

925001

of M	A.O.	C.G.	E.O.	D.S.M.E.
Received	23 OCT 1981			Registrar
Numbered				E & IL
DEPT. OF MINES				
R.P. No. 9165/81				

23-10-81

D.P.S.

PROGRESS REPORT
QUEEN HILL JOINT VENTURE
E.L. 47/71 TASMANIA
QUARTER TO SEPTEMBER 21, 1981

This report covers the
Aberfoyle periods 7 to 10
ending September 21, 1981.

J.R. Sise,
Project Geologist,
Tasmania.
September 21, 1981

TABLE OF CONTENTS

	<u>Page No.</u>
SUMMARY	
SEVERN-MONTANA EXPLORATION DRILLING PROGRAMME	1
DRILL CORE ANALYSES	4
ORE CHARACTERISATION: QUEEN HILL-SEVERN	5
QUEEN HILL LICENCE	6
WORK PLANNED	7
EXPENDITURE	8
REFERENCES	9

APPENDICES

- APPENDIX I - Drill logs and assay data for:
G74, G75 and G76
- APPENDIX II - Assay data for: G4, G65, G68, G69,
G71 and G72
- APPENDIX III - Check analyses for Sn and for Ag
using the XRF technique
- APPENDIX IV - Petrological Descriptions
- APPENDIX V - Donnellys Gossan Geochemistry

LIST OF PLATES

<u>Plate No.</u>	<u>Title</u>	<u>Scale</u>
QH 172 (In text)	Summary Plan: Severn-Montana-Golf Course Areas	As shown
QH 166 (In text)	Severn-Montana Summary Longitudinal Projection	1:2500
QH 129/3225	Cross Section 3225 - Sheet 1	1:500
QH 129/3225	Cross Section 3225 - Sheet 2	1:500
QH 129/3325	Cross Section 3325 - Sheet 1	1:500
QH 129/3325	Cross Section 3325 - Sheet 2	1:500
QH 129/3620	Cross Section 3620 - Sheet 1	1:500
QH 129/3620	Cross Section 3620 - Sheet 2	1:500
St.D 42/339/365	St. Dizier Area - Geological Map (Missing - not on microfiche)	1:10,000
QH 173 (In text)	St. Dizier - Queen Hill Area : Marking Exploration Licence Boundary	1:10,000 (reduction)

SUMMARY

This report summarises work completed in the Aberfoyle periods 7 to 10 ending September 21, 1981. Reported expenditure is for the Aberfoyle periods 7 to 10 ending September 21, 1981.

During periods 7 to 10, the exploration drilling programme continued at Severn and Montana with two drilling rigs in operation. Drill holes G74 (Severn), G75 (Severn) and G76 (Montana) were completed with holes G77 (Severn) and G78 (Montana) in progress at 264.0 and 277.0 metres respectively. A total of 1377.0 metres of diamond drilling was completed during the periods under review.

Assaying of previously rejected low grade zones from the Queen Hill, Severn and Montana mineralisation, to aid ore reserve estimation, was continued. A programme of check assaying for tin has been instigated.

Ore characterisation of the Queen Hill and Severn mineralisation has commenced at the Central Metallurgical Services in Burnie.

On the Queen Hill Exploration Licence follow-up of DIGHEM anomalies has continued in the Donnellys area with grid cutting and ground magnetics. The discovery of a previously unknown sulphide-bearing gossan, anomalous in base metals, has considerably enhanced the potential of the area.

The Department of Mines propose to excise from E.L. 47/71 an area pegged by Appollo International Minerals as a Mineral Lease adjoining their ML 17M/62 (St. Dizier). The Department also asserted that the Exploration Licence was not being actively explored. In response, a report on the proposed exploration programme on E.L. 47/71 for the six months to December 21st, 1981, incorporating a review of previous exploration, a programme for the prepared excision area and an objection to the proposed excision was forwarded to the Department of Mines on September 7th, 1981.

SEVERN-MONTANA EXPLORATION DRILLING PROGRAMME

DDH G74 SEVERN

Exploration drill hole G74 (Plate QH 172), designed to test possible extensions to the Severn mineralisation on section 3225 at R.L.-100 (Plate QH 166) was commenced on April 7, 1981 and after experiencing major penetration problems due to faulting, was finally completed on July 21, 1981 at 398.0 metres. At 370.8 metres the hole passed through the faulted contact between the Crimson Creek Formation and the underlying Onah Quartzite and Slate Formation. Pyrite and trace pyrrhotite as disseminations and stringer veins was intersected between 345.3 and 363.7 metres. From 363.7 to 370.8 metres the style of mineralisation changed to a zone of massive pyrite veins with minor amounts of visible cassiterite.

Complete assay results for the interval 323.0 to 398.0 metres (end of hole) are to hand. From 345.0 to 371.0 metres an intersection of 26 metres of 0.66% Sn is indicated and includes 7.3 metres (363.7 to 371.0 m) assaying 1.99% Sn.

Below ^{3?} 371.0 metres the mineralisation is patchy and generally of less than 0.1% Sn. A single metre interval (378.0-379.0) returned 0.93% Sn.

DDH G75 SEVERN

Exploration drill hole G75 (Plate QH 172), designed to test the Severn-Montana Zone on section 3330 at R.L.00 (Plate QH 166) was commenced on July 29 and completed on August 24, 1981 at a depth of 287.5 metres. From the collar to 255.6 metres the typical stratigraphy of the Crimson Creek Formation was intersected, consisting of a sequence of light grey-green fine to medium grained volcanic arenite and dark grey to black interbedded mudstone and shale. At 255.6 metres the hole passed through an apparently conformable contact with an interbedded sequence of black shale and fine grained

quartzite of the Onah Quartzite and Slate Formation. No evidence of faulting was noted on this weakly mineralised contact. Weak pyrite mineralisation (1-2%) as fine disseminations and rare veinlets was intersected between 251.6 and 259.8 metres, but included a massive pyrite vein (258.6-258.9 m). The interval 250.0 to 260.0 metres was split and submitted for assay. Results indicate only weak mineralisation of less than 0.1% Sn.

DDH G76 MONTANA

Exploration drill hole G76 (Plate QH 172) was commenced on July 31, and completed on August 27, 1981 at a depth of 385.5 metres. This hole was sited to test the Montana Zone on section 3640 and at R.L.00 (Plate QH 166) at a position approximately 100 metres north-east of the massive pyrite mineralisation (8.0 m of 3.34% Sn) intersected in Montana drill hole G67.

From the collar to 307.5 metres, typical sediments of the Crimson Creek Formation were intersected. A change occurred at 307.5 metres to a light grey to cream brecciated dolomite, locally cavernous with siliceous interfragmental material. This unit, which is locally weakly sideritic and silicified, persisted to 374.7 metres where a sequence of finely laminated mudstone, dolomitic shale and shale was encountered. The change at 374.7 metres to a finely interlayered mudstone and shale sequence has been interpreted as the contact between the Crimson Creek Formation and the Precambrian Onah Quartzite and Slate succession, although no fault was recognised at this position.

No significant sulphide mineralisation was noted. Two intervals of sideritic and silicified material, (335.0 to 338.0 m and 359.0 to 360.0 m) were split and submitted for assay. Trace tin only was detected, however, lead to 3.1% and zinc to 0.7% was reported.

DDH G77 SEVERN

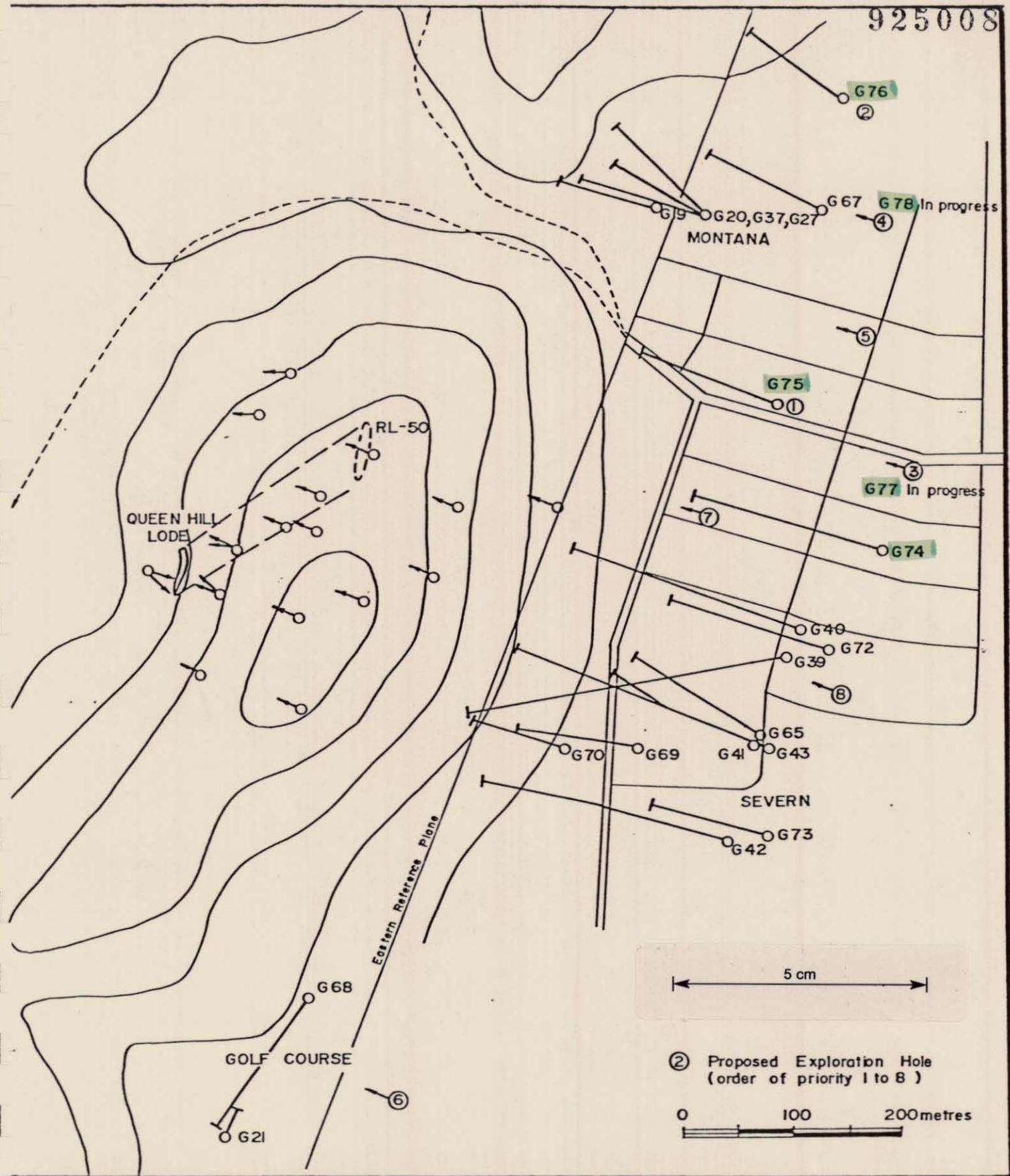
Exploration drill hole G77 on section 3330 (Plate QH 172) was commenced on August 27, 1981 and is currently in progress at 264.0 m. This hole has been positioned to intersect the favourable Cambrian-Precambrian contact zone at R.L.-150, being 100 metres beneath the very weak mineralisation encountered in G75 (Plate QH 166). The stratigraphic succession encountered so far consists of tuffaceous greywacke, black shales and minor basic lavas of the Crimson Creek Formation.

DDH G78 MONTANA

Exploration drill hole G78 on section 3540 (Plate QH172) was commenced on September 1, 1981 and is currently in progress at 277.0 m.

This hole is designed to test for possible extension to mineralisation intersected in Montana drill hole G67. The target area is at R.L.-100 approximately 100 metres beneath the 8.0 metre intersection of 3.34% Sn recorded in G67.

A summary of the drilling programme is included in the text together with a summary longitudinal projection (Plate QH 166) and summary plan (Plate QH 172) for Golf Course Severn-Montana. The drill logs, all recent assay results and petrological descriptions are appended.



A Aberfoyle Exploration Pty Ltd

Geology:	NORTH WEST TASMANIA	Location code:
Drawn:	SUMMARY PLAN	Date: August, 1981
Traced: J.L.R.	SEVERN - MONTANA - GOLF COURSE AREAS	Scale: As shown
Checked:	1981-82 DRILL PROGRAMME	Plate No
Revised by: Date:		QH 172

2680

2900

3000

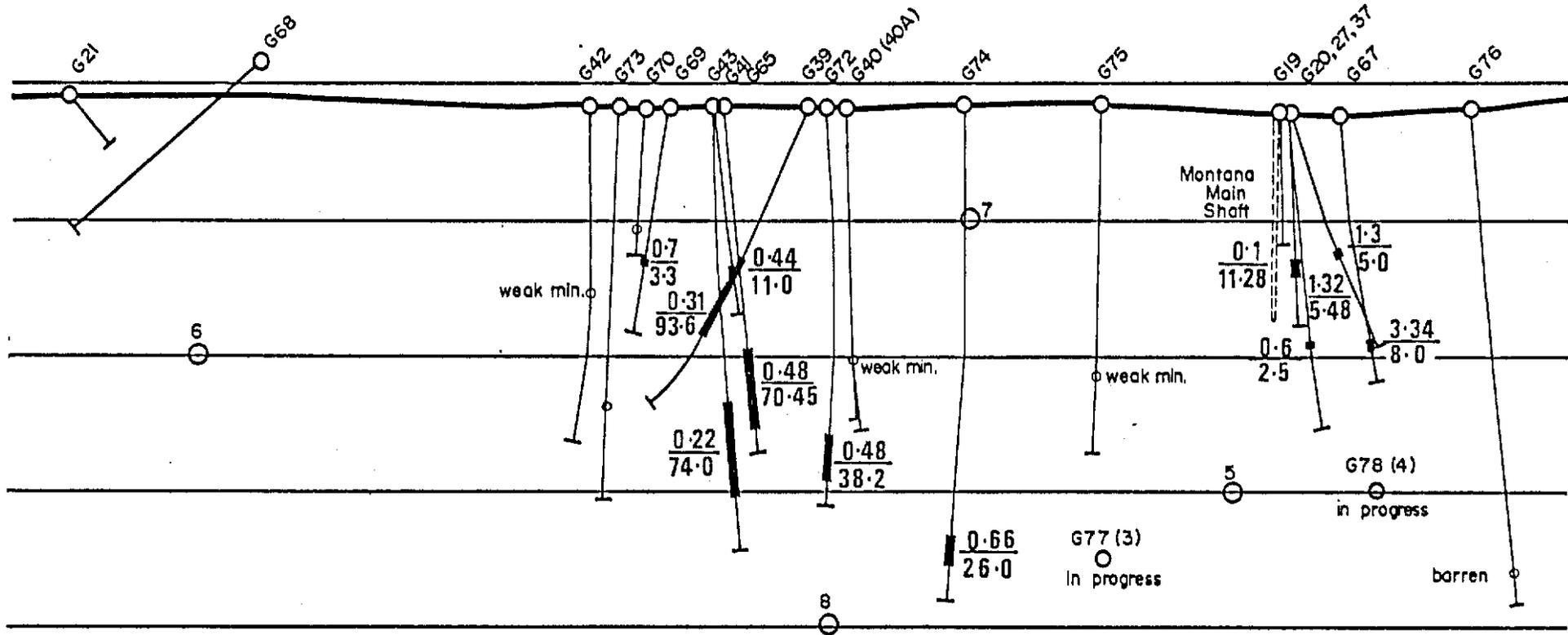
3225

3500

GOLF COURSE

SEVERN

MONTANA



$\frac{\% \text{ Sn}}{\text{metres}}$
 8
 ○

Cassiterite - Sulphide mineralisation
 Proposed Exploration Hole

5 cm

0 100 200
 metres

**SUMMARY LONGITUDINAL
 PROJECTION**

PLATE NO. Q.H. 166

925009

SEVERN/MONTANA/GOLF COURSE—Diamond Drilling Summary A

D.H. No.	Co-ordinates		Elevation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RL of Intersection	Intersection
	North	East											
74 SEVERN	1742.5	1252.1	179.8	281.0	-62.6	7.4.81	21.7.81	398.0	4382.5	3225	345.3-363.7m: Pyrite and trace pyrrhotite as stringer veins. 363.7-370.8m: Zone of massive pyrite veins with minor cassiterite.	-133 -150 -155	345.0-371.0m(26m) of 0.66%Sn, Inc. 363.7-371.0m (7.3m) of 1.99%Sn
75 SEVERN	1889.5	1181.4	181.2	281.2	-60.5	29.07.81	24.08.81	287.5	4670.0	3330	258.4-258.7m: Massive pyrite. No other significant sulphide mineralisation noted.	-45	Weak min.< 0.1% Sn.
76 MONTANA	2138.8	1313.9	178.8	298.0	-68.8	31.07.81	27.08.81	385.5	5055.5	3640	No significant sulphide mineralisation noted.		
77 SEVERN	1831.2	1238.1	179.7	289.7	-62.8	27.08.81	In progress			3330			
78 MONTANA	2050.3	1321.7	179.3	285.4	-57.4	01.09.81	01.10.81	377.4		3540	332.15-349.85m: Zone of massive pyrite-pyrrhotite vein mineralisation in quartz-siderite rock.		
79 GOLF COURSE	1191.5	901.3	189.3	312.3	-59.8	06.10.81				2630			

925010

SEVERN/MONTANA/GOLF COURSE—Diamond Drilling Summary 3

D.H. No.	Co-ordinates		Elev-ation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RL of Intersection	Intersection
	North	East											
68	1374.2	734.1	212.6	209.5	-41.0	2.10.80	21.10.80	186.7	2615.6	GCL	No significant sulphide mineralisation noted.		
	GOLF COURSE LODGE												
69	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 70 47	Weak min. <0.1%Sn 131.0-141.0(10.0)m of 0.27%Sn. Inc. 137.0-141.0(4.0m) of 0.7%Sn. 164.8-170.8(6m) of 0.3%Sn.
70	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.		
	SEVERN												
72	1649.5	1205.1	180.6	284.3	-63.1	16.1.81	9.3.81	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. 300.3-313.5m: pyrrhotite/pyrite stringer veins, 1-5% Fault at 310.5m.	-60 -70 -77 -93.5	275.3-313.5(38.2)m of 0.48%Sn Inc. 282.5-294.5m(12.0)m of 1.37%Sn..
	SEVERN												
73	1492.3	1139.6	180.4	281.4	-64.5	12.3.81	4.4.81	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(28)m 0.15%Sn, Inc. 171-173m(2m) of 1.29% Sn. 223.0-227.8m: Weak min. <0.1%Sn.
	SEVERN												

925011

SEVERN / MONTANA / GOLF COURSE – Diamond Drilling Summary C

D.H. No.	Co-ordinates		Elevation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RL of Intersection	Intersection
	North	East											
41 SEVERN	1575	1145.5	181	282°	-30°	7.2.77	22.3.77	292.5	6907.05	3040	230.0-241.0m: zone of Py veinlets, locally to 60%	59.5 53.5	230.0-241.0(11.0m) of 0.44%Sn. Inc. 230.0-236.0m(6.0m) of 0.69%Sn.
42 SEVERN	1486.5	1100	181	282°	-45°	23.3.77	23.5.77	335.3	7242.35	2920	184.0-194.0m: Minor Py as disseminations & veinlets.	55 40	184.0-194.0(10.0m) of 0.09%Sn.
43 SEVERN	1581	1133	181.5	282°	-64°	28.3.77	29.4.77	358.5	7600.85	3040	155.1-159.3m: Py veinlets to 20%. 241.0-315.0m: zone of Py/Po stringer veins.	39 -36 -104	155.1-159.3(4.2m) of 0.36%Sn. 241.0-315.0(74.0m) of 0.22%Sn. Inc. 270.0-274.0m(4.0m) of 0.89%Sn.
65 SEVERN	1581.5	1138	182	239.1	-60.1	5.8.80	3.9.80	292.5	1861.4	3035	150.5-178.5m: zone of pyrite/pyrrhotite stringer veins. 202.05-272.5m: zone of pyrite/pyrrhotite stringer veins include 222.5-222.8m quartz-cassiterite vein and 257.5-262.1m, 40-70% pyrrhotite/pyrite vein.	50 25 05 -55	150.5-178.5 (28.0m) 0.27%Sn. 202.05-272.5m (70.45m) 0.48%Sn. Inc. 222.5-222.8m (0.3m) at 20.3%Sn and 248.95-264.5m (15.55m) of 1.13% Sn. NB: the 0.3m of 20.3%Sn was cut to 5%Sn for the overall grade estimation.
67 MONTANA	2073.7	1219.4	181.2	289.3	-64.3	8.9.80	30.9.80	223.5	2428.9	3520	192.3-200.3m vein pyrite 60-80%. siderite, quartz gangue.	12 05	192.3-200.3m (8.0m) 3.34%Sn.

925012

SEVERN/MONTANA/GOLF COURSE—Diamond Drilling Summary D.

D.H. No.	Co-ordinates		Elevation	Mag Brg	Angle	Commence	Complete	Depth m	Cumulative metres	Section	GEOLOGY/MINERALISATION	RL of Intersection	
	North	East											
19 MONTANA	2089	1073	177	282 ⁰	-50 ⁰	8.4.72	28.4.72	131.06	2206.10	3480	105.46-109.73: Py(10-15), Gn(1-2), tr Stn as veins. 115.82-121.01: Py,Gn,Sid, q as veins. 118.0-119.5: fault zone or stope.	98	105.46-109.73(4.27) m of 0.37% Sn.
												90	115.82-121.01(5.19) m of 0.2% Sn.
20 MONTANA	2073.5	1116	176	282 ⁰	-52 ⁰	29.4.72	13.5.72	189.59	2395.69	3480	131.37-142.65: Weak Py as disseminations & veinlets. 142.65-148.13: Py, Sid, q vein lode.	72 63.5 59	131.37-142.65(11.28 m) of 0.1% Sn. 142.65-148.13(5.48) m of 1.33% Sn.
21 GOLF COURSE LODE	1253	641	190	4 ⁰	-50 ⁰	15.5.72	22.5.72	48.16	2443.85	GCL	No significant sulphide mineralisation noted.		
27 MONTANA	2075	1116	175.6	313 ⁰	-60 ⁰	20.11.72	26.11.72	199.9	3682.25	3500	114.6-119.6m: Py(20-30), Gn(15-20), Sph(10) vein lode	75	114.6-119.6(5.0)m of 1.31% Sn.
37 37 W MONTANA	2075	1115	176	291 ⁰	-68 ⁰	17.9.75 Wedge from 215.4	2.10.75 227.1	243.9 227.1	5775.95 5787.65	3480	176.10-178.60m: Py(30), Sph(10), Sid(40), q(20) as vein lode	10	176.10-178.60(2.5) m of 0.6% Sn.
39 SEVERN	1640	1173	181	258 ⁰	-41 ⁰	11.2.76	15.3.76	364.2	6217.35	3040	136.90-144.60m: Py (10-60) as veins 170.0-263.6m: Py/Po stringer veins, locally to 60% in vein lode	88 70 14.5	136.90-144.60(7.7) m of 0.28% Sn. 170.0-263.6(93.6m) of 0.31%Sn. Inc. 221.6-227.25m(5.65) m of 1.95%Sn.
40 40 A SEVERN	1670	1177	180		-43 ⁰	26.1.77 Wedge from 238.0	18.3.77	310.5 324.7	6527.85 6614.55	3120	No significant sulphide mineralisation noted.		

925013

DRILL CORE ANALYSES

Core sawing and assaying of previously rejected low grade zones from the Queen Hill, Severn and Montana lodes 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>
G4	60.35	69.49
G65	131.0	141.0
	272.5	283.5
	284.5	292.5
G68	69.3	74.3
G69	110.0	130.0
G71	177.5	182.5

The following interval has been split and submitted for assay:

G46	253.9	264.9
-----	-------	-------

A mineralised interval in Severn drill hole G72, (273.5 to 310.5 metres) was returned to have check assays for tungsten. This action was prompted by similarities in petrology between core from the lower region of G72 and cores from recently drilled sediments in the Cleveland Mine.

The wolfram analyses are given in Appendix II. Although the results are low and rather erratic there is an overall apparent increase in WO_3 content with depth.

As recorded in the last quarterly report, seven mineralised intervals from Queen Hill and Severn core were submitted to AMDEL for silver analysis by XRF to determine whether the presence of stannite had depleted the silver values as analysed by the AAS technique.

The results, which are appended, show generally good agreement between the two assay techniques and suggest that in this instance the presence of stannite has not affected silver analyses.

A comprehensive programme of check analyses for tin has been instigated for the Queen Hill, Severn and Montana ore zones. This action has been prompted by the results of initial check tin assays (see results appended together with the silver analyses). Tabulation of comparative results will appear in future quarterly reports as information becomes available.

There is the possibility that total tin in a sample is not necessarily released for XRF detection by conventional seibing. In some cases seibing for twice the conventional time has resulted in an increase in tin values. This appears to occur in either very hard material or when the cassiterite is extremely fine grained.

Grindability curves will be established for the Queen Hill-Severn mineralisation using the metallurgical samples provided for ore characterisation.

ORE CHARACTERISATION: QUEEN HILL-SEVERN

The cassiterite-sulphide mineralisation at Queen Hill, Severn and Montana occurs in the form of fracture vein networks and semi-massive to massive lodes. The cassiterite is of generally fine grain size. Preconcentration may enhance head grades and ore characterisation of drill core is in progress at Central Metallurgical Services in Burnie.

Preliminary ore characterisation results for the G65 intersection (202.05-272.5 m) show the mineralisation is amenable to pre-concentration with greater than 80% of the tin reporting with the sink fraction, representing an almost three-fold concentration. Sulphur values show a similar distribution and confirm that the cassiterite mineralisation is related to the sulphides.

The initial G65 sample consisted of sawn $\frac{1}{8}$ th core slices, each 10 cm long, taken at regular 1 metre intervals through the whole of the intersection. As it was not known whether this was a fully representative sample, the remaining (90 cm units) core was sampled. A further sample from Severn, the G72 intersection between 275.3 and 315.5 metres, is currently being tested.

Two samples from Queen Hill, G49: 115.35 to 204.4 m and G62: 200.0 to 255.0 m, have similarly been submitted for preliminary ore characterisation.

QUEEN HILL LICENCE

In the previous quarterly report to June 1, 1981 (Sise, 1981), the detailed follow-up of three DIGHEM anomalies 202D, 203A and 205A(X) in the Donnellys (Big Rocky Creek) area was described and the establishment of a detailed grid to encompass the area proposed.

Due to the close proximity of the area of detailed follow-up to the northern boundary of the Exploration Licence (Plate No. ST.D 42/339/365) a contract surveyor was engaged to accurately locate the E.L. boundary on the ground and to survey the position of the grid base line with respect to the boundary (Plate No. QH 173).

Line cutting and gridding of the area at 25 metres intervals on lines 100 metres apart is nearing completion with 14.5 line kms of grid completed. A detailed ground magnetometer survey is in progress and has covered 6 kms of grid to date. On completion of the ground magnetics, a ground E.M. survey using system Max-Min II will be concentrated in the areas of anomalous magnetics to further refine drill targets.

During the initial ground follow-up of DIGHEM anomaly 203A a previously undiscovered sulphide-bearing gossan (Plate No. ST.D 42/339/365) assaying up to 2.6% Zn, 0.17% Pb, 0.33% Cu, 845 ppm WO_3 and 40 ppm Sn (See Appendix V) was discovered near the DIGHEM anomaly. The find has encouraged the concentration of exploration in this area to bring the prospect to the drilling stage.

Following application for renewal of Exploration Licence 47/71 on June 21st, 1981, Aberfoyle Exploration Pty.Ltd. was requested by the Department of Mines to provide a detailed programme of proposed exploration work for the next six monthly period as the Department did not consider the area to be under active exploration. The Department of Mines also proposed to excise an area adjoining ML 17M/62 from Exploration Licence 47/71 and requested comment and a programme for the area.

A submission (Oxenford and Young, 1981) was prepared to demonstrate our active exploration of the licence and to support an objection to the excision of an area of prospective ground. The submission included the proposed exploration programme for Exploration Licence 47/71.

WORK PLANNED

- Exploration Drilling at Severn, Montana and Golf Course
- Ore reserve estimation and metallurgy at Queen Hill and Severn
- Detailed follow-up at Donnellys to define drill targets
- UTEM follow-up south-west of Queen Hill
- Auger drilling at St. Dizier (DIGHEM Area 3) - proposed for 1982
- Evaluation of Tasman River anomalies (DIGHEM Area 2) - proposed for 1982

EXPENDITURE

The Joint Venture Statement of Expenditure for the Aberfoyle periods 7 to 10, ending September 21, 1981, is split into two parts. One pertains to expenditure incurred on the Queen Hill leases and the other to expenditure incurred on the Exploration Licence.

QUEEN HILL MINERAL LEASES

Communications	5,640
Geology	26,048
Geophysics	110
Assay	2,138
Diamond Drilling	103,331
Feasibility	6,587
Tenure	3,539
Administration @ 15%	22,109
	<u>\$169,502</u>
	=====

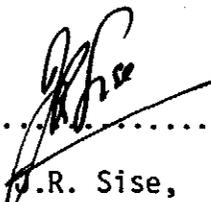
QUEEN HILL EXPLORATION LICENCE

Communications	1,920
Geology	8,345
Geophysics	4,468
Survey	1,872
Geochemistry	402
Assay	683
Access	3,290
Tenure	1,575
Legal	129
Administration @ 15%	3,403
	<u>\$26,087</u>

REFERENCES

Oxenford, R.A. and Young, C.H. (1981): Proposed Exploration Programme
E.L. 47/71 for the six months
to December 21st, 1981.

Sise, J.R. (1981): Progress Report, Queen Hill Joint Venture
E.L. 47/71, Quarter to June 1, 1981.

Signed.....

J.R. Sise,
Project Geologist - Tasmania

Endorsed.....

C.H. Young,
District Manager.

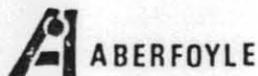
APPENDIX I

Drill Logs and Assay Data for:

G74 Severn

G75 Severn

G76 Montana



DRILL HOLE RECORD

925022

Location SEVERN

Property QUEEN HILL

District ZEEHAN

Bearing (M) 281°

Hole No G 74

Commenced 7/4/81

Completed 21/7/81

% Recovery 80%

Grid bearing (M) -11.25°

Date 24th JULY '81

Objective STRUCTURALLY CONTROLLED SEVERN MINERALISATION SECTION 3225N RL-100

Core size HQ → 174M NQ → 238M BQ → 398M

Co-ordinates 5361742.45N 361252.14E Dip 62.6°

Logged S. RICHARDSON

Alt./R.L. 179.84

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
15.5M	63°	IN ROOS	EASTMAN	0M	62.6	281	5361742.45	361252.14	179.84	<p>After casing off in HQ at 174m normal NQ drilling proceeded until about 229m when a fault zone proved impossible to penetrate. The HQ was then reamed down to 228m where it would go no further. After continued failure to cement the fault and advance the N. it was decided to case off in N and advance with BQ reaming the N down behind and cementing all the way.</p> <p>This was eventually successful passing out of the fault at 241.5m. 54 days were spent in this fault zone.</p> <p>In pulling out of the hole m of NQ and m of HQ were lost.</p>
27.5M	63°	IN ROOS	"	25	63	281.1				
63.5M	64.25	IN ROOS	"	50	63.5	281.1				
95M	65.5	IN ROOS	"	75	64.75	281				
123M	66°	IN ROOS	"	100	65.5	280.8				
153M	66.75	"	"	125	66	280.8				
180M	67.25	277.5	"	150	66.75	280.7				
211M	68.25	277.5	"	175	67	280.7				
245M	65.25	271°	"	200	67.5	280.7				
269M	64.75	273.5	"	225	68.5	280.1				
299M	62°	273.5	"	250	65.25	275.9				
338M	62°	273.5	"	275	64	275.2				
359M	61.5°	-	"	300	62	276.7				
398M	59°	271°	"	325	62	277.7				
EOH	398M			350	61.75	277.7				
				375	60.75	276.3				
				400	59	275				

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



carbonate
quartz

Mineralization

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

925023

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		No core - H.W. casing.							
3									
1									
4.5									
5		<u>Interbedded lt. to dk. grey shales</u>						5	
6		Well bedded shales locally slumped and rafted.							
		Bedding 0-35° to c.A.							
5		cleavage well to poorly developed at low to mod. angle to bedding.							
		Core is extremely broken							
5									Py rare
10								10	
2.2									
1.0									
4									
15								15	
2.0		<u>lt. grey green f.g. volc. arenite w. interbeds (slumped), rafts & frag. of lt. grey green tuffaceous mudstone.</u>							
8		Bulk of the interval is gen. massive (bedded) lt. grey green f.g. volc. arenite.							
2.0		Tuffaceous mudstone is rare at the top of the interval but becomes more common w. depth. When present slumping & rafting is gen. associated. Bedding is at low to mod. angles to c.A.							
20		Core is extremely broken.						20	
1.6									
9									
6									
1.0									
5									
25								25	



Feature

Bedding



Foliation



Fragment

size & shape



Shearing



Fault



Vein



c carbonate
q quartz

Mineralization

Trace 1-5%

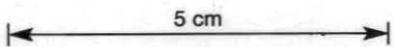
Common 5-15%

Abundant 15-60%

Massive > 60%

925024

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	0.3	Lithology - as above - lt. grey green f.g. volc. arcinite w. interbeds (slumped), ratts & fragments of lt. grey green buffaceous mudstone.						30	Py rare
	0.4								
	0.5								
	0.9								
	2.0								
	0.6	<p><u>FAULT ZONE</u> Pug associated w. highly fractured core & in the base of the zone slickensided fragments. Shearing & slickensides indicate orientation is v. low. angle to C.A.</p>							
	30								
	0.7								
	2.7								
	0.7								
	35								
	0.5								
	36.9								
	0.7								
	0.7								
	40								
	0.6								
	40								
	0.4								
	0.3								
	0.4								
	45								
	0.5								
	1.0								
	0.6								
	0.2								
	0.4								
	0.9								
	50								



Feature

Bedding



Foliation



Fragment
size & shape



Shearing



Fault



Vein



c carbonate
& quartz

Mineralization

Trace

1-5%

Common

5-15%

Abundant

15-60%

Massive

> 60%

925025

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
1-0		FAULT ZONE as above.							
1-0									
1-0									
	53.4								
2-1		Lithology - as above - interbedded lt. grey green volc. arenite & tuffaceous mudstone.						55	
	55.0								
3		Lt. grey green tuffaceous mudstone w. interbedded lt. grey green lg. volc. arenite							
1-0		Gen. slumped and refolded mudstone to (shale) is more common than volc. arenite from about 55m.							
4									
8		Bedding is low angle to c.a., gen 0-15°							
2-3								60	Py rare
7									
1-0									
1-0									
1-1								65	
5									
1-0									
2-5									
	70								
3-0		FAULT - 45° to c.a. - Png.						71.5	6cm Py 20, Sp 5, Ca tr. silic. 38%
	72.9								
	74.3	FAULT ZONE Broken core & pug. Blebbike py & Ca. Unknown to c.a.						74.4	10cm Py 2-3 veinlet stock work. 6cm Py 30, Ca 15, Sp 5 vein 50%+.
2-0									Py 2-3 (10) veinlet & bleb. Ca trace as above.
	75								10cm Py 95, Ca 5 vein Py 3-3 veinlet & bleb.

5 cm

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



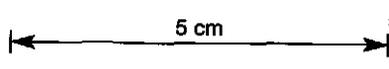
c carbonate
& quartz

Mineralization

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

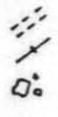
925026

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	0	Lithology - as above - Lt. grey green tuffaceous mudstone w. interbedded lt. grey green f.g. volc. xenite (slumped & contorted).						75.5	Py 2-3 scatter above as above.
	3.0	Bedding is still low to mod angle						75.8	2cm py 99 sid vein 55° to c.a. Py 2-3 bandlet
	80	75m - 30° 80 - 0° 85 - 10° 90 - 0°? 95 - 10° 100 - 20°						80	Py rare
	85							85	
	87.0	FAULT - Py 70° to c.a.						87.0	
	87.0	FAULT ZONE Zone of highly broken core & pug. Appears to be low angle to c.a. 10-15°.						87.0	Py rare
	90							90	
	93.6							93.6	
	95							95	
	95.7	FAULT ZONE Broken core & pug. Unknown angle to c.a.						95.7	
	100							100	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



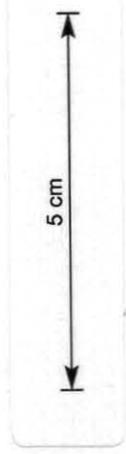
c carbonate
a quartz

Mineralization

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

925027

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	0.5	<u>FAULT ZONE</u> Broken core & pug as above.							
	0.5								
	0.7	Lithology - as above - Lt. grey green tuffaceous mudstone w. interbeds of lt. grey green volc. arenite							
	0.5								
	0.3							105	
	1.0								
	0.8							107.6	
								108.3	
	1.5	<u>Lt. grey green f.g. volc. arenite.</u> Gen. massive tuffaceous sediment w. local clasts of dk grey to black shale as. < 1cm.							
	1.7							110	ly rate
	1.3								
								112.3	
	1.0	<u>FAULT ZONE</u> Broken core & (pug) 25-30°? to c.A.							
								113.3	
	1.2								
								115	
	1.3								
								116.5	
		<u>FAULT ZONE</u> Broken core & (pug) ?° to c.A.							
								117.3	
	1.5								
								118.3	
		<u>FAULT ZONE</u> Broken core (pug) & carb. / qtz. vein fragments. ?° to c.A.							
								119.2	
	2.5								
								120	
	3.0								
								124.2	
		<u>FAULT ZONE</u> Broken core (pug) . ?° to c.A. possibly //?							
								125	



Feature

Bedding		Shearing	
Foliation		Fault	
Fragment size & shape		Vein	

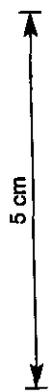
carbonate
quartz

Mineralization

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

925028

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
1-0		FAULT ZONE - as above							
1-0		Lithology - as above - Lt. gray green f.g. volc. arenite.							
	127.3 127.5	Med. grey to black (carbonaceous) (suffaceous) shale.							
1-4	129.1	FAULT ZONE - broken core 7° to C.A.							
1-4	129.6 130	FAULT - Pug 1° to C.A. Gen. well bedded interval at low angle to C.A. - 10-15°.	F					130 130.3	
3-1		FAULT - broken core 7° to C.A.	F					131.6	
	133.1	FAULT ZONE							
1-2		Broad zone of broken core & rare pug. Individual fractures may indicate zone is at low angle to C.A.							py note
1-0	135							135	
1-9									
1-2	138	Med. grey (cong.) suffaceous shale.							
1-3		A gen. highly suffaceous shale interval. Bedding varies from to C.A. to 15°.							
1-3	140	Common dk. grey to black, gen. oblate shale clasts to 1cm.						140	
1-5									
1-0									
1-0	144.4 145							145	
3-1									
1-0		FAULT - Pug 20° to C.A.	F					149.2	
	150							150	



Feature

Bedding



Shearing



Foliation



Fault -



Fragment



Vein



size @ shape

c carbonate
q quartz

Mineralization

Trace

1-5%

Common

5-15%

Abundant

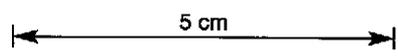
15-60%

Massive

> 60%

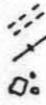
925029

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	150.1								
1.0		FAULT ZONE Broken core & pug. Apparently v. low angle to c.a.							
.8									
1.0									
.4									
1.3	154.0								
	155	Lithology - as above - med. grey (cong) buffaceous shale.						155	
1.9									
	156.6							156.5	
1.0		FAULT - Broken core c.a.							
								157.5	
								158.0	
2.5		Lt. grey green f.g. volc. arenite w. interbeds & clasts of dk. grey shale (slumped). Bedding 0-10° to c.a. Rubbed shale fragments to 10cm.							Py rate
	160							160	
1.7	161.4								
	161.6	FAULT ZONE Broken core. ?° to c.a. possibly low angle.							
	162.4								
1.7		Interbedded lt. grey to dk. grey to black (well bedded) (carbonaceous) (buffaceous) shale. A broad interval of massive to finely interlaminated shale showing							
	165							164.7	
2.7		FAULT - c. healed breccia and pug, 20° to c.a. common soft sed. det. bedding is at v. low angle to c.a.							
								166.5	
								167.35	
3.0		FAULT - pug, 15° to c.a. from 0-20°; gen 10°. FAULT - c. healed breccia, 20° to c.a. FAULT - pug, ?° to c.a.						167.8	
	170	dk. grey shale is dominant but lt. grey buffaceous? shale may be locally more common.						170	
2.5									
2.0									
HQ									
NQ	1.0								
	175							175	

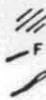


Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



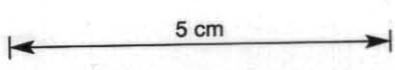
c carbonate
q quartz

Mineralization

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

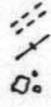
925030

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	2.5	Lithology - as above - interbedded lt. gray to dk. gray to black (well bedded) (tuffaceous (carbonaceous) shale.							Py rate
	1.9							180	
	1.0							180	
	1.7	182.0 <u>FAULT ZONE</u> Broken core and pug 10 to 15° to c.A.?						180	
	2.6							185	
	.7							185	
	2.3							185	Py rate
	3.0							190	
	1.0	192.4 <u>FAULT ZONE ?</u> Broken core . ?° to c.A.						190	
	.2							194.3	
	2.0	195 q. veining common at 40-50° to c.A.						195	
	.5							196.6	
	1.6							200	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

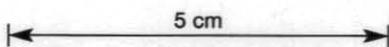


Mineralization

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

925031

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - interbedded lt. grey to dk. grey to black (carbonaceous) (tuffaceous) (slumped) shales and mudstone.							
	2.0								
	2.05							2.04.6	
		FAULT - Pug 0° to c.A.	F					2.05	
	2.9	Bedding - 215 m 25° to c.A. 220 m 35° to c.A. 225 m 20° to c.A.							
	2.8							2.0	
	2.10								
	1.9	FAULT ZONE Broken core ?° to c.A.							Py rare
	2.14.0								
	2.5							2.15	
		FAULT - Pug 60° to c.A.	F					2.16.8	
	1.5	FAULT - Pug 10° to c.A.	F					2.17.1	
		FAULT - Pug ?° to c.A.	F					2.19.0	
	1.0							2.20	
	2.20								
	1.9							2.21.8	
		FAULT - Pug ?° to c.A.	F						
	1.4								
	2.25							2.25	



Feature

Bedding



Foliation



Fragment size & shape



Shearing



Fault



Vein



c carbonate
& quartz

Mineralization

Trace 1-5%

Common 5-15%

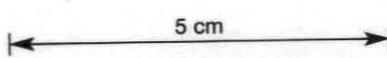
Abundant 15-60%

Massive > 60%

925032

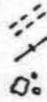
CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	0.8	Lithology - as above - interbedded lt. grey to dk. grey to black (carbonaceous) (tuffaceous) (slumped) shales and mudstone							
	2.0								
	229.0								
	0.3								
	230								
	0.4	<p><u>THE TWO MONTH FAULT ZONE</u> - broad zone of pug & broken core. Approx 8 weeks spent trying to penetrate.</p>							
	0.6								
	0.5								
	1.3								
	235								
	1.7								
NQ	0.3								
BQ	0.3								
	0.1								
	0.2								
	0.3								
	240								
	0.2								
	241.5								
	0.3	<p>Bedding - 235m - 35° to c.A. 24m - 35° to c.A. 245m - 20° to c.A.</p>							
	0.6								
	0.3								
	1.2								
	245								
	1.0	<p><u>FAULT ZONE</u> - pug & broken core</p>							
	0.4								
	1.6								
	250								

Py rare



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

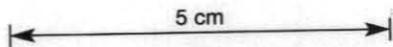


Mineralization

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

925033

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	0.4	FAULT ZONE as above.							
	0.6								
	0.7								
	253.6								
	3.0	Lithology - as above - interbedded lt. grey to dk. grey to black (carbonaceous) (tuffaceous) (shaly) shales and mudstones.						255	
		Bedding 255m. 0° to c.A. 260m 5° to c.A. 265m 0° to c.A. 270m 0° to c.A. 275m 15° to c.A.							
	2.5	FAULT ZONE Broken core & pug at apparent low angle to c.A. Possibly 10°.						258.1	
	1.8							260	Py rate
	1.5								
	2.0								
	265							265	
	265.8								
	3.0								
	270							270	
		FAULT - Pug 20° to c.A. FAULT - Pug 25° to c.A. FAULT - broken core 50° to c.A.						271.0 271.3 271.1	
	3.2								
	275							275	



Feature

Bedding
Foliation
Fracture
size & shape



Shearing
Fault
Vein

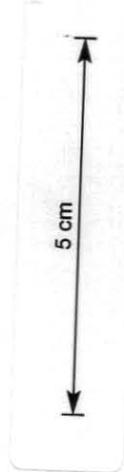


Mineralization

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

925034

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	3.1	Lithology - as above - interbedded lt. to dk. grey to black (carbonaceous) (tuffaceous) (slipped) shales and mudstones.							
	277.4	<u>FAULT ZONE</u>							
	1.5	Broken core and pug 10 to 30° to c.A.							
	277.6							280	
	280								
	3.0								ly rare.
	281.9	<u>FAULT ZONE</u>							
		pug and broken core 30°? to c.A.							
	283.2								
	3.2	Bedding 280 m 15° to c.A. 285 m 10° to c.A. 290 m _____						285	
	285								
	2.6	<u>FAULT ZONE</u>							
	287.5	pug and much core loss. Unknown angle to c.A.							
	2								
	290							290	
	.4								
	.4								
	.8								
	294.0								
	295							295	
	295.4	lt. grey green f.g. volc. arenite w. local interbedded dk. grey shale (slipped and rafted) Interval of tuffaceous sediment w. fault contact above.						295.4	5m 17 80, Sp 10, 5d vein 70° to c.A.
	1.5	<u>FAULT ZONE</u>							
	298.0	Broken core and pug. Unknown angle to c.A.							
	299.2								
	2.0								
	300							300	



Feature

Bedding



Shearing



Mineralization

Trace 1-5%

Foliation



Fault



Common 5-15%

Fragment
size & shape



Vein



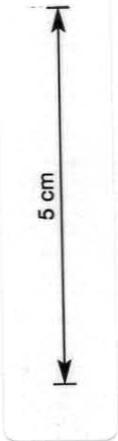
Abundant 15-60%

Massive > 60%

c carbonate
& quartz

925035

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
2-1		Volc. arenite is the dominant lithology w. rare tuffaceous mudstone. Dark shale bands (slumped and rafted) are common locally. Bedding is at a low to moderate angle to c.A. is from 0-30°. The tuffaceous sed. is gen. massive							
1-2	303.5	<u>FAULT ZONE</u> Broken core & pug. possibly low angle to c.A.							
	304.6								
	305							305	
2-3									
		Bedding - 305m - 310m - 315m - 220m - 20° to c.A. 325m - 15° to c.A.							
3-2									
	310							310	
									Py rare diss & veinlets
3-2									
	315							315	
3-1									
	315							315	
		<u>FAULT</u> - pug 20° to c.A.						316.2	
3-0									
	320							320	
3-0									
	320							320	
	323.5	<u>Interbedded lt. grey to dk. grey (tuffaceous) shale.</u>						323.5	
1-1		<u>FAULT ZONE</u> - as below							
	325							325	Py 1 (2-3) Pg. diss & veinlets av. 1mm.



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

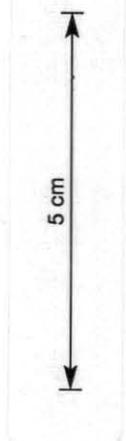


Mineralization

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

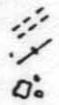
925036

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE COMMON ABUNDANT MASSIVE	DEPTH m	MINERALIZATION
		<p>FAULT ZONE - as above - broad zone of broken core, pug and core loss.</p> <p>Interbedded lt. grey to dk. grey (tuffaceous shale).</p> <p>A well bedded interval of siltstone with a locally tuffaceous character. Bedding gen. 25-30° to c.A. Core is very broken.</p>				<p>Pg 1 (2-3) f.g. diss. & veinlets as in spec.</p>
	330				330	
	335				335	
	335.5	<p>Well bedded lt. grey f.g. volc. arenite</p> <p>Very well bedded tuffaceous sed. bedding 40° to c.A. Rare thin shale laminae.</p>				
	337.7				337.7	
	340	<p>Dk. grey to black shale. Very poorly bedded shale. 0-15° to c.A.</p>				<p>Pg 2-3 euhedral clusters of f.g. blebs & veinlets.</p>
	342.5				342.5	
	345.0	<p>lt. grey green f.g. volc. arenite</p> <p>Gen. massive tuffaceous sed. w. rare shale interbeds.</p>				<p>Pg rare f.g. diss.</p>
	345.9				345.9	
	350	<p>Interbedded dk. grey to dk. grey green shale & lt. grey green tuffaceous sandstone + tuffaceous siltstone.</p> <p>A shale rich interval in the upper 1/2 bit becoming more tuffaceous towards the bottom until tuffaceous sed. is dominant. (vein common 345-345.9).</p> <p>Bedding is at a low angle to c.A. gen. 10-20°. Slumping is common.</p>				<p>Pg 1-2 f.g. diss to blebs & rare veinlets.</p> <p>Pg 3-4 (10) veinlets (discontin) f.g. diss to blebs. (assoc w. qtz. and carb.)</p>
	350				350	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



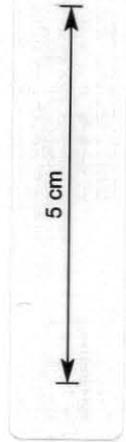
c carbonate
& quartz

Mineralization

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

925037

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE COMMON ABUNDANT MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - interbedded dk grey to dk. grey green shale & lt. grey green tuffaceous mud to siltstone				Py 3-4(10) as above
3-1	355				351.2 351.4	Py 60 veins 70-50° to c.A.
						Py 2-5 veins, blebs & dissem. (assoc. w. qtz & rare carb. & ser.) Py rare assoc. w. py. Veinlets are gen. discont. but where well developed are usually at low angle to c.A. (x10)
					354.0	Py rare
					355 355.7	
3-2						Py 3-4 veins, blebs and dissem. as for 351.4-354m
		FAULT - Broken core 88° to c.A.			258.1	
3-1	360				360	
3-2					362.5	Py rare
					363.7	10cm Py 20, qtz vein 40° to c.A.
• 7	364.0	FAULT ZONE - Pug & broken core & qtz. vein 45° to c.A.			364.0 364.2	Py 1-2 veins 15-40° to c.A. Py 25 veins & blebs oriented 40° to c.A.
		Black gen. highly silicified (cong.) shale w. frag. & rafts of grey green volc. andite & lt. grey mudstone			364.3	Py 1-2 (10) fig. blebs & vein
		An interval of fracturing → fault pug & broken core and intense veining → py veins. Lithology is gen. highly silicified shale w. local irreg. to rounded fragments of lt. grey green f.g. vein arenite and lt. grey mudstone. Appears to be transitional unit between CkC and Qs. Bedding 25° to c.A. Veining and fracturing are both around 25-45° to c.A. Late stage sid. veins are common and bet. 65-75° to c.A. Py veins are loc. assoc. w. qtz & green tourmaline			364.5 365-45 365.5	15cm Py 45, green tour. vein 40° to c.A. Py 15 veins c/c & irreg. along blebs & dis. 35-40° to c.A. Py 65-70 vein enclosing shale frag. & assoc. w. qtz. & lt. sid. as blebs. 70° to c.A. 2m 25-2cm c/c. vein 45° to c.A.
3-0					366.4 366.7	Py 15 (25) vein, blebs & dissem. in silic. sh. shale w. late sid. veins.
		FAULT - Pug 50° to c.A. FAULT - Pug 70° to c.A.			367.1	Py 5 (10-15) veins c/c, blebs & fig. dissem. in black shale w. patchy silicification. Joints gen. 20° to c.A. (45°)
					368.7 368.9	Py 15, irreg. blebs & fig. dissem. (rep. of soft. frag?) Py 20 veins blebs & dissem. 70° to c.A.
3-0	369.4 370.15	FAULT ZONE - Pyritic pug oriented 40° to c.A.			369.6	Py 10 blebs & dissem. in silic. shale
		FAULT ZONE - Fractured shale & pug. 45° to c.A.			370.0	Py 50-60 qtz vein 70° to c.A.? consist. 1-2 f.g. aggr.
					370.7 370.75	10cm Py 10 blebs in qs.
2-2		Dk. grey shale w. frag. rafts & interbeds of lt. grey siltstone & (f.g. quartzite) Black shale matrix w. irregular gen. rafted interbeds to 30cm and frag. (elongate) and 2-3m. Quartzite makes ≈ 30%. Bedding is gen. low angle to c.A. 10 to 25° and locally contorted (slipping)			374.8 375	Py 1-2 (5-7) f.g. dissem. & blebs gen. rep. lt. grey quartzite.
2-7	375	FAULT - 25° to c.A. - Pug.				



Feature Bedding
Foliation
Fragment size & shape



Shearing
Fault
Vein
carbonate
quartz

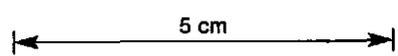


Mineralization

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

925038

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
								375.3	py 1-2 as above
								375.5	py 20 irreg. blaks, diss & rare veinlet
								375.9	py 1-2 (ls. diss)
								376.2	py 5 veinlet & diss
								376.4	
2.4		FAULT - py & broken ore. 35° to c.a. FAULT - py, 70° to c.a.						377.1	py rare
								377.4	
								377.8	py 50 veins 40° to c.a.
								378.0	py 10 veinlets 40° to c.a. & blak & diss.
1.5	378.95								
		Lt. gray to lt grey green gen. silicified (intensely) mudstone.						380	py rare flacks & dissemin. veinlets.
		Massive to well bedded interval of fine pelitic sed. on top of Conch quartzite. Upper contact w. q.s. is 65° to c.a. and highly def. → load casting? Bedding where evident is at moderate angle to c.a. ~ 30°. Silicification increases in gen. down hole.						382.5	py 1-2 (10) (e.g. dissemin., flacks, blaks & thin veinlets (irreg.))
3.0								385.4	2- py 75 c.a. 30° to c.a.
								385	
3.0									
								387.4	2- py 75 c.a. 30° to c.a.
3.0									
								389.7	py 1-2 (10) as above.
2.0									
								390	py 2-2 (e.g. to e.g. spots, (irreg.))
3.0		Lt. grey f.g. (micaceous) gen. highly silicified quartzite Lt. grey massive to well bedded interval of more arenaceous rock than above. Local thin interbeds of mudstone are present. Bedding is locally well developed and 0 to 30° to c.a. Flourite occurs as coating to fractures in silicified intervals & rarely in thin carb. veinlets. "Spotted" py. is associated w. silicification.						391.9	py rare
								395	
2.1	395							395.7	py 2-3 (10) (e.g. holes & irreg. veinlets.
1.9									
.5	398.0	END OF HOLE							



400

400

2 of 2

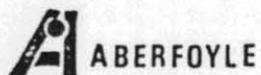
925043

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 OF

PROGRAM										PROGRAMMER										DATE 1/8/81									
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 SILVER	grammes per Tonne GOLD	SAMPLE No.													
		SNT	STANNITE	COPPER	ZINC	LEAD	TUNGSTEN																						
674	391.00	3520		70		20		110					1.5			264040													
	392.00	1210		105		5		40					1.5			264041													
	393.00	180		15		5		20					0.5			264042													
	394.00	56		10		10		15					0.5			264043													
	395.00	792		25		5		15					1.0			264044													
	396.00	294		40		X		25					1.0			264045													
	397.00	467		105		5		35					1.0			264046													
	398.00	968		65		10		20					0.5			264047													

ANALABS - COOEE



DRILL HOLE RECORD

925044

Location SEVERN-MONTANA Property QUEEN HILL
 Commenced 29/7/81 Completed 24/8/81
 Objective MINERALISATION RELATED TO BASAL CRIMSON CK. CONTACT. SECTION 3330 RL00

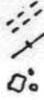
District ZEEHAN Bearing (M) 281.2°
 % Recovery 83% Grid bearing (M) -11.25°
 Core size HQ → 135M NR 287.5M
 Co-ordinates 5361889.5N 361181.4E Dip 60.5°

Hole No 675
 Date 27th AUG. 81
 Logged S. RICHARDSON
 Alt./R.L. 181.2

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
15M	60°	in Rods	EASTMAN 4'S	0M	60.5°	281.2°	5361889.5	361181.4	181.2	
50M	61°	"	"	25	60°	281				
75M	61.5°	"	"	50	61°	280.8				
108M	62°	"	"	75	61.5°	280.7				HW CASING LOST (0 - m)
132M	62°	276.5°	"	100	62°	280.7				
162M	61.75°	275.5°	"	125	62°	280.7				NO SIGNIFICANT INTERSECTION
216M	61.75°	277°	"	150	62°	280.9				
250M	61.25°	278.5°	"	175	61.75°	280.9				
280M	61°	279°	"	200	61.75°	281.2				
				225	61.75°	282.2				
EOH 287.5M				250	61.25°	282.3				
				275	61°	283.8				MINOR PROBLEMS PENETRATING FAULT 191.3 - 194.7m
				300	60.5°	285.3				

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

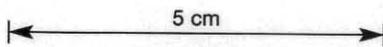


c carbonate
q quartz

Mineralization

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

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
1.3	5	<p><u>Lt. grey green f.g. volc. arenite</u> Gen. massive highly tuffaceous sediment. Fine sand size tuffaceous material. Core is very broken.</p>						5	
	10.5	<u>Dk. grey shale</u> - well bedded at 15° to c.A.						10	
1.0	11.0	<p><u>Interbedded Lt. grey green f.g. volc arenite, Lt. grey green tuffaceous mudstone and Lt. to dk. grey (tuffaceous) shale.</u></p> <p>Bulk of interval is f.g. volc. arenite of bedded to massive character. This grades down in grain size to tuffaceous mudstone.</p> <p>Dark coloured well bedded shales (tuffaceous) become common toward the base of the interval</p> <p>Grading is common as is truncation of beds and small scale sed. or diagenetic fracturing. Younging is uphole.</p> <p>Bedding is relatively constant at around 35-46° to c.A.</p> <p>Core is very broken.</p>					15	Py rare.	
1.2	15							15	
.6									
.5									
.2									
.5									
.6	20							20	
.7									
.6									
.7									
.7									
.1									



925045

Feature Bedding  Shearing 
 Foliation  Fault 
 Fragment size & shape  Vein  carbonate
 quartz

Mineralization

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

925046

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
.8		Lithology - as above - Interbedded lt. gray green 1/2 g. volc. arenite, tuffaceous mudstone and lt to dk gray shale.							
.7		Bedding 25m - 35° to c.A.							
.7		30m - 35° "							
.5		35m - 40° "							
.6		40m - 40° "							
.5		45m - 15° "							
1.0	30							30	
.7									
.6									
.7									
.5									
1.4	35							35	
1.8									Py rate
1.0		FAULT - Pyg? sec. A.						36.9	
3.1	40	BASE OF BROKEN CORE. Carbonate veins (diagenetic?) become common from here. Irregular with no preferred orientation and gen less than 5cm.						40	
2.5	43.3								
2.0	45 45.2	Interbedded finely laminated lt. to dk. grey to (black carbonaceous) mudstone to shale & (siltstone) (Pyritic).						45	
1.3	46.0	FAULT ZONE? Broken core & pyg? at unknown angle to c.A.							Py rate.
1.0	47.4								
.6		FAULT ZONE - A broad zone of broken core and pyg w. local nested fault breccia.							
.5		Individual fractures toward the base of the zone indicate a low angle, 10°?, to c.A.							
	50							50	



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%

925047

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		FAULT ZONE - as above							
1.3		Interval of finely laminated pelites locally w. common v. finely bedded py.						50.7	Py trace to (10) as v.f.g. diss. and (bedded) py. Rare py mudstone clasts of oblate shape.
.8									
.5		Interlamination is on m.m. and c.m. scale.							
.8	55	Soft sed. defm. is locally common as slumping, sed. faulting & loading (younging uphole).						55	
.7		Lt. grey to grey green mudstones are tuffaceous?							
.6		Bedding is variable but gen. at low to mod. angle to c.A.							
.7	58.0								
.6		Bedding 50m - 25° to c.A.							
		55m - —							
		60m - 5° to c.A.							
		65m - —							
1.3	60	70m - 35° to c.A.						60	
		75m - —							
.9									
.6									
.6									
.6	65							65	
.4									
.5									
	68.8								
1.8	70							70	
	70.5								
.6		FAULT ZONE Broken core and pug ?° to c.A.							
	71.5								
2.6									
	73.8								
.7		FAULT ZONE Broken core and pug.						74	
	75							75	Py rare.



Feature

Bedding

Foliation

Fragment
size & shape



Shearing

Fault

Vein



c carbonate
q quartz

Mineralization

Trace

1-5%

Common

5-15%

Abundant

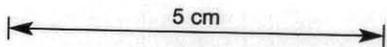
15-60%

Massive

> 60%

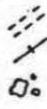
925048

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		FAULT ZONE - as above. probably low to med. angle to c.A. based on individual fractures.							
	0.3								
	1.5	Lithology - as above - interbedded finely laminated lt. to dk grey to black mudstone to shale & (siltstone) (pyritic).						78.0	Py rare
	1.3								Py trace as v.f.g. in c.veins
	1.4							80	
	2.3							80.3	Py 2-3.10% as v.f.g. in white c.veinlets from 0-35° to c.A. in general.
	82.5							82.6	
	3.0	Bedding - 80m - 0° to c.A. 85m - 20° to c.A. 90m - 20° to c.A. 95m - 0° to c.A. 100m -						85	Py rare in c.veinlets as above.
	2.8								
	0.7							87.4	
	1.9							87.7 87.6 87.9	Py 70, sp 5, asid vein 65° to c.A. Py 10 v.f.g. & tr. vfg in c.veins.
	3.2							91.8	Py rare assoc. w.c.veins
	92.6							92.4	
	93.4	FAULT - pug 40° to c.A. Rounded f.g. quartzite clasts to 10cm. in mudstone matrix.						95	10cm py 60, tr sp. e.vein 40° to c.A.
	2.0								
	1.4							100	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

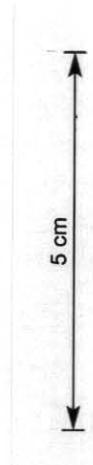


Mineralization

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

925049

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
								100.4	
1.0		lt. grey green f.g. volc. arenite w. (lt. grey green tuffaceous mudstone & black shale). Top 1/3 of interval is massive to well bedded tuffaceous arenite. From approx. 104 m tuffaceous sed. is much finer grained and interbedded w. thin black shale beds. Bedding is around 25° to c.A. 100.4- FAULT- pug 20° to c.A.							Py rare.
2.6								105	
1.3	105							105.3	
								107.0	
3.0		FAULT - pug 35° to c.A. Dk. grey to grey green (tuffaceous shale) Interval of shale w. (tuffaceous) component - gradational contact w. unit below. ie shale becomes more tuffaceous.						107.4	
								110	
2.6	109.9 110	FAULT ZONE Broken core & pug at 10° to c.A.							
								112.0	
		lt. grey green f.g. to m.g. volc. arenite							
3.0	114.0	FAULT ZONE Broken core & pug 15° to c.A.						115	
								117.8	
		Bulk of interval is monotonous massive grey green f.g. to m.g. volc arenite w. a rare grit size component. From 112-119 m the grain size is coarse silt to v. fine sand w. minor interbedded tuffaceous muds at gen. 10-15° to c.A. From 119 m the rock is very uniform in grain size. Bedding is locally wided from rare intraformational conglomerate bands <10 cm thick. Elongate lithic? grains tend to weakly define bedding by p.o. at 10-15° to c.A.						120	
3.0	120								
								125	



Feature
925050

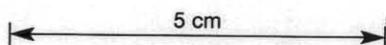
Bedding
Foliation
Fragment
size & shape

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
	3.0	Lithology - as above - lt. grey green f.g. to m.g. volc. arenite.							
		FAULT - pug & c. veins 30° c.A.						126.7	
	3.0								
								130	
	3.0								
								135	
HQ	2.0								
NQ	1.0								Py rare.
	3.0								
								140	
	2.9								
								143.6	
	3.0	<u>FAULT ZONE</u> Broken core & pug 25°? to c.A.							
								145	
								145.3	
	3.0								
								150	
	3.0								
								150	



Feature
925051

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

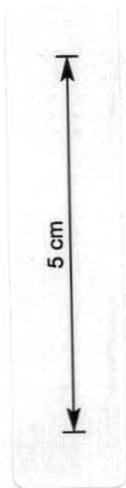


c carbonate
q quartz

Mineralization

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

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	3.0	Lithology - as above - lt. grey green f.g. to m.g. volc. arenite.							
	155							155	
	3.0								Py rare
	160							160	
	3.0								
	.5								
	1.5								
	165							165	
	166.5							166.5	
	3.0	lt. grey green slumped & rafted tuffaceous mudstone & f.g. volc. arenite (intraformational cong.) Gen. decrease in grain size and microring of mudstone which is gen. slumped and fractured. Volc. arenite varies from massive to intraformational cong. Dipping 20° to c.A. 10m core 55° to c.A.						168.6 168.8	15m py 90 sp1-2 core 20° to c.A. Py as f.g.
	170							170	Py rare
	3.0							170.6	
	172.3								
	3.0	Intebbedded dk. grey to black mudstone to shale, grey to grey green (tuffaceous?) mudstone and grey green f.g. volc. arenite							
	174.5								
	175.0	FAULT ZONE broken core 10° to c.A.						175	



Feature 925052

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

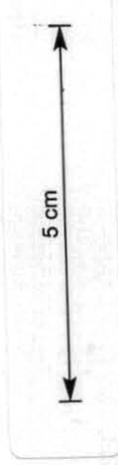


c carbonate
q quartz

Mineralization

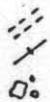
Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
3.0		A broad interval of dk. grey to black palite w. irregularly interbedded lighter gen. tuffaceous rocks of mudstone to fine arenaceous character. These interbeds are gen up to 1-2cm thick, and may locally make up the bulk of the rock.							
3.0	180	Bedding is gen. at a low angle to c.A.; typically 10-15°.						180	
		Slumping & picking of beds is common but not intense in gen.							
3.0									
2.0	185							185	
.3									
1.8									
2.0	190	FAULT - c healed breccia 25° to c.A.						189.2	
.5	191.3	FAULT ZONE Interval of extremely puggy & broken ground. Possible correlation to zone in 977.						190	
.4		1° to c.A.							
.2									
.4									
.3									
.3									
.5	194.7							195	
	195								
3.0	197.0	FAULT ZONE Broken core. Prob. low angle to c.A. 10-20°?						195	
	198.2								
3.0									
	200							200	



Feature

Bedding
Foliation
Fragment
size B shape



Shearing
Fault
Vein



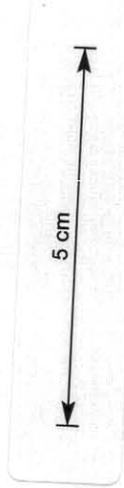
c carbonate
q quartz

Mineralization

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

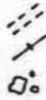
925053

C R	E D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		2.4	Lithology - as above. - interbedded dk. grey to black mudstone to shale, grey to grey green mudstone & grey green f.g. volc. arcite. Bedding 5-20° to c.A.						Py rare.
		2.5							
		2.10							
		3.0							
		3.0	FAULT - Pug 60° to c.A.	F				215 215.2	
		2.9	FAULT - Pug 20°? to c.A.	F				218.3	
		2.9	FAULT - Pug ?° to c.A.	F				219.2	
		2.20						220	
		1.5	FAULT ZONE Broken core & pug 0-10°? to c.A.					224.0	
		2.25						225	

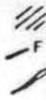


Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



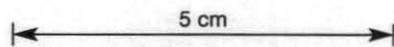
c carbonate
q quartz

Mineralization

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

925054

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
.5		FAULT ZONE as above.							
.4									
.3									
1-8	227.7								
2-0	230	FAULT - ?° to c.A. - Broken core Lithology - as above - dk. grey to black mudstone to shale w. grey to grey green mudstone & grey green f.g. volc. arenite interbeds. mainly black shale.						229.5 230	Py rare.
1-5									
1-0									
3-1	235							235	
		FAULT - Pug - ?° to c.A.						236.3	
1-4									
		FAULT - Pug 10° to c.A.						239.3	
1-6	240							240 240.1	
1-0	241.0	FAULT ZONE ?? Broken core. low angle? to c.A. 10-15°?							
.9	243								
.3									
	245							245	
3-0									
.4									
3-0									
	250.0							250	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

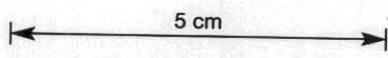


c carbonate
q quartz

Mineralization
925055

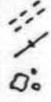
Trace 1-5%
Common 5-15%
Abundant 15-60%
Massive > 60%

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE COMMON ABUNDANT MASSIVE	DEPTH m	MINERALIZATION
	3.0	Lt. grey green to cream (slumped, rafted & cong.) tuffaceous mudstone to (siltstone). Interval of dominantly mudstone showing local extensive s. sed. deform. Massive to locally v. well bedded at 15 to 25° to c.A.			251.6	Py rare. Py 1 as rare veinlets assoc. w. sid at 10-20° to c.A. Also rare blebs of sid containing rare py.
	3.0				255	
	255.6				255.6	
	3.0	Dk. grey to black shale w. interbeds, rafts & frag. of lt. grey shale to siltstone & f.g. quartzite 45° red. contact w. unit above. Then 30cm of tuffaceous? siltstone w. irregular clots of black shale. Then irregular striped interbedded shale & silt (tuffaceous?). Then at 256.4 f.g. quartzite clasts in shale matrix continuing sporadically to the end of the interval w. interbedded silt & shale. Bedding 20° to c.A.			256.2	Py rare. Py 1-2 (L) v.f.g. dissem., rare veinlets 20-40° to c.A. assoc. w. sid.
	258.9				258.6 258.9	Py 90 vein 25° to c.A. Py 5 v.f.g. & f.g. in fault frag.
	2.3	FAULT - 3m frag & breccia 15° c.A. Lt. grey to med. grey f.g. quartzite			259.8 260	Py 1 f.g., flecks & blebs.
	.4				261.1 261.3	
	.2	FAULT - frag 60° to c.A. FAULT - Py 65° to c.A.				Py rare.
	1.7	Interval begins as lt. grey quartzose qs w. lt. grey shale interbeds for <1m interbedded w. quartzite. From 264 m massive to bedded highly siliceous quartzite to base of interval. Thin qtz veins (<1cm) locally common				
	3.0	FAULT - frag 45° to c.A. 2m qtz vein 50° to c.A.			264.8 265 265.3 265.7	10cm Py 10 veinlets 45° to c.A. 1cm Py 20, Sp 20, Cu 20 vein assoc. w. F. 15cm Sp. 10 veinlets 50° to c.A. & f.g. Py rare.
	.8				266.4 266.7 266.9	Cu 5-7, Sp 2-3. veinlets assoc. w. sid 45° to c.A.
	3.0				269.1 270	Py trace as f.g. flecks and blebs <1µ
	270				270	
	3.0	q. veins 1-5m common 45-60° to c.A.			271.4	
	270				270	
	3.0	7m qtz. 60° to c.A. 2m qtz 45° to c.A.			273.0	
	275				275	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

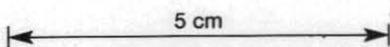


Mineralization

925056

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
	2.0	lithology - as above - lt. to med grey f.g. quartzite.							Py rare.
	2767								
	.5	FAULT ZONE Broken core 50°? to c.A.						277.2 277.4	20m Py 2-3 med to stockwork. 3m Py 90 var 50° to c.A.
	2777	quartzite darker and micaceous on this side of fault zone.							
	2.6	med grey bedded micaceous quartzite w. local dk grey shale interbeds containing quartzite rags & frag.						280	Py rare.
	2787								
	280								
	280.6	From 277.7 the quartzite contains a pelitic fraction here becomes darker & micaceous.							Py 1-5 as f.g. in fault pug.
	1.0	At 278.7m shale becomes interbedded w. quartzite. Quartzite is also slumped rafted and fractured into clasts.							
	.4	FAULT ZONE Broken core, pug and core loss. unknown angle to c.A.						284.7 285	5cm? Py 90 sid vein 25° to c.A.
	285								
	.2								
	.6								
	287.3	--- END OF HOLE w. grey f.g. quartzite							Py rare
	287.5								
	290							290	
	295							295	
	300							300	

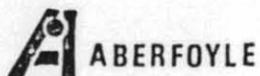


Note: Intervals not analysed should be recorded such that a complete hole is itemised.
 For any section not analysed, a value -5.00 should be entered in the relevant assay columns.
 It is not necessary to record a zero.

925057

PAGE 1 OF 1

PROGRAM								PROGRAMMER <i>D. ADAMS</i>								DATE <i>0.9.81</i>							
HOLE IDENT.	DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres)	ASSAY ppm		ASSAY ppm		ASSAY ppm		ASSAY ppm		ASSAY ppm		grammes per Tonne SILVER		grammes per Tonne GOLD		SAMPLE No.							
		SNT	STANNITE	COPPER	ZINC	LEAD	TUNGSTEN																
675	250.00	-5	00																				
	251.00	<1	00	100	700	400					<10						264048						
	251.60	1	00	<100	700	300					<10						264049						
	252.00	3	00	<100	600	300					<10						264050						
	253.00	<1	00	<100	600	500					<10						264051						
	254.00	1	00	<100	1400	800					<10						264052						
	255.00	<1	00	100	800	400					<10						264053						
	256.00	1	00	200	1700	1300					<10						264054						
	257.00	2	00	100	300	400					<10						264055						
	258.00	4	00	100	100	200					<10						264056						
	258.20	1	00	<100	100	100					<10						264057						
	258.60	3	00	100	600	400					<10						264058						
	259.00	7	00	<100	100	100					<10						264059						
	260.00	1	00	100	100	100					<10						264060						



DRILL HOLE RECORD

925058

Location MONTANA Property QUEEN HILL
 Commenced 4/8/81 Completed 27/8/81
 Objective HIGH GRADE LOBE POSITION, SECTION
3640 RL 00

District ZEEHAN Bearing (M) 298°
 % Recovery 86% Grid bearing (M) -11.25°
 Core size HQ → 114M NQ → 385.5M
 Co-ordinates 5362138.7N 361313.9E Dip 68.7°

Hole No 976
 Date 1ST SEPT '81
 Logged S. RICHARDSON
 Alt./R.L. 178.8

SURVEY DATA				GRAPH DERIVED DATA			CALCULATED CO-ORDINATES			REMARKS
DEPTH	DIP	BEARING(M)	INSTRUMENT TYPE	DEPTH	DIP	BEARING(M)	NORTHING	EASTING	ALTITUDE	
17.5M	68.5°	IN RODS	EASTMAN'S	0M	68.7°	298°	5362138.7	361313.9	178.8	
47M	68.5	"	"	25	68.5	297.5				NO DRILLING PROBLEMS
84M	68.75	"	"	50	68.5	296.5				
111M	68.75	295°	"	75	68.5	296.0				NO CASING LOST
144M	69	295.5	"	100	68.75	295.5				
186.5M	69	294	"	125	69.0	295.0				NO SIGNIFICANT INTERSECTION
226M	69	291	"	150	69.0	295.0				
262M	68.5	291.5	"	175	69.0	294.5				STRATIGRAPHY STEEPER THAN EXPECTED; OR FAULTED.
291M	69	IN RODS	"	200	69.0	293.5				
364M	70	292	"	225	69.0	291.75				
385M	69.75	297	"	250	68.75	291.25				
EOH 385.5M				275	68.75	291.5				
				300	69.25	292.0				
				325	69.75	293.0				
				350	70.0	293.5				
				375	69.75	294.5				
				400	69.25	296.0				

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



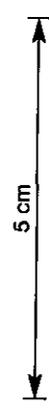
c carbonate
& quartz

Mineralization

925060

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
4.0	26.2	<u>FAULT ZONE ??</u> From 26.2m to the core is very broken and puggy locally soft and weathered and also locally extensively veined by white to cream carbonate.						30	
1.0								30.5	
1.0								30	
1.1								30.5	
3		Lt. grey green to lt. to dk. grey mudstone to shale and sed. breccia A pelitic interval locally tuffaceous with the uppermost mudstones being gen. slumped. From 36.9-38.5m a sed. breccia to conglomerate locally intraformational but in gen. containing lt. grey green volc. arenite, lt. brown py. mudstone & lt. grey mudstone clasts. Clasts to 5cm but gen. 3-1cm.						35	
0.8								35	
0.4		From 38.5-43m grey mudstone to local grey f.g. volc. arenite.						40	
0.5								40	
0.7								40	
1.0		Bedding is low to moderate angle to c.A. (0-40°)						40	
1.1								40	
1.0								40	
0.4	43.0	<u>dk. grey to black puggy slumped shales.</u> Puggy mudstone to shale w. bedding at 0-10° to c.A. minor slumping.						45	
2.8	45							45	
0.5	46.5	<u>Interbedded lt. to dk. grey mudstone to shale & lt. grey to lt. grey green f.g. volc. arenite.</u> Pelitic to tuffaceous sed. ≈ 1:1 Bedding at low angle to c.A. 0-30°.						50	
0.5								50	
1.6								50	
0.8								50	
0.8								50	

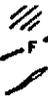


Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



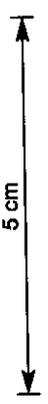
carbonate
quartz

Mineralization

925061

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
.8		Core very broken.							
.9		have streaky v. fine tuffaceous cong. sed.							
2-1		5m c. vein 11 c.A.						57-2	
.4	55							55	
.7		white carb veins to 3cm 0°? to c.A. very common.						55-2 56-5	Py rare
.4									
.7									
.9	59.0								
1-0	60	Interbedded lt. to dk. grey mudstone and grey dolomite; gen slumped Gray mudstone interval w. interbeds to 10cm of slumped & (rafted) med grey v.f.g. dolomite. Bedding is gen. 35° to c.A. Core is very broken.						60 60.9 62.5	2m c. vein 45° to c.A. 25cm sp1 c. vein 50° to c.A.
1-1									
1-0	65							65	
1-2									
1-0									
.4									
.5									
.8	70.0	med. grey to grey green tuffaceous siltstone to f.g. volc. arenite. Bedded to massive tuffaceous sed.						70	
1-4		Bedding 30° to c.A. Core very broken.							
1-0									
.4	75							75	



Feature

Bedding		Shearing	
Foliation		Fault	
Fragment size & shape		Vein	

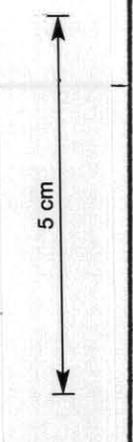
c carbonate
q quartz

Mineralization

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

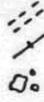
925062

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - med. grey to grey green tuffaceous siltstone to f.g. volc. arenite							
	0.4								
	1.8								py rare
	1.0								
	79.8	3m carb vein 25° to c.A.						79.8	
	80							80	
	2.3	Interbedded grey to black shale, grey to grey green f.g. volc. arenite & minor grey dolomite (pyritic)						80.3	10m py 10 v.f.g. bedded.
	0.9	Interval of intense s. sed. defn. tuffaceous red. are dominant. Dolomite occurs in top of intervals & is locally pyritic.							
	0.6	Bedding is gen. 20-35° to c.A.							
	1.2								
	0.6							85	py rare.
	1.2								
	87.1	10m c. vein 70° to c.A.						87.1	
	2.0	lt. grey dolomite w (grey to grey green mudstone interbeds) well bedded carbonate, local mudstone. Bedding 25° to c.A.							
	89.4							90	
	1.2	lt. grey to lt. grey green mudstone very well bedded interval of pelitic sed. local s. sed. faulting. Bedding 0-20° to c.A.							
	0.9								
	0.9								
	1.8								
	44.8							95	
	95	Interbedded (slumped & rafted) grey mudstone to siltstone, grey dolomite and grey to grey green f.g. volc. arenite							
	2.0	Upper 1/2 of interval is extremely deformed w. (intense) carbonate vng → possible tectonic overprint to slumping & rafting?							
	2.6	Lower interval is well bedded and less def. Interbedding is on a larger scale is more coarse.							
	100							100	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

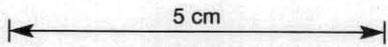


Mineralization

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

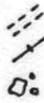
925063

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	1.5	Lithology - as above - interbedded mudstones, dolomite & volc. arsenite.							Py rare.
	102.5	<u>Lt. grey green slumped mudstone</u>							
	1.5	Soft sed defn is locally intense. Bedding 0-20° to c.A. Tuffaceous?							
	105	← GOOD SOLID GROUND BEGINS HERE!						105	
	105.3							105.7	
	2.0	5m c. var // c.A.							
		<u>Red brown (cong., slumped) mudstone</u> <u>w. local grey to grey green mudstone</u> <u>interbeds</u>							
	3.0	Interval of gen. v. finely laminated red brown mudstone w. local interbeds to 1 m. of grey green mudstone of the same character.							
	110	Weak slumping, rafting & s. sed faulting occurs locally.						110	
	3.0	Bedding is at low to mod angles to c.A. (5-25°).							Py rare.
	1.5								
HQ									
NQ									
	1.4							115	
	3.0								
	2.9							120	
	3.0								
	125							125	

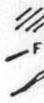


Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



c carbonate
q quartz

Mineralization

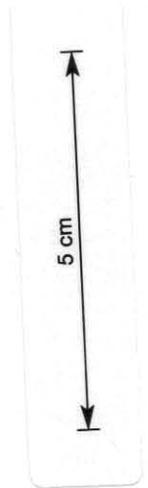
925064

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
	3.0	Lithology - as above - red brown mudstone w local grey to grey green mudstone interbeds.							
	3.0								
	130								
	3.0								
	3.0								
	3.0								
	135								
	3.0								
	3.0								
	140								
	3.0								
	3.0								
	145								
	3.0								
	3.0								
	148.5								
	3.0								
	150								

Py rare.

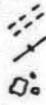
2cm pink dolomite →



Interbedded green, red brown and lt. grey mudstone (slumped and faulted).

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



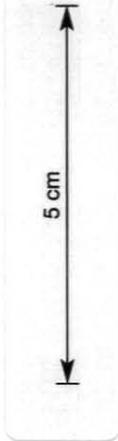
carbonate
quartz

Mineralization

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

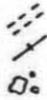
925065

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	3.0	Well bedded mudstones as previously but change in dominant colour to green becoming more grey toward the base. Soft sed defm. in rafting & slumping is more intense than previously. Bedding is still 5-25° to C.A.						155	
	3.0							160	py conc.
	3.0							165	
	3.0							170	
	3.0							175	
	169.5	Interbedded (light grey to dk. grey (tuffaceous) siltstone						170	
	3.0	Gen. well bedded to (massive) silts. Finely laminated locally.						171.8	
	3.0	<u>FAULT ZONE?</u> Network of white calcite? veins containing fragments of host rock => fault breccia? Veins are at low to moderate angle to C.A. 0-25°.						175	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein



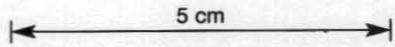
c carbonate
q quartz

Mineralization

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

925066

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	175.1	FAULT ZONE? AS ABOVE.							
3.0		Bedding							
	178.1	← younging ?? truncated bed ?? downhole! (very doubtful).							
	179.1	lt. to dk. gray to black mudstone to shale							
3.0	180	FAULT ZONE? Numerous white calcite veins & local sheared shale 30° to c.A.						180	Py rare.
	181.5	At 178.1 a fining of sed grain size. Slumping is common w. bedding gen 0-10 (30°) to c.A.							
	184.1								
3.0	185	← 30 cm lt. grey green 4cm c. vein 35° to c.A. f.g. tuff. DK grey to black (carbonaceous) shale w. frag. rafts and interbeds of H. grey mudstone to siltstone to f.g. quartzite and lt. grey dolomite						184.7 185	
		A broad interval of black shale showing much s. sed. defn. as slumping & rafting. Most of the interval is cong. w. frag. to 10 cm of mudstone, siltstone, local f.g. quartzite and dolomite.							Py trace; <1 (2-3) as v.f.g. dissem and angular to rounded v.f.g. py mudstone fragments gen 3-5 cm.
3.0	190	Bedding is at a low angle to c.A., gen 0-20°.						190	
		Horizons rich in angular to subrounded dolomite fragments and beds of white brecciated dolomite to 25 cm? thick occur.							
2.7	192.1	All interbeds pink sweet & locally arenaceous or are rafted.						192.1	
		FAULT ZONE - Broken cote. 193.4						193.7	
	195							195	
2.9	195.8	FAULT - Pyg, 0° to c.A.						195.8	
3.0									



Feature

Bedding
Foliation
Fragment
size B shape



Shearing
Fault
Vein

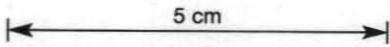


Mineralization

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

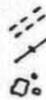
925068

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		FAULT - pug 10° to c.A.						226.9	
3.0		Lithology - as above - dk. grey to black (carbonaceous) shale w. fragments, rafts and interbeds of lt. grey mudstone to siltstone & f.g. quartzite & lt. grey dolomite.							Py rare. (<1 v.f.g.)
	230							230	
2.8	230.8	FAULT ZONE Broken core & pug at low to mod. angle to c.A. 20°?							
	232.5								
3.0	234.0	FAULT ZONE - sheared shale w slicken-sides 30° to c.A.							
	234.5								
	234.9	FAULT ZONE c. healed fault breccia & pug. 30° to c.A.						234.9	
	235							235	
	235.4							235.4	
		FAULT - broken core, 30° to c.A.						236.1	
3.0		FAULT - broken core, 20° to c.A.						236.9	
	238.5								
	239.0	FAULT ZONE - Pug. 25-30° to c.A.							
	239.4							239.4	
3.0	240	Interbedded cream & lt. to dk. grey mudstone to siltstone. (tuffaceous). Interval of finely interbedded mudstone to siltstone of overall cream colour. Grey siltstones locally appear to be tuffaceous. Bedding varies from 0 to 40° to c.A. Slumping is common but only weak.							Py rare
	245							245	
3.0									
		FAULT - sheared shale 5° to c.A.						247.1	
3.0									
	250							250	



Feature

Bedding
Foliation
Fragment
size & shape



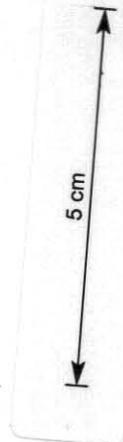
Shearing
Fault
Vein



Mineralization
925070

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
	3.0	FAULT - Pug - 25° to c.A.	F					275.5	
		FAULT - Pug - 10° to c.A.	F					276.7	
	3.0	Lithology - as above - Dk. grey to black (carbonaceous) shale commonly finely bedded w. lt. to dk. grey mudstone to siltstone to (f.g. quartzite).							
	2.80	bedding - 275m - 35° to c.A.						280	
	3.0	FAULT - Pug 20° to c.A.	F					281.0	
		280m - 10° to c.A.							
		285m - 20° to c.A.							
		290m - 30° to c.A.							
		295m - 30° " "							
		300m - 30° " "							
	2.2	FAULT - Pug - 25° to c.A.	F					284.9 285	
	2.5								
		FAULT - Pug - 25° to c.A.	F					288.7	
	2.90	FAULT - Pug - 30° to c.A.	F					289.9 290	
	2.7								
		FAULT - Pug 30° & bedding	F					292.4	
	2.6	FAULT - Broken core 7° to c.A.	F					293.4	
		FAULT - sheared shale 35° c.A.	F					294.5	
	2.95	FAULT - sheared shale - pug 25°? to c.A.	F					295 295.3	
	2.95.9	<u>FAULT ZONE</u> sheared & broken core at 30° to c.A.							
	2.6								
	2.97.7								
		FAULT - Pug 7° to c.A.	F					298.0	
	2.98.7 2.98.8	FAULT - pug & c. vein // to c.A. From 298.8 to 300.3	F						
	3.00							300	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

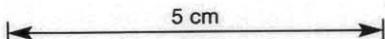


Mineralization

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

925071

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
	3.0	lt. grey finely laminated interbedded mudstone to siltstone and shale grading to (f.g. bedded quartzite).						301.1	
		FAULT - Sheared shale 10° to c.A.						302.4	
	3.0	FAULT - Pug 25° to c.A. FAULT - Pug 10° to c.A.						302.5	
		A very finely laminated interval of pelite w local gasporoidal concretions? and wisps. Towards the base f.g. bedded quartzite becomes more common						304.6	
	305	is the dominant lithology from 305.8 - 307.5m.						305	
	2.0								
	307.5								
	7	lt. grey brecciated dolomite gen. w. siliceous interfragmental material							
		A massive (stylolitic?) dolomite showing extensive brecciation						310	
	310	Locally fragments appear sub-rounded and are located in a silty carbonate groundmass indicating a possible sed origin. However the bulk is irregular angular fragments av. 1-2 cm surrounded by a white to grey silica network to massive dolomite w. discont. & irregular veins & blebs of silica. Locally the carbonate is silicified.							
	8								
	2.3	315						315	
		possibly a massive dolomite brecciated in situ diagenetically then tectonic brecciation & silica permeation.							
		v. rare bedded material 35° to c.A.							
	2.3	320						320	
		From 307.5 - 318m the dolomite is cavernous.							
	3.0								
	3.0								
	325							325	



Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

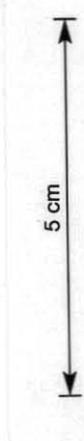


Mineralization

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

925072

CORE REC'D	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
		Lithology - as above - Lt. grey brecciated dolomite gen. w. siliceous interfragmental material.							
2.9									
3.0	330	FAULT - Pug 35° to c.A.	F					329.0	Py rare.
								330	
2.7		FAULT? - broken core 70° to c.A.	F					332.1	
	334.0	<u>FAULT ZONE</u> Broken core, pug w. dol. frag., core loss, soln cavities.							
	335							335	
1.2		Graphitic pug common as blebs & as pug containing frag. Apparently 20° to c.A. Rare py veining assoc. w. qtz sid.						336	Py 1-2 veiled & f.g. on slicken sides assoc. w sideritized carbonate veined by qtz.
								337.5	
1.0									Py rare.
	340							340	
		From 340.5m fault zone is represented by much core loss only. May be due to cavernous carbonate only.							
1.5	345							345	
	346.0	On the lower side of the fault zone the rock becomes more fragmented w. much soln cavities to 350m and the carb frag are (cream in colour and sideritic?) Not coarse grained and next.							
1.3									
	350	Numerous soln. cavities to here →						350	



Feature

Bedding 
Foliation 
Fragment size & shape 

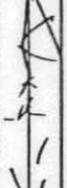
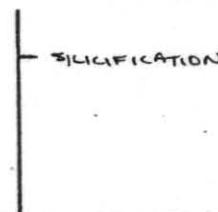
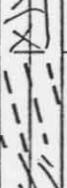
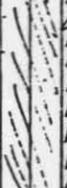
Shearing 
Fault 
Vein 

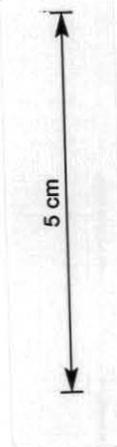
c carbonate
q quartz

Mineralization

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

925073

CORE RECD	DEPTH m	GEOLOGY	VISUAL LOG	TRACE	COMMON	ABUNDANT	MASSIVE	DEPTH m	MINERALIZATION
2-6		Lithology - lt. grey to cream brecciated dolomite to siderite? gen. w. siliceous interfragmental material.							
2-7	355							355	
2-8	356.7	<u>FAULT ZONE</u> Broken core along fractures at low angle = 15° to c.A.							
	358.5								
	358.7	← From 358.9 the rock rapidly becomes extremely silicified until the base of brecciation							
3-0	360							360	
2-8	362.7	<u>FAULT ZONE?</u> Broken core w. low angle fractures. 15° to c.A.							
	364.0	lt. grey to pink massive to bedded dolomite							
	365	Brecciation ceases rapidly at 362.8m = grey massive dolomite grades rapidly into a finely bedded carbonate locally pink in colour.						365	
2-5	365.7	<u>FAULT ZONE?</u> Broken core ?° to c.A. May just be breaking up as drilling proceeds.							
	367.5	Bedding is variable from 20-55° to c.A.							
	368.4	<u>FAULT</u> - broken core 5-10° to c.A.						368.4	5m py vein ?° to c.A.
2-8	368.8	lt. grey bedded mudstone. finely laminated mudstone. So 25° to c.A. conspicuous black flecks??							
	369.4	Pinkish grey bedded dolomite (slumped)							
	370	well bedded (slumped) carbonate w. numerous pink jasperoidal concretions? Bedding gen 30° c.A.						370	
	371.1							371.1	
3-0		Finely interlaminated lt. to dk. grey to black mudstone. Gradational contacts w. units above & below. v. finely laminated w. rare slumping & s-sed faulting. Possible bedded py. & py laminae. Bedding 35° to c.A.							
	374.7							374.7	
2-8	375							375	



Py rare

Py 2-3 as v.f.g. dissemin locally bedded., flecks to blebs & elongate clots // to bedding.

Feature

Bedding
Foliation
Fragment
size & shape



Shearing
Fault
Vein

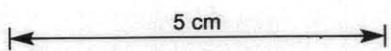


Mineralization

925074

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
	2.5	<p>Finely inter laminated lt to dk mudstone w. local lt. grey dolomite interbeds</p> <p>v. fine discontinuous interbeds give this interval a distinctive streaky appearance.</p> <p>Grey bedded dolomite occurs as rare interbeds to 50 cm. thick.</p> <p>locally bedding is complexly folded.</p> <p>Numerous thin carbonate veins, gen 45° to c.A.</p> <p>Bedding varies from 0-75° to c.A but is gen ≈ 30°.</p>						376.0	1 cm py 99% ve 30° to c.A.
	3.0	<p>376-377.7 - FAULT ZONE - Broken core, pug & carb healed breccia, 30° to c.A.</p> <p>379 - 379.6 - FAULT ZONE - Broken core & pug 0-30° to c.A.</p> <p>381.2 - FAULT - pug 35° to c.A.</p>					377.7 379.0 379.6 380 381.2	Py rare blebs c.A.	
	3.0						385		
	3.0						385.5		
	3.0						390		
	3.0						395		
	3.0						400		



APPENDIX II

Assay data for:

G4 Queen Hill

G65 Severn

G68 Golf Course

G69 Severn

G71 Queen Hill

G72 Severn - (Check analyses for WO_3)

APPENDIX III

Check Analyses for Sn and for

Ag using the XRF Technique

(Same sample residues
used for comparison)

HOLE G 59

From (m)	To (m)	COMLABS	ADELAIDE OFFICE	AMDEL		PILBARA
		Sn (XRF)	Ag (AAS)	Sn (XRF)	Ag (XRF)	Ag (AAS)
102.30	102.50	360	37	320	36	
104.90	107.50	360	34	330	42	
(30 cm recov.)						

HOLE G 61

232.40	232.60	19100	<1	1.61%	<4	3
--------	--------	-------	----	-------	----	---

HOLE G 51

*222.50	223.50	7800	60	6700	60	57
223.50	224.50	540	14	490	24	
*224.50	225.50	7200	43	6100	55	
225.50	226.50	2750	11	2200	22	
226.50	226.70	250	4	230	12	
226.70	226.97	4850	462.5	3350	290	
226.97	227.50	1300	52.5	1000	65	
227.50	228.50	2050	105	1750	120	105
228.50	228.95	3700	23	3250	22	
228.95	229.50	550	4.5	460	12	
229.50	230.05	1550	3	1400	10	
230.05	230.50	940	1.5	780	6	
230.50	231.50	670	4	580	6	
231.50	232.50	520	7	470	10	
232.50	233.50	1600	29	1450	34	
233.50	234.50	2500	36	2150	42	
234.50	235.50	780	7	780	<4	6

* denotes > 0.1% Stannite

From (m)	To (m)	COMLABS		AMDEL	
		Sn (XRF)	Ag (AAS)	Sn (XRF)	Ag (XRF)
189.30	190.30	340	20	350	14
190.30	191.30	440	10	330	16
191.30	192.30	700	10	680	16
192.30	192.70	1900	190	2200	170
192.70	193.30	43900	90	3.86%	65
193.30	194.30	14600	35	1.28%	32
194.30	195.30	92100	20	7.76%	24
195.30	196.30	38000	140	3.44%	130
196.30	197.30	45400	255	4.41%	210
197.30	198.30	29700	35	2.80%	34
198.30	199.30	14800	15	1.36%	16
199.30	200.00	22500	10	2.09%	16

HOLE G 49

From (m)	To (m)	COMLABS	ADELAIDE OFFICE	AMDEL		PILBARA
		Sn (XRF)	Ag (AAS)	Sn (XRF)	Ag (XRF)	Ag (AAS)
131.80	132.80	23000	6.5	1.92%	<4	6
134.80	135.80	17000	17	1.52%	20	
*136.00	136.80	6000	675	3500	410	
136.80	137.30	6350	475	4200	300	
137.30	137.80	10500	32	8800	36	34
137.80	138.80	7850	40	6400	44	
*143.80	144.80	6700	110	5400	120	
*144.80	145.80	13300	325	1.16%	280	
148.80	149.80	1150	20	960	24	23
180.40	181.00	19000	6	1.06%	<4	5

HOLE G 45

192.75	193.75	1150	4	940	14	7
241.00	242.00	2600	3.5	2450	<4	3

HOLE G 53

250.85	251.40	14500	1	1.37%	<4	<1
257.40	258.40	18400	1	1.46%	<4	

APPENDIX IV

Petrological Descriptions as follows:

<u>Sample No.</u>	<u>Hole No.</u>	<u>Depth (m)</u>
250 562	Donnellys gossan sample	
233 297	G67 (Montana)	176.1
233 298	G67 "	180.5
233 299	G67 "	194.5
233 300	G67 "	199.2
250 397	G74 (Severn)	368.8
250 398	G74 "	369.5
250 399	G74 "	370.3
250 400	G74 "	371.2
250 919	G74 "	373.7
250 920	Donnellys gossan sample	

925093

Central Mineralogical Services



CMS

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

Mr. S. Richardson
Geologist
Aberfoyle Exploration Pty. Ltd.
P.O. Box 952
BURNIE / TAS. 7320

17th July, 1981

REPORT CMS 81/6/37

YOUR REFERENCE: Order No. 3412
DATE RECEIVED: 26th June, 1981
SAMPLE NOS.: 250562
SUBMITTED BY: S. Richardson
WORK REQUESTED: Petrology

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123

H. W. Fander
H.W. Fander, M. Sc.

CENTRAL MINERALOGICAL SERVICES

Date 17th July, 1981

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 81/6/37 Date Received: 26.6.1981Reference Order No. 3412Sample No. 250562Nature of Sample: Hand SpecimenDESCRIPTION SECTION No. 37474

a. Hand Specimen:

Brownish, porous, siliceous rock with sulphides.

b. Microscopic:

The present rock consists entirely of quartz with scattered arsenopyrite crystals, partly to extensively oxidised in places; however, there are certain relict textures which suggest that it might have had an igneous origin, though the interpretation is quite tentative. In view of the identification of scoriaceous lavas/volcanics in previous mineralised Queen Hill samples, the interpretation does not seem unreasonable.

The rock consists of mosaic quartz with "ghosts" of randomly orientated fine needles (?tridymite) and small hematitic aggregates; these relict features are almost invisible in fresh rock, but are accentuated in the limonitised portions adjacent to arsenopyrite crystals.

Porphyroblastic arsenopyrite crystals are present, showing alteration to scorodite and limonite; they appear to replace the host rock, i.e. they are metasomatic.

Total silicification and absence of relict minerals precludes classification, but the original rock may have been in the nature of a spherulitic obsidian, rhyolitic glass, or related type. No mineralisation (i.e. cassiterite) was detected.

H.W. Fander, M. Sc.

Ho. Ho!

IDENTIFICATION
250562
Quartz-Arsenopyrite Rock (?Volcanic)

Central Mineralogical Services



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

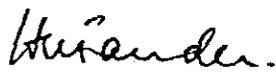
Mr. S. Richardson
Geologist
Aberfoyle Exploration Pty. Ltd.
P.O. Box 952
BURNIE / TAS. 7320

19th August, 1981

REPORT CMS 81/7/53

YOUR REFERENCE: Order No. 3415
DATE RECEIVED: 31st July, 1981
SAMPLE NOS.: 10 Samples
SUBMITTED BY: S. Richardson
WORK REQUESTED: Petrology

Copy to:
The Chief Geologist
Aberfoyle Exploration Pty. Ltd.
144, Camberwell Road
HAWTHORN EAST / VIC. 3123


H.W. Fander, M. Sc.

REPORT CMS 81/7/53

Ten samples (nine cores and one hand specimen) were received for thin-section preparation and petrological examination; in addition, polished sections were requested for two of the samples. Each sample is briefly described in the accompanying tables.

Summary

In both drillholes (i.e. from Montana and Severn), the mineralised sections consist of vein-type replacive material and the nature of the original rock is no longer recognisable. The cassiterite in the Montana intersections is very abundant, but exceedingly fine-grained (excellent feed for the matte furnace!), that in the Severn is coarser and could be quite amenable to upgrading.

The rocks below the mineralisation at Severn (250400, 250919) seem less altered than those above, and are only incipiently metamorphosed; however, this does not necessarily preclude them from being pre-Cambrian.

Polished Sections233 300 (P.S. 37972)

The dominant sulphide is pyrite, as granular aggregates and clusters of euhedral crystals; traces of arsenopyrite and isolated small grains of chalcopyrite occur. No cassiterite was detected within pyrite, which is unusual.

250 399 (P.S. 37975)

This contains pyrite as the only sulphide; the pyrite may represent recrystallized pyrrhotite. It contains cassiterite inclusions of all sizes from 10 μ upwards.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
MONTANA 967 233 297 176.1m (T.S. 37969)	Shale/Carbonaceous Siltstone. Pale shale band with abundant pyrite; sharp contact with carbonaceous pyritic sandy siltstone with quartz, clays, micas.	Shale is uniform, fine-grained. Siltstone folded; poorly-sorted/sized, weakly graded.	Shreds, thin layers of vitric tuff in siltstone. Carbonate patches, veinlets.	Contact is straight, sharp; thought to be fault contact. Siltstone is distinctly tuffaceous, older than shale.
233 298 967 180.5m	Argillaceous Siltstone. Fine argillaceous bands passing into coarse material of angular quartz, mica flakes, recrystallized clay matrix; altered concretions.	Well-bedded, weakly graded. Minor folding, banding.	Quartz and carbonate veins; fine, diagenetic siderite patches throughout.	Concretions have regular shape, possibly originally crystals (gypsum or carbonate), now replaced by chalcedony, carbonate, hematite.
233 299 967 194.5m	Mineralised Carbonate Rock. Coarse, interlocking siderite crystals; myriads of minute (mostly < 20 μ) cassiterite crystals as crusts/rims outlining relict textures.	Relict acicular textures; cassiterite aggregates almost crustiform.	Irregular patches of fine illite. Scattered pyrite, isolated galena.	Cassiterite evidently formed on/around pre-existing mineral (?tremolite), but all replaced by siderite. Cassiterite 1 μ - 50 μ .
233 300 967 199.2m	Mineralised Carbonate-Pyrite Rock. Mostly interlocking siderite; scattered quartz, fluorite, pyrite; very abundant cassiterite, 3 μ - 80 μ , but mostly 20-50 μ , granular to euhedral.	Vague banding, poorly defined relict textures. Haphazard fabric.	Ultrafine colourless tourmaline needles. Other sulphides (see notes).	Cassiterite as single grains and as compact clusters up to 0.3 mm across. Inclusion in all other minerals indicates early formation.
SEVERN 250 397 974 368.8m	Sheared, Metasomatised Chert. Relict streaks of dark carbonaceous chert, with pale tourmaline needles, abundant siderite patches and streaks.	Fine-grained components. Subparallel shearing, veining. Replacement textures.	Wide veins of coarse pyrite, siderite and fluorite. Sericite patches.	Original rock was probably an impure carbonaceous chert; thoroughly sheared and impregnated.
250 398 974 369.5m	Sheared, Tourmalinised Carbonaceous Shale. Mostly ultrafine matted, highly carbonaceous tourmaline; streaks of cherty and argillaceous shale; pyrite masses, grains.	Bedded; finely folded and sheared. Veins are also folded.	Fibrous tourmaline veins and older quartz-siderite veins (folded).	Evidently a black cherty shale in which clay minerals were extensively replaced by tourmaline.
250 399 974 370.3m	Mineralised Quartz-Pyrite-Fluorite Rock. Mainly quartz, sulphides, matted ultrafine tourmaline. Good cassiterite crystals up to 250 μ , embedded in all other minerals.	Vein-type random fabric, and euhedral quartz, angular tourmaline masses.	Fluorite patches and crosscutting younger veins. Apatite patches.	Appears to be vein-type rock, but fine tourmaline may represent relict tourmalinised sediment. Cassiterite coarser, better, than at Montana.
250 400 974 371.2m	Metasiltstone. Thin laminations of sericite alternating with thicker bands, lenses of silty and recrystallized quartz, mica flakes, sericite shreds.	Laminated; structure modified by mild folding and shearing.	Small patches, veinlets of siderite. Clusters of small pyrite crystals.	Rock only very mildly metamorphosed, and some structures may be due to slumping or soft-sediment deformation.
250 919 974 373.7	Metasiltstone. Small clastic quartz grains, mica flakes, embedded in illite-sericite and recrystallized quartz; more quartzose/argillaceous bands.	Good preferred orientation, weak banding; semi-schistose.	Small patches, veins of siderite; fluorite, pyrite, patches. Granular apatite (?sedimentary).	Similar to 250400, but not laminated. Patchily metasomatised (siderite, fluorite, pyrite).
DONNELLY'S 250 920 (T.S. 37978)	Sheared, Silicified Skarn. Lenses of fractured, partly altered tremolite and diopside with associated talc, muscovite; bands of microcrystalline quartz.	Original minerals quite coarse, but fabric now fine-grained; banded.	Interstitial iron-stained carbonate patches.	Thought to have been a skarn-type calc-silicate assemblage; extensively sheared, brecciated, silicified. Seems unrelated to 250562.

APPENDIX V

DONNELLYS GOSSAN GEOCHEMISTRY

ANALYTICAL SAMPLE LOG

BIG ROCKY CR. AREA (DORRIS)

QUEEN HILL E/W
DIGHAM FOLLOW UP

A 200
B 150
C 100
E 40
F 4

UNDESIRABLE PROJECTS 0
FRESH ROCK N
SPLASH DEPOSITS S

SURFACE TRANSPORTED T
 REGIONAL GOAL E
 MINE DUMP M

LOGS CHECKED
YES NO YES NO

DATE 16-6-81
1

EASTINGS	NORTHINGS	SAMPLE NUMBER	DEPTH	SITE FUNCTION	METAL VALUES PPM										GEOLOGICAL LOG
					Sn		W03		Cu		Pb		Zn		
		250562			20	189	1350	200	80	massive Aspy aggreg. (40%) in iron stained siliceous matrix.					
		250563			35	252	2400	160	625	Aspy 10-15, py 1-2, Alag + r. in banded iron stained siliceous matrix.					
		250564			30	164	3250	1750	200	py 10 in siliceous boxwork					
		250565			25	467	1700	135	2.6% gross Cu						
		250566			40	845	650	65	240	Aspy 5 in weathered siliceous matrix.					

925099

RL 00

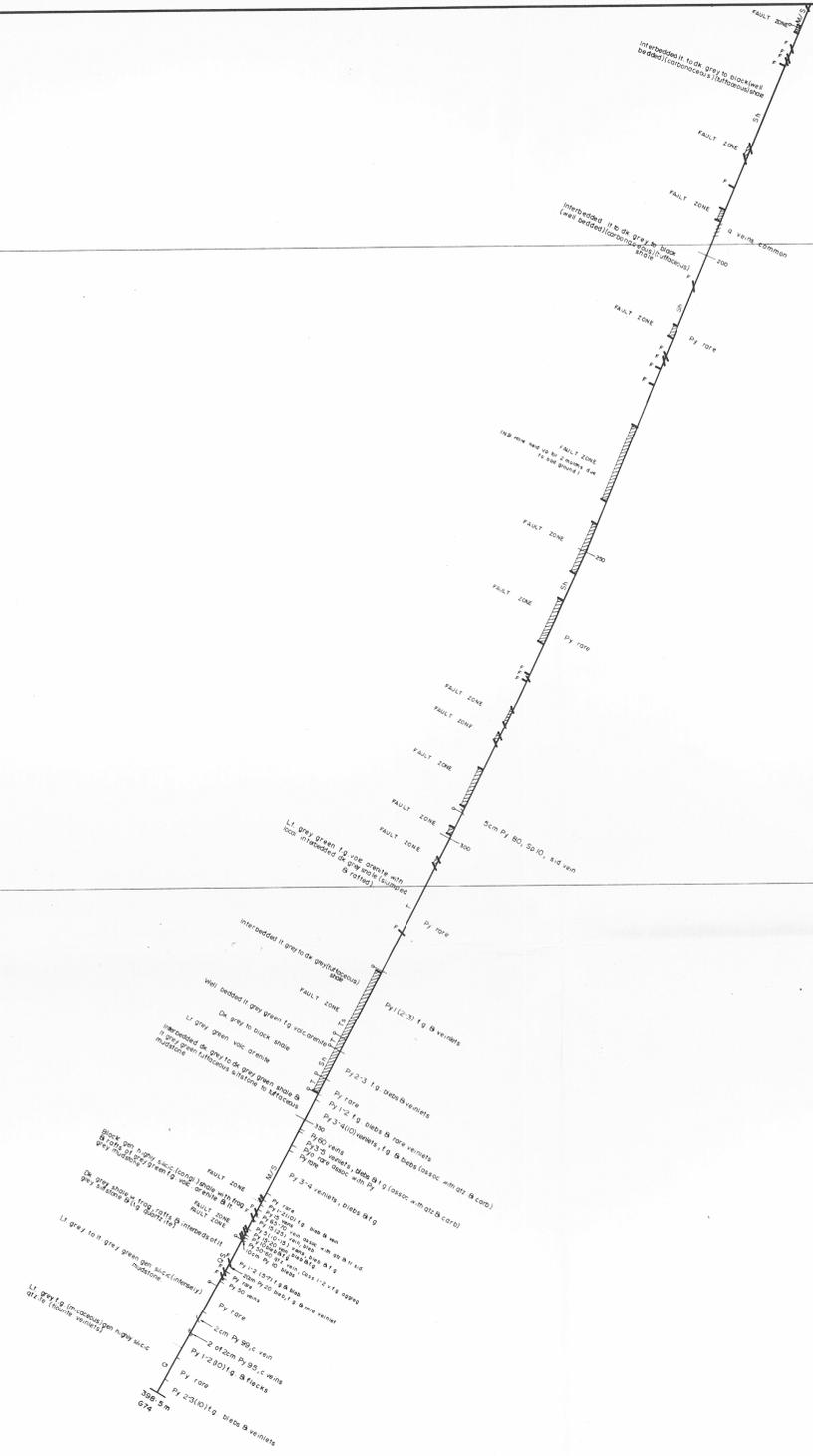
RL 00

RL 100

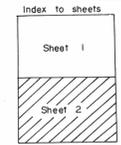
RL 100

RL 200

RL 200



Eastern Reference Pole 1300m E1



5 cm

925101

Aberfoyle Exploration Pty Ltd		
Geology: S.M.R.	NORTH WEST TASMANIA QUEEN HILL E.L. 47/71 CROSS SECTION 3225	Location code:
Drawn:		Date: August, 1981
Traced:		Scale: 1:500
Checked:		Plate No
Revised by: Date:		QH 129/3225



RL-00

RL-00

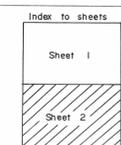
RL-100

RL-100

RL-200

RL-200

Explor. Reference: 925103-E1



925103



Aberfoyle Exploration Pty Ltd		
Geology: S.M.R.	NORTH WEST TASMANIA QUEEN HILL E.L. 47/71	Location code:
Drawn:		Date: September, 1981
Traced: J.L.R.		Scale: 1:500
Checked:	CROSS SECTION 3325	Plate No: QH129/3325
Revised by: Date:		

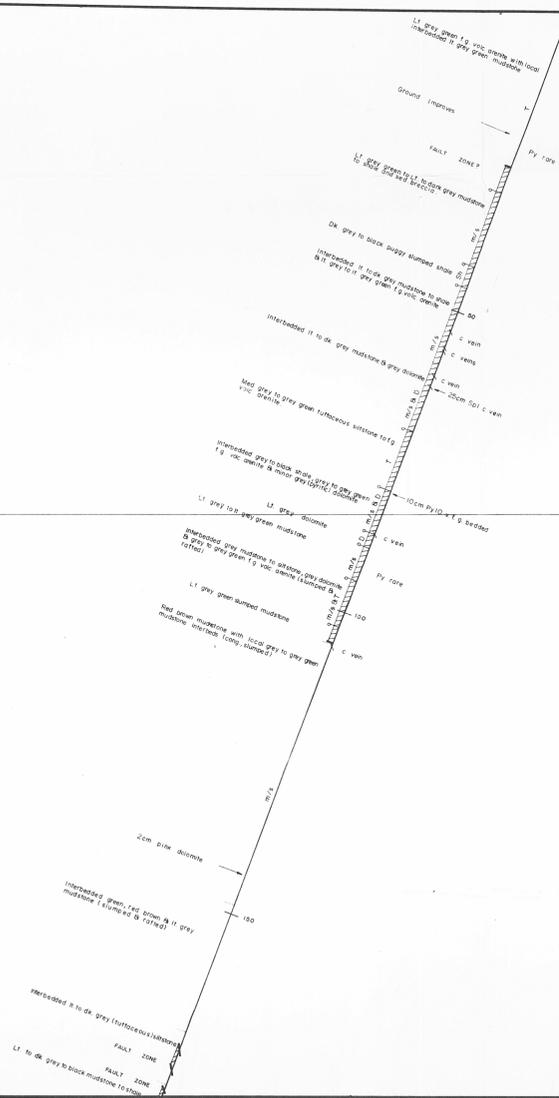
R.L. 200

R.L. 200

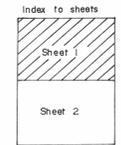
R.L. 100

R.L. 100

G76



Eastern Reference Point (200m E)



5 cm

925104

Aberfoyle Exploration Pty Ltd		
Geology:	NORTH WEST TASMANIA	Location code:
Drawn: J.L.R.	QUEEN HILL E.L. 47/71	Date: September, 1981
Traced:	CROSS SECTION 3620	Scale: 1:500
Checked:		Plate No: QH 129/3620
Revised by: Date:		

RL-00

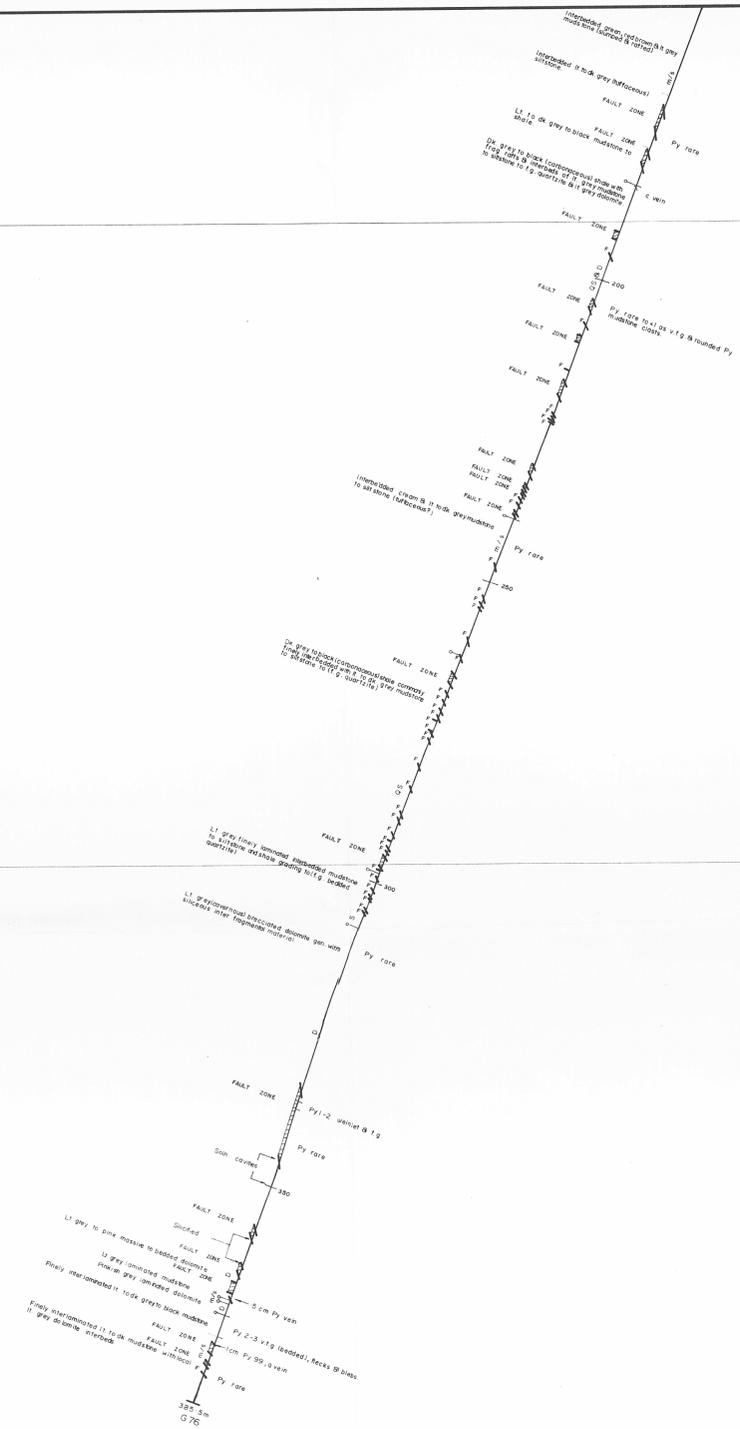
RL-00

RL-100

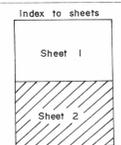
RL-100

RL-200

RL-200



G.W.M. Reference: Peak (300m)



925105

Aberfoyle Exploration Pty Ltd		
Geology:	NORTH WEST TASMANIA QUEEN HILL E.L. 47/71	Location code:
Drawn: J.L.R.		Date: September, 1981
Traced:		Scale: 1:500
Checked:	CROSS SECTION 3620	Plate No
Revised by: Date:		QH 129/3620