AML)
Auriferous pyrite formation 30' wide
4% pyrite Concentrates 60oz/ton Au)
Pressured 290° azim and shorts 20, 56° dep
T.G.Moore 1972

SECTION 2275 - 91m
Pyritic exhlar with specular haematite vein Over, contact schist & exhlar rather with galena on joint faces

SECTION 2121 - 93m
Branch in pyritic exhlar four trenched

Section 4587 - 93m
RSM 24-6-082
Rhyolite, porphyritic and dark schistose felsites an contact with conglomeritic rocks schists and quartz haematite veining in felsite

SAILOR JACKS
Section 1900-3m-35
Good prospect - qtz. pyrite vains

SNAKE SPUR COSTEAN
Section 1000-10

Section 2101 - 93m
Branch in pyritic exhlar four trenched

SOUTHERN BOUNDARY
2688 - 93m

CAMPSITE

MAJOR CONTACT
Feldspar phyric volcanics to NE
Feldspar quartz phyric to SW

IGNIMBRITE
Silicified
feldspar phyric
in flow with
minor lenses

Quartz float

Dk grey siltstone
with minor fine
sandstone bands

Quartz vein sockets
qtz phenocrysts and
lithics 2-3 dia
sericitised ground mass

Fine grained
bedded tuffaceous
sediments

Pyritic tuffaceous
sediment

Ash/tuffaceous sediment

Pale grey pebbly quartzite

Haematitic sericitic
and siliceous
sediments

Rhyolite lava
with minor
black knots

Fine tuffaceous sediment

Fine tuffaceous sediment

Ash or fine tuffaceous sediment

IGNIMBRITES
Fine grained phyric
matrix with minor
chloritised pumice

Abundant lithics

Fine tuffaceous sediment

Lithic tuffaceous
sediment-ash

Mass flow vol.
minor pl & qtz
veining

Massive white
quartz veining
silicified

Pink quartzite

Quartz vein

Lithic tuff
sediment

Qtz vein

Qtz vein

Lithic tuffaceous
sediment-ash

Fine tuffaceous
sediment

Fine tuffaceous
sediment

Fine tuffaceous
sediment

079

E.L.9/66 BOUNDARY

WEST JUKES PEAK

CENTRAL PEAK

MT JUKES

PYRAMID PEAK

SOUTH JUKES PEAK

Upper Lake Jukes

Lower Lake Jukes

LANDSLIP

CONTACT

TRACK

LAKE JUKES PROP

Outlook conglomerate

Owen Conglomerate

Eldon Group

Gordon Limestone

Jukes Formation

Franklin Sandstone

Crimson Lemon Dolerite

Jukes Dolerite

Permian

Tertiary

Quaternary

Siltstone and Ferruginous Sandstone

IGNIMBRITE Fine ash ground mass feldspar phyric Fragments to 30cm

IGNIMBRITE Medium grained feldspar phyric and very fine grained ash leaves

IGNIMBRITE Fine siltstone ash matrix feldspar phenocrysts Fragments to 20cm

IGNIMBRITE/ASH Fine siltstone ash matrix feldspar phyric, fiamme

RHYOLITE LAVA Rhyolite lava, green to grey, flow banded, feldspar phyric

Rhyolite lava, massive, minor feldspar phyric, contains hematite veins

Rhyolite lava, flow banded & locally fine pink siltstone inclusions, minor flow banding

Rhyolite lava, flow banded, feldspar quartz phyric, hematite veining

Rhyolite lava, massive snow flakes

Rhyolite lava, massive, contains hematite veins

Hematite alteration

Fine tuffaceous sediment

Chloritic fault with clay and iron staining

Fine tuffite, sediment borne

Rhyolite tuff, fine ash matrix feldspar phenocrysts

Fault

Contour

Bedding

Foliation

Sample number

Rock sample

Stream sediment sample

Outcrop

Track

Creek

Lake

Grid 1000mE

Grid 1000mN

LEGEND

FLUVIOGLACIALS

- Owen Conglomerate / quartzite detritus

ORDOVICIAN – SILURO/DEVONIAN

- Siltstones and micaceous sandstone
- Gordon Limestone
- Owen Conglomerate / sandstone

CAMBRIAN

VOLCANICLASTICS

- Medium-coarse grained sediments, varying degree reworking + quartzose pC detritus
- Fine grained siltstones, shales and crystal tuff
- Fine sandy siliceous shale

RHYOLITE LAVAS/flow domes complex

- Massive, microcrystalline texture, feldspar phyric weakly chloritized
- Quartz biotite porphyrites
- Flow banded lava associated with ash/pyroclastics
- Massive quartz feldspar phyric (chloritized)

IGNIMBRITES/tuffs - sub aerial volcanics

- Groundmass fine glassy welding properties, feldspar phenocrysts, flow banding, tuffaceous sediment lenses, minor tuffaceous sedimentary (& - quartz feldspar phyric) (f - feldspar phyric)

ANDESITE

- Hornblend porphry extrusive unit

ALTERATION

- Pyritic sericite/chlorite
- Hematite sericite (near Owen Congl. Contact)

- Rock Sample
- Stream Sediment Location
- Bedding
- Foliation

NOTES (1) Samples prefixed SS taken by Hutton in 1977-78

(2) Samples in the range 11300-11600 taken by Pollock in 1983-84

SHEET INDEX

Newell	Huxley	King
Garfield	JUKES	Crotty
Flannagan	Smoke	Andrew

113635

GRID CONVERGENCE 0°50'

GRID MAGNETIC ANGLE 12°

The relationship between True North and Magnetic North is shown diagrammatically. The value is subject to annual change, in 1985 Easterly.

5cm

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L.9/66

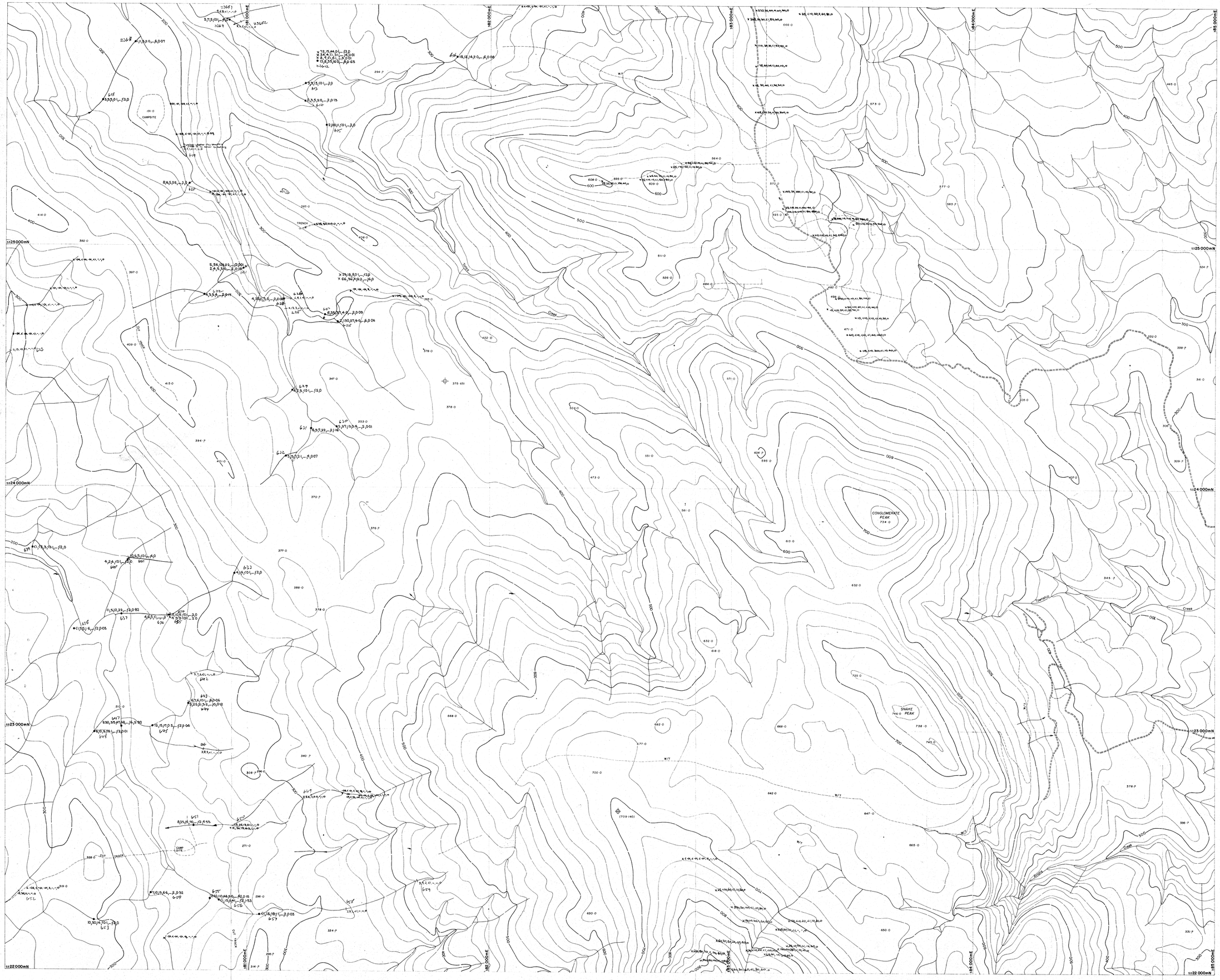
JUKES 079

OUTCROP GEOLOGY & SAMPLE LOCATIONS

DRAWN BY	R.Pollock
DRAFTSMAN	T.G.D.S.
DATE	Mar '84
REVISIONS	R.Pollock June 1985
FILE NO.	
SCALE 1:5000	FIG. 80

100 0 100 200 METRES

080



23611 – 23649 Fenline Rio Grs +81,82

SAMPLES

- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS – Cu, Pb, Zn, Ag, Sn, WO_3, Au

all in p.p.m.

(1) Cu, Pb, Zn values either shown as integers, which are p.p.m., or decimals (eg. ·09) which are %

(2) Where a dash is shown the element has not been assayed for (eg. in 9,18,0,tr,–,–,2 the sample was not assayed for Sn or WO_3)

SHEET INDEX

Garfield	Johns	Crotty
Fitzroigera	SNAKE	Andrew
Borrell	Darwin	Kelly

GRID CONVERGENCE (1°30')

GRID MAGNETIC ANGLE 3°

The relationship between true north, grid north and magnetic north shown diagrammatically. Magnetic value is correct for 1980, annual change is 10' (Minutes) Easterly

GR 23611 – 23659 + 81,82

113639 83 – 2459

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL – E.L. 9/66

SNAKE 080

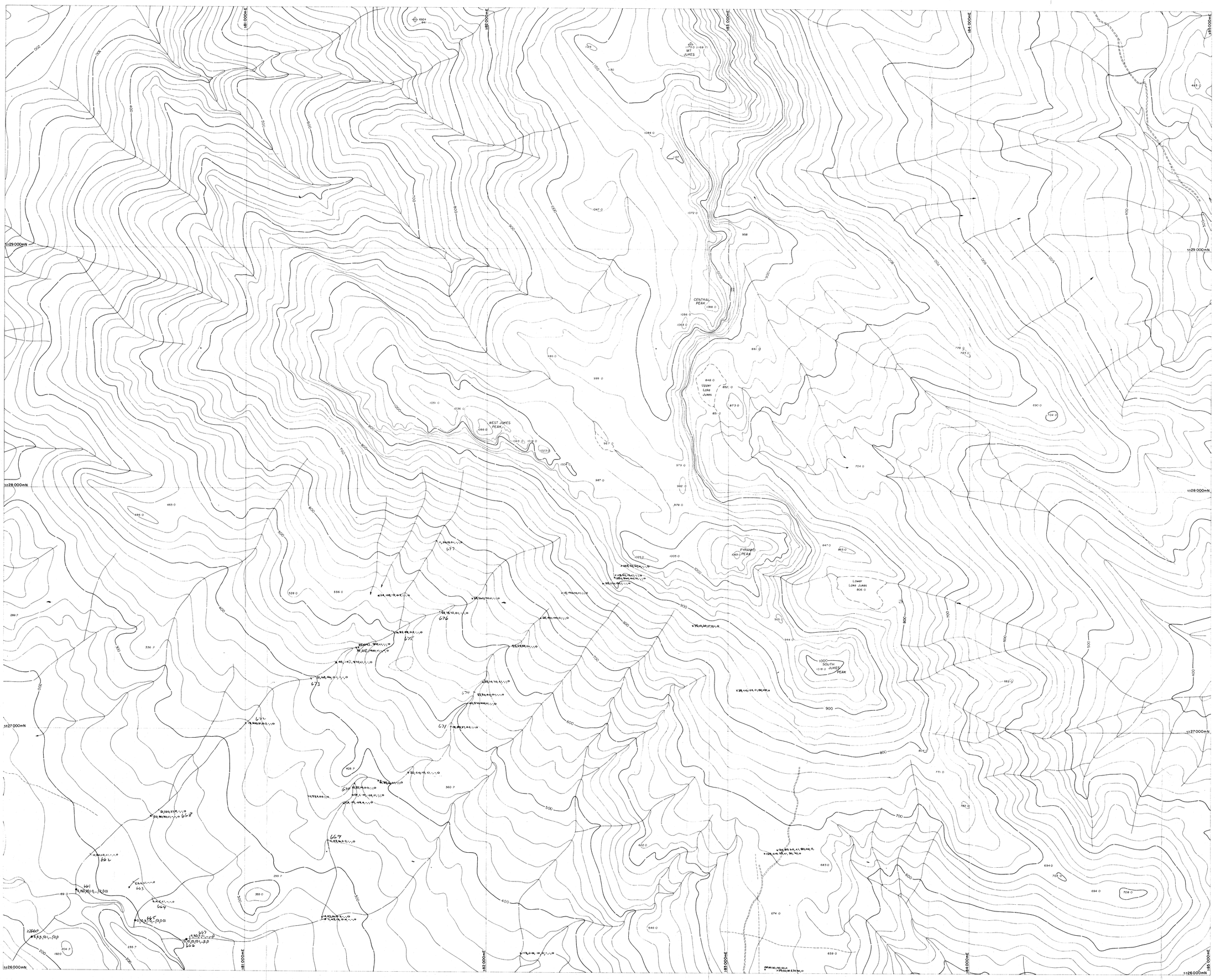
ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

DRAWN BY	R.P.
DRAFTSMAN	S.F.
DATE	April, 1984
REVISIONS	
FILE NO.	
FIG	81

SCALE 1:5000 (100 0 100 200 METRES)

5 cm

081



23660 – 23677 Geol Feature No.

SAMPLES

- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS – Cu, Pb, Zn, Ag, Sn, WO_3, Au all in p.p.m.

(1) Cu, Pb, Zn values either shown as integers, which are p.p.m., or decimals (eg .09) which are %

(2) Where a dash is shown the element has not been assayed for (eg. in 9, 18, 8, ⟨1, –, –, 0 the sample was not assayed for Sn or WO_3)

SHEET INDEX

Newell	Huxley	King
Garfield	JUKES	Crotty
Flannigans	Snake	Andrew

GRID CONVERGENCE 0°50'

GRID MAGNETIC ANGLE 11°

The relationship between True North and Magnetic North is shown diagrammatically. Magnetic North is 11° 00' East of Grid North

23660 – 23677

85 – 2459

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL – E.L. 9/66

JUKES 081

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

DRAWN BY	R.F.
DRAFTSMAN	S.F.
DATE	April. 84
REVISIONS	
FILE NO	
FIG	82

SCALE 1:5000 100 0 100 200 METRES

5 cm

113640

082

CONGLOMERATE PEAK 734·0

SNAKE 746·0 PEAK

CAMP SITE

TRENCH

CUT

TRACK

CREEK

RIDGE

SAMPLES

- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS – As, Sb, Bi, Te, Tl, Ba, Fe%

NOTE: Where a dash is shown the element has not been assayed for.

SHEET INDEX

Garfield	Johns	Crotty
Fitzroy Lagoon	SNAKE	Andrew
Sorell	Dorein	Kelly

GRID CONVERGENCE 0°30'

GRID MAGNETIC ANGLE 6°

The relationship between True North Grid North and Magnetic North is shown on the diagram. The grid value is correct for 1985. Annual change is 0°8' (2·9 miles) Easterly.

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L. 9/86

Snake 082

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

SCALE 1:5000 (100 0 100 200 METRES)

DRAWN BY C.P.

DRAFTSMAN E.V.

DATE June 1985

REVISIONS

FILE NO. 113641

FIG. 83

083

181 000mE | 182 000mE | 183 000mE | 184 000mE | 185 000mE

5529 000mN

5528 000mN

5527 000mN

5526 000mN

CENTRAL PEAK 1088 0

WEST JUKES PEAK 1066 0

Upper Lake Jukes 848 0

PYRAMID PEAK 1083 0

Lower Lake Jukes 806 0

1000 SOUTH JUKES PEAK 1018 0

MT JUKES 1173 0 (1168 ?)

SAMPLES

- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS – As, Sb, Bi, Te, Tl, Ba, Fe%

NOTE: Where a dash is shown the element has not been assayed for.

5 cm

SHEET INDEX

Newell	Hunkey	King
Garfield	JUKES	Crotty
Flannigans	Smoke	Andrew

5528

GRID CONVERSION 0°50'

GRID MAGNETIC ANGLE 4°

The relationship between True North and Grid North and Magnetic North is correct at the centre of the sheet. © COPYRIGHT for 1984, Almost change in GF (Grivas) Easterly.

113642

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL – E.L. 9/66

Jukes

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

083

DRAWN BY	C.P.
DRAFTSMAN	E.V.
DATE	June 1984
REVISIONS	
FILE NO.	

SCALE 1:5000 (100 0 100 200 METRES)

FIG 84

084

SNAKE SPUR GRID

2600N
2400N
2200N
2000N
1800N
1600N
1400N
1200N
1000N
5000E
s25000mN
s24000mN
s23000mN
s22000mN
s81000mE
s82000mE
s83000mE
s84000mE
s85000mE
CAMPSITE
CAMP SITE
CONGLOMERATE PEAK
SNAKE PEAK
Creek

∘ "Wacker" Sample
x Rock Chip

5 cm

SHEET INDEX

Barfield	Jones	Crotty
Flanagans	SNAKE	Andrew
Barrett	Derrem	Kelly

GRID CONVERGENCE 0°36'

GRID MAGNETIC ANGLE 10°

The relationship between True North, Grid North and Magnetic North is correct at the centre of this sheet and is correct for 1985. Annual change is 0°10' W (Grid) Easterly

113643
85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 9/66 - TYNDALL PROJECT
SNAKE SHEET 084

SNAKE SPUR GRID

SAMPLE NUMBERS

DRAWN BY C.P.
DRAFTSMAN E.V.
DATE July 1985
REVISIONS
FILE NO.

SCALE 1:5000

METRES

FIG. 85

085

SNAKE SPUR GRID

° "Wacker" Sample
x Rock Chip

5 cm

SHEET INDEX

Garfield	Johns	Crosby
Flannigans	SNAKE	Andrew
Barrett	Darwin	Kelly

MAG CONVERGENCE (Pitch)

MAG MAGNETIC AZIMUTH

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic values are for the year 1985 and change in the Grid-West Easterly

113644

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 - TYNDALL PROJECT
SNAKE SHEET 085
SNAKE SPUR GRID
Au GEOCHEMISTRY

DRAWN BY C.P.
DRAFTSMAN E.V.
DATE July 1985
REVISIONS
FILE NO.

SCALE 1:5000 METRES

FIG. 86

086

SNAKE SPUR GRID

2500N
2400N
2200N
2000N
1800N
1600N
1400N
1000N 5000E

o "Wacker" Sample
x Rock Chip

5 cm

SHEET INDEX

Santana	Julian	Charly
Francisjane	SNAKE	Andrew
Sarah	Dorren	Kelly

113645
85-2459

GOLD FIELDS EXPLORATION PTY LIMITED		
E.L 9/66 - TYNDALL PROJECT SNAKE SHEET 086	DRAWN BY C.P.	
	DRAFTSMAN E.V.	
SNAKE SPUR GRID	DATE July 1985	
Cu GEOCHEMISTRY	REVISIONS	
	FILE NO.	
SCALE 1:5000 METRES	FIG. 87	

087

SNAKE SPUR GRID

° "Wacker" Sample
× Rock Chip

5 cm

SHEET INDEX

Garnet	Jones	Crotty
Finnigans	SNAKE	Andrew
Sarah	Darwin	Kelly

112046

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED		
E.L 9/66 - TYNDALL PROJECT SNAKE SHEET 087 SNAKE SPUR GRID Pb GEOCHEMISTRY		DRAWN BY C.P. DRAFTSMAN E.V. DATE July 1985 REVISIONS FILE NO.
SCALE 1:5000	METRES	FIG. 88

088

SNAKE SPUR GRID

CONGLOMERATE PEAK 734 O

SNAKE PEAK 748 O

(709 140)

° 'Wacker' Sample
x Rock Chip

5 cm

SHEET INDEX

Garfield	Johns	Charity
Flemington	Snake	Andrews
Berrell	Darwin	Tetty

113647

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 2/86 - TYNDALL PROJECT
SNAKE SHEET 088

SNAKE SPUR GRID

Zn GEOCHEMISTRY

DRAWN BY	C.P
DRAFTSMAN	E.V
DATE	July 1985
REVISIONS	
FILE NO.	

SCALE 1:5000

FIG. 89

089

B

A

C

Tx4

Tx3

SNAKE SPUR GRID

3300N

3100N

2600N

2400N

2200N

2000N

1800N

1600N

1400N

1000N 3000E

3800E

3400E

3200E

4000E

4100E

4200E

4300E

3600E

53 27 000mN

53 26 000mN

53 25 000mN

53 24 000mN

380 000mE

381 000mE

382 000mE

GAFFIELD

RIVER

CAMPSITE

TRENCH

Legend

SURVEY BY: LAMONTAGNE GEOPHYSICS

DATE : FEB.,1985

UTEM Coverage

Anomalous zone

Single line Anomaly

B

(poorly) conductive surface layer

113648

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 - SNAKE SPUR

089

UTEM INTERPRETATION

5 cm

REF. - GF/MG85/04

SCALE 1: 5000

100 50 0 100 200 METRES

DRAWN BY : J.B.

DRAFTSMAN: S.F

DATE April, 85

REVISIONS :

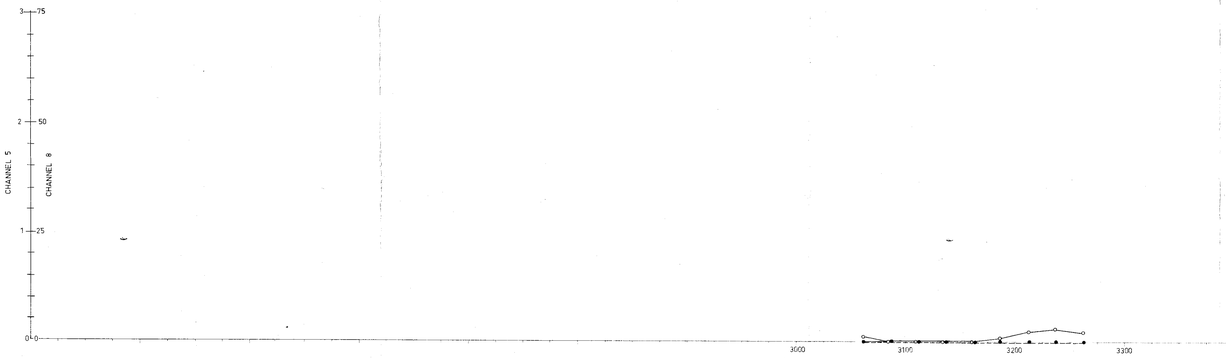
FILE NO.

FIG. 90

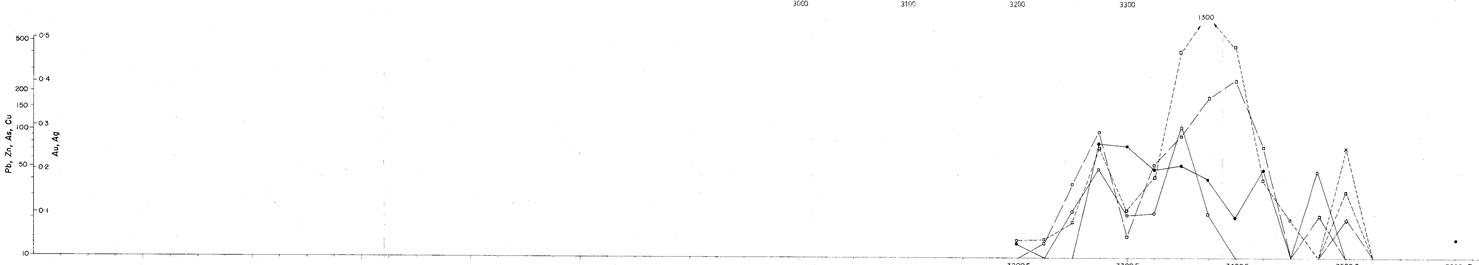
85-2459

090

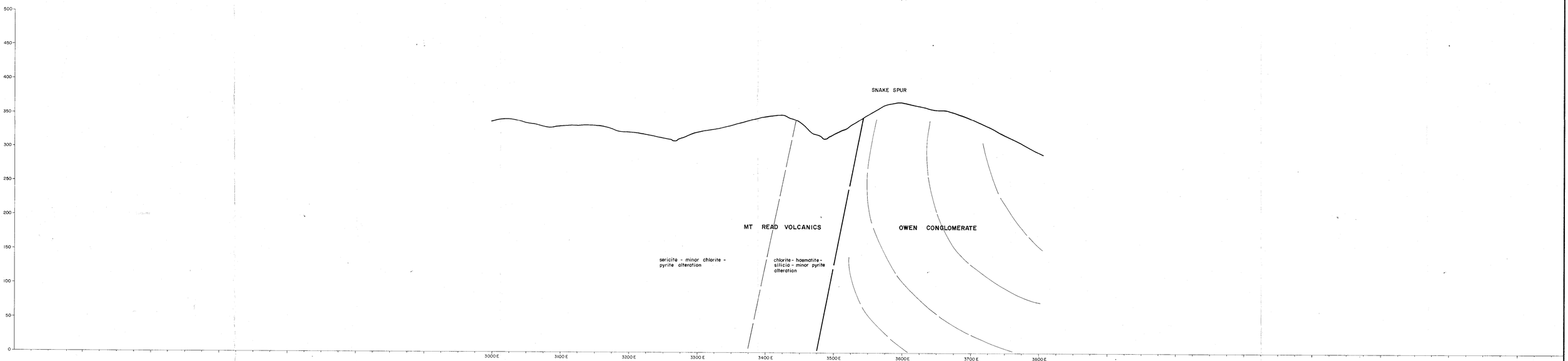
Utem Survey
(%)



Bedrock Geochemistry
(P.P.M.)
Pb, Zn, As, Cu
Au, Ag



Topography & Geology
HEIGHT ABOVE SEA LEVEL - (Metres)



85-2450 I

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 1000 N. 090

LOOKING N.

SCALE 1:2000 40 0 20 40 60 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.O.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG	91

0.5cm

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

* Not to Bedrock

UTEM SURVEY

Hilbert (10 Terms) filtered results.

Channel 5
Channel 8

113649

091

Utem Survey

(%)

CHANNEL 5

CHANNEL 8

3 — 75

2 — 50

1 — 25

0 — 0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E

Bedrock Geochemistry

(P.P.M.)

Pb, Zn, As, Cu

Au, Ag

500 — 0·5

200 — 0·4

150 — 0·3

100 — 0·3

50 — 0·2

10 — 0·1

3200 E 3300 E 3400 E (a) 3500 E

(a)

Topography & Geology

HEIGHT ABOVE SEA LEVEL - (Metres)

500 450 400 350 300 250 200 150 100 50 0

SNAKE SPUR

THOMAS CURRIE RIVULET

MT READ VOLCANICS

sericite - minor chlorite - pyrite alteration

chlorite - haematite - silicia - minor pyrite alteration

OWEN CONGLOMERATE

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E

113650

85-2459

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

* Not to bedrock

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5

Channel 8

GOLD FIELDS EXPLORATION PTY LIMITED	
E.L.9/66 – TYNDALL PROJECT SNAKE SPUR GRID LINE 1400N. 091 LOOKING N.	DRAWN BY A.C. DRAFTSMAN T.G.D.S. DATE June '85 REVISIONS FILE NO.
SCALE 1:2000 40 0 40 80 METRES	FIG 92

5 cms

092

Utem Survey

(%)

CHANNEL 5

CHANNEL 8

3 — 75

2 — 50

1 — 25

0 — 0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E 4200 E

Bedrock Geochemistry

(P.P.M.)

Pb, Zn, As, Cu

Au, Ag

500 — 0·5

200 — 0·4

150

100 — 0·3

50 — 0·2

10 — 0·1

620

3100 E 3200 E 3300 E 3400 E

Topography & Geology

HEIGHT ABOVE SEA LEVEL - (Metres)

500 450 400 350 300 250 200 150 100 50 0

SNAKE SPUR

THOMAS CURRIE RIVULET

TONY'S CK

MT READ VOLCANICS

OWEN CONGLOMERATE

sericite – minor chlorite – pyrite alteration

chlorite – haematite – silicia – minor pyrite alteration

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E

85 - 249

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5
Channel 8

5 cm

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 1600 N. 092

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG.	93

113651

093

Utem Survey

(%)

CHANNEL 5 / CHANNEL 8

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E 4200 E 4300 E

Bedrock Geochemistry

(P.P.M.)

Pb, Zn, As, Cu / Au, Ag

2400

3100 E 3200 E (e) 3300 E (a) 3400 E

Topography & Geology

HEIGHT ABOVE SEA LEVEL - (Metres)

SNAKE SPUR

THOMAS CURRIE RIVULET

TONY'S CK

MT READ VOLCANICS

MT READ VOLCANICS

sericite – minor chlorite – pyrite alteration

chlorite – haematite – silicia – minor pyrite alteration

OWEN CONGLOMERATE

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E 4200 E

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID 093

LINE 1800 N.

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

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DRAFTSMAN T.G.D.S.

DATE June 85

REVISIONS

FILE NO.

FIG 94

5.6cm

11335

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

* Not to bedrock

UTEM SURVEY

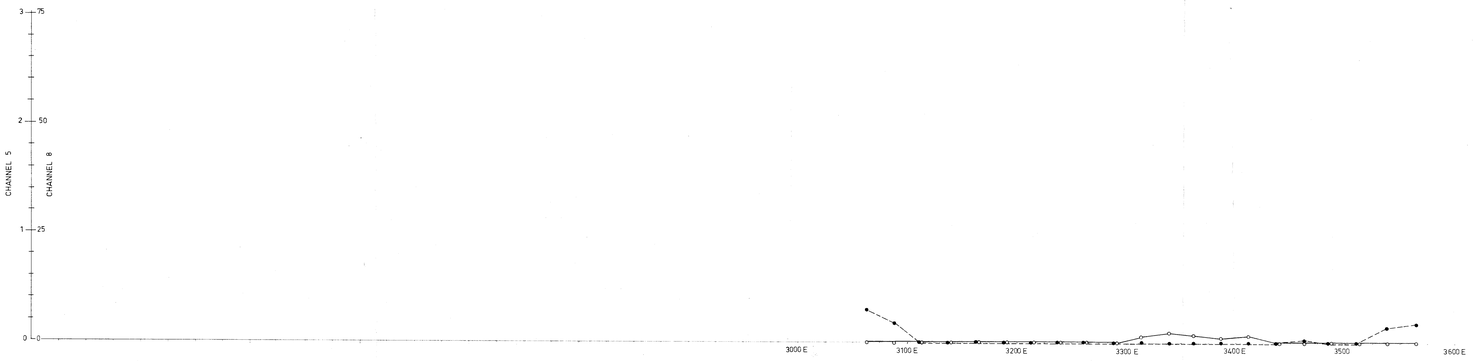
Hilbert (10 Terms) filtered results

Channel 5

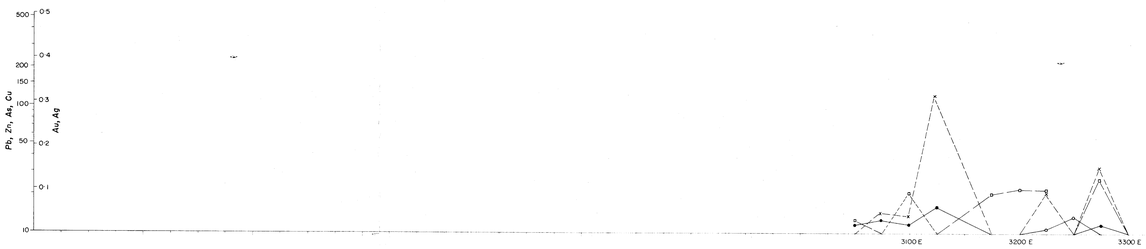
Channel 8

094

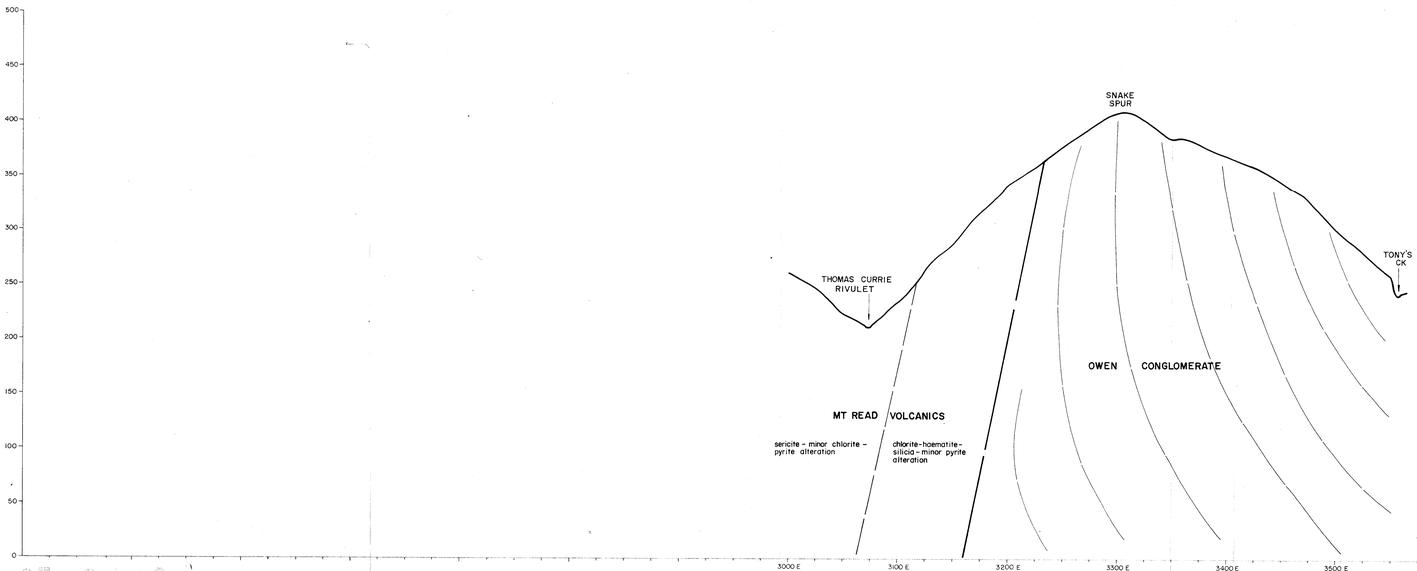
Utem Survey
(%)



Bedrock Geochemistry
(P.P.M.)
Pb, Zn, As, Cu — Au, Ag



Topography & Geology
HEIGHT ABOVE SEA LEVEL - (Metres)



85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 2000N. 094

LOOKING N.

SCALE 1:2000 — 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG	95

5 cm

11653

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5
Channel 8

095

Utem Survey

(%)

CHANNEL 5

CHANNEL 8

3 — 75

2 — 50

1 — 25

0 — 0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E 4200 E

Bedrock Geochemistry

(P.P.M.)

Pb, Zn, As, Cu

Au, Ag

500 — 0·5

200 — 0·4

150

100 — 0·3

50 — 0·2

10 — 0·1

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E N/S 3600 E 3700 E

(a) (a) (a) (a) (a)

Topography & Geology

HEIGHT ABOVE SEA LEVEL - (Metres)

500 450 400 350 300 250 200 150 100 50 0

SNAKE SPUR

THOMAS CURRIE RIVULET

TONY'S CK

GLACIALS

MT READ VOLCANICS

MT READ VOLCANICS

OWEN CONGLOMERATES

sericite - minor chlorite - pyrite alteration

chlorite - haematite - silica - minor pyrite alteration

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E 4200 E

113654

85 - 2459

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

* Not to bedrock

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5

Channel 8

5 cm

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 2200 N. 095

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG	96

096

Utem Survey

(%)

CHANNEL 5 — CHANNEL 8

3 — 75
2 — 50
1 — 25
0 — 0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E

Bedrock Geochemistry

(P.P.M.)

Pb, Zn, As, Cu — Au, Ag

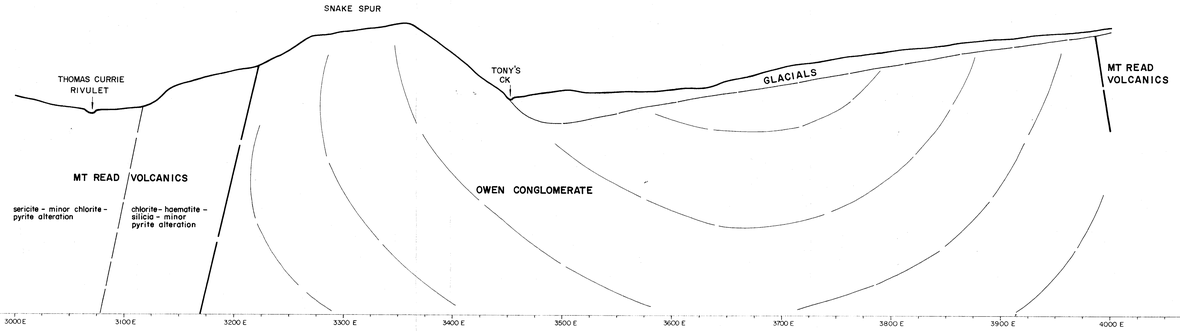
500 — 0·5
200 — 0·4
150 — 0·3
100 — 0·3
50 — 0·2
10 — 0·1

3000 E 3100 E (*) 3200 E 3300 E 3400 E (*) 3500 E (*) (*) (*) (*) 3600 E (*) (*)

Topography & Geology

HEIGHT ABOVE SEA LEVEL - (Metres)

500 450 400 350 300 250 200 150 100 50 0



3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E

113655

85-2459

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

* Not to bedrock

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5
Channel 8

5 cm

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 2400 N. 096

LOOKING N.

DRAWN BY	A.C.
DRAFTSMAN	T.S.D.S.
DATE	June '85
REVISIONS	
FILE NO.	

SCALE 1:2000 40 0 40 80 METRES

FIG 97

097

Utem Survey
(%)
CHANNEL 5
CHANNEL 8

3 — 75
2 — 50
1 — 25
0 — 0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E 4100 E

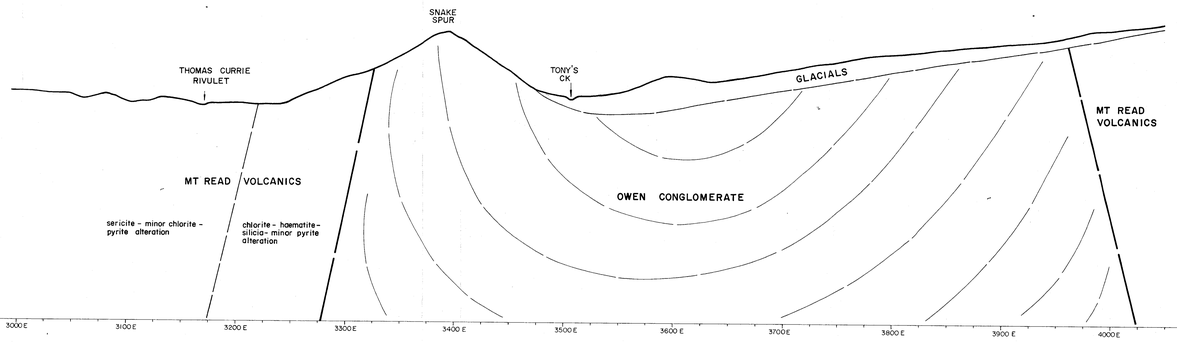
Bedrock Geochemistry
(P.P.M.)
Pb, Zn, As, Cu
Au, Ag

500 — 0·5
200 — 0·4
150 — 0·3
100 — 0·2
50 — 0·1
10

3100 E N/S N/S 3300 E 3400 E

Topography & Geology
HEIGHT ABOVE SEA LEVEL - (Metres)

500 450 400 350 300 250 200 150 100 50 0



3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E 4000 E

113656

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 - TYNDALL PROJECT

SNAKE SPUR GRID

LINE 2600 N. 097

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG.	98

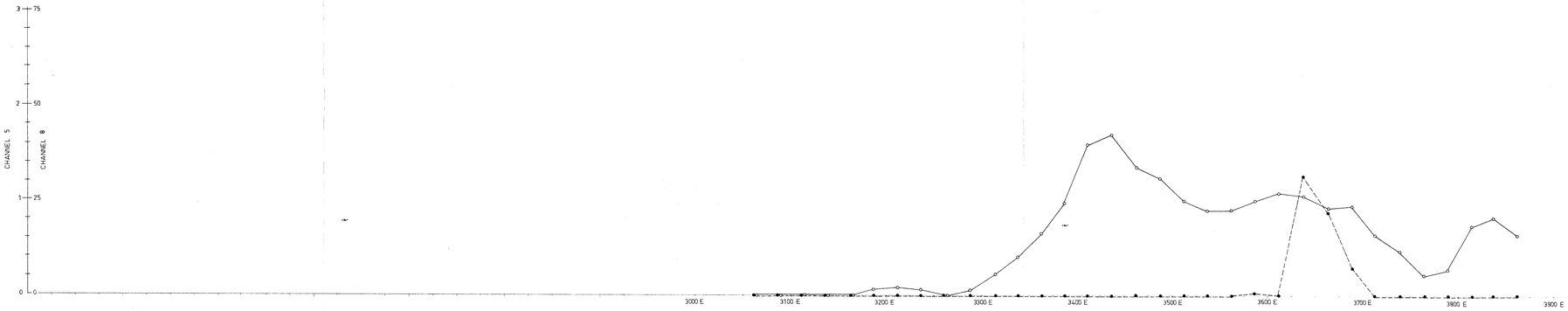
5 cm

GEOCHEMISTRY
Pb
Zn
As
Cu
Au
Ag

UTEM SURVEY
Hilbert (10 Terms) filtered results
Channel 5
Channel 8

098

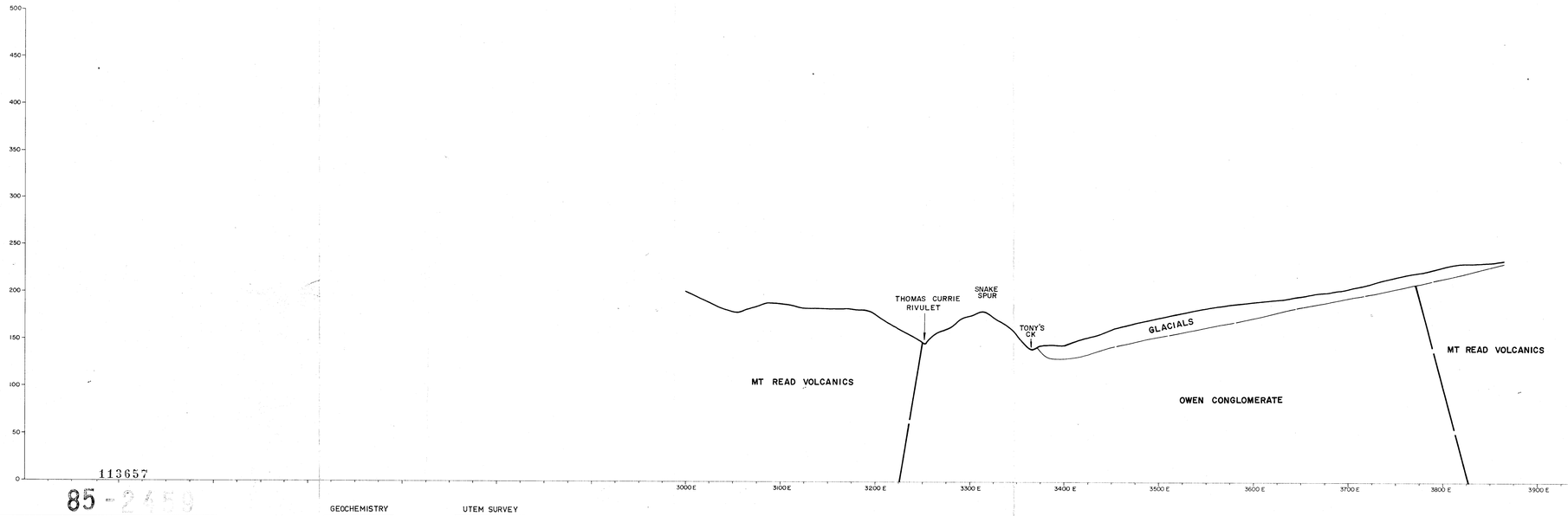
Utem Survey
(%)



Bedrock Geochemistry
(P.P.M.)
Pb, Zn, As, Cu



Topography & Geology
HEIGHT ABOVE SEA LEVEL - (Metres)



113657

85-259

GEOCHEMISTRY

Pb
Zn
As
Cu
Au
Ag

UTEM SURVEY

Hilbert (10 Terms) filtered results

Channel 5
Channel 8

5 cm

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

LINE 3100 N. 098

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	

FIG 99

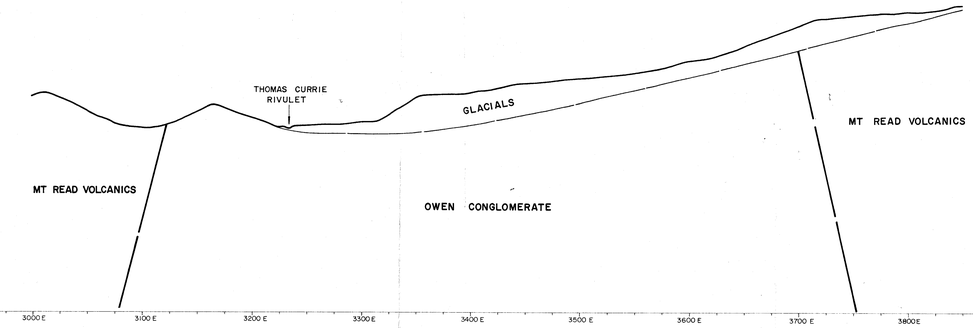
099

Utem Survey
(%)
CHANNEL 5
CHANNEL 8
3
2
1
0
75
50
25
0

3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E 3900 E

Bedrock Geochemistry
(P.P.M.)
Pb, Zn, As, Cu
Au, Ag
500
200
150
100
50
10
0·5
0·4
0·3
0·2
0·1

Topography & Geology
HEIGHT ABOVE SEA LEVEL - (Metres)
500
450
400
350
300
250
200
150
100
50
0



3000 E 3100 E 3200 E 3300 E 3400 E 3500 E 3600 E 3700 E 3800 E

113658

85-2459

GEOCHEMISTRY
Pb
Zn
As
Cu
Au
Ag

UTEM SURVEY
Hilbert (10 Terms)
filtered results
Channel 5
Channel 8

GOLD FIELDS EXPLORATION PTY LIMITED

E.L.9/66 – TYNDALL PROJECT

SNAKE SPUR GRID

099

LINE 3300N.

LOOKING N.

SCALE 1:2000 40 0 40 80 METRES

DRAWN BY	A.C.
DRAFTSMAN	T.G.D.S.
DATE	June '85
REVISIONS	
FILE NO.	
FIG	100

5 cm

E.L. 9/66 BOUNDARY

5 cm

SNAKE SPUR - GARFIELD RIVER SEQUENCE

GORDON LIMESTONE (INFERRED)

FLANIGANS GOLD

LIMIT OF ALLUVIAL MORNINGS

LIMIT OF FLUVIO GLACIALS

OWEN/ELDON GROUP ?

SILTSTONE

SANDST micaceous

QUARTZITE, OWEN OR ELDON GROUP?

GORDON LIMESTONE (INFERRED)

COARSE VOLCANICLASTICS

TUFFACEOUS SILTSTONE

OWEN CONGLOMERATE - SANDSTONE

VOLCANICLASTICS

VOLCANICLASTIC CONGLOMERATE

POST CAMBRIAN QUARTZITE

West facing

OWEN OR ELDON GROUP ?

IGNIMBRITE

TUFFACEOUS GRID EPICLASTICS

UNDIFFERENTIATED VOLCANICS

PREDOMINANTLY VOLCANICLASTICS

TUFFACEOUS SILTSTONE

Creek

1400 N

E.L. 9/66 BOUNDARY

TUFFACEOUS SHALE

COARSE VOLCANICLASTICS

SHALE / CHERTS

SHALE

SANDY SILICIFIED SHALE MASSIVE

Quartz feldspar phyric volcanics medium grained, foliated sericitized, pyrite.

RHYOLITE LAVA qtz biotite porphyritic

SANDY SILIC' SHALE massive

COARSE VOLCANICLASTICS

SHALE

RHYOLITE LAVA qtz feldspar phyric

RHYOLITE LAVA quartz biotite porphyritic

SHALE

RHYOLITE LAVA qtz feldspar phyric

SHALE

RHYOLITE LAVA quartz biotite porphyritic

SHALE

QUARTZ SERICITE SCHISTS

Qtz feldspar phyric volcanics fine-medium grained subaerial-water laid lithologies frequently pyritic

Section 2688 Approx. location Shaft, tunnel, trenching

SNAKE SPUR/GARFIELD RIVER SEQUENCE

fine-coarse grained volcaniclastics minor rhyolitic lavas

RHYOLITE LAVAS, IGNIMBRITES

SUBAERIAL VOLCANICS DOMINANT

alteration minor, massive

RHYOLITE feldspar phenocrysts

Rhyolite dyke phenocrysts

IGNIMBRITE feldspar phyric with ash, fine tuffaceous lenses

IGNIMBRITE Feldspar phyric Ash, fine tuff lenses

IGNIMBRITE quartz feldspar phyric

ANDESITE LAVA hornblend porphyritic

ANDESITE LAVA hornblend porphyritic

RHYOLITE, LAVAS, IGNIMBRITES MASSIVE SUBAERIAL VOLCANICS DOMINANT dacitic/rhyolitic minor

GARFIELD

RIVER

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

FLANNIGANS OWEN CONGLOMERATE

FLAT LYING

VOLCANICLASTIC CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

WESTERN LIMIT OF FOLIATED SERICITIZED VOLCANICS

WESTERN LIMIT OF FOLIATED SERICITIZED VOLCANICS

E.L. 9/66 BOUNDARY

Approx. Trend of SHALE/ LAVAS

Rhyolite lava massive

Fine tuffaceous chloritized sediment

IGNIMBRITE ? Qtz feldspar phyric, massive fine glassy ground mass variable lithic component foliated, sericitized.

Fine tuffaceous sediment

RHYOLITE LAVA

IGNIMBRITE qtz feldspar phyric

SHALE TUFFACEOUS SEDIMENTS

RHYOLITE LAVA massive, some feldspar phyric

SHALE LENSES

EASTERN CLARK VALLEY SHALE/LAVA SEQUENCE

E.L. 9/66 BOUNDARY

GORDON LIMESTONE

OWEN CONGLOM.

GORDON LIMESTONE

OWEN CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOM.

VOLCANICLASTICS massive mostly ground

CAMBRIAN UNDIFFERENTIATED

COARSE VOLCANICLASTICS

SNAKE SPUR / GARFIELD RIVER SEQUENCE

IT IS HIGHLY LIKELY THAT A THIN FINGER OF GORDON LIMESTONE OCCURS IN THE CENTRE OF THIS SYNCLINE, HIDDEN BENEATH THE GLACIALS.

Sericitic volcanics

Sailor Jacks (approx) pink quartzite

GLACIAL COVER (~20-30m thick in the west, thinning eastwards.)

Carbonaceous mudstone related to limestone ?

Section 2275 - Approx. position Pyritic sonlat with specular hematite near Owen Contact. Schist slate with galena joint faces

SHALES/FINE TUFFACEOUS SEDIMENTS

IGNIMBRITE feldspar phyric ash ground mass

IGNIMBRITE feldspar phyric fine ash ground mass

Hematitic medium grained clastics

FINE PHYRIC TUFFACEOUS SEDIMENTS

RHYOLITE LAVA

Snake Spur Costean Section 3025

Axis of overturned Owen

Ash

Quartz veining in lavas

Ash

Ash

SHALE

VOLCANICLASTIC MED-COARSE GRAINED

Qtz

Ash

Qtz veining

Section 2101 approx. position Tunnel, trenches in pyritic schist.

INTERCALATED DACITIC LAVAS AND VOLCANICLASTICS

QUARTZ SERICITE SCHISTS

Quartz feldspar phyric volcanics fine-medium grained subaerial water laid lithologies frequently pyritic.

Section 2688 Approx. location Shaft, tunnel, trenching

SNAKE SPUR GRID

GLACIALS

RHYOLITE LAVA

ASH

ASH

CAMBRIAN UNDIFFERENTIATED

GLACIALS

Tuffaceous sediments

RHYOLITE LAVAS massive, microspherulitic texture, feldspar phyric

IGNIMBRITES/MINOR ASH, LAVAS SUBAERIAL

Ignimbrites, massive, feldspar phyric with lithics & fiamme

Section 4587 Approx. position pyritic schist barite hematite veining

RHYOLITE massive, microsphe texture, feldspar ph

OWEN CONGLOMERATE

Sandstone beds and lenses. hem. silica

Qtz veining

OWEN CONGLOMERATE - SA

PROBABLE FAULTED CONTACT

CAMBRIAN UNDIFFERENTIATED

SHEET LOCA

Garfield

Flannigans

5 cm

GOLD FIE

TYNDA

FLANNIGANS -

INTER

GE

SCALE 1:5000

E.L. 9/66 BOUNDARY

SNAKE SPUR - GARFIELD RIVER SEQUENCE

GLACIALS

TUFFACEOUS SHALE

COARSE VOLCANICLASTICS

SHALE / CHERTS

SANDY SILICEOUS SHALE - MASSIVE

SHALE

COARSE VOLCANICLASTICS SHALE

Quartz feldspar phyric volcanics medium grained, foliated sericitized, pyrite.

ALLUVIAL WORKINGS

RHYOLITE LAVA qtz biotite porphyritic

SANDY SILIC' SHALE massive

COARSE VOLCANICLASTICS

SHALE

RHYOLITE LAVA qtz feldspar phyric

RHYOLITE LAVA quartz biotite porphyry

SHALE

GORDON LIMESTONE

OWEN CONGLOMERATE - SANDSTONE

SILTSTONE

SNAKE SPUR/GARFIELD RIVER SEQUENCE
fine-coarse grained volcaniclastics minor rhyolitic lavas

VOLCANICLASTICS

FLANNIGANS OWEN CONGLOMERATE

TUFFACEOUS GRID EPICLASTICS

IGNIMBRITE

TUFFACEOUS SILTSTONE

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

FLAT LYING

VOLCANICLASTIC CONGLOMERATE

VOLCANICLASTIC CONGLOMERATE

CAMBRIAN UNDIFFERENTIATED

WESTERN LIMIT OF FOLIATED SERICITIZED VOLCANICS

RHYOLITE LAVAS, IGNIMBRITES
SUBAERIAL VOLCANICS DOMINANT
254 alteration minor, massive

RHYOLITE feldspar phenocrysts

IGNIMBRITE feldspar phyric with ash, fine tuffaceous lenses

IGNIMBRITE Feldspar phyric. Ash, fine tuff lenses

IGNIMBRITE quartz feldspar phyric

ANDESITE LAVA hornblend porphyritic

ANDESITE LAVA hornblend porphyritic

RHYOLITE, LAVAS, IGNIMBRITES
MASSIVE SUBAERIAL VOLCANICS DOMINANT
alteration minor

GARFIELD

RIVER

Fine tuffaceous chloritized sediment

Fine tuffaceous sediment

IGNIMBRITE ?
Qtz feldspar phyric, massive fine glassy ground mass variable lithic component foliated, sericitized.

WESTERN LIMIT OF FOLIATED SERICITIZED VOLCANICS

Approx. Trend of SHALE/ LAVAS

E.L. 9/66 BOUNDARY

RHYOLITE LAVA

Rhyolite lava massive

IGNIMBRITE ? qtz feldspar phyric

SHALE TUFFACEOUS SEDIMENTS

RHYOLITE LAVA massive, some feldspar phyric

SHALE LENSES

EASTERN CLARK VALLEY SHALE/LAVA SEQUENCE

QUARTZ SERICITE SCHISTS
Qtz feldspar phyric volcanics fine-medium grained subaerial-water laid lithologies frequently pyritic.

Section 2688
Approx. location
Shaft, tunnel, trenching

Section 2688
Approx. location
Shaft, tunnel, trenching

IGNIMBRITE
feldspar phyric fine ash ground mass

SNAKE SPUR GRID

SHALE/FINE TUFFACEOUS SEDIMENTS

INTERCALATED DACITIC LAVAS AND VOLCANICLASTICS
Chl. ser.

QUARTZ SERICITE SCHISTS
Quartz feldspar phyric volcanics fine-medium grained subaerial water laid lithologies frequently pyritic.

Section 2375 - Approx. position
Pyritic schist with specular hematite near Owen Contact. Schist slate with parena joint faces

IGNIMBRITE
feldspar phyric fine ash ground mass

Hematitic medium grained clastics

FINE PYRITIC RHYOLITE LAVA

FINE PYRITIC TUFFACEOUS SEDIMENTS

Snake Spur Costean Section 3025

Axis of overturned Owen

Quartz veining in lavas

Ash

SHALE

VOLCANICLASTIC MED.-COARSE GRAINED

Section 2101 approx. position
Tunnel, trenches in pyritic schist.

Sandstone beds and lenses. hem. silica

Qtz veining

PROBABLE FAULTED CONTACT

CAMBRIAN UNDIFFERENTIATED

OWEN CONGLOMERATE - SANDSTONE

CAMBRIAN UNDIFFERENTIATED

GORDON LIMESTONE

OWEN CONGLOMERATE

GORDON LIMESTONE

OWEN CONGLOM.

FLUVIO GLACIALS

VOLCANICLASTICS massive medium grained

GLACIALS

GORDON LIMESTONE

OWEN CONGLOM.

GORDON LIMESTONE

OWEN CONGLOMERATE

LIMIT OF EXTENSIVE FLUVIO GLACIALS

GLACIALS

CAMBRIAN UNDIFFERENTIATED

IT IS HIGHLY LIKELY THAT A THIN FINGER OF GORDON LIMESTONE OCCURS IN THE CENTRE OF THIS SYNCLINE, HIDDEN BENEATH THE GLACIALS.

Sericitic volcanics

Sailor Jacks (approx)

pink quartzite

GLACIAL COVER (20-30m thick in the west, thinning eastwards.)

LIMIT OF EXTENSIVE FLUVIO GLACIALS

Carbonaceous mudstone related to limestone ?

IGNIMBRITES / MINOR ASH, LAVAS SUBAERIAL
Ignimbrites, massive, feldspar phyric with lithics & fiamme

IGNIMBRITE, LAVA ASH

Section 4587 Approx. position
pyritic schist barite hematite veining

RHYOLITE LAVAS
massive, microspherulitic texture, feldspar phyric

Massive rhyolite lava

IGNIMBRITE qtz phyric lithics to 50mm

CAMBRIAN UNDIFFERENTIATED

PART OF CENTRAL FLOW DOME COMPLEX
massive, microspherulitic texture occasionally feldspar phyric

ASH

RHYOLITE LAVA

CAMBRIAN UNDIFFERENTIATED

LIMIT OF EXTENSIVE FLUVIO GLACIALS

GLACIALS

HYDES ADIT

Tuffaceous sediments

RHYOLITE LAVAS
massive, microspherulitic texture, feldspar phyric

HAL JUKES ADIT

100

LEGEND:

- Geological boundary
- Interpreted geological boundary
- Fault
- Unconformity

Bedding
- 0-30°
- 30-60°
- >60°

Folds
- Syncline
- Anticline
- Plunge

Alteration
- Pyritic sericite/chlorite
- Hematite sericite

SHEET LOCATION

Garfield	Jukes
Flannigans	Snake

GRID CONVERGENCE 0°ed

GRID MAGNETIC ANGLE 18°

5 cm

113659

85 2459

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL - E.L. 9/66 100

FLANNIGANS - SNAKE SPUR AREA

INTERPRETATIVE GEOLOGY

DRAWN BY :

DRAFTSMAN : T.G.D.S.

DATE : July 85

REVISIONS :

FILE NO.

SCALE 1:5000 — 100 0 100 200 METRES

FIG. 101

176 000mE
177 000mE
178 000mE
179 000mE
180 000mE
5329 000mN
5328 000mN
5327 000mN
5326 000mN

E.L. 9/66 BOUNDARY

PLANIGANS CREEK PROSPECT
Located for terrace several hundred feet above Planigans Ck
Rock rich pyrrhotite quartz pyrite veins in slate near porphyry contact
NOT LOCATED
REPORTED BY PR Feb 1979

NORTHERN BOUNDARY 2588 – 55m

LEGEND

FLUVIOGLACIALS
- Quaternary Conglomerate / quartzite detritus

ORDOVICIAN – SILURO/DEVONIAN
- Siltstones and micaceous sandstone
- Gordon Limestone
- Owen Conglomerate / sandstone

CAMBRIAN
VOLCANICLASTICS
- Medium-coarse grained sediments varying degree reworking – quartzites pC detritus
- Fine grained siltstones, shales and crystal tuff
- Fine sandy siliceous shale

RHYOLITE LAVAS/flow domes samples
- Aphanitic, microphyrhyritic texture feldspar phyric usually chloritised
- Quartz bostite porphyritic
- Flow banded lava associated with ash/agglomerate
- Massive quartz feldspar phyric (chloritised)

IGNIMBRITES/tuffs – sub aerial volcanics
- Groundmass fine glassy varying proportion crystals and lithics (Rhyolitic) Strong foliation, Scattered ash lenses make fine tuffaceous sediments (q - quartz feldspar phyric) (f - feldspar phyric)

ANDESITE
- Hornblend porphyry extrusive unit

ALTERATION
- Pyritic sericite / chlorite
- Hematite sericite (near Owen Congl. Contact)
- Rock Sample
- Stream Sediment Location
- Bedding
- Foliation

NOTES (1) Samples prefixed SS taken by Hutton in 1977-78
(2) Samples in the range 11300-11600 taken by Pollock in 1983-84

SHEET INDEX

Newell		Hurley
	GARFIELD	
Flanagans		Snake

5 cm

GRID CONVERGENCE 0°NE
GRID MAGNETIC ANGLE 4°

G1s 83652-71

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic value is correct for 1984. Annual change is 10' (ten arcmin) Easterly

85-2459

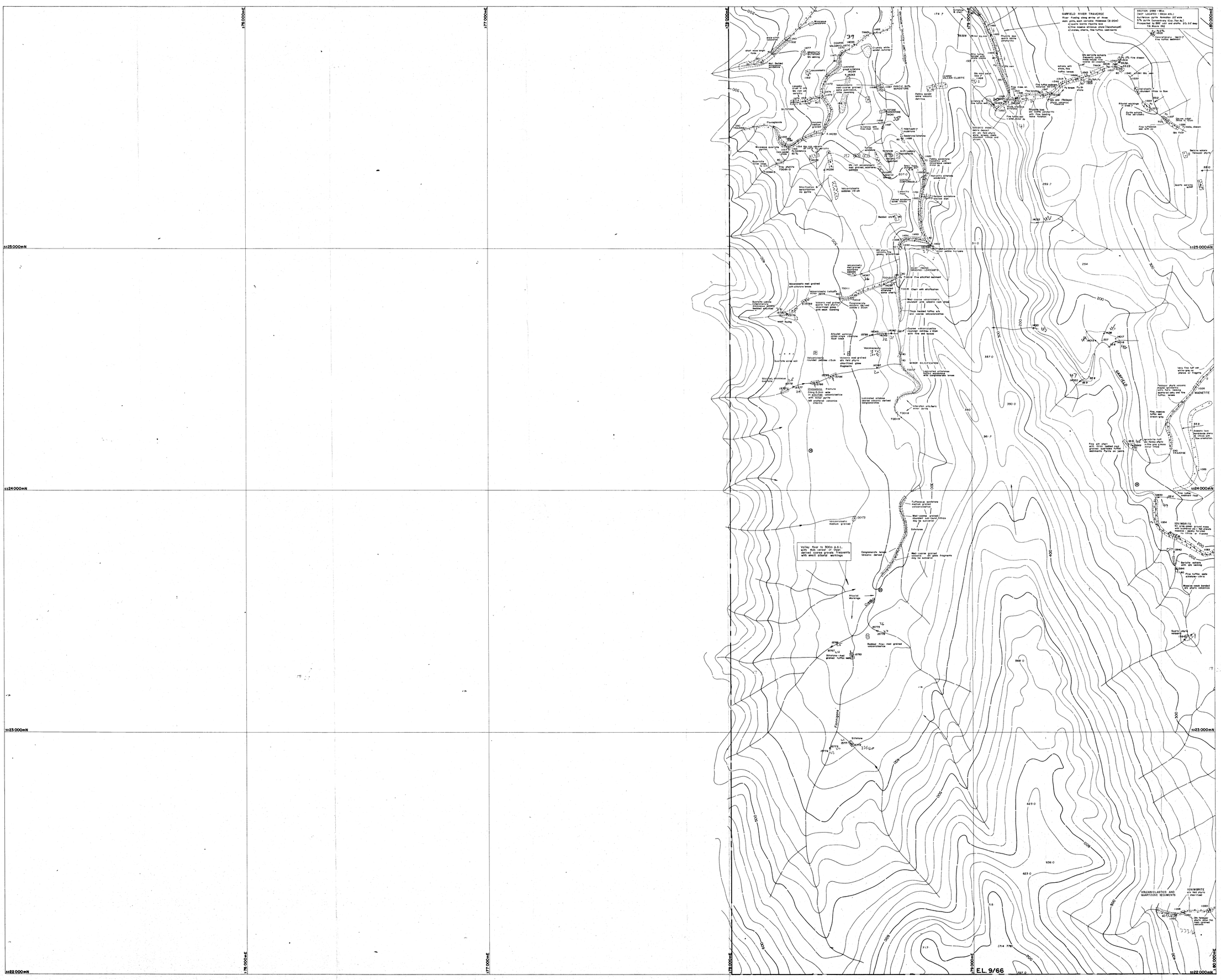
GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L. 9/66
GARFIELD 101
OUTCROP GEOLOGY & SAMPLE LOCATIONS

DRAWN BY	R.Pollock
DRAFTSMAN	T.G.D.S.
DATE	Mar '84
REVISIONS	R.Pollock June 1985
FILE NO.	
FIG.	102

SCALE 1:5000 (100 0 100 200 METRES)

113660


376 000mE
377 000mE
378 000mE
379 000mE
380 000mE
325 000mN
324 000mN
323 000mN
322 000mN
GARFIELD RIVER TRAVERSE
River flowing along strike of three main units, each variable thickness (±20m)
a) quartz biotite rhyolite lava
b) fine massive siliceous shale (hazcherget)
c) shales, cherts, fine tuffitic sediments
SECTION 0980 - 1830 (NOT LOCATED - 390m asl.)
Auriferous pyrite lenses/bar 20' wide
5% pyrite (concentrate 45oz /ton Au)
Prospected by 880' adit and shafts 20, 0-6' deep
T.R. Moore 1982
LEGEND
FLUVIOGLACIALS
Owen Conglomerate / quartzite detritus
ORDOVICIAN – SILURO/DEVONIAN
Siltstones and micaceous sandstone
Gordon Limestone
Owen Conglomerate / sandstone
CAMBRIAN
VOLCANICLASTICS
Medium-coarse grained sediments varying degree reworking – quartzose pyc detritus
Fine grained siltstones, shales and crystal tuff
Fine sandy siliceous shale
RHYOLITE LAVAS / flow dome complex
Massive, microphanitic texture feldspar phyric usually chloritised
Quartz biotite porphyritic
Flow banded lava associated with ash/pumicite
Massive quartz feldspar phyric (chloritised)
IGNIMBRITES/tuffs - sub aerial volcanics
Groundmass fine glassy varying proportion crystals/clasts, advance devitrification & silicification. Scattered ash lenses minor fine tuffitic sediments
(q - quartz feldspar phyric) (f - feldspar phyric)
ANDESITE
Hornblend porphyry extrusive unit
ALTERATION
Pyritic sericite / chlorite
Hematite sericite (near Owen Congl. Contact)
Rock Sample
Stream Sediment Location
Bedding
Foliation
NOTES: (1) Samples prefixed SS taken by Hutton in 1977-78
(2) Samples in the range 11300-11600, taken by Pollock in 1983-84
SHEET INDEX
Garfield
Johns
FLANNIGANS
Snake
Borell
Darwin
GRID CONVERGENCE (0°30')
GRID MAGNETIC ANGLE 18°
The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic variation is for the year 1985 and will change at 0°03' (3'4 mins) Easterly.
5 cm
GOLD FIELDS EXPLORATION PTY. LIMITED
TYNDALL – E.L. 9/66 102
FLANNIGANS
OUTCROP GEOLOGY & SAMPLE LOCATIONS
DRAWN BY : R.Pollock
DRAFTSMAN: T.G.D.S.
DATE : Mar.'84
REVISIONS :
R.Pollock June 1985
FILE NO.
SCALE 1:5000
400 0 100 200 METRES
FIG. 103
E.L. 9/66

103

376 000mE
377 000mE
378 000mE
379 000mE
380 000mE
7529 000mN
7528 000mN
7527 000mN
7526 000mN

SAMPLES
- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS - Cu, Pb, Zn, Ag, Sn, WO_3, Au all in p.p.m.

(1) Cu, Pb, Zn values either shown as integers, which are p.p.m. or decimals (eg. 0·1) which are %
(2) where a dash is shown the element has not been assayed for (eg. in 9,18,6,(-),-,-,2 the sample was not assayed for Sn or WO_3)

SHEET INDEX

	Newell	Hockey
	GARFIELD	Jones
	Flemington	Snake

GRID CONVERGENCE 0°50'

GRID MAGNETIC ANGLE 12°

GN TN MN

GIS 33 662 -71

The relationship between True North, Grid North and Magnetic North is correct at the centre of the sheet. The value is correct for 1984. Annual change is 10' (0·16 mrad) Easterly.

5 cm

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL - E.L. 9/66 103

GARFIELD

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

DRAWN BY	R.P.
DRAFTSMAN	S.F.
DATE	April. 84
REVISIONS	
FILE NO.	
FIG.	104

SCALE 1:5000 (100 0 100 200 METRES)

113662

104

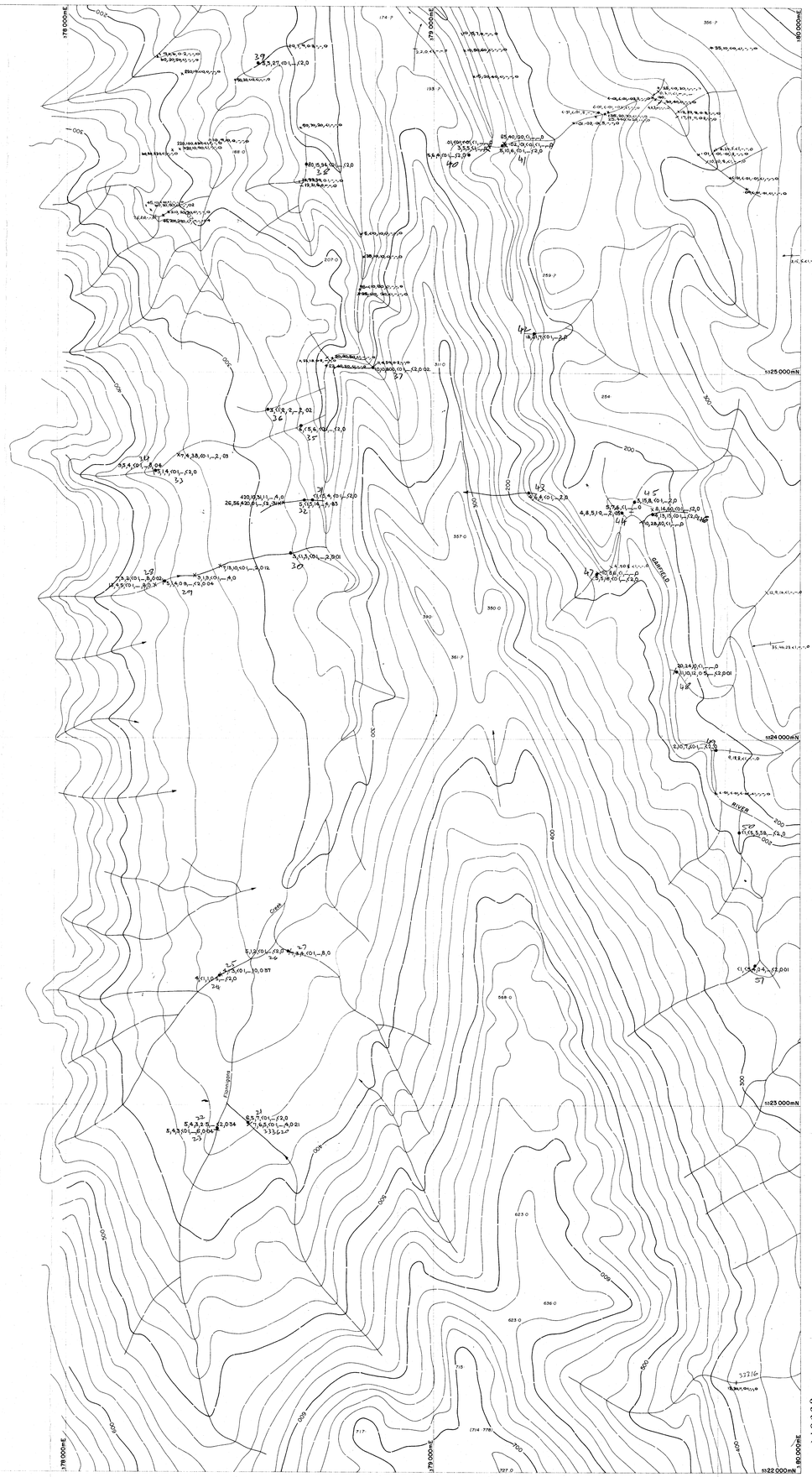
7600mE | 7700mE | 7800mE | 7900mE

8025000mN

8024000mN

8023000mN

8022000mN



SAMPLES

- Stream Sediment
- Rock Chip
- Panned Concentrate

ORDER OF ASSAYS - Cu, Pb, Zn, Ag, Sn, WO_3, Au

all in p.p.m.

(1) Cu, Pb, Zn values either shown as integers, which are p.p.m., or decimals (eg. 0.1) which are %

(2) Where a dash is shown the element has not been assayed for (eg. in 9,18,8,<1,–,–,Ω the sample was not assayed for Sn or WO_3)

SHEET INDEX

GIS 33620-51

GRID CONVERGENCE (0°W)

GRID MAGNETIC ANGLE 12°

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic values are for 1985. Annual change = 0.03° (3.0 mins) Easterly.

5 cm

85-2459

GOLD FIELDS EXPLORATION PTY. LIMITED

TYNDALL – E.L. 9/66

FLANNIGANS 104

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

DRAWN BY	R.P.
DRAFTSMAN	S.F.
DATE	April, 84
REVISIONS	
FILE NO.	

SCALE 1:5000 (100 0 100 200 METRES)

FIG. 105

113663

105

176 000mE
177 000mE
178 000mE
179 000mE
180 000mE
5129 000mN
5128 000mN
5127 000mN
5126 000mN

SAMPLES
Stream Sediment
Rock Chip
Panned Concentrate
ORDER OF ASSAYS – As, Sb, Bi, Te, Tl, Ba, Fe %

NOTE: Where a dash is shown the element has not been assayed for.

SHEET INDEX

	Newell	Hunley
	GARFIELD	Jukes
	Flemigans	Snake

5 cm

GN
TN
MN
GRID CONVERGENCE 0°50'
GRID MAGNETIC ANGLE 12°

The relationship between True North Grid North and Magnetic North is correct for the centre of the sheet value is correct for 1985. Annual change is 12' (0.6 mrad) Easterly

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL – E.L. 9/66 105

Garfield

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

DRAWN BY	C.P.
DRAFTSMAN	E.V.
DATE	June 1985
REVISIONS	
FILE NO.	

SCALE 1:5000 100 0 100 200 METRES

FIG. 106

113664

376 000mE

377 000mE

378 000mE

379 000mE

380 000mE

7925 000mN

7924 000mN

7923 000mN

7922 000mN

SAMPLES

Stream Sediment

Rock Chip

Panned Concentrate

ORDER OF ASSAYS – As, Sb, Bi, Te, Tl, Ba, Fe %

NOTE: Where a dash is shown the element has not been assayed for.

SHEET INDEX

	Garfield	Jukes
	FLANNIGANS	Snake
	Sorell	Darwin

5 cm

GRID CONVERGENCE 0°40'

GRID MAGNETIC ANGLE 13°

The relationship between True North, Grid North and Magnetic North is shown diagrammatically. Magnetic Variation 1985 was 13° East and is changing by 0.1° (6') W/Year Similarly.

85 - 24591

GOLD FIELDS EXPLORATION PTY LIMITED

TYNDALL – E.L. 9/66

Flannigans 106

ROCK CHIP & STREAM SEDIMENT GEOCHEMISTRY

SECONDARY ELEMENTS

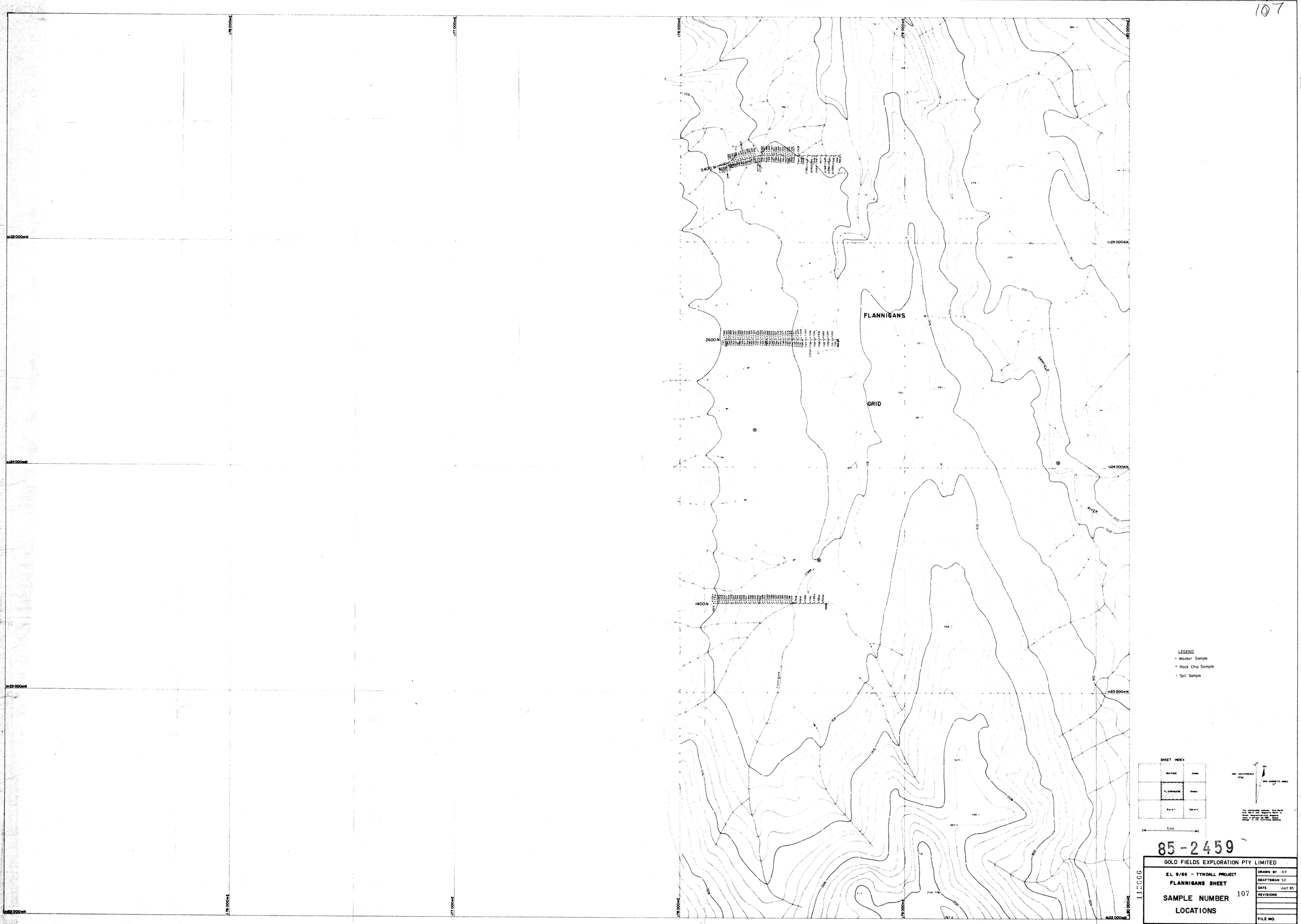
DRAWN BY	C.P.
DRAFTSMAN	E.V.
DATE	June 1985
REVISIONS	
FILE NO.	

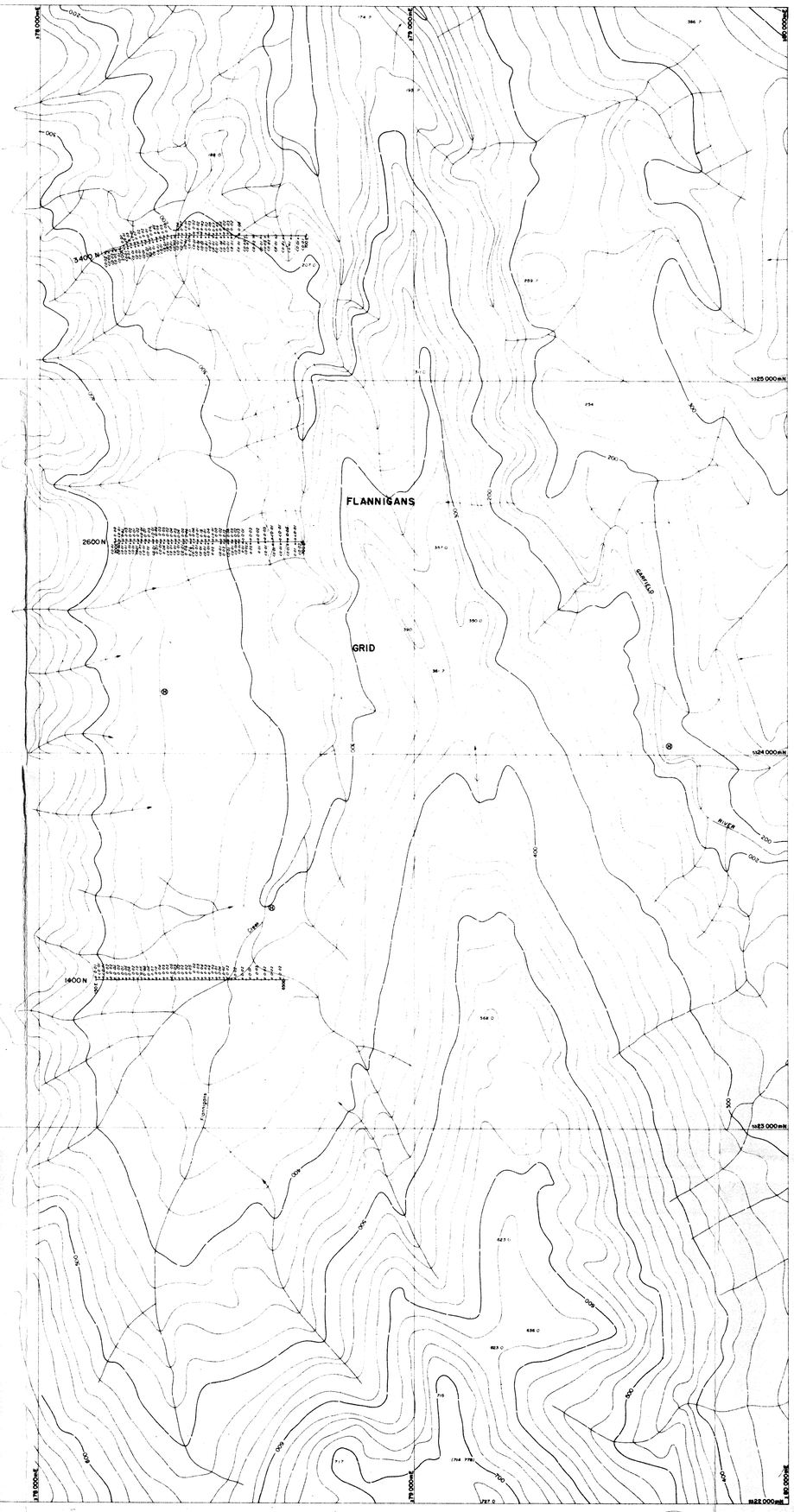
SCALE 1:5000 — 100 0 100 200 METRES

FIG. 107

113665

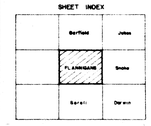
107


176 000mE
177 000mE
178 000mE
179 000mE
180 000mE
1125 000mN
1124 000mN
1123 000mN
1122 000mN
3400 N
2600 N
1400 N
FLANNIGANS
GRID
SAMFIELD
RIVER
LEGEND
Wacker Sample
Rock Chip Sample
Soil Sample
SHEET INDEX
Bellthere
Jordan
FLANNIGANS
Timbo
Barrett
Dan-en-in
5 cm
85-2459
GOLD FIELDS EXPLORATION PTY LIMITED
E.L. 9/66 - TYNDALL PROJECT
FLANNIGANS SHEET
SAMPLE NUMBER LOCATIONS
107
DRAWN BY R.P
DRAFTSMAN S.F.
DATE JULY 85
REVISIONS
FILE NO.
SCALE 1:5000
METRES
FIG. 108



LEGEND
- ⊗ Wacker Sample
- • Soil Sample
- × Rock Chip Sample

SHEET INDEX



5 cm

85-2459

GOLD FIELDS EXPLORATION PTY LIMITED

E.L 9/66 - TYNDALL PROJECT

FLANNIGANS SHEET

Au 103

GEOCHEMISTRY

(p.p.m.)

SCALE 1:5000 (100 0 100 200 METRES)

DRAWN BY	R.P
DRAFTSMAN	S.F.
DATE	JULY.85
REVISIONS	
FILE NO.	
FIG. 109	

113667

109

178 000mE

177 000mE

25 000mN

24 000mN

23 000mN

22 000mN

178 000mE

179 000mE

180 000mE

125 000mN

3400 N

2600 N

1900 N

FLANNIGANS

GRID

BANFIELD

RIVER

CREEK

24 000mN

23 000mN

22 000mN

LEGEND

- Wacker Sample
- Soil Sample
- Rock Chip Sample

SHEET INDEX

Banfield	Johnson	
	FLANNIGANS	Smoke
Barrett		Darwin

5 cm

85-2459

11366S

GOLD FIELDS EXPLORATION PTY. LIMITED

E.L. 9/66 - TYNDALL PROJECT

FLANNIGANS SHEET 109

Cu

GEOCHEMISTRY

(p.p.m.)

DRAWN BY	R.P.
DRAFTSMAN	S.F.
DATE	JULY 85
REVISIONS	
FILE NO.	

SCALE 1:5000 — 100 0 400 800 METRES

FIG. 110

177,000mE

178,000mE

179,000mE

180,000mE

125,000mN

124,000mN

123,000mN

122,000mN

3400 N

2600 N

1800 N

FLANNIGANS

GRID

SEARFIELD

RIVER

Creek

Plum Dam

LEGEND

- Wacker Sample
- Rock Sample
- Soil Sample

5 cm

SHEET INDEX

Garfield	Johns
FLANNIGANS	Banks
Farrell	Darwin

GRID CONVERGENCE 0°30'

MAG MAGNETIC AMBLE 14°

The relationship between True North, Grid North and Magnetic North is as shown. Approximate annual change in 1985 Grid North.

113669

85-2459 1

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 9/86 - TYNDALL PROJECT

FLANNIGANS SHEET

Pb 110

GEOCHEMISTRY

(p.p.m.)

SCALE 1:5000 — 200 0 400 600 METRES

DRAWN BY : RP

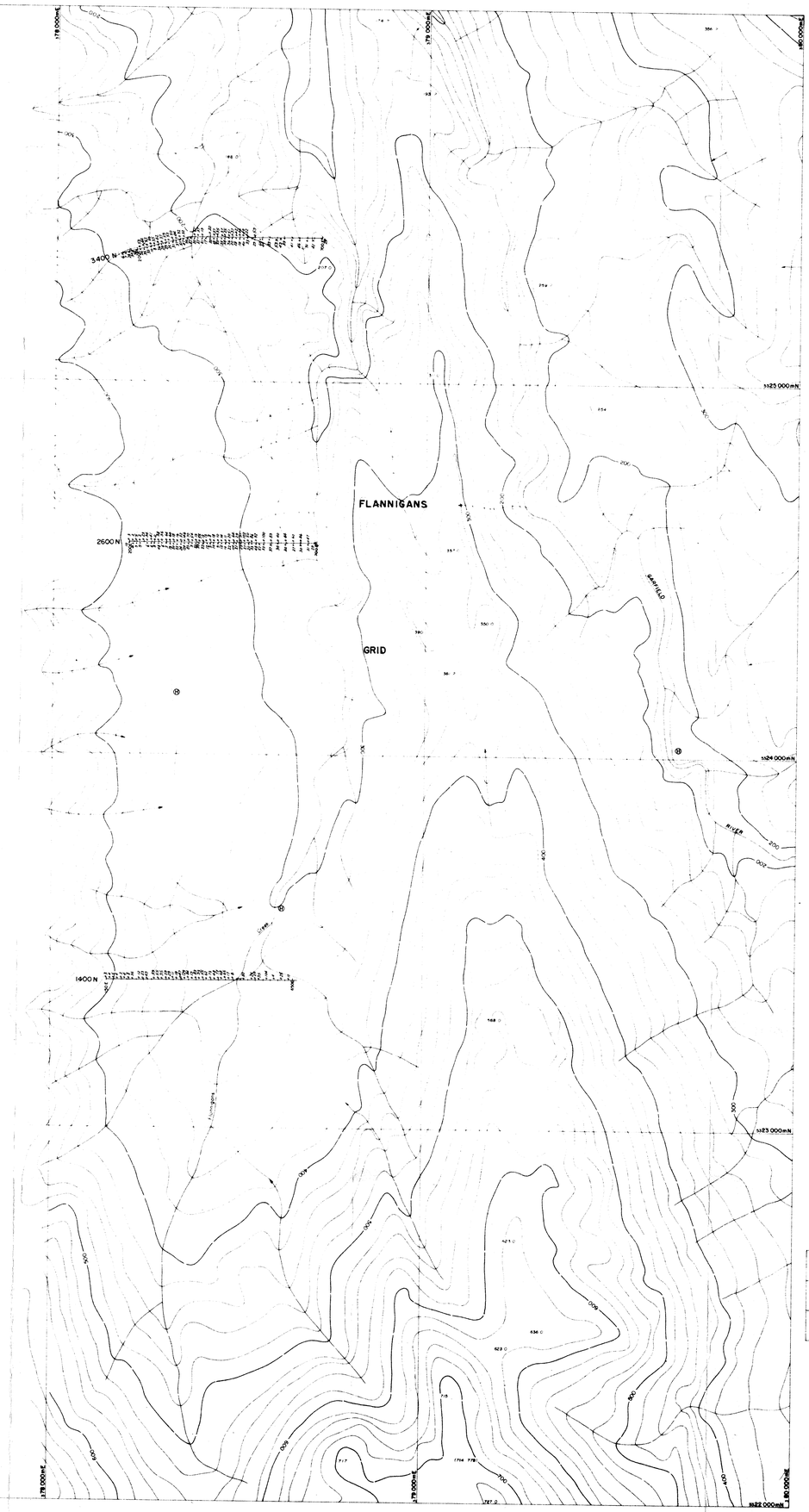
DRAFTSMAN : S.F

DATE : JULY 85

REVISIONS

FILE NO.

FIG. 111

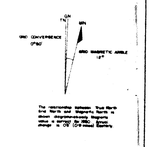


LEGEND
- × Wacker Sample
- • Soil Sample
- × Rock Chip Sample

SHEET INDEX

	Banfield	Johns
	FLANNIGANS	Drake
	Barrett	Dalton

5 cm



85 - 2459 113670

GOLD FIELDS EXPLORATION PTY LIMITED

E.L. 9/66 - TYNDALL PROJECT

FLANNIGANS SHEET

Zn 111

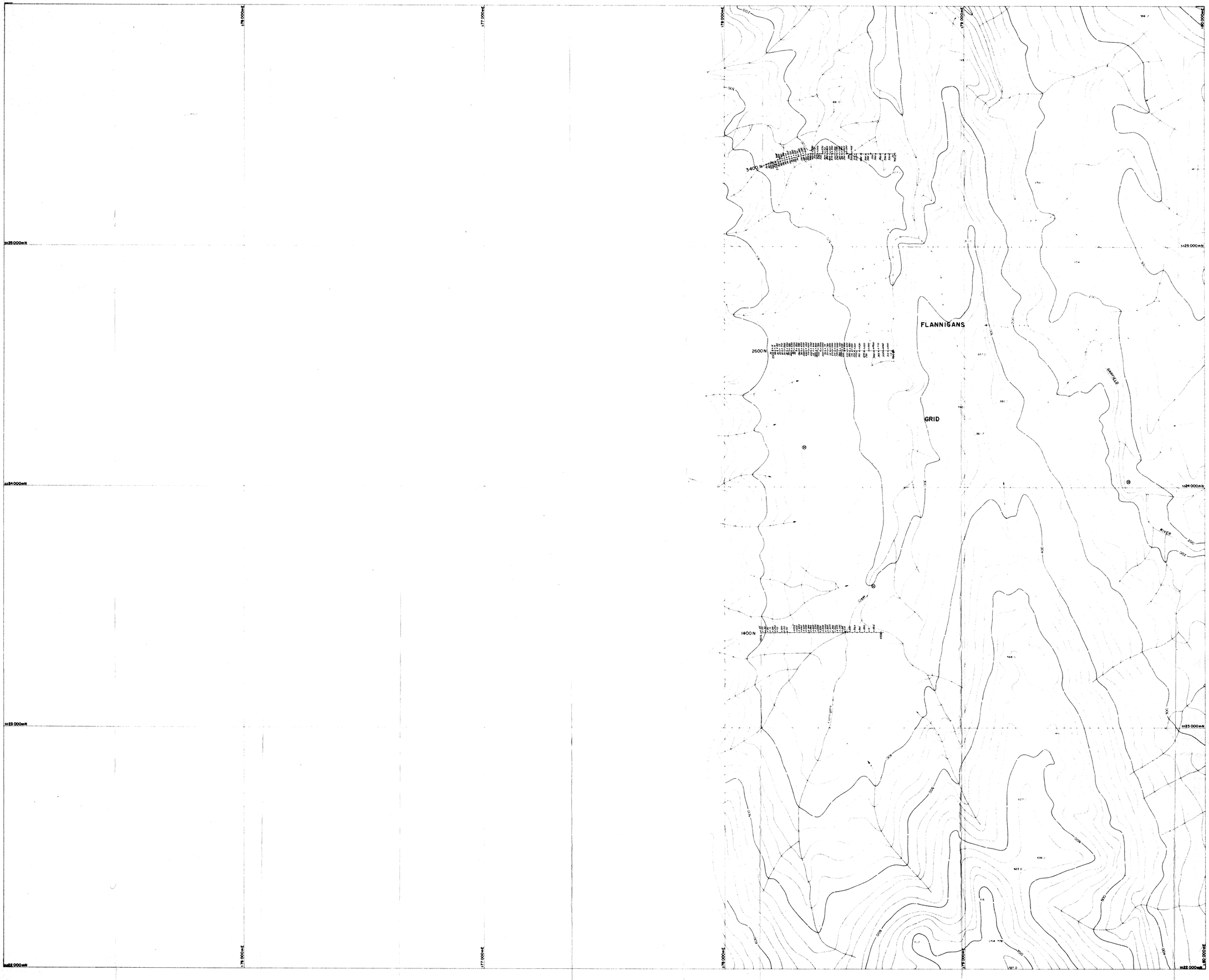
GEOCHEMISTRY (p.p.m.)

SCALE 1:5000 0 100 200 METRES

DRAWN BY R.P.
DRAFTSMAN S.F.
DATE JULY 85
REVISIONS
FILE NO.

FIG. 112

112



113671
85-2459

GOLD FIELDS EXPLORATION PTY LIMITED	
E.L. 9/66 - TYNDALL PROJECT	DRAWN BY R.P.
FLANNIGANS SHEET	DRAFTSMAN S.F.
	DATE JULY 85
Ba 112	REVISIONS
GEOCHEMISTRY (p.p.m.)	
	FILE NO.
SCALE 1:5000 (100 0 100 200 METRES)	FIG. 113

113

GOLD FIELDS EXPLORATION PTY. LIMITED

113672

MICROFILMED

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D. DIR. | - 3 JUL 1985 | E & IL
DEPT. OF MINES
REF. No. 6881/85

E.L. 9/66 TASMANIA

TYNDALL AREA

WORK PROGRAM AND BUDGET PROPOSAL

FOR 1985/86

R.G. FitzGerald
Senior Geologist

OPEN FILE

June, 1985

Circulation: R.G.C. (3)
Getty (1)
Mines Department (1)

GOLD FIELDS EXPLORATION PTY. LIMITED

SUMMARY

Two years now remain to complete exploration over E.L. 9/66 before it must be relinquished in August, 1987. To achieve this goal field activity will continue uninterrupted from 1984/85 through 1985/86. Several prospect areas require additional ground surveys prior to final drill target definition. This work will be completed by the end of 1985 to allow the maximum time for evaluation drilling.

The proposed work program for 1985/86 comprises:

(1) Geological mapping, dipole-dipole spectral IP survey, bedrock geochemistry and 1700m of diamond drilling on the Henty Project (Gold prospect).

(2) A 400m helicopter supported diamond drill hole at Selina (Massive sulphide prospect).

(3) A ground EM survey over the Basin Lake grid (Massive sulphide prospect).

(4) Limited mapping and bedrock geochemistry at West Sedgwick (Gold Prospect).

(5) A total of 550m of diamond drilling at Huxley, possibly one hole helicopter supported (Massive sulphide prospect).

(6) Additional gridding, mapping, bedrock geochemistry and possible IP surveys leading to 550m of helicopter supported diamond drilling of the most encouraging targets at either Snake Spur, Flannigans, Mt. Ellen or Toft, all of which are gold prospects south of Queenstown.

This program is expected to cost $647,700.

115

GOLD FIELDS EXPLORATION PTY. LIMITED

113674

CONTENTS

		Page
SUMMARY		
1.	INTRODUCTION	1.
2.	PROPOSED WORK PROGRAM 1985-86	2.
	2.1 Henty Project	2.
	2.2 Selina	4.
	2.3 Basin Lake	6.
	2.4 West Sedgwick	7.
	2.5 Huxley	9.
	2.6 Gold Exploration South of Queenstown	10.
	1. Snake Spur	10.
	2. Flannigans	11.
	3. Mt. Ellen	11.
	4. Toft (South Huxley)	11.
3.	PROPOSED BUDGET 1985-86	13.

FIGURE 1 E.L. 9/66 Regional Geology and Prospect Locations 1:100,000

FIGURE 2 E.L. 9/66 Work Proposed 1985/86 1:50,000

1. INTRODUCTION

E.L. 9/66, Tasmania expires on 5th August, 1987 at which time the current area of 125 square kilometres must be relinquished (see Figure 1). This means that in effect only two summer field seasons remain to conclude exploration of this highly prospective part of the Mt. Read Volcanics. The aim is to complete additional surface work before January, 1986 to allow the maximum time for a detailed drill evaluation during the remaining period. As a consequence, the proposed work program for 1985/86 requires major field activity to commence during the ensuing winter months with a final decision on drilling details to be made in December, 1985.

Field activity from the current period will continue through into 1985/86. The results from this work are likely to influence the specific details of the proposed program with the maximum effort being expended on the most encouraging prospects.

At present nine areas have been assessed to have significant potential to contain economic base and/or precious metal mineralisation. The prospects are discussed in order of geographical position from north to south (see Figure 2).

113676

2. PROPOSED WORK PROGRAM 1985/86

2.1 Henty Project

Background

The most significant discovery on the licence area to date is gold mineralization within a large zone of silicified pyritic volcanics adjacent to the Henty Fault. The prospect was investigated in detail during 1984/85 with an additional 2473m of diamond drilling being completed. Gold mineralised zones have been intersected over 900m of the fault's strike length with the best values (true widths): 1.6m at 26.1 g/t Au (HP4); 3.1m at 10.9 g/t Au (HP4) and 3.7m at 10.0 g/t Au (HFZ5). Bedrock geochemistry has shown that the system is open along strike to the north. An additional 3.5 km of the Henty Fault Zone remains virtually untested to the northern boundary of the E.L.

It is proposed to maintain the high level of activity over the Henty Prospect during 1985/86 using a broad two-fold approach:

1. Follow-up diamond drilling in the vicinity of the present mineralisation.

2. More widespread coverage of the ground to the north using geological and geophysical and/or geochemical methods to give a more rapid lead into targets for drill testing.

The general details of this program are as follows:

Geological Mapping

The main drainages across the zone of interest to the northern E.L. boundary will be cleared to allow detailed mapping and sampling of outcrop in an attempt to delineate the extent of the auriferous alteration zone. The creek cutting has commenced and should be completed before July, 1985.

Geophysical Surveys

Although the previous gradient array I.P. survey over the area was effective in locating the massive sulphide body it does not appear to have outlined the auriferous pyritic zone(s) adjacent to and along strike from this body. It is proposed to carry out an orientation dipole-dipole spectral I.P. survey in July over two lines which have both surface and drill hole geochemical data. It is hoped that an analysis of the results will discriminate between auriferous and barren disseminated sulphides. If this proves successful then the survey will be extended to cover the inferred zone to the northern E.L. boundary.

Geochemical Sampling

Bedrock geochemical sampling using a portable percussion rig has successfully delineated outcropping gold mineralized zones except where obscured by thick glacial and scree deposits. It is proposed to extend this sampling along strike to the north at the completion of the geophysical

investigations. If the spectral I.P. survey is successful then the geochemical program will focus on those areas high-lighted by the I.P., otherwise a more extensive and expensive program will be carried out to complete the coverage to the northern E.L. boundary.

Drilling

It is proposed to follow-up the current auriferous intersections by drilling two shallow holes to test for near surface mineralization. A third, deeper hole is proposed to indicate possible extensions of grade and thickness at depth. A second intersection will be made from this hole using a wedge. This totals 950m of drilling and is cheduled to commence in September, 1985.

In addition a further 750m is planned to test targets outlined by the surface exploration further north. This work may be carried out in early 1986.

All the drilling will be ground supported.

2.2 Selina

Background

Previous exploration at Selina has outlined a very large strongly altered sulphide system extending over more than 7 km. Although a total of 12 diamond drill holes have now been completed to test these zones no significant base or precious metal mineralization has been intersected.

Due to limited bedrock exposure, this drilling has been largely directed by the results of geophysical surveys, in particular I.P.

A major soil and rock Ag-Pb-Zn geochemical anomaly, the Mt. Selina Anomaly Zone (MSAZ) was first outlined in 1981/82 but has not been investigated in more detail because of the apparent lack of any strong I.P. response. The poor geophysical response has been confirmed by a UTEM survey carried out in 1984/85.

Despite these acknowledged negative features the MSAZ retains intrinsic exploration potential and warrants further evaluation. In particular the geochemical values represent amongst the highest levels of metal from surface samples on the E.L. : maximum values being 24 g/t Ag, 0.4% Pb and 1.35% Zn. The values define a broad area 1000 x 700m in size which may extend further south beneath glacial fill. Hole LS10, drilled 300m north of the MSAZ, encountered a strongly altered sulphidic sequence of fine grained epiclastics adjacent to altered dacitic lavas and volcaniclastics. Encouraging Cu,Pb, Zn and Ag mineralization was intersected over broad intervals in this hole including the only significant gold value obtained anywhere at Selina (viz. 1m at 0.21 g/t Au). The strong I.P. anomaly over the Eastern Pyrite Zone persists south into the MSAZ with an apparent increase in depth to the source. Geological interpretation of the outcrop and drill sections indicates strong similarities with the typical Kuroko setting. Considerable potential exists for the occurrence of an economic volcanogenic massive sulphide depost at depth.

Drilling

Sufficient geological and geochemical information has now been obtained to site a drill hole to effectively test the mineral potential of the MSAZ. It is proposed, initially, to drill one hole 400m long early in 1986. The drill hole will be helicopter supported.

2.3 Basin Lake

Background

The Basin Lake area, and the Selina Prospect represent the two largest strongly altered sulphidic volcanic sequences within the E.L. Previous exploration over Basin Lake, including I.P., ground magnetics, limited ground E.M., soil geochemistry and diamond drilling have outlined a linear sulphide zone 300-400m wide, mostly beneath glacial moraine. This prospective zone appears to be part of a 9 km long belt that stretches from north of Howards Anomaly to Basin Lake.

Widely spaced diamond drilling has not intersected significant base metal mineralization, although hole BL4, drilled in 1981, intersected bedded massive pyrite with one assay over 1.7m of 62 g/t Ag within 17.2m at 11.3 g/t Ag. There is some evidence to suggest that the base metal values are increasing towards the south beneath glacial moraine which is in excess of 30m thick. It appears that the gradient array I.P. may not have been effective in penetrating this thick cover.

122

113681

The strong sericite-carbonate-pyrite altered epiclastic sequence is considered to be very favourable for the occurrence of a volcanogenic massive sulphide deposit. Considerable strike extensions of this zone remain untested and warrant more detailed investigation.

Geophysics

It is proposed to carry out a comprehensive large loop time domain E.M. survey over the entire prospective zone to explore beneath the glacial cover. It is recognized that the power-line which traverses the grid and the presence of graphitic black shale lenses within the sequence may complicate interpretation of the E.M. results. However, such a survey is considered to be the most cost effective and realistic method of evaluating the large area of untested ground.

Some parts of the old grid will need to be re-established prior to carrying out the E.M. survey which will be ground supported and completed by early 1986.

2.4 West Sedgwick

Background

The results from a program in 1984/85 to assess the gold potential of this area were generally disappointing. Comprehensive stream sediment geochemistry and geological mapping did not indicate significant gold mineralization apart from an area in the headwaters of the West Queen River.

It appears that a linear belt of volcanics 0.5 km x 2.5 km to the west of the river is shedding fine gold into the drainage. Small alluvial deposits of gold have been exploited by early prospectors in this area.

Geology/Geochemistry

It is proposed to carry out a restricted program to further investigate the source of this gold mineralization. Grid lines, which will initially be widely spaced, across the inferred source bedrock sequence will be geochemically sampled and mapped in detail to identify the location and style of any mineralization. This area, just north of Queenstown, is readily accessible and could be explored during the early part of the season.

Other Work

Previous work over the West Sedgwick area has shown that the volcanic sequence west of the Great Lyell Fault retains some potential for hosting massive sulphide mineralization. Although no specific work is proposed during 1985/86 over this belt the results from exploration along strike to the north over the Basin Lake area and to the south across the Comstock Valley will be monitored and the implications for future exploration here will be assessed.

2.5 Huxley

Background

A dipole-dipole I.P. survey carried out in 1984/85 across the Mt. Read Volcanics-Owen Conglomerate contact zone has identified several interesting anomalies which require further investigation.

Previous exploration over this area, which lies south of the Mt. Lyell mineral field, has located small silver-lead-zinc gossans within altered fine grained volcaniclastics adjacent to the Great Lyell Fault. Other minor base metal mineralization has been identified within altered volcanics spread over an area 1.5 km south west of the gossans. Geological mapping has shown the area to contain favourable lithologies and alteration for hosting massive sulphide mineralization. More detailed surface investigations are hampered by the presence of extensive glacial till and scree deposits and major structural complications.

Drilling

It is proposed to test the I.P. (+ geochemical) anomalies by drilling two holes for a total of 550m. Because of difficulties with access and rugged topography one of these holes will need to be helicopter supported. This program is scheduled to co-incide with drilling on other prospects in early 1986.

2.6 Gold Exploration South of Queenstown

Background

During the past two years there has been considerable activity over the poorly explored South Huxley and Currie-Garfield-Flannigan Valleys. The main thrust of this program has been to evaluate the potential of widespread gold occurrences, many of which were located during early prospecting activity south of Queenstown.

The most recent work has only just been completed and the results are not yet available. At present four main areas appear to have sufficient encouragement to warrant futher exploration, although the final details of this program will be dependant on the assay results from the remaining samples. These areas are: Snake Spur, Flannigans, Mt. Ellen and Toft (South Huxley).

It is difficult to assess the relative merits of each prospect at this stage, particularly as they have been explored to different levels of detail. The current status of each area is as follows:

1. Snake Spur: Detailed gridding, geological mapping, bedrock geochemistry and UTEM survey have been completed over 2.5 square kilometres. Encouraging gold with anomalous Cu, Pb, and Zn mineralization has been located within altered volcaniclastics adjacent to the faulted Owen Conglomerate contact on

Snake Spur. The anomalous zones are open to the South and West. No significant UTEM anomalies were identified although several apparently superficial responses over glacial scree covered areas may warrant further investigation.

2. Flannigans: Detailed stream geochemistry and follow-up reconnaissance gridding have been completed and orientation bedrock and soil geochemical samples collected, however, assays are awaited. There is some evidence that the source of the significant alluvial gold occurrences exploited early this century may be related to the faulted(?) Owen Conglomerate-Mt. Read Volcanics contact along 3 km of strike.

3. Mt. Ellen: Detailed stream geochemistry and a follow-up reconnaissance grid have been completed and orientation bedrock and soil geochemical samples collected over part of the grid. The assay reaults from these samples are awaited. The Mt. Ellen gold workings are located in the centre of the area. While the quartz veinlet stockwork within argillically altered lavas at the open cut appears to be too restricted in size and too weakly mineralized to warrant further investigation it may be part of a much larger mineralized system which is shedding gold into the drainages.

4. Toft (South Huxley): Geologicl mapping and sampling have shown that the North Huxley alteration/mineralization system does not

extend into the South Huxley area. However, detailed stream geochemical investigations have outlined weakly anomalous gold over 1.5 km within the headwaters of the Toft drainage. Several minor old prospects are known in this vicinity.

The Program

A two stage program is proposed to evaluate these prospects:

1. Extend the current ground surveys by additional gridding, bedrock geochemistry, detailed geological mapping and sampling and possible geophysical (dipole-dipole I.P.?) surveys. Most of this activity would be helicopter supported from Queenstown and would be completed before December, 1985.

2. Diamond drill the most encouraging targets outlined by this earlier work. Two holes for a total of 550m are proposed. It is likely that both will be helicopter supported and drilled in conjunction with similar programs elsewhere on the E.L. in early 1986.

3. E.L. 9/66 PROPOSED BUDGET 1985/86

Personnel Costs		
Staff Salaries	$54,000	
Employee Wages	33,600	
Salary on Costs	26,400	
		$113,900
Travel and Accomodation		7,000
Consultants and Contractors		
Geophysical Consultant	7,000	
Geochemical	31,500	
Mineralogical	4,500	
Surveying	6,500	
Geophysical Surveys	27,000	
Drafting	2,000	
Photographic/printing	1,000	
Freight	2,000	
Earthmoving/track cutting	40,000	
Helicopter Charter	45,500	
		167,000
Sample Preparation and Analysis		40,000
Drilling		
Contractors	208,000	
Core Storage	9,400	
Core processing	1,000	
Other drilling equipment	2,000	
		220,400

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Stores and Supplies		
Rations	4,000	
Maps, reports etc.	700	
Field Consumables	10,000	
Field Equipment	3,000	
		17,700
Vehicle, Plant and Equipment		
Fuel and lubricants	9,000	
Vehicle repairs and maintenance	3,500	
Depreciation vehicles	12,000	
Depreciation other equipment	2,000	
		26,500
Land Acquisition Costs		5,000
Computing		2,000
Field Office/Core Shed Costs		
Office Rental	7,000	
Office Electricity	1,000	
Telephone	1,000	
		9,000
Administration Charges		39,200
	TOTAL	$647,700

GELOGICAL SURVEY OF TASMANIA

GEOLOGICAL COMPILATION MAP OF THE MOUNT READ VOLCANICS QUE RIVER TO MT. DARWIN

Compiled by K. D. Corbett B.Sc Ph.D

1984

0 2 4 6 8 10 KILOMETRES

SCALE 1:100 000

REFERENCE

TERTIARY – QUATERNARY

Tertiary basalt (Tb). Tertiary sediments (Ts). Pleistocene moraine (Qpm)

Unconformity

LATE CARBONIFEROUS – JURASSIC

P – J — Permeener Supergroup. Jurassic dolerite

Unconformity

LATE DEVONIAN

Dg — Granite

SILURIAN – EARLY DEVONIAN

S – D — Eldon Group undifferentiated

Conformity. ?disconformity

ORDOVICIAN

Og — Gordon Limestone Subgroup

Unconformity. disconformity. conformity

LATE CAMBRIAN – EARLY ORDOVICIAN

Oc — Owen Conglomerate and correlates

Unconformity. disconformity

CAMBRIAN – ?EOCAMBRIAN

NORTH AND WEST OF HENTY FAULT ZONE

€dg — Dundas Group and correlates, including "Rosebery Group" (Middle to Late Cambrian) – greywacke, siltstone, mudstone, conglomerate, tuff

€dt — Major felsic tuff unit

€dq — Quartzwacke–quartzite–mudstone

€dc — Conglomerate

€db — Basaltic volcanics

€da — Andesitic volcanics

€vs — Lower volcano-sedimentary sequence. Howards Road area

€vst — Major felsic tuff unit

Disconformity. ?unconformity

CV — Central Volcanic Sequence – rhyolitic to dacitic volcanics, mainly feldspar-phyric

CVa — Andesitic volcanics

CVq — Quartz-phyric volcanics

CVs — Shale-siltstone horizons

€cc — Crimson Creek Formation – mafic lithicwacke, mudstone – unfossiliferous

€sc — Success Creek Group – mudstone, quartzite, dolomite, mixtite (?Eocambrian)

SOUTH AND EAST OF HENTY FAULT ZONE

€tg — Tyndall Group and correlates – (late Middle to Late Cambrian) – mainly quartz–feldspar–phyric volcanics and volcaniclastic conglomerates

€sr — Sticht Range Beds – quartzwacke, siltstone, siliclastic conglomerate

Unconformity. ?disconformity

CV — Central Volcanic Sequence – rhyolitic to dacitic volcanics, mainly feldspar-phyric

CVa — Andesitic volcanics and intrusives

CVs — Shale-siltstone horizons

VS — Volcano – Sedimentary Sequence – greywacke, siltstone, felsic tuff

VSt — Mainly felsic tuff

VSb — Basaltic volcanics (tholeiitic variety VSbt)

VSq — Quartzwacke – siltstone

UNASSIGNED CAMBRIAN UNITS

€vu — Felsic volcanics

€sd — Sedimentary units, including Farrell Slate

€vsu — Volcano–sedimentary sequence

CAMBRIAN INTRUSIVE ROCKS

€gr — Granite

€p — Felsic porphyry – mostly quartz–feldspar–phyric

€ga — Gabbro

€u — Ultramafic rocks and serpentinite

Unconformity

PRECAMBRIAN

P€o — Oonah Formation correlate

P€os — Concert Schist

P€m — Metamorphosed Precambrian of Tyennan region

Geological boundary – approximate

Fault – approximate

Bedding – facing known, overturned

Trace of anticline, syncline

Cambrian fossil locality

Mine – Prospect

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GOLD FIELDS EXPLORATION PTY. LIMITED	
E.L.9/66 – TYNDALL AREA **LOCALITY MAP** 130 5 cm	DRAWN BY : F.F. DRAFTSMAN : S.F. DATE : June.85 REVISIONS : FILE NO.
SCALE 1:100 000 — 2000 1000 0 2000 4000 METRES	FIG. 1

85-2459

5073

HENTY PROJECT (Au)
Extension of Henty Fault Zone.
Propose: dipole-dipole spectral IR mapping, bedrock geochemistry, drilling 3 holes for 750m.

HENTY PROJECT (Au)
Significant Au mineralization.
Propose: follow-up drilling 3 holes + wedge for 950m.

SELINA (Pb-Zn-Ag)
Large sulphide alteration zone. Pb-Zn-Ag geochemical anomaly.
Propose: helicopter drilling, 1 hole for 400m

BASIN LAKE (Pb-Zn-Ag)
Large sulphide alteration zone, extensive glacial cover.
Propose: deep EM survey

WEST SEDGWICK (Au)
Au stream geochemistry.
Propose: limited gridding, mapping, bedrock geochemistry

HUXLEY (Pb-Zn-Ag)
Favourable alteration/structure, IP and geochemical anomalies
Propose: helicopter (?) drilling, 2 holes for 350m.

MT. ELLEN/TOFT (Au)
Au geochemistry, old workings.
Propose: limited gridding, mapping, bedrock geochemistry

SNAKE SPUR (Au-Cu?)
Favourable alteration/structure, bedrock geochemical anomalies.
Propose: gridding, IP(?), bedrock geochemistry, drilling (?) 1 hole for 300m (helicopter).

FLANNIGAN'S (Au)
Au geochemistry, old workings.
Propose: gridding, mapping, bedrock geochemistry, drilling (?) 1 hole for 250m (helicopter.)

E.L. 4/73
E.L. 9/66
E.L. 1/62
E.L. 9/66 J.V. AREA
MINING LEASE 30M/90
FRANKLIN-LOWER GORDON WILD RIVERS NATIONAL PARK

LEGEND
- Main Road
- Vehicular Track
- River, Creek
- Railway (abandoned)
- E.L. Boundary
- M.L. Boundary
- Prominent Peak
- Major Mine Working
- Major Mine Abandoned
- Old Workings, Mineral Occurrence
- Alluvial Workings
- Drill Hole
- Exploration Camp
- South-West Conservation Area Boundary

SCALE 1:50,000
KILOMETRES

SHEET INDEX

E.L.9/66 - TYNDALL PROJECT
PROPOSED WORK PROGRAM
1985/86

85-2459

Drawn: June, 85. Author: P. FitzGerald, Draftsman: S. Freer.

GRID DENOTES 1:5000 MAP SERIES BASED ON 1000 METRE INTERVALS OF AUSTRALIAN MAP GRID ZONE 55