

81-1571.

956001

D of M	A.O.	C.G.	E.O.	D.S.M.E
				Registrar
Received	20 JUL 1981			E & IL
Answered				
DEPT. OF MINES				
R/S: 0089/81				

MICROFILMED

D-556

20-7-81

PROGRESS REPORT

QUEEN HILL JOINT VENTURE

E.L. 47/71 TASMANIA

QUARTER TO JUNE 1, 1981

81-1571

OPEN FILE

This report covers the
Aberfoyle quarter (Periods 4-6)
ending June 1, 1981

J.R. Sise,
Project Geologist,
Tasmania.
June 25, 1981

TABLE OF CONTENTS

	<u>Page No.</u>
INTRODUCTION	1
SEVERN EXPLORATION DRILLING PROGRAMME	2
QUEEN HILL ORE RESERVE PROGRAMME	3
QUEEN HILL BENCH MAPPING	4
DIGHEM SURVEY FOLLOW-UP	4
- BIG ROCKY CREEK AREA ANOMALIES	4
- ST. DIZIER EAST ANOMALIES	7
WORK PLANNED	8
EXPENDITURE	9
REFERENCES	10

APPENDICES

APPENDIX A	-	Drill Log and Assay Data for G73 Severn
APPENDIX B	-	Assay Data for Drill Holes:- G72, G71, G69, G25, G24, G23, G22, G13, G12 and G10
APPENDIX C	-	Petrological Descriptions, samples from G72
APPENDIX D	-	Big Rocky Creek - St. Dizier East Stream, soil and rock geochemistry
APPENDIX E	-	I.P. Profiles: Anomaly 205X (205A) Anomaly 228C - 229A
APPENDIX F	-	The Max-Min II E.M. System

LIST OF FIGURES

FIGURE 1	-	Montana-Severn Summary Plan
----------	---	-----------------------------

LIST OF PLATES

<u>Plate No.</u>	<u>Title</u>	<u>Scale</u>
·QH 166 (In text)	Severn-Montana Summary Longitudinal Project	1:2500
·QH 129/2940	Cross Section 2940 - Sheet 1	1:500
·QH 129/2940	Cross Section 2940 - Sheet 2	1:500
·QH 167	Queen Hill Bench Level RL 218	1:100
·QH 148 (In text)	E.L. 47/71 Queen Hill Location Plan	1:125,000
·ST.D 42/339/365	St. Dizier Area - Geological Map	1:10,000
·ST.D 42/347/365	St. Dizier Area Geological Map	1:10,000
·QH 171	Anomalies 202D and 202E - Geological Traverse, Ground Magnetism and E.M. Survey	1:2500
·QH 168 (In text)	Anomaly 203 - Geological Traverse Ground Magnetism and E.M. Survey	1:2500
·QH 170 (In text)	Anomaly 205X (205A) - Geological Traverse, Ground Magnetism and E.M. Survey	
·QH 169 (In text)	Anomalies 228C - 229A - Ground Magnetic and Geological Traverse	1:2500

INTRODUCTION

This report summarises work completed in the Aberfoyle quarter, periods 4-6 ending June 1, 1981, and includes preparation and drafting through to June 21, 1981. Reported expenditure is for the Aberfoyle quarter ending June 1, 1981.

During the quarter, the exploration drilling programme continued at Severn with one hole, G73, completed for 310.5 metres. Exploration hole, G74 at Severn, is in progress at 235 metres.

Ore reserve estimation continued on the Queen Hill mineralisation with assay results on low grade zones being received and further intervals split for analysis. Check analyses were also run on selected samples.

Initial follow-up of DIGHEM anomalies in the St. Dizier and Big Rocky Creek areas was completed. The data is now being assessed to identify the best targets for detailed follow-up with a view to eventual diamond drilling.

SEVERN EXPLORATION DRILLING PROGRAMME

Exploration drill hole G73 (Fig.1), designed to test the potential for extension to the ore zone on section 2940 at RL-100 (Plate QH 166), was commenced on March 12, 1981 and completed on April 4, 1981 at 310.5 metres. At 238.3 metres the hole passed through a fault zone separating the typical shale and tuffaceous greywacke succession of the Crimson Creek Formation (0-238.3 m) from the quartzite-slate sequence of the Oonah Formation. From 270.7 metres to end of hole a gradational change to a siliceous quartzite with up to 1% disseminated pyrite was recorded (Plate QH 129/2940). Pyrite mineralisation 1-2%, locally 85%, occurring as veins was intersected between 170.0 m and 198.0 m, however the target area near the fault contact with the quartzite sequence was barren. Assay results for the interval 170.0 m to 198.0 m are to hand. A 28 metre zone of weak mineralisation (0.15% Sn) is indicated.

Exploration drill hole G74, designed to test possible extensions to the ore zone on section 3225 at RL-100 (Plate QH 166) was commenced on April 7, 1981. Major penetration problems due to faulting have lead to lengthy delays with the hole, which is currently in progress at 235.0 metres in dark grey shales and green tuffaceous greywackes of the Crimson Creek Formation.

In Severn drill hole G69, assay results from two intervals of weak sulphide fracture veining are now available. These are 131.0 m to 141.0 m (10 m) of 0.27% Sn, and 164.8 m to 170.8 m (6.0 m) of 0.30% Sn. The former interval is now thought to correlate with the Severn zone in G65.

Complete assay data for Severn drill hole G72 are to hand. The zone of pyrrhotite-pyrite mineralisation from 275.3 m to 313.5 m recorded in the previous quarterly report, returned an ore grade intersection of 0.48% Sn over the 38.2 metres. Included in this zone was an 8 metre interval (286.5 m to 294.5 m) assaying 1.88% Sn. It is noteworthy that this intersection is of the same grade and is correlated with the 70.4 metres of 0.48% Sn in Severn hole G65, located 100 metres south-west of G72.

A summary of the drilling programme is included together with a summary longitudinal projection for Severn-Montana. The drill logs, all recently acquired assay data and petrological descriptions are appended.

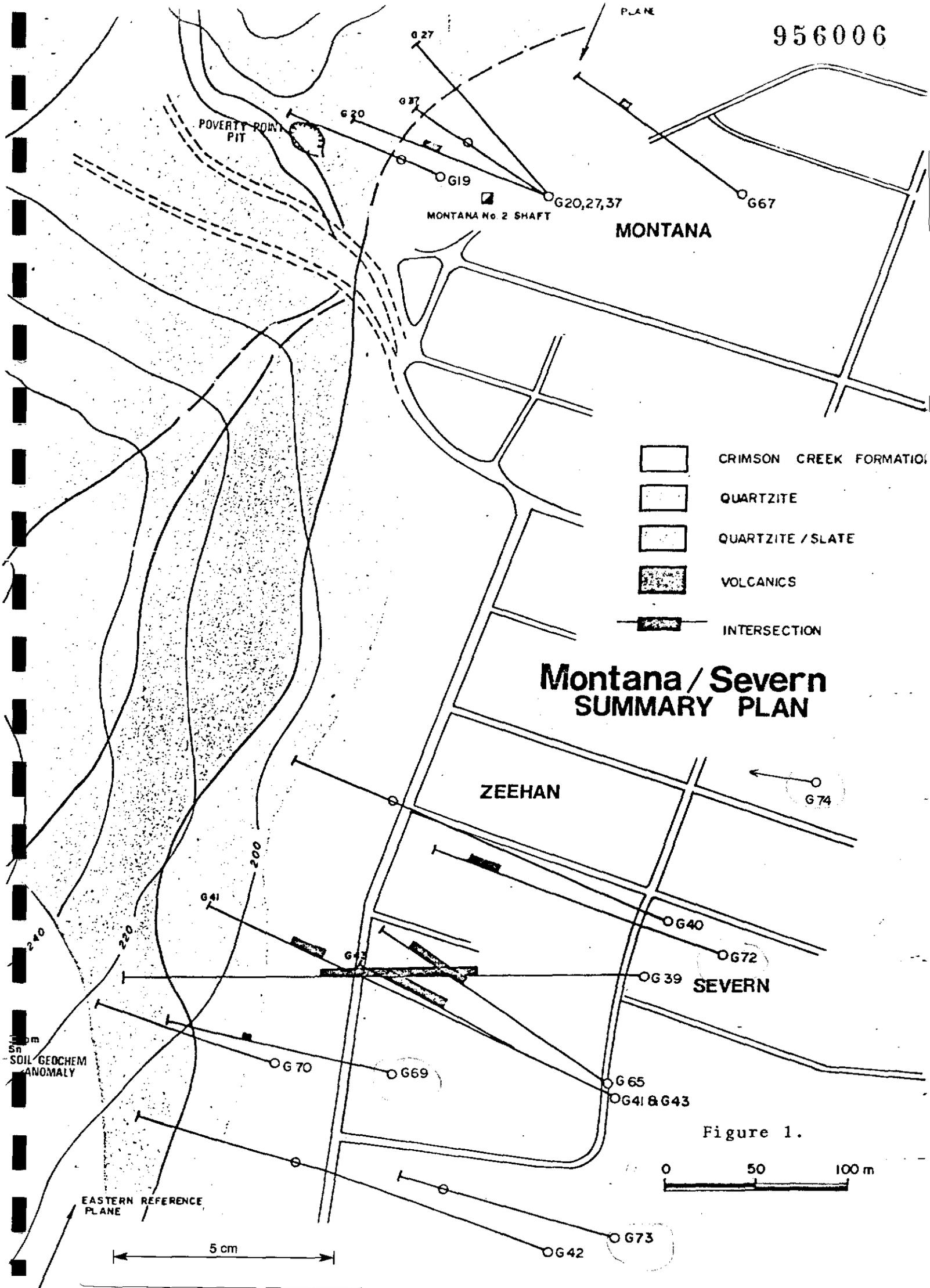
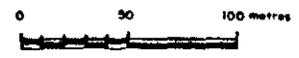
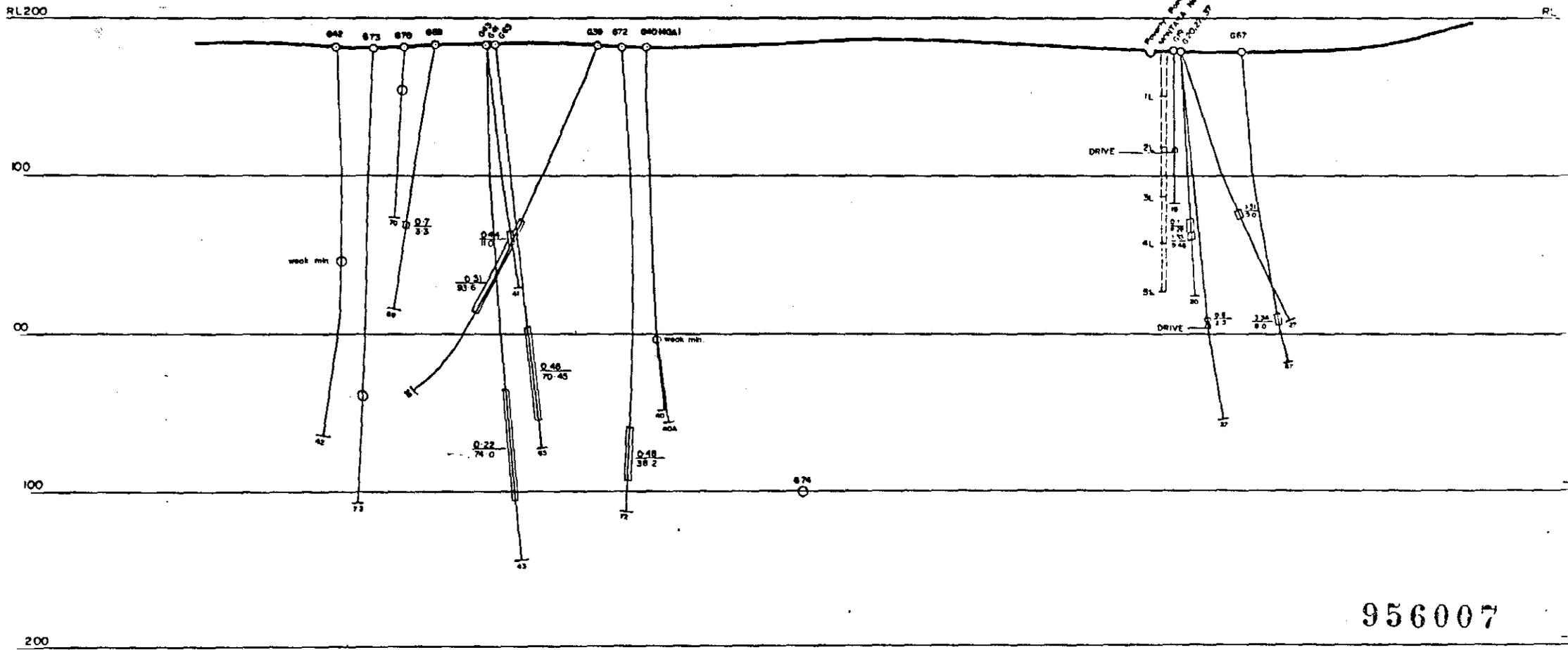


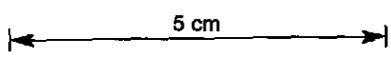
Figure 1.

SEVERN

MONTANA



Week Ending



- LEGEND -
- Cassiterite - Sulphide mineralisation
 - Proposed Exploration Hole

Aberfoyle Exploration Pty Ltd		
Geology:	NORTH WEST TASMANIA	
Drawn: R.J.E.	SEVERN - MONTANA	
Titled: R.J.E.	SUMMARY LONGITUDINAL PROJECTION	
Checked:	1980-81 DRILL PROGRAMME	
Revised by: Date:	Location code:	
	Date: April, 1971	
	Scale: 1:2,500	
	Plate No:	
	OH 166	

QUEEN HILL - Diamond Drilling Summary

D.H. No.	Co-ordinates		Elev-ation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RI. of Intersection	Intersection
	North	East											
G73	1492.3	1139.6	180.4	281.4	-64.5	12.03.81	04.04.81	310.5	3984.5	2940	170.0-198.0m: Pyrite 1-2% locally 85% as veins 223.0-227.8m: Pyrite 2-3% locally 35% as fine diss. & veinlets.	24 -1.5 --27	170.0-198.0m (28m) 0.15% Sn, includes 173m (2m) of 1.20% 223.0-227.8m: Weak mineralisations C.
G74	1742.5	1252.1	179.8	281.0	-62.6	07.04.81	in progress	at 239m		3225			

956008

QUEEN HILL - Diamond Drilling Summary

D.H. No.	Co-ordinates		Elevation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RL of Intersection	Intersection
	North	East											
G68	1374.2	734.1	212.6	209.5	-41.0	2.10.80	21.10.80	186.7	2615.6	Golf Course Lode	No significant sulphide mineralisation noted.	-	-
G69	1588.8	1022.7	183.5	270.9	-53.5	23.10.80	6.11.80	208.5	2824.1	2970	89.5 - 102.5 Pyrite/pyrrhotite veins, 3-5% with quartz veining. 131.0-141.0: 15% pyrite as stockwork. 164.8-170.8m pyrite 5% locally 70% as veins.	105	Weak mineralisation < 0.1% Sn.
												70	131.0-141.0 (10.0m) of 0.27% Sn.
												47	164.8-170.8 (6m) of 0.3% Sn.
G70	1594.6	959.0	185.6	294.0	-48.0	10.11.80	17.11.80	151.2	2975.3	2970	No significant sulphide mineralisation noted.		
G71	1639.8	867.7	217.6	283.5	-56.5	26.11.80	12.01.81	358.2	3333.5	2980	180.2-182.3: Pyrite 10% locally 80% as veins. 314.0-320.0: Pyrite 1-3% as veinlets. 343.85-349.0: Pyrite 2-3% locally 80% as veins, tr. stannite.	70	Assay data not yet available.
												-37.5	Weak mineralisation < 0.1% Sn.
												-59.5	343.85-349.0 (5.15m) of 0.15% Sn.
G72	1649.5	1205.1	180.6	284.3	-63.1	16.01.81	09.03.81	340.5	3674.0	3125	275.3 - 282.5m : 1 - 3% pyrite veins. 282.5 - 300.3m : zone of pyrrhotite 10 - 15%, pyrite 1 - 5% veining. 300.3 - 313.5 m : pyrrhotite/pyrite stringer veins, 1 - 5%. Fault at 310.5m.	-60	275.3-313.5 (38.2m) of 0.48% Sn, includes
												-70	286.5-294.5 (8.0m)
												-77	
												-93.5	of 1.88% Sn.

956009

QUEEN HILL ORE RESERVE PROGRAMME

No further ore reserve holes were drilled at Queen Hill during the quarter.

Assaying of previously rejected low grade zones in the Queen Hill lode system to allow ore reserve estimation over a wider area was continued. Assay results from the following intervals are appended:-

<u>Hole Number</u>	<u>From (m)</u>	<u>To (m)</u>
G10	69.10	70.10
	71.62	83.82
G12	44.0	54.0
G13	42.0	44.5
	45.72	65.0
G22	97.54	111.0
G23	3.0	16.0
G24	25.0	33.0
G25	68.0	73.0

It has been reported that the presence of stannite tends to deplete silver values when assayed by the AAS technique. To test this effect in the Queen Hill mineralisation, the following intervals have been submitted to AMDEL for more comprehensive silver analysis:-

<u>Hole Number</u>	<u>From (m)</u>	<u>To (m)</u>
G49	134.8	138.8
	143.8	145.8
G51	222.5	234.5
G54	51.0	55.5
G59	102.8	104.9
G67	189.3	200.0
G69	110.0	130.0

Assays received from ore reserve drill hole G71 at Queen Hill indicate a 5.15 metre zone of weak sulphide mineralisation (0.15% Sn) below 343.85 metres (Appendix B).

QUEEN HILL BENCH MAPPING

Excavation of a bulk ore sample for the Matte Fuming Pilot Plant at Kalgoorlie was completed at Queen Hill on October 31, 1980. The Bench Level RL 218 was mapped in detail at 1:100 scale. Plate No. QH 167 is attached.

DIGHEM SURVEY FOLLOW-UP

The DIGHEM survey, flown in March 1980, consisted of 40 lines totalling 161 line km with line spacing of 250 m. For orientation and case study purposes, five short lines totalling 12 line km were flown over the known mineralisation at Queen Hill (Plate QH 148). Targets generated by this survey were followed-up by gridding, stream, soil and rock chip sampling, detailed mapping at 1:2500 scale and geophysics. Geophysical follow-up involved ground magnetics, ground E.M. with system Max-Min II (see Appendix F) and selective I.P.

The location of the anomalies and reconnaissance lines are shown on Plates ST.D. 42/339/365, and ST.D. 42/347/365.

Individual DIGHEM anomalies are detailed as follows:-

BIG ROCKY CREEK AREA ANOMALIES

General

All these anomalies are underlain by the Upper Proterozoic Oonah Quartzite and Slate Formation.

E.M. ANOMALY 202D and 202E

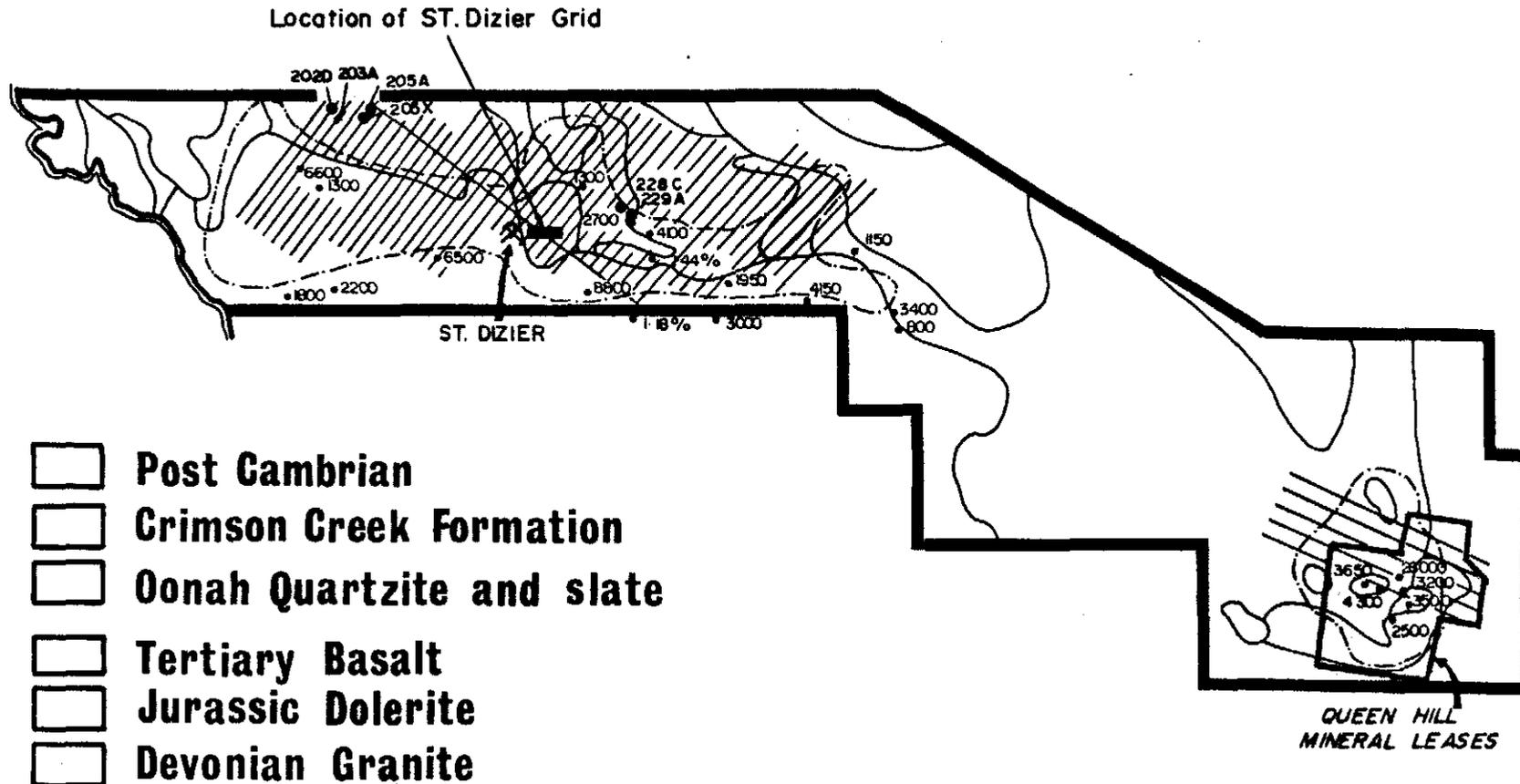
(Plate ST.D. 42/339/365, QH 171)

Geology

Anomaly 202D lies approximately 150 metres inside the northern boundary of E.L. 47/71. The broad conductive zone located by ground E.M. is associated with the change from a sequence of quartzites and quartz schists in the east to black locally graphitic shales and slates in the west.

E.L. 47/71

QUEEN HILL Location Plan



-  Post Cambrian
-  Crimson Creek Formation
-  Oonah Quartzite and slate
-  Tertiary Basalt
-  Jurassic Dolerite
-  Devonian Granite

-  202 D Dighem Anomaly
-  Sn contour > 100 ppm
-  1800 Stream sediment anomaly



DIGHEM flight lines

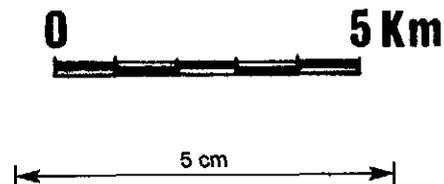


PLATE No. QH 148
 Scale 1 : 125,000
 Date : January, 1980

956012

Anomaly 202E is to the north of the Exploration Licence boundary; underlain by shallowly dipping dark grey shales.

Geochemistry (Appendix D)

Geochemical sampling in this area of minimal outcrop has returned one anomalous stream sediment value of 270 ppm Sn and 19 ppm WO_3 . Further sampling is in progress.

Geophysics

DIGHEM anomalies 202D and 202E are associated with a very broad zone of low resistivity and complex magnetic pattern. Ground follow-up confirmed the general features of the airborne data.

The ground data shows that a flat lying conductive zone to the west of 4125E coincides with a zone that encloses three distinct magnetic anomalies. It is interpreted that conductor 202D lies in this zone. It should be pointed out that although both the ground and the airborne surveys detected the conducting zone, the ground survey in contrast to the airborne survey did not delineate any strong conductors within this broad zone, the reason being that the ground system such as a Max-Min II does not have the same lateral resolution capability as the DIGHEM system.

Conductor 202E which lies just outside the western conductive zone was identified, and it is interpreted that it represents a flat lying source of low resistivity.

The I.P. survey over the reconnaissance line was not completed due to instrumental problems. However, from the small amount of data that was collected it was concluded that the western conductive zone is also polarizable which could indicate the presence of either black slates or sulphides.

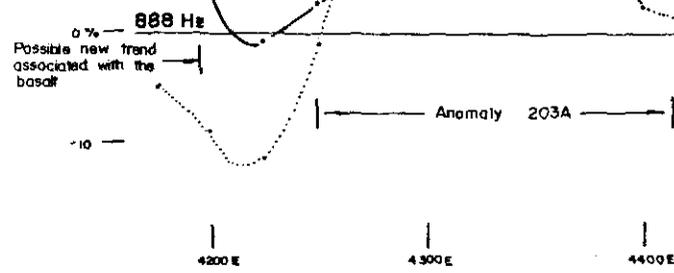
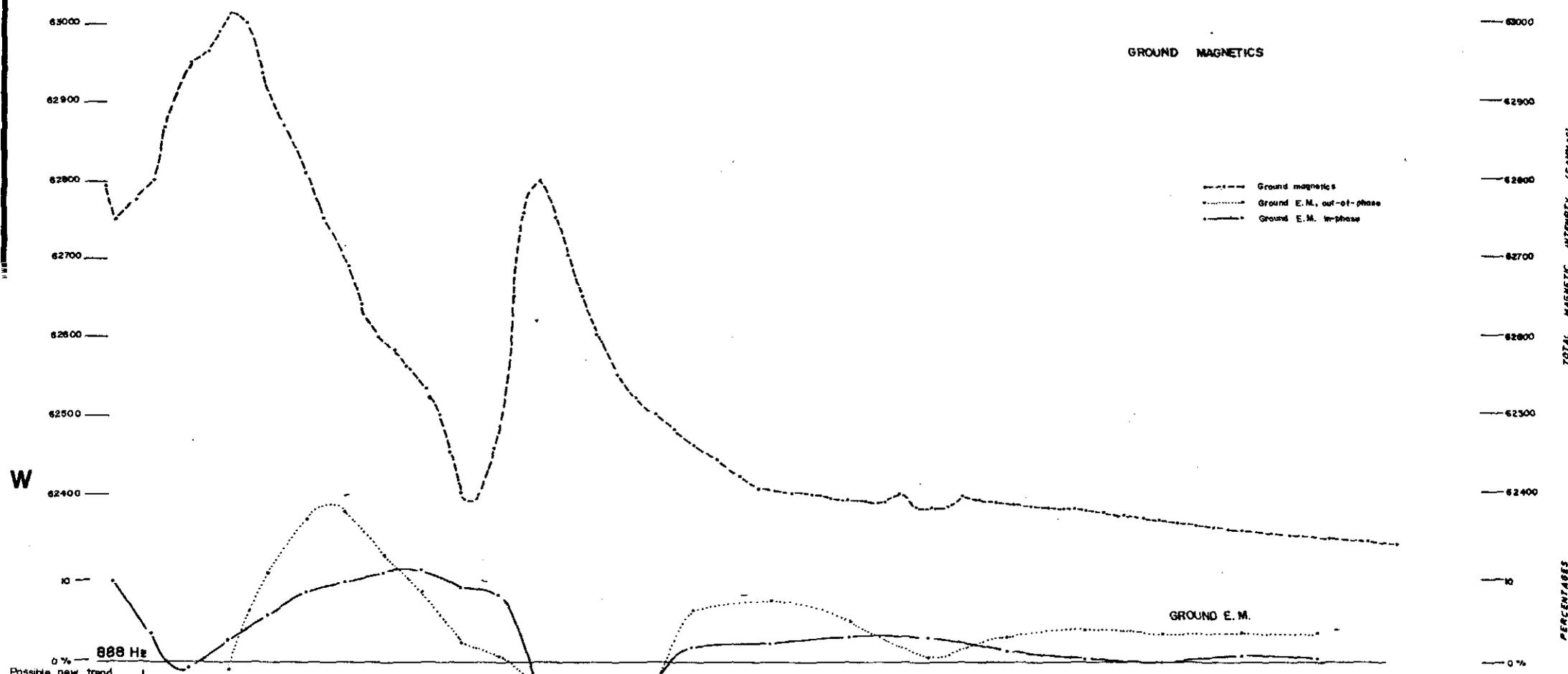
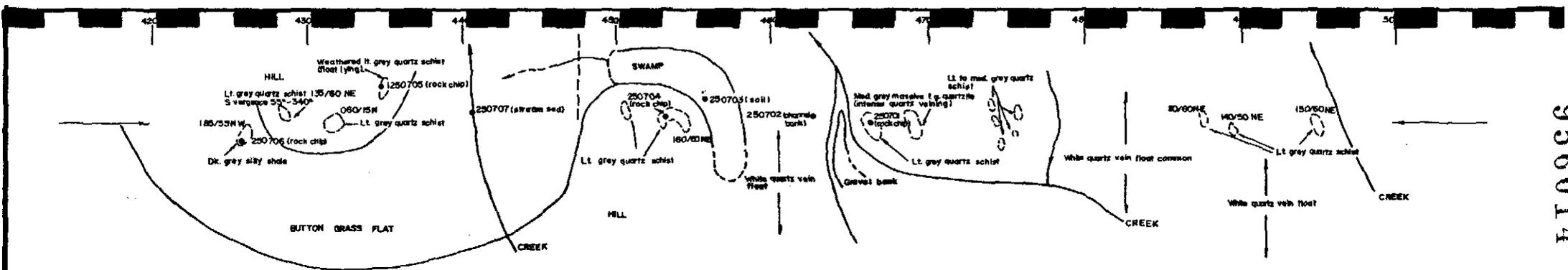
E.M. ANOMALY 203A

(Plate ST.D. 42/339/365, QH 168)

Geology

Conductor 203A is located within an arcuate alluvial flat with very rare outcropping dark grey silty shale.

956014



erfoyle Exploration Pty Ltd

NORTH WEST TASMANIA
 ST. DIZIER E.L. 47/71
 GEOLOGICAL / GEOLOGICAL TRAVERSE,
 GROUND MAGNETICS & EM SURVEY
 ANOMALY 203A

Location code	
Date	June, 1981
Scale	1:2,500
Plate No.	QH 168

Traced: J.L.R.
 Checked:
 Revised by: Date:

Geochemistry (Appendix D)

Possibly anomalous WO_3 (19 ppm) occurs in two rock chip samples from this area. Additional gridding, soil and rock chip sampling is in progress.

Geophysics

The ground E.M. profile suggests that the source of the anomaly is a relatively flat lying moderately conducting sheet, situated between 4200E and 4450E. Two magnetic anomalies of 400 and 500 gammas intensity are located within this flat lying body. An I.P. traverse is planned.

E.M. ANOMALY 205X (205A)

(Plate ST.D. 42/339/365, QH 170)

Geology

Anomaly 205X is centred along a creek containing outcropping light grey quartzite and quartz schist. In close proximity sporadic outcrop is of the same lithology.

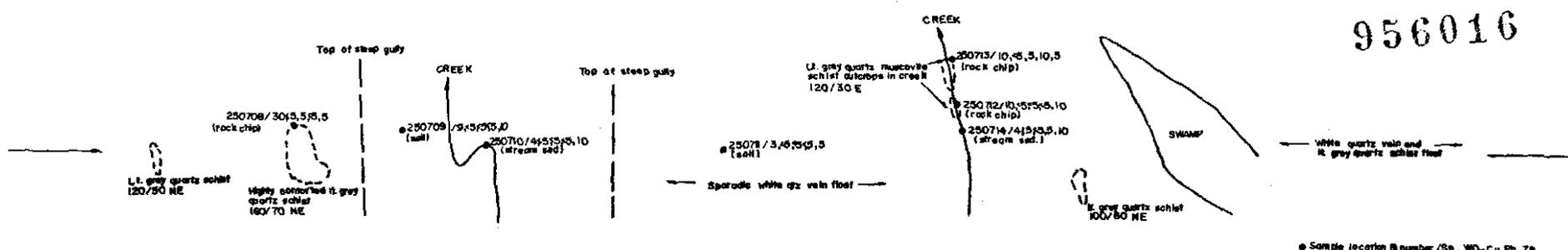
Geochemistry (Appendix D)

Reconnaissance stream, soil and rock sampling has so far failed to locate any anomalous values. Further gridding and geochemical sampling is in progress.

Geophysics (Appendix E)

Anomaly 205X was picked out as a possible (the lowest on the classification scale) conductor with a coincident 50 nT magnetic response. The anomaly is situated south-west of anomaly 205A which was interpreted as being due to a poorly conducting flat lying sheet. Ground follow-up confirms these interpretations. It was interpreted that anomaly 205A is due to a flat lying conductive source, and appears on the ground E.M. profile as a broad positive E.M. anomaly between 4900E and 5025E. This anomaly is to the east of the magnetic response and as such correlated with the airborne data.

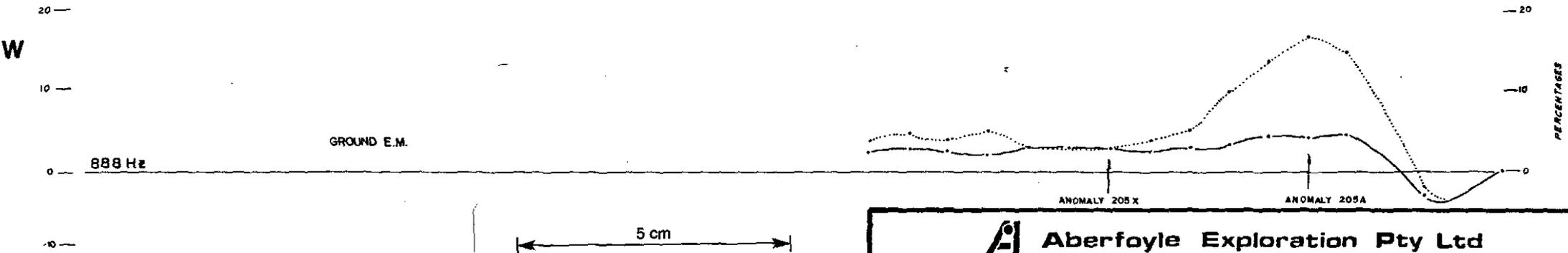
956016



GROUND MAGNETICS
Depth estimate = 65 metres



GROUND E.M.



A Aberfoyle Exploration Pty Ltd

Geology:	S.R.	NORTH WEST TASMANIA ST. DZIER E.L. 47 / 71 GEOLOGICAL / GEOLOGICAL TRAVERSE, GROUND MAGNETICS & E.M SURVEY ANOMALIES 205X & 205A	Location code:
Drawn:	J.S.		Date: June 1981
Traced:	J.L.R.		Scale: 1:2,500
Checked:			Plate #:
Revised by:	Date:		QH 170

On the E.M. profile there is no strong evidence that the source of the magnetic anomaly (205X) is also a definite conductor. There is only a very weak suggestion in the slight depression in the E.M. response between 4800E and 4900E. However, from the magnetic profile it is evident that the depth to the top of the magnetic source (provided the source is not a broad zone, e.g. 100 metres) is about 65 metres, and as such would make the source, provided it was also conductive, almost undetectable by the DIGHEM and Max-Min II system.

A single line I.P. survey from 4300E to 5300E, using 100 metre dipole spacing, indicated the presence of a flat lying depth limited surficial and poor conductor (205A) and a very weak response over 205X.

CONCLUSIONS

Further follow-up work planned for the Big Rocky Creek Area is currently in progress. Grid extensions will tie-in all three DIGHEM anomalies and allow the whole area to be treated as a single prospective belt. A detailed ground magnetometer survey over the existing grid and extension will allow a contour map to be compiled. A more comprehensive soil sampling programme will be undertaken. The aim of this work will be to identify the best target for initial diamond drilling.

ST. DIZIER EAST ANOMALIES

E.M. ANOMALY 228C - 229A

(Plate ST.D. 42/347/365, QH 169)

Geology

The anomaly is located in the Oonah Quartzite and Slate Formation in an area of very poor exposure. The only outcrop is in a road-cut where massive grey siltstone and black shale are exposed.

Geochemistry (Appendix D)

No geochemical response has been detected to date.

Geophysics (Appendix E)

Both these anomalies are possible conductor anomalies with associated magnetic responses. Ground magnetics have defined an anomaly of 120 gammas intensity centred on 5000N. A single line I.P. survey using 100 metre dipole spacing, detected a weak chargeability high about 5150N.

WORK PLANNED

- Exploration drilling at Severn, Montana and Golf Course
- Ore reserve estimation and metallurgy at Queen Hill and Severn
- Detailed follow-up in the Big Rocky Creek Area
- Re-appraisal of the St. Dizier Skarn Horizon

EXPENDITURE

The Joint Venture Statement of expenditure for the Aberfoyle quarter periods 4-6 (ending June 1, 1981) is split into two parts. One pertains to expenditure incurred on the Queen Hill Mineral Leases and the other expenditure incurred on the Exploration Licence.

Queen Hill Mineral Leases

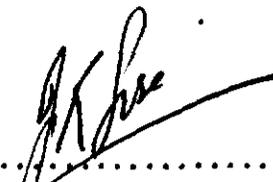
Salaries and Wages	14,600
Contract Drilling	52,331
Surveying	96
Assay	1,884
Materials	1,025
Accommodation & Travel	1,250
Vehicles	1,350
Fuel	875
Communications	340
Equipment Use	753
Tenure	725
Sundries	2,843
Overheads at 15%	<u>11,711</u>
	\$89,783
	=====

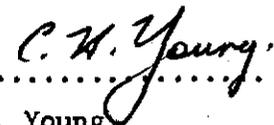
Queen Hill Exploration Licence

Salaries and Wages	3,543
Geophysics	2,324
Materials	121
Accommodation & Travel	393
Communications	23
Vehicles	406
Overheads at 15%	<u>1,021</u>
	\$7,831
	=====

REFERENCES

- Silic, J. (1981) St. Dizier E.M. Follow-up. Intra-company memorandum.
- Sise, J. (1981) Progress Report, Queen Hill Joint Venture E.L. 47/71, Quarter to March 9, 1981.

Signed.....
J.R. Sise,
Project Geologist - Tasmania.

Endorsed.....
C.H. Young,
District Manager.

APPENDIX A

Drill Log and Assay Data for:-

G 73 Severn

A ABERFOYLE

DRILL HOLE RECORD

956023

Location SEVERN Property QUEEN HILL District ZEEHAN Bearing (M) 281.39 Hole No G73
 Commenced 12/3/81 Completed 4/4/81 % Recovery 84% Grid bearing (M) -11.25 Date 13-4-81
 Objective STRUCTURALLY CONTROLLED MINERALIZATION Core size HQ → 153M NQ → 310.5M Logged S. RICHARDSON
SECTION 2950 RL-100. Co-ordinates 1492.3 N 1139.6 E Dip 64.54 Alt./R.L. 180.42

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING (M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING (M)	NORTHING	EASTING	ALTITUDE	
15.5M	65.5	IN RODS	EPSTMAN	0M	64.54	281.4	5361492.3	361137.60	180.42	
30M	65.5	IN RODS	"	25	65.5	280.9	5361492.14	361129.04	157.74	MINOR SLUDGE PROBLEMS.
61M	66.5	277.5	"	50	66	280.2	5361491.87	361118.78	134.95	
91M	67	IN RODS	"	75	66.75	279.7	5361491.51	361108.77	112.04	NO CASING LOST.
				100	67.25	278.9	5361491.05	361099.01	89.03	
150M	67.5	275	"	125	67.5	278.4	5361490.49	361089.41	65.95	NO SIGNIFICANT INTERSECTION.
184M	68	275	"	150	67.5	277.9	5361489.85	361079.86	42.86	
217	68	274	"	175	68	277.4	5361489.13	361070.43	19.72	
247	68	273	"	200	68	276.9	5361488.34	361061.09	-3.46	
277	67.5	271.5	"	225	68	276.1	5361487.44	361051.77	-26.64	
301	66.75	274	"	250	68	275.6	5361486.44	361042.46	-44.82	
				275	67.5	275.2	5361485.35	361033.06	-72.96	
				300	66.5	274.5	5361484.13	361023.37	-95.97	
				325	65	273.9	5361482.74	361013.19	-118.76	

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



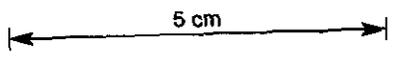
c carbonate
q quartz

Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

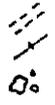
956024

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		No core - swamp.							
1	2.3	Interbedded lt. grey green f.g. volc. ashite & tuffaceous mudstone w. rare grey shale interbeds.							
1	5	Interval is approx 50/50 tuffaceous grey wacke & mudstone. The tuffaceous mudstone is generally extremely well bedded whilst the volc. ashite is gen. massive. Although fine interlamination do occur interbeds of each are gen. 10cm to 1m. thick. Bedding is constant around 20 to 35° to c.A.						5	
25		Soft sed. deformation is not common although s. sed faulting does occur.							
3	10	Diagenetic? carbonate veins are common ranging from 1mm to 2-3cm at all angles & (stockwork).						10	
3		Core is extremely broken and weathered down to ≈ 26m.							
4								11.8	10cm Sp1-3 sid. vein 40° to c.A.
2									
8									
3									
20	15							15	
7									
1.5									
1.3	20							20	
1.2									
2.5									
	25							25	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

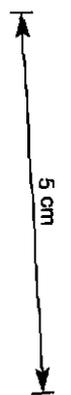


Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

956025

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
2.5	26m	<p><u>Approx. BASE OF OXIDATION</u></p> <p>Lithology - as above - Interbedded lt grey green f. volc. arenite & tuffaceous mudstone w. rare gray shale beds.</p>							
9		<p>Bedding 25m - 20° c.A.</p> <p>30m - 30°</p> <p>35m - 30°</p> <p>40m - 30°</p> <p>45m - 25°</p> <p>50m - 25°</p>						30	Py rare
2.8									
1.2									
1.4									
1.1									
	35							35	
3.0									
	40							40	
3.0									
	42.2								
	42.5	<u>FAULT ZONE</u> - Broken core & pug. 25° to c.A.							
	43.9								
	44.2	<u>FAULT ZONE</u> - c. healed fault breccia 30° to c.A.						43.7	
2.0									
	45							45	
1.8									
	46.5	FAULT - broken core - ?° to c.A.						46.5	
	47.3	FAULT? - broken core - 45° c.A.						47.3	
1.6									
	48.5								
	49.0	<u>FAULT ZONE</u> Broken core & (Pug) ?° to c.A.							
3.0									
	50							50	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vern



c carbonate
q quartz

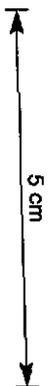
Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

956026

Younging ↑

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		FAULT - 25° to c.a. - pug.	F					51.0	
	1.5	Lithology - as above - Interbedded lt. gray green f.g. volc. arenite & tuffaceous mudstone w. rare grey shale.							
	1.7							55	ly rare
	3.0	younging common from grading: younging uphole.							
	3.0							60	
	3.0								
	3.0							64.1	
	65	FAULT - pug broken core - ? c.a.	F					65	
	3.0	FAULT - c healed breccia 30° c.a.	F					65.5	
	3.0	FAULT? - c. healed breccia 30° c.a.	F					67.2	
	3.0							70	
	70	Interbedded med to dk grey shale & lt. grey green f.g. volc. arenite						70.2	
	3.0	shale & tuffaceous sed. are interbedded on all scales w. soft red slumping & rafting of shales locally present. Rare thin intraformational conglomerate, (fragments of tuff.)							
	73.3	Intraformational sed. breccia - massive							
	1.5	irregular angular to rounded tuffaceous and shale frag. 1mm to 3cm. Matrix of f.g. frag.						74.5	
								75	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



c carbonate
a quartz

Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

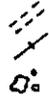
956027

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
1.5		Interbedded lt. grey green f.g. volc. arenite & tuffaceous mudstone w. (grey shale). Description as for 3-74.5m but grey shale slightly more common in interbeds to 50cm. (as 3-10cm)							
2.0		Volc. arenite is (conglomeratic) w. shale & mudstone clasts to 2-3cm.							
79.3		<u>FAULT ZONE</u> Broken core & pug. 30° to c.A.							
8									
.5	80							80	
1.3								81.0	10cm sp. to 40 side 30° c.A.
3.1	82.0								
		FAULT - pug - 30° to c.A. FAULT - pug - 25° to c.A. (11 beddy)						84.0 84.4	
2.5	85							85	
		FAULT - pug & broken core 35°? c.A.						86.6	
1.4	87.3	<u>FAULT ZONE</u> Broken core & pug 35° to c.A.							
2.0	89.0	Bedding 75m - 35° to c.A. 80m - 35° 85m - 30° 90m - 45° 95m - 35° 100m - 45°						90	
2.8	93.5 93.8	<u>FAULT ZONE</u> - Broken core & pug. 35°? to c.A.						95	
3.0	96.7 97.3	3.0m - 96.7m - 97.3m Preformational conglomerate - tuffaceous mudstone clasts 1mm to 2mm in fine ground mass. Lt. grey green f.g. volc. arenite w. interbeds (slumped), rafts & clasts of dk. grey shale. Bulk of interval is tuffaceous sed. well bedded shale as frag. & (slumped) interbeds to 15cm. Transitional to unit below.							
3.0	100							100	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

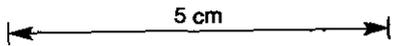


Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

956028

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above							
3.0	102.7	FAULT - c. healed breccia - 25° c.A. FAULT - c. healed breccia - 25° c.A. FAULT - c. healed breccia - 7° c.A.						101.7 101.7 102.2	
	103.2	FAULT ZONE c. healed breccia & (Pug) 30-85° c.A.							
2.0	104.5	Dk. grey to black (carbonaceous) shale w. rare lt. grey f.g. volc. arenite interbeds							
.9	105	FAULT ZONE A large zone of very broken core & pug. Only evidence for orientation are individual fractures which indicate low angle to c.A.						105	
1.6		Within this zone it is difficult to differentiate lithology due to the puggy nature of the core & core loss. However the bulk appears to be a dk. grey to black (carbonaceous) gen. well bedded shale.							
.4		Bedding varies from 35° to 80° to c.A.							
1.0	110	105m - 35° c.A. 110m - pug 115m - 40° c.A. 120m - 35° c.A. 125m - 30° c.A.						110	
.3									
.4		cleavage is // to bedding.							
.3									
.4		Uncommon lt. grey f.g. volc. arenite interbeds to 20cm.							
1.4	115							115	
.4									
.4									
.5									
.8	120							120	
.3									
.1									
1.4									
.6	125							125	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

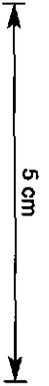


Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

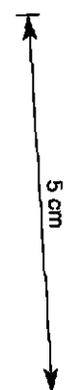
956029

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		<p>lithology - as above - dk. grey to black (tuffaceous) shale w. rare lt. grey f.g. volc. arenite interbeds.</p> <p><u>FAULT ZONE AS ABOVE</u></p>							
7	130							130	Py rare
	130								
	135							135	
	140							140	
	145	<p><u>Interbedded dk. grey to black (carbonaceous) shale & lt. grey f.g. volc. arenite</u></p> <p>A well bedded interval of interbedded shale & tuffaceous sed. Shale is dominant ~70% by vol.</p> <p>Slumping & rafting are locally common. The shales may be locally conglomeratic containing clasts of shale & tuffaceous sed to 5cm. These are gen rounded.</p> <p>Bedding - 20° to CA - 145m 15° to CA - 150m</p> <p>Diagenetic? c. veins to 1cm in p.o. are common</p>						145	Py rare
	150							150	



Feature: Bedding (diagonal lines), Foliation (crossed lines), Fragment size & shape (circle with dot), Shearing (diagonal lines with arrow), Fault (line with 'F'), Vein (line with 'V'), Mineralization: Trace 1-5%, Common 5-15%, Abundant 15-60%, Massive > 60%, c carbonate, q quartz

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	3.0	Lithology - as above - Interbedded dk. grey to black (carbonaceous) shale & lt. grey f.g. volc. arenite.							
	1.4								
HQ								153.2	
NQ	1.3								Py 1-2 (5) v.f.g. dissem. w. local mg. to c.g. & blebs
	1.0	<u>FAULT ZONE</u> Pug, broken core and much core loss. Single fracture indicates orientation of about 30° to c.A.						155	
	1.0								
	1.6							160	
	3								
	4								
	1.65							165	
	6								
	166.9								
	2.4								
	170							169.4	
	2.5	<u>FAULT ZONE</u> Broken core, pug → py lode. 35-40° c.A.						170	
	171.4							170.4	Py 1-2 veinlet
	172.3							171.0	thin py 90 sid vein 35° to c.A.
								171.4	Py 10 veinlet.
								171.8	thin py 95 sid vein
								172.2	Py 5 veinlet.
								172.7	Py 85 sid, ser, qtz vein. Tr Asp. Tr Cr.
									Py 25 c.g. to c.g. & vein.
	3.1								Py 1-2 v.f.g. & veinlet.
	175	<u>FAULT</u> - Broken core - ?° c.A.						175.0	



Feature

Bedding		Shearing	
Foliation		Fault	
Fragment size & shape		Vein	

carbonate
 quartz

Mineralization

Trace	1-5%
Common	5-15%
Abundant	15-60%
Massive	> 60%

956031

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - Interbedded dk. grey to black (carbonaceous) shale & lt. grey f.g. volc. arenite. Bedding 45-60° (av 50°) to C.A.							Py 1-2 v.f.g. & veinlet.
3-1									
	190							179.5	
3-0		FAULT - Pug 45° to C.A.						180	
		FAULT - Broken core ?° C.A.						180.5	
		FAULT - Broken core ?° C.A.						181.5	Py 5-7 f.g. & vein // to C.A.
3-0		FAULT - Pug // C.A.						182.4	
		FAULT - Pug - 30° to C.A.						182.2	Py 1-2 v.f.g. & blebs & vein.
								187.0	
								184.3	Py 20 as veins to 10cm assoc. w. sid veins, 35° to C.A.
								184.6	
	185							185	Py 1-2 (5-10) v.f.g. to m.g. & veinlet.
2-2									
3-0									
	189.6							189.6	15cm py 1-2 qtz/c vein 95° to C.A.
		FAULT - Broken core 30° to C.A.						189.7	Py rare
	190	Lt. grey green f.g. volc. arenite w. irregular interbeds of med to dk. grey mudstone (slumped, rafted and conglomeratic) A tuffaceous sed. interval w. much s. sed def. Bulk of interval is massive to well bedded f.g. volc. arenite locally as clasts to 3cm in intraformational cong. Mudstone is gen. well bedded but usually slumped w. ang. contacts to tuff.						190	3cm py 25, qtz vein 60° to C.A.
3-1									Py rare
								192.0	5cm py 80, qtz vein 40° C.A.
								192.4	Py 5, veinlet & blebs.
								192.8	Py rare
									1cm py 10, qtz vein 40° C.A.
									Py 1-2 f.g. to blebs & veinlet
								193.8	1cm py 95, qtz vein 25° C.A.
									Py rare
3-0	194.4	FAULT ZONE Broken core, pug & py veining 25-30° to C.A.						194.4	Py 15-20 veins 25-30° to C.A.
	195							195	Aspy 2-3 veinlets assoc. w. py.
	195.3							195.3	Py rare
		Toward base of interval clasts of volc. arenite to 5cm & rounded, in a grey mudstone matrix, is the most common lithology.						196.0	Py 1-2. f.g. to blebs & veinlet.
								196.5	2cm py 40, c. vein 20° to C.A.
3-0								197.0	20cm py. 10/c. vein 35° to C.A.
									Py rare.
	198.8	FAULT - Pug 55° to C.A.						198.8	
	198.9	Dk. grey shale w. frag. wisps & interbeds of lt. grey to grey green f.g. volc. arenite & tuffaceous mudstone.						198.9	Py 5-7 veins assoc. w. sid. at low angle to C.A.
	200							200	

5 cm

956032

Feature

Bedding
Foliation
Fragment
size & shape



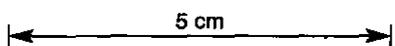
Shearing
Fault
Vein



Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
2.1	200.6	FAULT ZONE Broken core, pug & much core loss. Unknown angle to c.A.						201.0	Py above 5-7 vein assoc. w. sid.
4									
5									
	205							205	
6									
7	208.1								
2.6	210	Bulk of interval is dk. grey shale, cleavage // bedding. A tuffaceous sed. component is present as irregular interbeds to 40cm locally slumped and rafted, as fragments 1mm to 2cm in shale & as local intraformational breccias. Tuffaceous greywacke & mudstone Bedding is 30-50° to c.A. Diagenetic c. veins locally common.						209.7 210.0	Py 1-2 f.g. to c.g. & (bleb) rare veinlet. syngenetic py.? (text.)
		FAULT - pug 7° to c.A. FAULT - pug 35° to c.A.						211.1	
3.1		FAULT - pug 20-40° to c.A.						214.3	
	215							215	
3.1		FAULT - pug 25° to c.A.						216.5	
	217.3							217.3	
3.1		Interbedded lt. grey to lt. grey green f.g. volc. arenite to tuffaceous mudstone & local dk. grey green (tuffaceous?) shale							Py rare
	220	A highly tuffaceous interval with roughly equal vol. of volc. arenite & mudstone. Mudstone is well bedded & volc. arenite varies from massive to bedded. Shales are associated with slumping & local rafting of tuffaceous sed. Bedding is constant around 35-40° to c.A.						220	
3.0									
	223.5 223.8							223.5 223.8	Py 10-12 bleb & vein. 30° to c.A.
3.0									Py 2-3 f.g. dissem. & veinlets at low angle to c.A. assoc. w. sid.
	225							225	



Feature

Bedding



Shearing



Foliation



Fault



Fragment size & shape



Vein



c carbonate
q quartz

Mineralization

Trace

1-5%

Common

5-15%

Abundant

15-60%

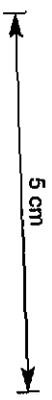
Massive

> 60%

956033

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - Interbedded lt. grey to lt. grey green f.g. volc. arenite to tuffaceous mudstone & local dk. grey green shale.						225.8	Py 2-3 as above
								226.3	Py 35 veinlet stockwork 0-30° C.A. f.g. to lobe.
								226.4	f.g. to lobe assoc. w. sid vein.
3.0	227.8	OFF-white to lt. grey limestone to dolomite? A massive locally brecciated carbonate. Fragments in local breccia zones (to 30cm) are angular (w/flat) and 2mm to 5cm in size. They are off white and sit in a grey matrix. No bedding. Rock is locally sideritized? Irregular contact above & below.						227.7	Py rare
									1cm py 90, sid vein.
3.0	230							230	Py rare.
		25cm dk. grey cong. shale.						231.1	
3.0	233.5	lt. to dk. grey slumped & (cong) shale. A finely laminated pelite. Soft red slumping is common & locally intense. Local conglomerate w. clasts of carbonate to 5cm w. a band of 50cm at 235.0						233.5	
								235	Py 1 v.f.g. dissemin. & rare lobe. (syngenetic?)
3.0	237.5	FAULT ZONE c. healed fault breccia						238.3	
		Interbedded dk. grey to black slate & lt. grey f.g. (micaceous) quartzite. A very well bedded interval of finely interlaminated pelite & arenite. Interlaminations on mm & cm scale. Grading is common w. younging uphole. Bedding is parallel to strong cleavage 35-55° to C.A. typically 45°.						240	Py 1-2 (10) v.f.g. dissemin.
3.0	240							240.1	Py 1 veinlet (stockwork) rare v.f.g. dissemin.
								245	
3.0	247.0	Finely interlaminated lt. grey to black slate w/ lt. grey siltstone). Extremely well laminated pelite w. strong layer // cleavage. S/S constant at 35° to C.A. Younging from grading uphole is common.						247.2	Py rare.
1.5									
1.0									
								250	

YOUNGING



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



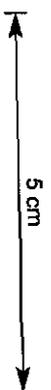
c carbonate
q quartz

Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

956034

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
3-1		Lithology - as above - finely interlaminated lt. grey to black slate (lt. grey siltstone) lt. grey siltstone more common toward base.							Py rare.
3-2	255							255	
3-1									
	258.9							258.9	
	260	Dk. grey to black slate w. interbeds, rafts & fragments of lt. grey f.g. (micaceous) quartzite. Bulk. of interval is very dk slate w. qtzite occurring as fine interbeds at the top of the interval but becoming rafted & cong. in the middle & less dominant toward the base.						260	Py 1 s.f.g. & rare veinlet
3-1									
	265							265	
3-0									
	268.4							268.4	
	269.1	<u>FAULT ZONE</u> sheared slate & bleccin 30°? to c.a.						269.1	Py 10 s.f.g. & veinlet.
	269.5							269.5	
	269.7							269.7	
3-0	270	<u>FAULT ZONE?</u> Zone of sheared (puggy) slate 40° to c.a.						270	Py 1-2 s.f.g. & veinlet.
	270.7							270.7	
	271.1							271.1	Py rare.
		FAULT? - sheared slate, 35°						271.7	2 cum Py 15
								271.9	
3-0		lt. to med. grey siltstone w. minor interbedded lt. grey f.g. (micaceous) quartzite. Bulk of interval is massive to weakly bedded lt. grey silt w. a gen. well developed cleavage to bedding.							Py rare.
	275							275	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



c carbonate
q quartz

Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

956035

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
1.5	275.4 275.7	FAULT ZONE - Pg $30-35^\circ?$ to c.A.							
1.5		Interbeds to 50cm as 1-10cm of lt. grey to off white f.g. (micaceous) quartzite occur making about 10-15% of rock. Sl/so is constant around $40-50^\circ$ to c.A.							Pg rare
.5									
2.5									
	280							280 280.2 280.8	Pg 3 f.g. to bleb + vein Stn 2 bleb in Pg vein
3.0									Pg rare
	285							285	
	286.4								
1.3		lt. grey f.g. (micaceous) quartzite A massive to well bedded unit of weakly to highly siliceous quartzite. local thin wispy interbeds, gen. <1cm, of med to dk. grey shale occur. Bedding varies from 0 to 50° to c.A. but is typically 40° .							
2.0	290							288.3 290	5cm Pg 90 sid ven 20° to c.A. Pg 1-2 f.g. to bleb + veinlet
2.0								292.2	
3.0								294.0	Pg rare 1cm Pg 20, Stn 10, c. vein. 20° c.A.
	294.4							294.5	10cm Pg 2/c vein 45° to c.A.
	295							295	
		<u>Dk. grey massive shale</u> A very poorly bedded interval of pelitic rock of fine silt size. A band of med grey shale at base shows bedding as 0- 20° to c.A. At top So/Si $25-30^\circ$ to c.A.							
3.0									Pg rare
	298.7							298.7	10cm Pg 15 blebs in silic. quartzite
3.0	300	Interbedded lt. to dk. grey shale & lt. grey f.g. quartzite						300	Pg rare



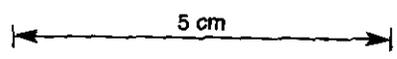
956036
Feature

Bedding 
Foliation 
Fragment size & shape 
Shearing 
Fault 
Vein 
c carbonate
q quartz

Mineralization

Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		An interval of irregularly interbedded gen. slumped (rafted) shale & quartzite. Interbedding is on the scale of cm's. FAULT - Broken core - 7° to c.A.						300.3	Py 7-10 (40) f.g. to black & blue, gen spotted in silicified shale & quartzite
3.0	301.1 301.7 301.7	Bedding varies between 0° to 60° but is gen. low to moderate to c.A. The quartzite is locally highly silicified. FAULT - Pug & qtz vein - 30° to c.A.						301.1 301.7 301.7	
	303.7 305							303.7 304.3 305	Py rare.
3.0	306.7	2cm qtz vein 35° to c.A. Lt. gray f.g. quartzite. 1cm qtz vein 20° to c.A. A highly silicified interval of massive f.g. quartzite. 1cm qtz vein 40° to c.A.						306.5 307.3 308.1	
3.0	308.3	Lt. gray shale w. (lt. gray f.g. quartzite interbeds) S1 Bedding 0-10° to c.A.						310 310.5	
		END OF HOLE							
	315							315	
	320							320	
	325							325	



APPENDIX B

Assay Data for Drill Holes :-

G 69	Severn
G 72	Severn
G 71	Queen Hill
G 25	Queen Hill
G 24	Queen Hill
G 23	Queen Hill
G 22	Queen Hill
G 13	Queen Hill
G 12	Queen Hill
G 10	Queen Hill

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
 For any section not analysed, a value -5.00 should be entered in the relevant assay columns.
 It is not necessary to record a zero.

PROGRAM										PROGRAMMER										DATE									
HOLE IDENT.	DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres)	ASSAY ppm		ASSAY ppm		ASSAY ppm		ASSAY ppm		ASSAY ppm		ASSAY ppm		grammes per Tonne		grammes per Tonne		SAMPLE No.											
		SNT	STANNITE	COPPER	ZINC	LEAD	TUNGSTEN	SILVER	GOLD																				
G69	89.00	-5.00																											
	90.00	190		110	5400	1600							4					Z50887											
	91.00	280		130	6200	2150							5					Z50888											
	92.00	540		155	5900	1350							8					Z50889											
	92.30	250		620	580	360							11					Z50890											
	93.00	300		140	260	50							3					Z50891											
	94.00	170		150	140	28							2					Z50892											
	95.00	430		130	150	44							1					Z50893											
	96.00	210		80	210	75							1					Z50894											
	97.00	270		170	165	210							6					Z50895											
	98.00	1000		470	410	10300							24					Z50896											
	99.00	440		590	640	550							13					Z50897											
	99.10	500		50	1500	480							3					Z50898											
	99.65	370		75	5600	920							4					Z50899											
	100.00	220		60	2900	490							3					Z50900											
	101.00	1100		280	300	310							7					Z50901											
	102.00	210		135	140	32							2					Z50902											
	103.00	4300		610	110	36							3					Z50903											
	104.00	230		60	130	50							2					Z50904											

Adelante - Comlabs

956071

956053

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
 For any section not analysed, a value -5.00 should be entered in the relevant assay columns.
 It is not necessary to record a zero.

PAGE 1 OF 1

PROGRAM								PROGRAMMER								DATE 25/3/81							
HOLE IDENT.	DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres)	ASSAY								grammes per Tonne		SAMPLE No.											
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	SILVER	GOLD												
		SNT	STANNITE	COPPER	ZINC	LEAD	TUNGSTEN																
G72	302.50	-5.00																					
	303.50	300	50	560	50	<4			1		250635												
	304.50	530	20	620	40	8			1		250636												
	305.50	180	210	710	40	10			1		250637												
	306.50	910	60	910	80	28			4		250638												
	306.70	165	20	1700	38	18			3		250639												
	307.50	1600	170	1050	50	50			5		250640												
	308.50	840	40	390	18	32			2		250641												
	309.50	2150	100	650	36	36			3		250642												
	310.50	2700	20	590	30	42			5		250643												

COMLABS- ADELAIDE

956061

DISTRIBUTION
 CUY LAMB
 RJE BURNE

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
 For any section not analysed, a value -5.00 should be entered in the relevant assay columns.
 It is not necessary to record a zero.

PAGE 1 OF 1

PROGRAM										PROGRAMMER										DATE									
HOLE IDENT.	DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres)	ASSAY	ASSAY	ASSAY	ASSAY	ASSAY	ASSAY	ASSAY	ASSAY	grammes per Tonne SILVER	grammes per Tonne GOLD	SAMPLE No.																	
		ppm SNT	ppm STANNITE	ppm COPPER	ppm ZINC	ppm LEAD	ppm TUNGSTEN																						
622	97.54	-5.00																											
	98.00	90	<10	105	60	140				8		250671																	
	99.00	250	<10	38	22	100				5		250672																	
	100.00	850	100	320	100	1000				11		250673																	
	101.00	2150	<10	60	34	210				7		250674																	
	101.57	820	<10	60	44	210				8		250675																	
	102.00	1400	310	1000	175	3000				40		250676																	
	102.41	55	<10	38	18	105				3		250677																	
	103.00	300	<10	32	20	320				4		250678																	
	104.00	95	<10	34	26	275				4		250679																	
	105.00	950	160	380	75	1750				47		250680																	
	105.46	620	300	560	135	900				75		250681																	
	106.00	10200	1400	5100	680	13400				195		250682																	
	107.00	4800	50	75	42	180				4		250683																	
	108.00	310	<10	38	24	65				6		250667																	
	109.00	1150	10	30	30	60				5		250668																	
	110.00	320	<10	40	24	40				4		250669																	
	111.00	42	<10	30	26	50				1		250670																	

APPENDIX C

Petrological Descriptions as follows :-

<u>Sample No.</u>	<u>Hole No.</u>	<u>Depth (m)</u>
138999	G 72	311.5
138892	G 72	285.6
138893	G 72	298.9
138894	G 72	309.5
138895	G 72	316.9
138896	G 72	338.2

Notes:

This suite comprises variably altered sediments of two semi-distinct types, labile pelites and quartzose psammopelites. These can be correlated with the Crimson Creek/Success Creek formations and Oonah Quartzite respectively.

Alteration is of distinctly contact-metasomatic/pneumatolytic style. Assemblages vary down hole from chloritic (in part after phlogopite) through phlogopitic to tourmaline and tourmaline-topaz, indicating relative proximity of a granitic intrusive. In apparent contradiction, 138895 is unmetasomatised, possibly a reflection of infaulting or, alternately and less likely, a fracture-controlled alteration paragenesis.

The majority of specimens reflect an overprint of carbonate alteration on the primary metasomatic assemblage. This phase is partly contemporaneous with an intermediate phase of fracturing, but relationships may be confused by later deformation effects.

D. Cowan, B. Sc.

CENTRAL MINERALOGICAL SERVICES

Date 1st May, 1981

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 81/3/55 Date Received: 30.3.1981Reference Letter dated 27.3.1981 - S. RichardsonSample No. 138 999Nature of Sample: D.D. Core (972)

DESCRIPTION SECTION No. 36555

a. Hand Specimen:

Grey, fine-grained siliceous rock with pyrite; extensively fractured.

b. Microscopic:

The thin-section was prepared so as to include the suspected contact; the rock is brittle and fractured, and shattered severely during sawing.

The rock is a siliceous, sericitic shale, perhaps originally an argillaceous chert, consisting mainly of microcrystalline quartz, clastic quartz grains and small parallel sericite flakes, with fine leucoxene and occasional streaks of carbonaceous pigmentation. There are lenses of fine mosaic quartz and of sideritic carbonate. Pyrite is conspicuous, as individual crystals, veins and pods, believed to be of diagenetic formation and cut by younger (post-lithification) quartz-sericite veins.

The rock is traversed by disturbed zones with fine quartz, euhedral pyrite and fine sericite, with siderite patches; these zones have sharp, oblique contacts with the host rock, partly scalloped and partly straight.

It appears that the host rock is essentially the same on either side of these disturbed zones, which are believed to be pre-consolidation features (rheomorphism or fluidisation of partly de-watered material); there is certainly no evidence of a significant change in lithology.

H.W. Fander, M.Sc.

IDENTIFICATION

138 999

Siliceous Shale

Petrological Descriptions138 892

(T.S. 36359)

This specimen comprises essentially millimetric to centimetric scale alteration of fine-grained chlorite rock and quartz-chlorite-pyrrhotite rock representing altered subaqueous tuffaceous pelite and intercalated carbonate facies respectively.

Chlorite rock consists of weakly orientated Fe-Mg chlorite aggregates, weakly carbonaceous, sideritic and pervasively leucoxene-stained. Minor microcrystalline quartz is present and silicified silt- to medium sand-sized feldspar grains occur sporadically. Chlorite is generally featureless, but in some bands is clearly pseudomorphous after silt- to fine sand-sized feldspar grains, shards and shard fragments. There is some evidence that chlorite is retrograde after metasomatic biotite (or phlogopite).

Intervening bands consist of chlorite-stained an- to subhedral quartz (mean 75 μ), with intergranular pyrrhotite and chlorite in varying proportions, and accessory sideritic carbonate. These zones are conformable and interpretation is based on textural affinity with typical sulphidised/silicified carbonate facies in N.W. Tasmanian tin situations in general.

Irregular zones of coarser-grained vein-type quartz-pyrrhotite aggregates occur sporadically and grade into areas of semi-massive pyrrhotite with minor associated pyrite.

Cassiterite is thinly disseminated throughout the altered carbonate bands, as cloudy, quartz-intergranular particles (20-100 μ , mean 50-75 μ), poorly resolved against siderite, and quartz-sulphide veins as 50-400 μ diameter particles, rarely mantled with ultrafine needle tin.

138 893

(T.S. 36360)

This rock represents a thoroughly metasomatised sediment with affinities to sedimentary bands in 138892. Relict features are vague, but consistent with a laminated silty pelite. Conspicuous relict leucoxenic semi-opaques, extremely fine-grained and of bedded distribution, are present and, on this basis, the rock can be correlated with the Crimson Creek Formation labile wackes.

Metasomatism is both marked and pervasive, with development of fine random phlogopite introduced in part on frequent intersecting veinlets with accessory quartz and fine pyrrhotite disseminations. Sporadic zones of relatively massive pyrrhotite from crude lenses of millimetric scale with minor associated pyrite and rare chalcopyrite. The rock is locally sheared, with marked chloritisation of phlogopite and partial replacement of pyrrhotite by fine-grained secondary pyrite.

Close inspection revealed no detectable cassiterite. Conceivably, however, traces are masked by the more or less pervasive leucoxenitic semi-opaques.

138 894

(T.S. 36361)

This rock is essentially similar to 138893, but is characterised by metasomatic pale green schorl in contrast to phlogopite.

Relict features are consistent with a laminated quartzose silty shale/shale intercalation with relatively very minor clastic opaques in comparison with 138893. There is evidence of a weak pre-metasomatic slaty cleavage and, on the basis of these features, this rock is tentatively correlated with the Oonah Quartzite. Problematically, finer details have been obliterated.

The rock consists essentially of pale green schorl and micro-crystalline quartz in varying proportions, with subordinate poikilitic sideritic carbonate. Tourmaline is fine- to ultrafine-grained and generally poorly resolved optically. This phase exhibits a weak to pronounced dimensional orientation inherited from the replaced argillaceous fraction (?sericite). Fine-grained pyrite is more or less pervasive and appears to represent a late replacement of pyrrhotite, consistent with the texturally late carbonation. Irregular veinlets and crude lenses of fluorite, with schorl inclusions, occur sporadically and may be accompanied by minor accessory traces of sellaite. These developed contemporaneously with siderite-healed fractures displacing the metasomatised bedding laminations. The rock as a whole is weakly deformed, with sporadic microfolds in relatively pelitic (tourmaline-rich) zones, weak brecciation of the more competent siliceous zones, and patchy stress effects in siderite. There is no detectable cassiterite.

138 895

(T.S. 36362)

This is a relatively unaltered sericitic pelite, essentially a sub- to millimetric scale laminated, slightly quartzose silty shale with rare interbeds of argillaceous quartz siltstone. Clastic components comprise quartz and subordinate muscovite flakes with a minor accessory heavy mineral assemblage (leucoxenic semi-opaques, rare zircon, tourmaline). This sediment is weakly carbonaceous. An incipient slaty cleavage intersects bedding at a low angle.

Frequent, variably continuous veinlets of sideritic carbonate with accessory quartz and rarely talc and pyrite range up to 2 mm in width. These postdate the weak slaty cleavage and are extensively deformed and displaced by a semi-pervasive network of late sericitic microfractures.

In contrast to 138892, 893 and 894, this rock is entirely devoid of contact-metasomatic alteration features. Carbonate-alteration is essentially analogous to the Zeehan-type alteration trend.

138 896

(T.S. 36363)

This rock can be classified as an altered orthoquartzite and is more or less typical of the Donah quartzites.

The relict framework is weakly bedded, moderately sorted (slightly silty fine to medium sand) and consists almost entirely of subangular to subrounded quartz with minor accessory chert fragments and heavy mineral grains (zircon, tourmaline, leucoxenic semi-opaques). Altered, indeterminate lithic clasts (?pelitic) are present, but are markedly subordinate to quartz. Framework components comprise 60-65 % of the area sectioned.

The matrix consists partly of overgrowth and intergranular quartz, but this is subordinate to extremely fine-grained topaz aggregates representing pneumatolytically altered clays. The topaz clots are weakly, but semi-pervasively stained with colour-variable tourmaline (schorl, dravite). Poikilitic pyrite subhedra (to 1.7 mm) are common throughout.

Topaz and tourmaline were introduced in part along intersecting microfractures. These features are intersected by sparse, weakly stressed quartz veinlets.

D. Cowan, B. Sc.

APPENDIX D

BIG ROCKY CREEK - ST. DIZIER EAST

Stream, soil and rock geochemistry.

GEOCHEMICAL SAMPLE LEDGER

QUEEN HILL E/L
DIGNEM FLOW UP

PROJECT NO. 250702
DATE 20 MAY 1977

ANALYST S. RICHARDSON
CHECKED BY S. RICHARDSON
DATE 20 MAY 1977

CARD PUNCH PRINT YES NO
VERIFY YES NO
DATE 20 MAY
SHEET 1-2

SAMPLE NO.	DEPTH (cm)	METAL VALUES PPM										GEOLOGICAL LOG
		SN	W ₀₃	Ca	Pb	Zn	1	2	3	4	5	
E.M. ANOMALY 203A	250702	7	X	X	10	20						soil
	250703	5	X	5	X	5						soil
	250707	X	X	X	X	X						Stream sed
MAG. ANOMALY 205A	250704	9	X	X	X	10						soil
	250710	4	X	X	X	10						st. sed
	250711	3	X	X	X	5						soil
E.M. ANOMALY 202D-202E	250714	4	X	X	5	10						st. sed
	250715	4	X	5	10	10						soil
	250716	7	X	10	X	10						soil
	250717	7	X	10	5	10						soil
	250720	40	X	5	5	10						soil
ANOMALY 228C-229A	250721	270	19	5	5	15						Stream sed
	250724	15	X	X	10	5						st. sed.

956077

APPENDIX E

I.P. PROFILES

1. Anomaly 205X (205A).
2. Anomaly 228C-229A.

I.P. & RESISTIVITY SURVEY (DIPOLE-DIPOLE ARRAY L=100m)

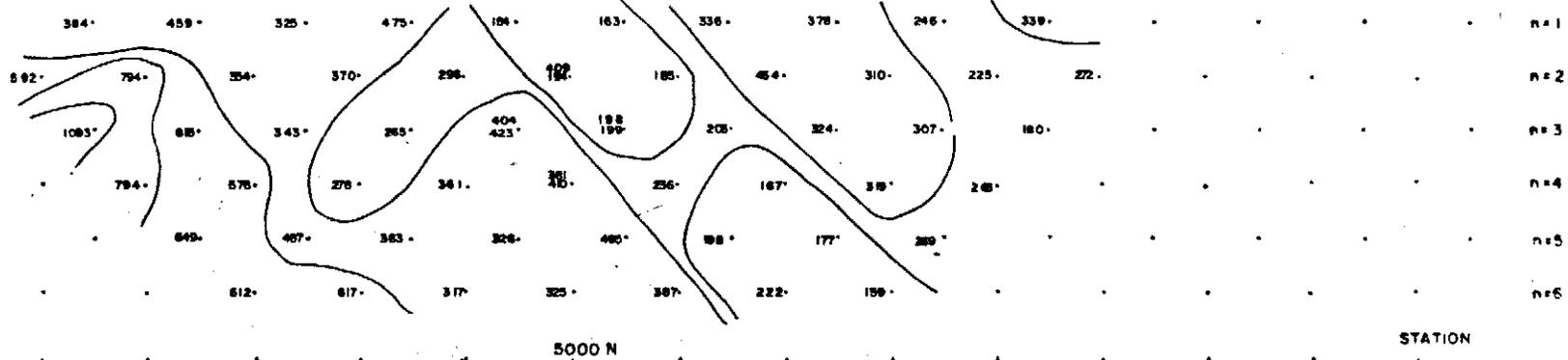
CULTURE PLAN

4500 N

5000 N

5500 N

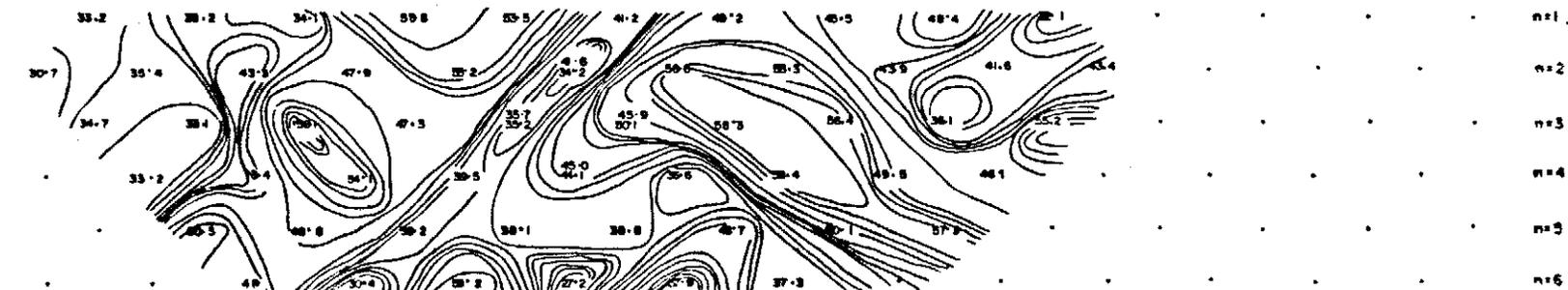
APPARENT RESISTIVITY (ohm m)
LOGARITHMIC CONTOUR INTERVAL



5000 N

STATION

APPARENT CHARGEABILITY (mv/v)
CONTOUR INTERVAL 2 msec



TRANSMITTER TYPE: Phoenix IPT 1B

TIMING SEQUENCE: 2 sec on 2 sec off

RECEIVER TYPE: Huntec Mk IV (Serial No 1007)

INTEGRATION TIME: 140 m/sec after cut off

ABERFOYLE EXPLORATION PTY. LTD.

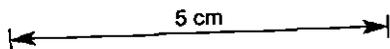
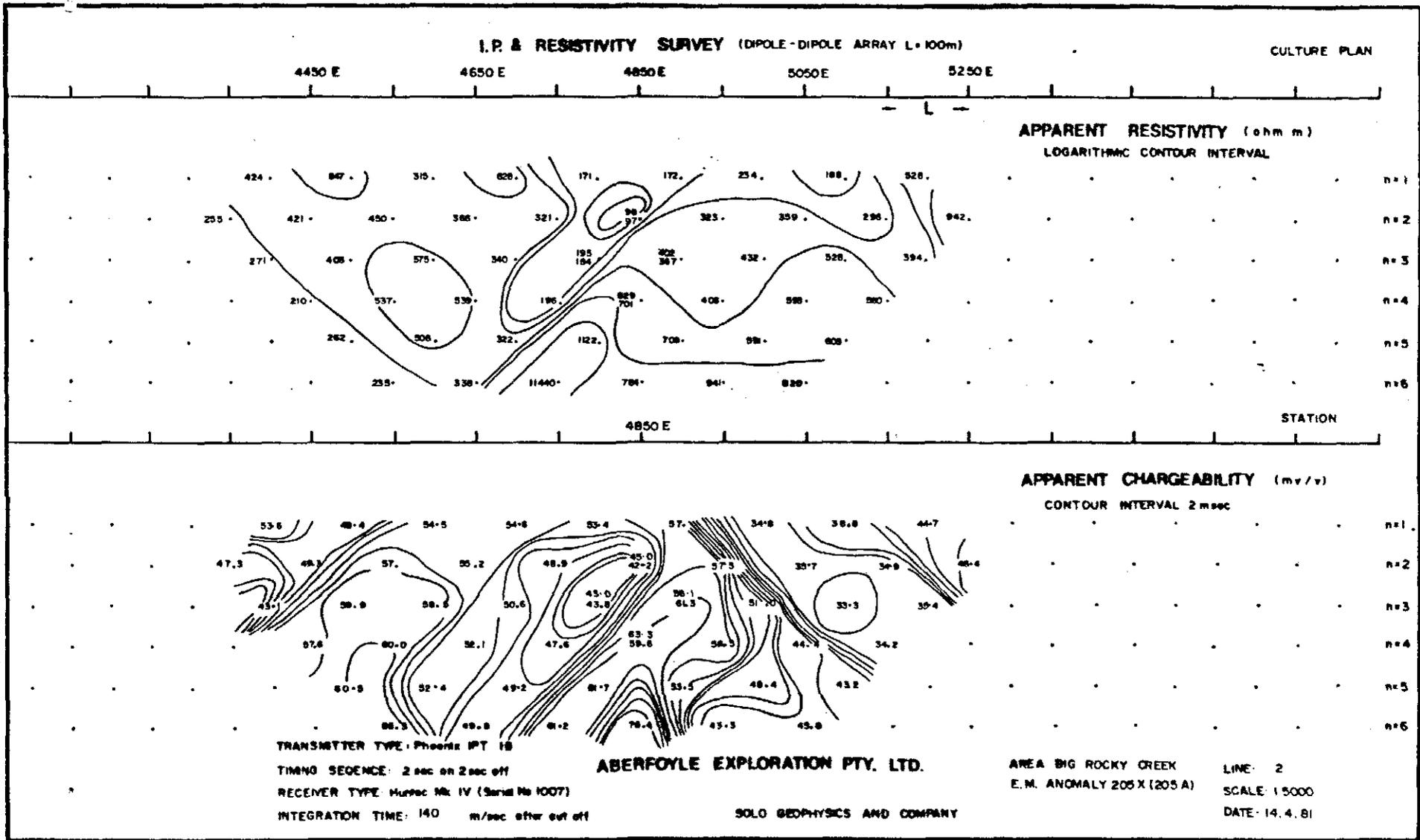
SOLO GEOPHYSICS AND COMPANY

AREA ST. DZIER
E.M. ANOMALY 228C-229A

LINE: 1
SCALE: 1:5000
DATE: 14.4.81

5 cm

956080



956081

APPENDIX F

THE MAX-MIN 11 EM SYSTEM.

THE MAX-MIN II EM SYSTEM

Max Min II system consists of a transmitting coil and a receiving coil. It is at the receiving coil that the measurements are made.

A power supply powers the transmitter which outputs a time varying electric current into a transmitter coil. The current in the transmitter coil generates a magnetic field of the same frequency and phase. The lines of force of this magnetic field penetrate the earth and may penetrate the conductive body. When this occurs an electromotive force or voltage is set-up within the conductor and a current flows in the conductor in response to the induced electromotive force. These currents will flow around in the conductor usually in planes perpendicular to lines of magnetic field of force from the transmitter, unless restricted by the conductor geometries. The current flow within the conductor generates a secondary magnetic field whose lines of force at the conductor are such that they oppose those of the primary magnetic field. The receiver coil, at some distance from the transmitter is therefore energized by two fields, firstly from the transmitter and secondly from the induced currents in the ground. By knowing the separation between the receiving and transmitting coils, we can easily calculate what the transmitting coil field should be at the receiver if no conductors were present, and therefore any deviations from this value must represent the secondary field due to currents flowing in the conductors. It is this secondary field represented as a percentage of the theoretical primary field that is displayed on the EM profiles. Once the secondary field has been identified by the receiving coil, the secondary field is then described or measured by its in-phase and out-of-phase components, i.e. the secondary field is split into two components. The first component is in-phase with the transmitted field while the second component of the secondary field is exactly 90° out of phase with the transmitted field. Being 90° out-of-phase with the transmitted field implies that currents in the conductor are still flowing at the point when the current in the transmitting coil is zero.

It is normally the ratio of the in-phase to out-of-phase components that gives us an idea of how good a conductor is - increasing in-phase to out-phase ratio implies an increase in the conductance i.e. secondary fields that are completely in-phase with the transmitter field means that the conductor is very effectively opposing the transmitted field; in other

THE MAX-MIN II EM SYSTEM.....CONTINUED.

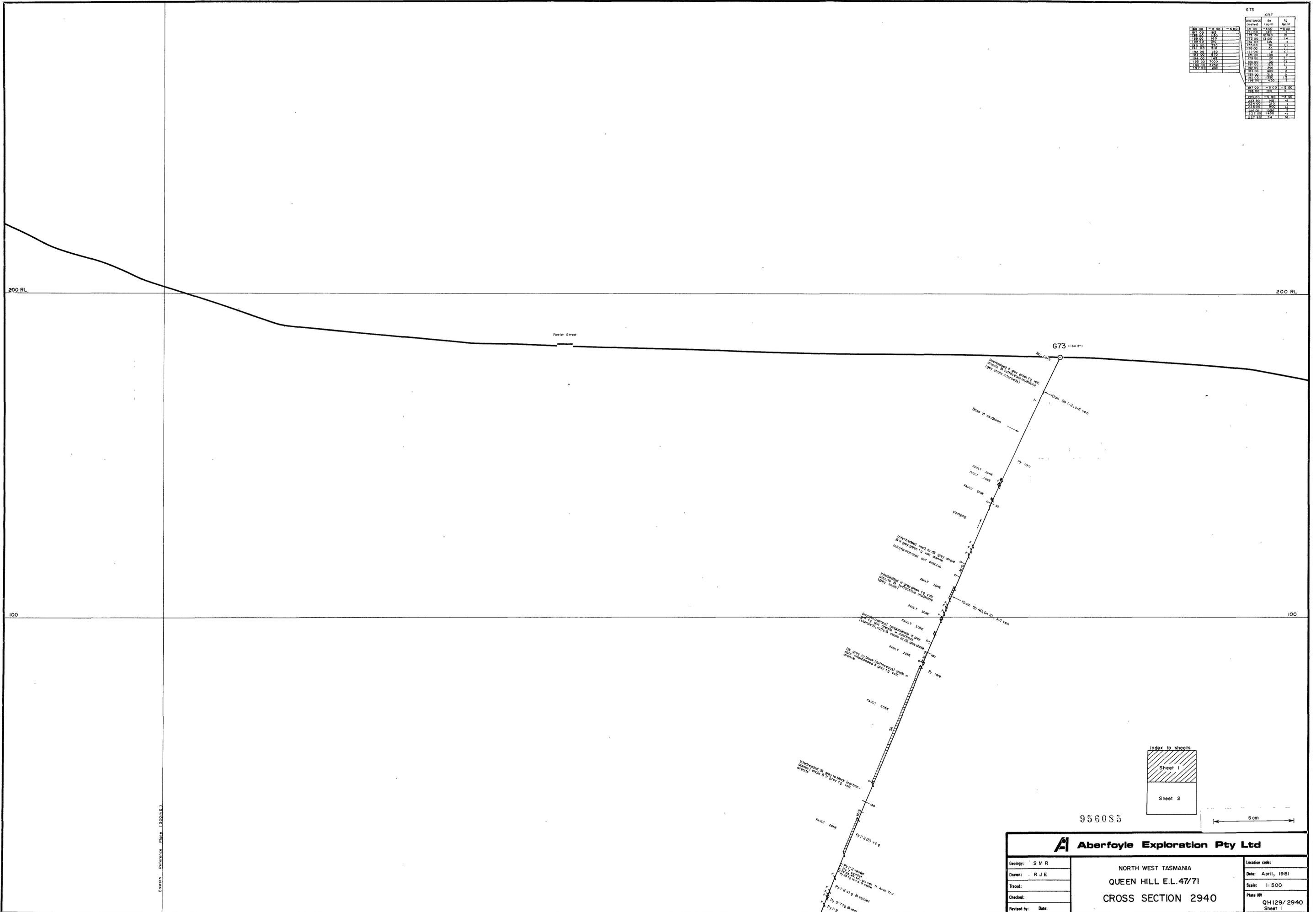
words, it is reacting almost instantaneously to the inducing field. Similarly the size of the out-of-phase component is a measure of conductor's "sluggishness", and it tells us how unsynchronised the conductor's response is with respect to the inducing field, and the greater the unsynchronisation the smaller the conductance for the conductor.

Also, it should be remembered that due to the geometry of the Max-Min II system, "steeply" dipping conductors and edges of major conductive units give negative anomalies, while flat lying wide conductors (wide with respect to coil separation) give broad positive anomalies.

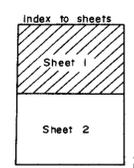
J. Silic
.....

J. SILIC
GEOPHYSICIST

G73		XRF	
Distance	Sp	As	Notes
188.00	18.00	18.00	
189.00	19.00	19.00	
190.00	20.00	20.00	
191.00	21.00	21.00	
192.00	22.00	22.00	
193.00	23.00	23.00	
194.00	24.00	24.00	
195.00	25.00	25.00	
196.00	26.00	26.00	
197.00	27.00	27.00	
198.00	28.00	28.00	
199.00	29.00	29.00	
200.00	30.00	30.00	
201.00	31.00	31.00	
202.00	32.00	32.00	
203.00	33.00	33.00	
204.00	34.00	34.00	
205.00	35.00	35.00	
206.00	36.00	36.00	
207.00	37.00	37.00	
208.00	38.00	38.00	
209.00	39.00	39.00	
210.00	40.00	40.00	
211.00	41.00	41.00	
212.00	42.00	42.00	
213.00	43.00	43.00	
214.00	44.00	44.00	
215.00	45.00	45.00	
216.00	46.00	46.00	
217.00	47.00	47.00	
218.00	48.00	48.00	
219.00	49.00	49.00	
220.00	50.00	50.00	
221.00	51.00	51.00	
222.00	52.00	52.00	
223.00	53.00	53.00	
224.00	54.00	54.00	
225.00	55.00	55.00	
226.00	56.00	56.00	
227.00	57.00	57.00	
228.00	58.00	58.00	
229.00	59.00	59.00	
230.00	60.00	60.00	
231.00	61.00	61.00	
232.00	62.00	62.00	
233.00	63.00	63.00	
234.00	64.00	64.00	
235.00	65.00	65.00	
236.00	66.00	66.00	
237.00	67.00	67.00	
238.00	68.00	68.00	
239.00	69.00	69.00	
240.00	70.00	70.00	



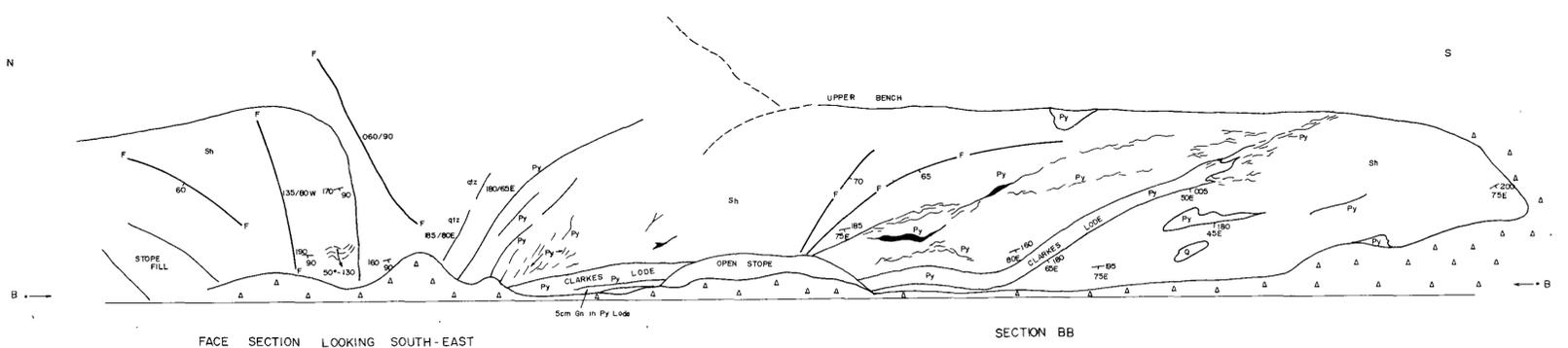
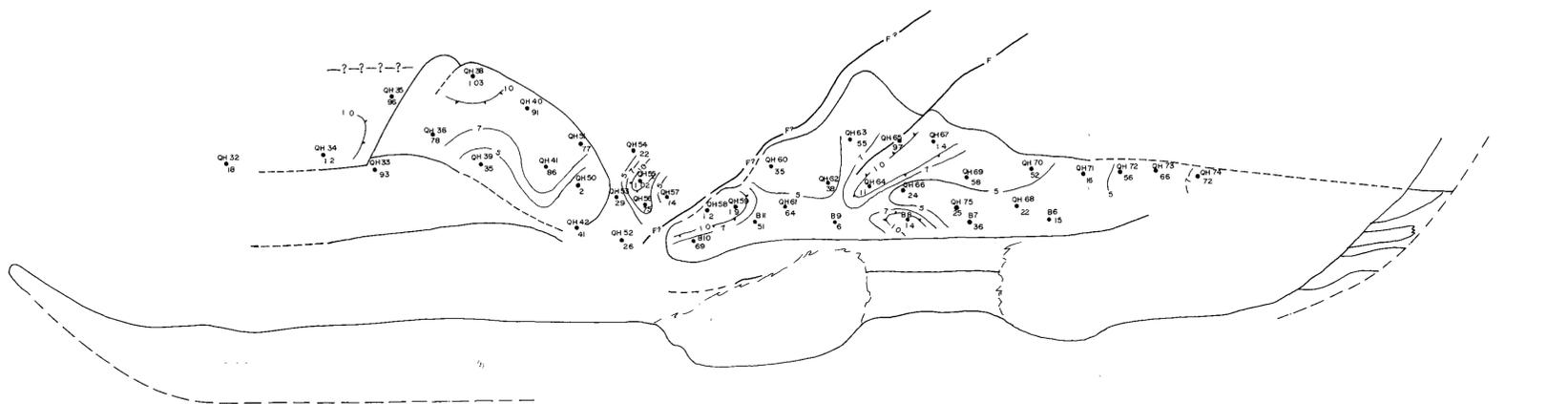
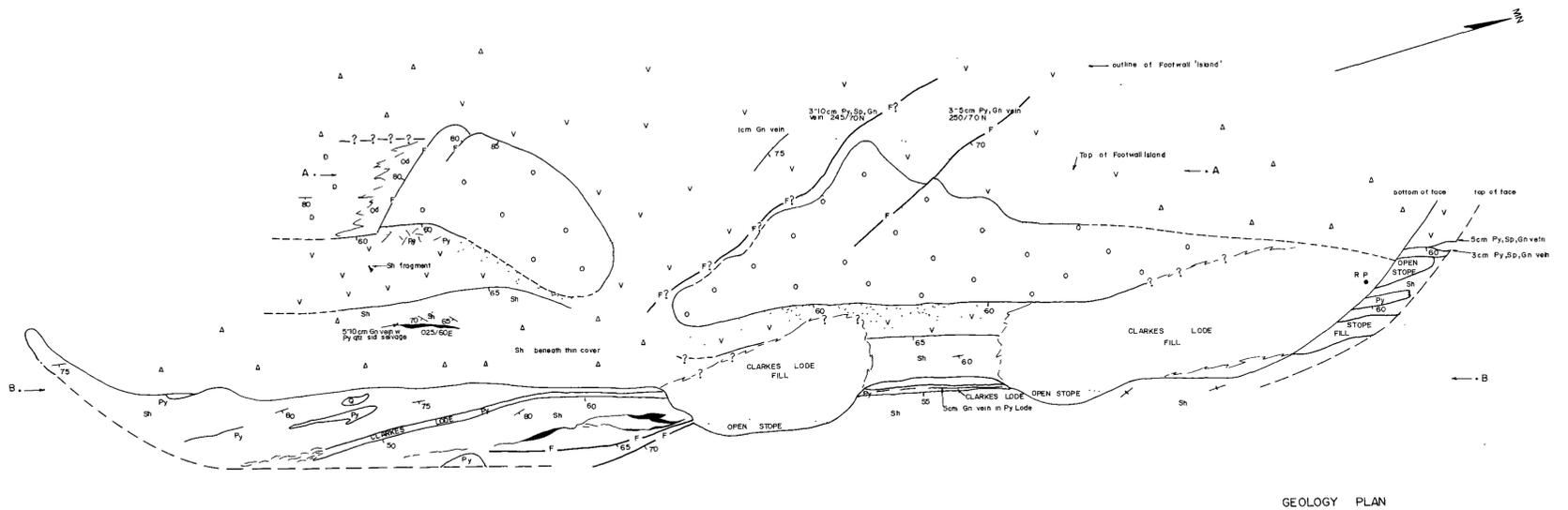
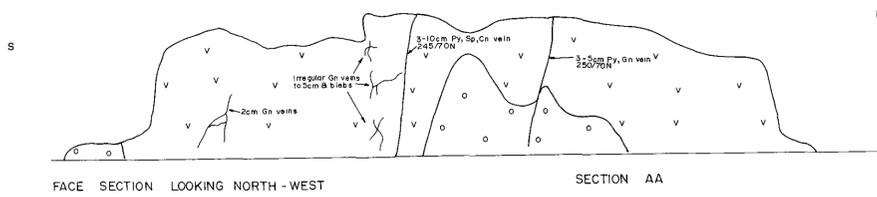
Easern. Reference. Plane. (300m E.)



956085

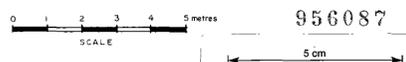


Aberfoyle Exploration Pty Ltd		
Geology: S M R	NORTH WEST TASMANIA	Location code:
Drawn: R J E	QUEEN HILL E.L.47/71	Date: April, 1981
Traced:	CROSS SECTION 2940	Scale: 1:500
Checked:		Plate No: QH129/2940
Revised by: Date:		Sheet 1

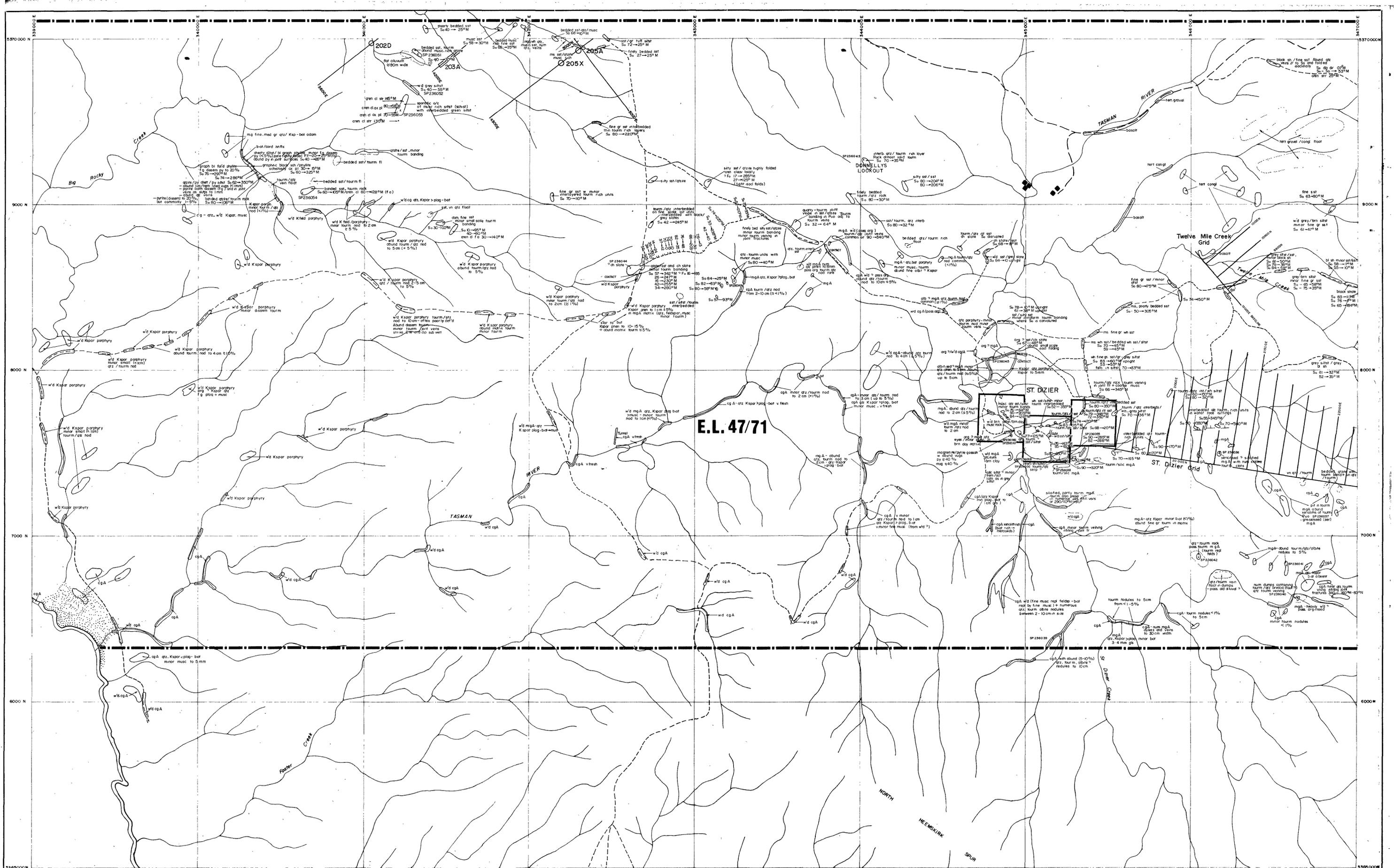


LEGEND

- △ Scree and fill
- V Light grey green ser and carb lapilli tuff
- V Pyritic lt grey green ser and carb lapilli tuff
- O Brown massive to bedded gas slumped pyritic mudst with rare to common blk chert frags & frag Sn on overprinting weak to intense unoriented thin pyrite vein stockwork
- O Slumped green to med grey bedded dolomite & brn pyritic mudst with rare blk chert frags & weak overprinting thin pyrite vein stockwork
- D Well bedded locally slumped cream to grey locally pyritic dolomite with minor brown pyritic mudst interbeds
- SN Med grey to blk highly contorted locally carbonaceous slate with rare thin lt grey lg quartzite interbeds
- O Lt grey lg quartzite
- Py Vein pyrite
- / Dip and strike of bedding and dominant cleavage
- / Fault with dip of plane
- / Plunge and direction of minor fold
- P Reference peg
- Contour line
- QH 70 Hole number
- Sn assay

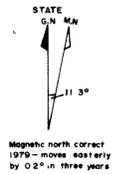


Aberfoyle Exploration Pty Ltd		
Geology: S.R	NORTH WEST TASMANIA	Location code:
Drawn: S.R	QUEEN HILL E L 47/71	Date: May, 1981
Traced: J.L.R	QUEEN HILL BENCH LEVEL R.L.	Scale: 1:100
Checked:	218	Plate No: QH 167
Revised by: Date:		



Base sheet enlarged from
1:31,680 Tasmanian Lands
Dept Topo

5 cm

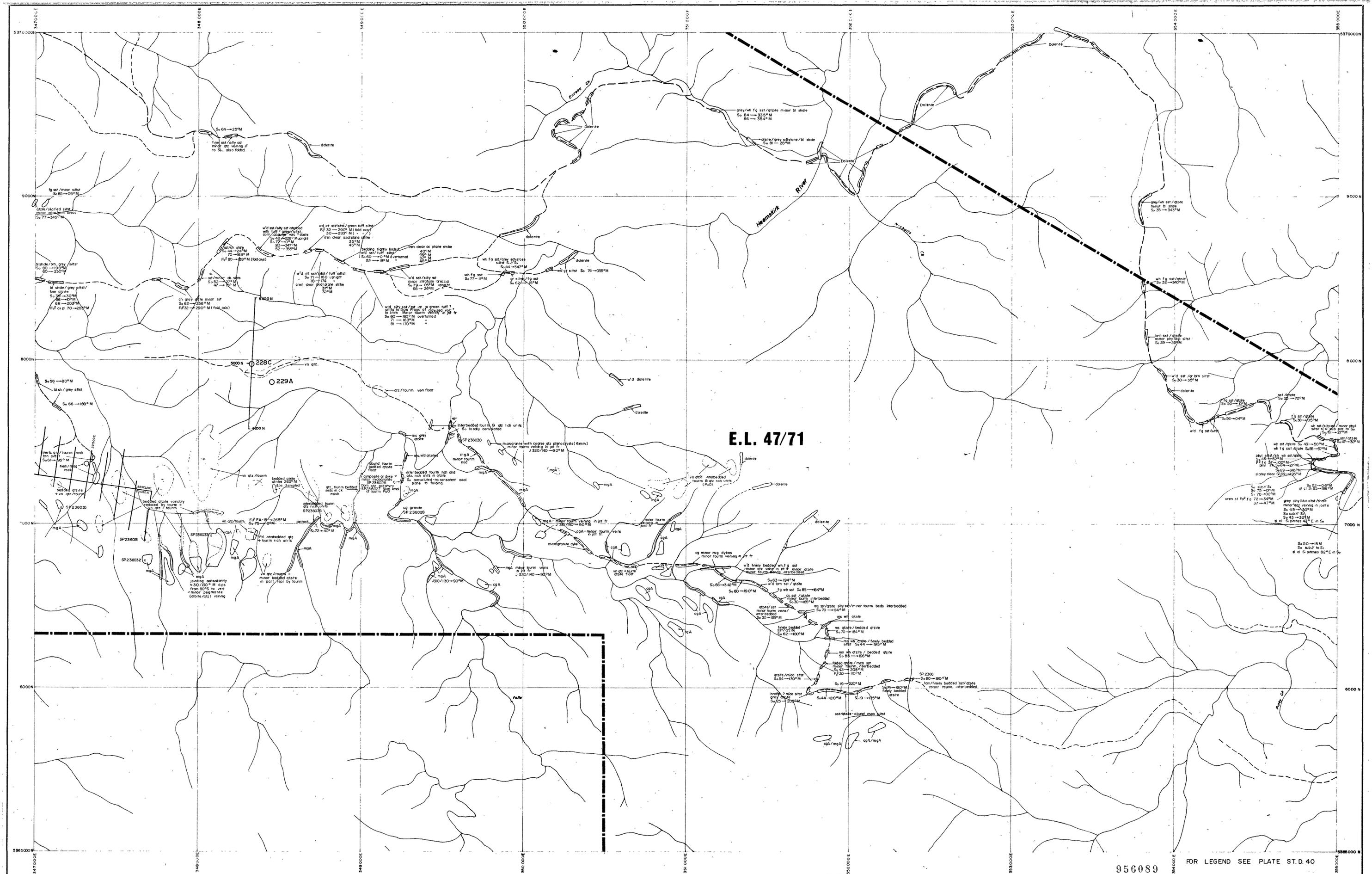


33/370	339/370	347/370
331/365	339/365	347/365
331/360	339/360	347/360

956088

FOR LEGEND SEE PLATE STD.40

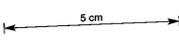
		81-1571
		Location code
NORTH WEST TASMANIA QUEEN HILL E.L. 47/71 ST. DIZIER AREA GEOLOGICAL MAP		Date April, 1980 Scale 1:10,000 Plate No STD 42 / 339/365
Geology J W Drawn J W Traced R J E Checked Revised by Date		



E.L. 47/71

956089 FOR LEGEND SEE PLATE ST.D.40

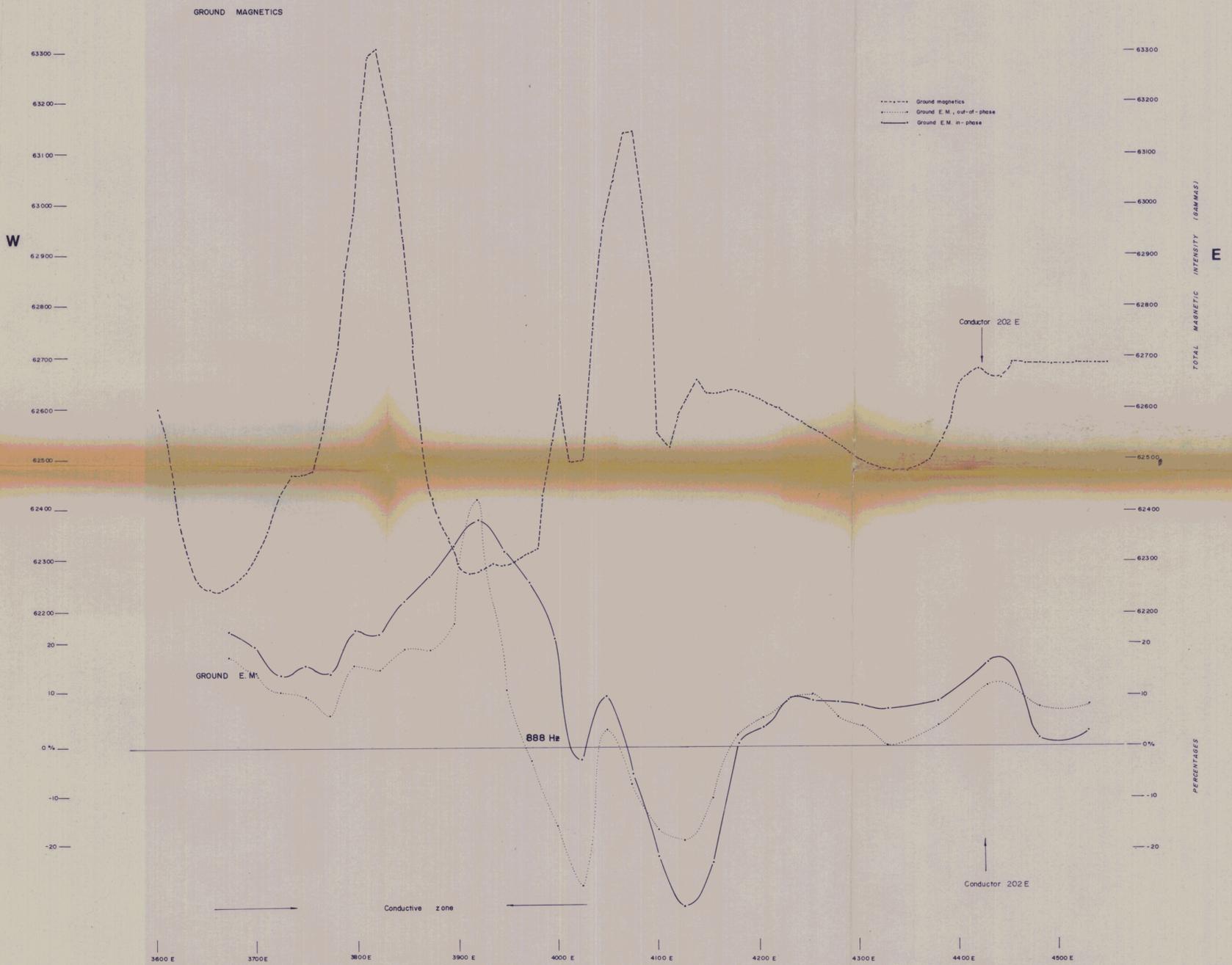
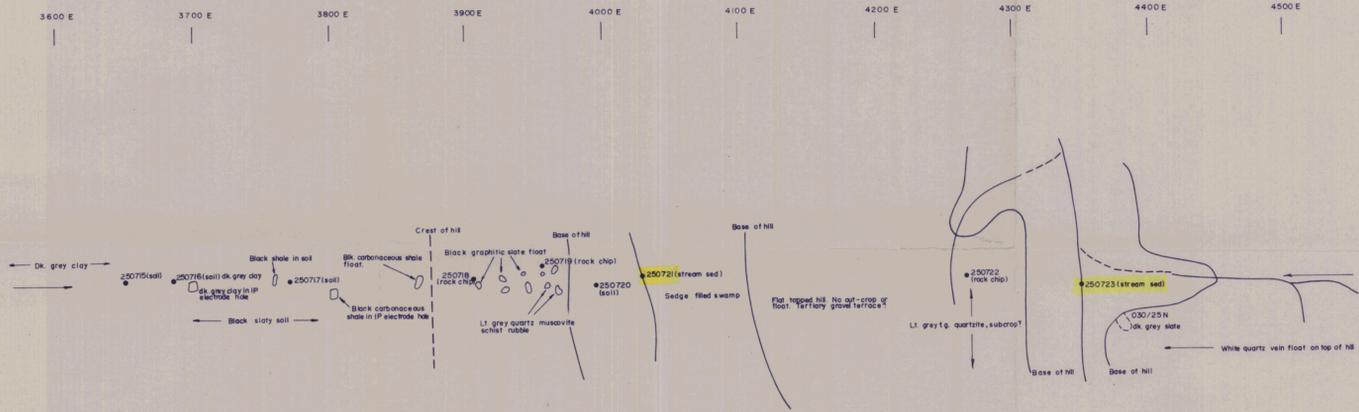
Base sheet enlarged from
1:31,680 Tasmanian Lands
Dept. Topo



339/370	347/370	355/370
339/365	347/365	355/365
339/360	347/360	355/360

Index to adjoining sheets

		81-1571
		Location code
Geology	J. W.	NORTH WEST TASMANIA
Drawn	J. W.	QUEEN HILL E.L. 47/71
Traced	R. J. E.	ST. DIZIER AREA
Checked		GEOLOGICAL MAP
Revised by	Date	ST. D. 42 / 347/365



Conductive zone associated with a number of Dighem conductors including 202 D

956090

5 cm

81-1571

Aberfoyle Exploration Pty Ltd		
NORTH WEST TASMANIA ST. DIZIER E.L. 47/71		
Geology: SR		Location code:
Drawn: J.S.		Date: June, 1981
Traced: J.L.R.		Scale: 1:2,500
Checked:		Plate No. QH 171
Revised by:	Date:	
GEOLOGICAL / GEOLOGICAL TRAVERSE GROUND MAGNETICS & EM SURVEY ANOMALIES 202D & 202 E		