QH 41

# PROGRESS REPORT

# QUEEN HILL JOINT VENTURE

# E.L. 47/71 TASMANIA

# QUARTER TO MARCH 21, 1982

This report covers the
Aberfoyle periods 1/82, 2/82
and 3/82, ending March 8, 1982

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Geologist,

J.R. Sise,
Project Geologist,
Tasmania.

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Donnellys - Tasman River Zone

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SUMMARY

This report summarises work completed in the Aberfoyle periods 1B-3/82 ending 8th March, 1982. Reported expenditure is for the Aberfoyle quarter ending 8th March, 1982.

During the quarter the exploration drilling programme at Severn-Montana-Golf Course continued with two holes being completed for 422.1 metres. These holes were ZG 82 (Golf Course) and ZM 83 (Montana). Exploration holes ZS 84 (Severn) and ZM 85 (Montana) are in progress. A time domain down-hole EM survey was conducted on drill holes ZM 78 (Montana), ZS 80 (Severn), ZG 79 (Golf Course) and ZG 82 (Golf Course).

Grid cutting, ground magnetics and soil sampling have continued at Donnellys Prospect together with gridding and ground magnetics on the Tasman River Zone. A severe bush fire which destroyed most of the gridded areas brought a premature halt to the summer field work.

GOLF COURSE-SEVERN-MONTANA DRILLING PROGRAMME

NOTE:- To conform to the proposed data base mnemonics, drill hole identification will be progressively amended in text and plan as follows: all holes to be prefixed by Z = Zeehan Project, then by either S = Severn, M = Montana, G = Golf Course, Q = Queen Hill. The text of this report adheres to this format.

DDH ZG 82 GOLF COURSE

Exploration drill hole ZG 82 on section 2840 (Plates QH 166, QH 172) was commenced on 4th January and completed on 15th January, 1982 at a depth of 157.0 metres. This hole was designed to test the Precambrian - Cambrian contact along strike to the south of Severn holes ZS 42 and ZS 73.

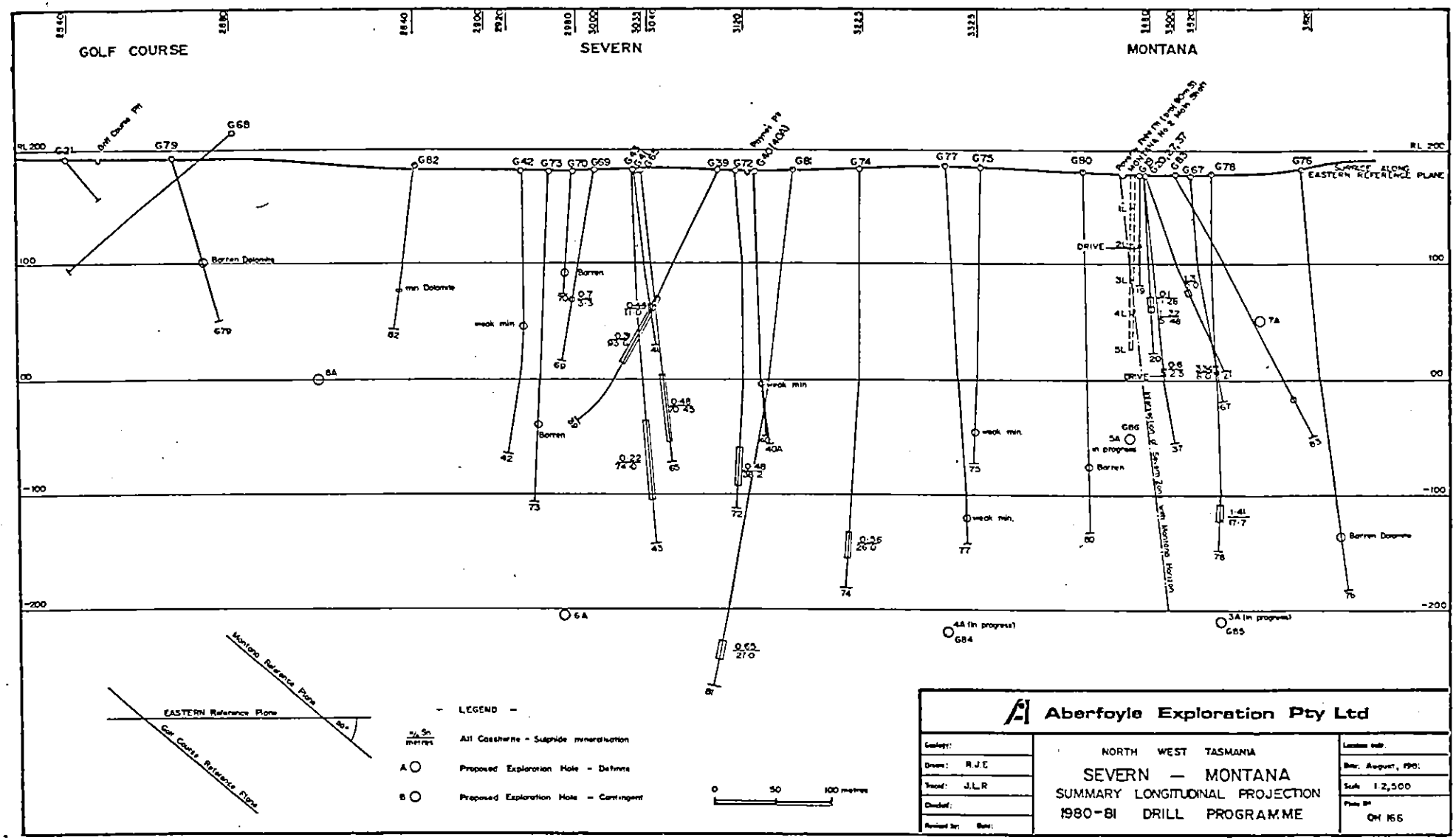
Instead of the Severn-style Crimson Creek - Oonah Quartzite and Slate contact, the Montana Beds lying between these two horizons were intersected. This succession correlates with ZS 79 and the sequence observed on surface at the Golf Course pit.

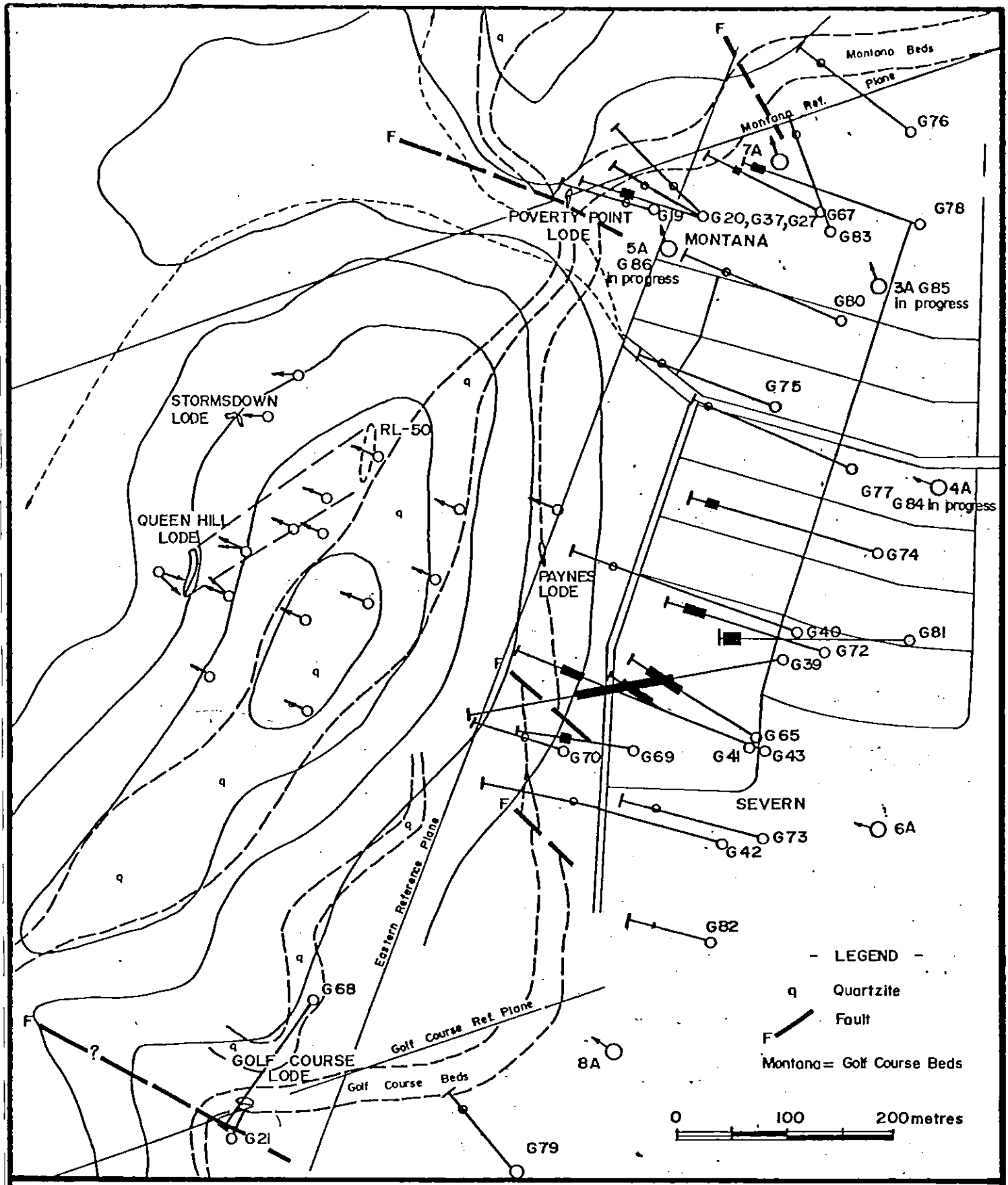
An interval of siderite-quartz-pyrite lode was intersected between 117.0 and 120.0m in the stratigraphically equivalent position to the siderite lode in ZS 79. A zone of weakly mineralised grey cavernous dolomite persisted from 120.0 to 134.3 metres. Tin assays were universally low, the only exception being a one metre interval (127.0-128.0m) of 0.62% Sn.

DDH ZM 83 MONTANA

Exploration drill hole ZM 83 on section 3640M (Plates QH 166, QH 172) was commenced on 5th January and completed on 20th January, 1982 at a depth of 263.1 metres. Designed to test the Montana Lode position at RL 1000, this hole did not intersect the Montana Beds. Structural complications limiting the extent of the lode in the previously defined strike direction resulted in the hole not leaving the Crimson Creek Formation.

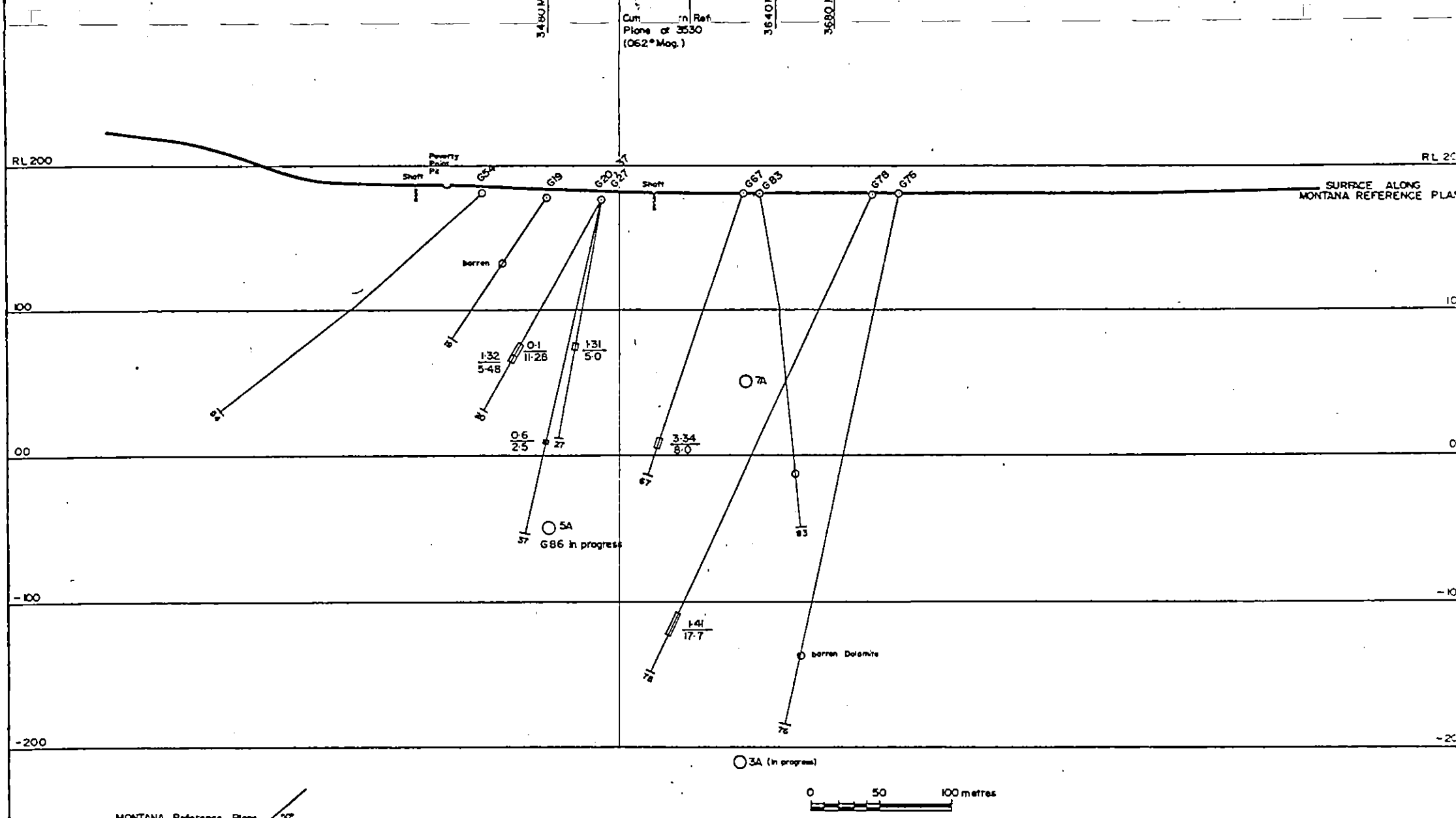
The hole was terminated when the target depth had been passed and continuation would have resulted in an intersection of the host carbonate in the ZM 76 position.


GOLF COURSE
SEVERN
MONTANA
RL 200
100
00
-100
-200
Golf Course Pit
Pyramid Pit
Pyramid Pit (and Montana No 2 Main Shaft)
Barren Dolomite
min Dolomite
weak min
Barren
DRIVE
Surface along Eastern Reference Plane
Montana Reference Plane
EASTERN Reference Plane
Golf Course Reference Plane
- LEGEND -
All Cassiterite - Sulphide mineralisation
Proposed Exploration Hole - Definite
Proposed Exploration Hole - Contingent
0 50 100 metres
Aberfoyle Exploration Pty Ltd
NORTH WEST TASMANIA
SEVERN — MONTANA
SUMMARY LONGITUDINAL PROJECTION
1980-81 DRILL PROGRAMME
Drawn: R.J.E
Traced: J.L.R
Date: August, 1980
Scale 1:2,500
Plan No OH 166




**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 QH 172 |
| Revised by: Date: | | |

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| | | |
|---|---|---|
| Geology: | NORTH WEST TASMANIA | Location code |
| Drawn: R.J.E. | MONTANA | Date December, 1981 |
| Traced: | SUMMARY LONGITUDINAL PROJECTION | Scale 1:2,500 |
| Checked: | 1981-82 DRILL PROGRAMME | Plate No. OH 176 |
| Revised by: Date | | |

# SEVERN / MONTANA / GOLF COURSE — Diamond Drilling Summary

| D.H. No. | Co-ordinates North | Co-ordinates East | Elev-ation | Mag Brg | Angle | Commence | Complete | Depth m | Cumulative metres | Section | GEOLOGY/MINERALISATION | RL of Intersection | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 SEVERN | 1960.5 | 1247.9 | 182.2 | 284.1 | -60.6 | 21.10.81 | 13.11.81 | 355.0 | 7072.71 | 3420 | No significant sulphide mineralisation noted | | |
| 81 SEVERN | 1657.9 | 1291.0 | 179.8 | 267.9 | -67.1 | 4.11.81 | 4.12.81 | 482.0 | 7554.71 | 3140 | 441.9-448.0m: po(5-20),py(1-2) 448.0-450.9m: po(50-60),py(3-5),Cassiterite(0-5); 450.9-452.6m: po(10-15),py(2-3); 452.6-463.7m: po(5-15),py(1-2), tr. Cassiterite. | -228<br>-232<br>-242<br>-252 | 437.0 - 464.0m (27m) of 0.65% Sn, incl. 442.0 - 453.0m (11m) of 1.1% Sn. |
| 82 SEVERN | 1392.2 | 1095.5 | 183.6 | 269.2 | -60.0 | 4.01.82 | 15.01.82 | 157.0 | 7711.71 | 2820 | 117.0-120.0: siderite lode, up to 40-50 py.<br>120.0-134.3: grey cavernous dolomite. | 90 | 127.0 - 128.0m 1.0m of 0.62% Sn. |
| 83 MONTANA | 2051.5 | 1239.4 | 180.8 | 351.0 | -58.0 | 5.01.82 | 20.01.82 | 263.1 | 7974.81 | | No significant sulphide mineralisation noted. | | |
| 84 SEVERN | 1799.1 | 1310.3 | 178.8 | 284.3 | -65.0 | 20.01.82 | In progress | 364m | | | | | |
| 85 MONTANA | 1944.7 | 1295.5 | 181.0 | 328.0 | -61.7 | 26.01.82 | In progress | 86m | | | | | |

No significant mineralisation was intersected in this drill hole.

DDH ZS 84 SEVERN

Exploration drill hole ZS 84, designed to test the Severn zone at RL 800 was commenced on 20th January, 1982 and is currently in progress at 364 metres in Crimson Creek Formation. Due to a major fault zone which could not be penetrated, it was necessary to reduce to BQ core at 268 metres to allow the hole to progress. The target depth for an intersection of the Severn lode is expected to be 480 metres in this drill hole.

DDH ZM 85 MONTANA

Exploration drill hole ZM 84, designed to test the Montana zone at RL 800 was commenced on 26th January, 1982 and has not advanced beyond 86 metres during the past few weeks. A sequence of problems has resulted in the rod string being lost down the hole. Should no progress be made in recovering the equipment during the next three days, the hole will be abandoned and re-collared adjacent to the present site.

The drill logs, assay results and petrological descriptions for the above drill holes are appended, with the cross sections attached as plates.

DOWN-HOLE EM SURVEY

During the quarter a time domain down-hole EM survey was conducted on the following holes:-

| | |
|---|---|
| ZM 78 | MONTANA |
| ZG 79 | GOLF COURSE |
| ZS 80 | SEVERN |
| ZG 82 | GOLF COURSE |

For detailed results see Appendix III. Summary results are:-

| | | |
|---|---|---|
| ZM 78 MONTANA | - | The hole has passed through the centre of the mineralisation. |
| ZG 79 GOLF COURSE | - | The hole has missed a conductor by 5-10m. Strike of the conductor is approximately E-W but it is unknown whether the trend is toward the E or W. |
| ZS 80 SEVERN | - | No significant response. |
| ZG 82 GOLF COURSE | - | The hole has "nicked" the edge of a conductor (sid -qtz ±py lode). Strike has not been determined accurately. |

All above conductors are pods.

A follow-up survey is planned to determine the orientation of the conductors outlined in ZG 79 and ZG 82.

EXPLORATION LICENCE 47/71 - QUEEN HILL (Plate QH 183)

DONNELLYS PROSPECT

Exploration on the licence has continued to concentrate on the Donnellys grid in order to bring this prospect to the drilling stage. A second area of outcropping calc-silicate and skarn mineralisation has been located.

Recently Discovered Mineralisation (Appendix IV)

Another area of outcropping calc-silicate and magnetite skarn mineralisation assaying up to 1.35% Sn has been located at approximately 4700N 2900E adjacent to and within the Heemskirk Granite. This is on the edge of the current grid. It has not yet been covered by ground magnetics or geochemistry.

Gridding

5.6 line km of extensions to the original grid have now been completed. Lines 5300N and 5400N have been extended to the northern licence boundary. Lines 4700N to 5400N have been extended to the south-west as far as the contact with the Heemskirk Granite.

On 15th February, 1982 a bushfire destroyed approximately 3.9 line km of grid of which 7.7 km in the immediate area of interest was replaced and extended.

Ground Magnetics (Plates Don 2a, 2b)

Ground magnetic coverage has now been extended over much of the gridded area. Further detailed coverage is planned in the area of the recently discovered mineralisation. The latest information confirms that several magnetic anomalies are confined to the forest-swamp area near the northern licence boundary.

Geochemistry (Plate Don 3)

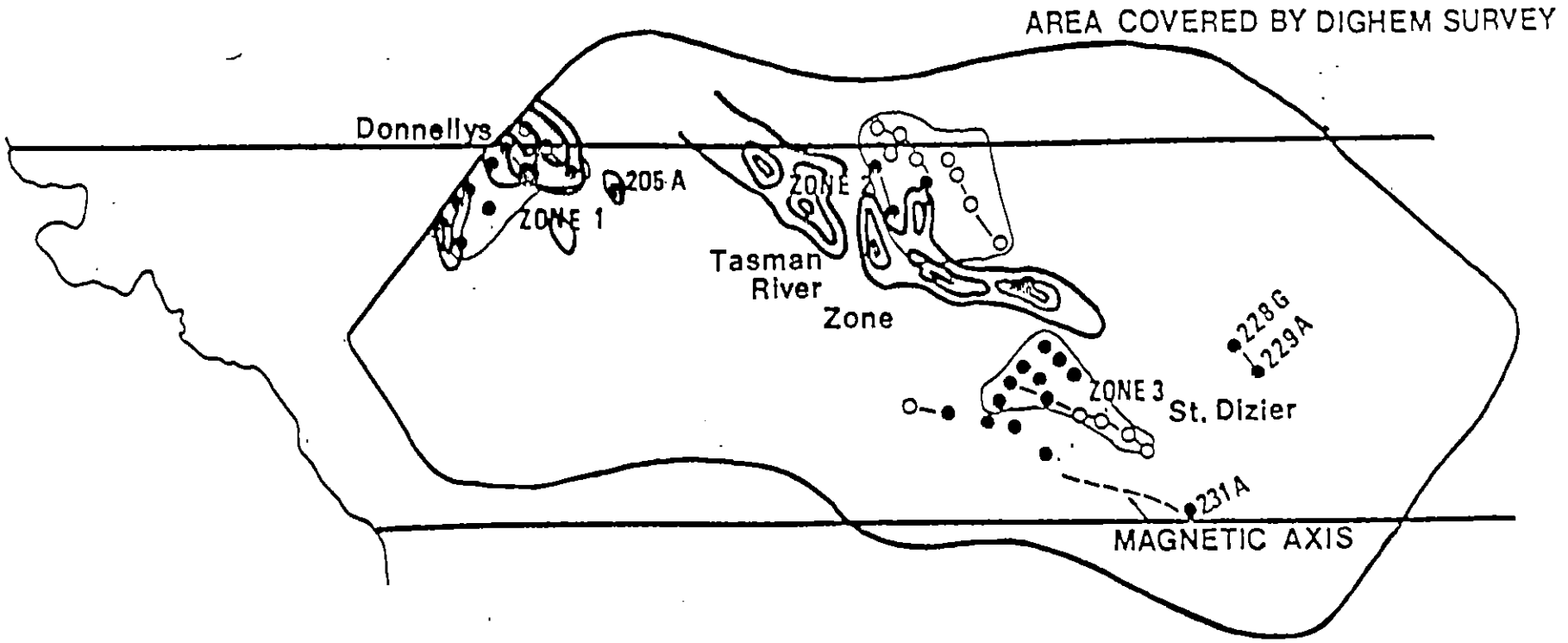
During January 1982, 774 C-horizon soil samples were collected from lines 4600N to 5400N using a hand auger. Areas covered by gravels were sampled by a hand held power auger (65 samples).

No significant anomalous areas for Sn and $WO_3$ were located. Detailed analysis of the results for Cu, Pb, Zn is yet to be completed.

TASMAN RIVER AREA

A north-west trending zone of airborne DIGHEM and magnetic anomalies, Tasman River zone (Figure 1), is to be re-evaluated in the light of the Donnelly's discovery.

The area was covered by 3.8km of grid over which a ground magnetic survey was conducted (Plate T.R.1). No further work has taken place since the entire grid was destroyed by fire on 15th February, 1982.




AEROMAG. CONTOURS

● DIGHEM ANOMALIES FOR FOLLOW UP

○ NO FOLLOW UP

FIGURE 1.

EXPENDITURE

The Joint Venture Statement of Expenditure for the Aberfoyle quarter ending 8th March, 1982, is split into two parts. One pertains to expenditure incurred on the Queen Hill Consolidated Lease and the other to expenditure on the Exploration Licence.

QUEEN HILL C.M.L.

| | |
|---|---|
| Geology | 14,375 |
| Survey | 347 |
| Geophysics | 22,663 |
| Assay | 2,848 |
| Diamond Drilling | 127,758 |
| Access | 457 |
| Metallurgy | 24,247 |
| Legal | 451 |
| Sundries | 926 |
| Administration @ 15% | 29,111 |
| | $223,183 |

QUEEN HILL E.L.

| | |
|---|---|
| Geology | 6,383 |
| Survey | 4,186 |
| Geophysics | 260 |
| Geochemistry | 10,988 |
| Assays | 8,900 |
| Access | 1,447 |
| Tenure | 2,594 |
| Administration @ 15% | 5,214 |
| | $39,972 |

Signed .....

S. M. Richardson,
Geologist.

.....

J. R. Sise,
Project Geologist - Tasmania.

Endorsed .....

E. H. Skey,
Exploration Manager.

# APPENDIX I

Drill Log and Assay Data for:

ZG 82 Golf Course

Drill Log for:

ZM 83 Montana

Assay Data for:

ZS 81 Severn

(for drill log refer progress report to 21 December, 1981)

ABERFOYLE

# DRILL HOLE RECORD

Location GOLF COURSE  Property QUEEN HILL  District ZEEHAN  Bearing (M) 269·2°  Hole No G 82

Commenced 4/1/82  Completed 15/1/82  % Recovery 83 %  Grid bearing (M) −11·25  Date 18-1-82

Objective OFFSET SEVERN MIN. RL 00 SECTION 2840  Core size HQ to 96m, NQ to 157m.  Logged S. RICHARDSON

Co-ordinates 5361392·16 N 361095·6E  Dip 59·3°  Alt./R.L. 1183·6

| SURVEY DATA | | | |
|---|---|---|---|
| DEPTH | DIP | BEARING(M) | INSTRUMENT TYPE |
| 18M | 59·25 | IN RODS | EASTMAN |
| 78M | 61·75 | 266·0 | " |
| 109M | 61·0 | 264·5 | " |
| 144M | 61·75 | 264·0 | " |
| E.O.H. | 157M | | |

| GRAPH DERIVED DATA | | | CALCULATED CO-ORDINATES | | | REMARKS |
|---|---|---|---|---|---|---|
| DEPTH | DIP | BEARING(M) | NORTHING | EASTING | ALTITUDE | |
| 0M | 59·3 | 269·2 | 5361392·16 | 361095·6 | 1183·6 | |
| 25 | 59·5 | 268·3 | 5361389·24 | 361083·21 | 1162·08 | NO DRILLING PROBLEMS — |
| 50 | 60·8 | 267·4 | 5361386·20 | 361071·15 | 1140·40 | |
| 75 | 61·8 | 266·5 | 5361383·09 | 361059·55 | 1118·47 | NO CASING LOST. — |
| 100 | 61·5 | 265·5 | 5361379·82 | 361048·14 | 1096·47 | |
| 125 | 61·2 | 264·5 | 5361376·31 | 361036·68 | 1074·53 | INSTEAD OF DISPLACED SEVERN |
| 150 | 62·0 | 263·5 | 5361372·64 | 361025·37 | 1052·54 | |
| 175 | 63·0 | 262·5 | 5361368·88 | 361014·46 | 1030·37 | MIN. INTERSECTED GOLF COURSE |
| | | | | | | STRATIGRAPHY. — MINOR |
| | | | | | | SULPHIDE. |

ABERFOYLE — DIAMOND DRILL LOG — HOLE No. G82

**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%

| CORE RECD | DEPTH m | GEOLOGY | VISUAL LOG | TRACE | COMMON | ABUNDANT | MASSIVE | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|---|---|---|---|
| HW HQ ·6 ·5 ·1 ·3 ·4 ·2 1·0 ·3 ·7 ·5 ·3 ·7 ·6 3·1 | 5 10 15 20 21·3 25 | Interbedded slumped & lafted lt. grey green f.g. lithic wacke & lt. to dk grey to grey green mudstone.<br>Interval of dominantly tuffaceous? sed. Soft sed def. common and locally intense<br>Bedding gen 40-50 to c.A.<br>Very broken ground to 21·3m.<br>← Ground Improves. | | | | | | 5 10 15 20 25 | Py rare. |

ABERFOYLE DIAMOND DRILL LOG HOLE NO Q82 Page No 2

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 |
|---|---|---|---|---|---|---|---|---|---|
| | | Lithology - as above. | | | | | | | |
| 2.6 | 26.1 | Dk. grey to black mudstone to shale w. grey lithic wacke (calcareous) interbeds | | | | | | | |
| 3.1 | 27.9 | FAULT. Single fracture w. slickensides & plug // c.A. | F | | | | | | |
| | 29.6 | | | | | | | | |
| | 30 | | | | | | | 30 | |
| | | FAULT - Broken core 0-10° c.A. | F | | | | | 30.5 | |
| 3.2 | | | | | | | | 31.2 | |
| | 32.7 | FAULT ZONE Broken core & g. healed breccia 0° to c.A | | | | | | | |
| | 33.3 | | | | | | | | |
| | | FAULT - c. healed breccia 30° c.A. | F | | | | | 33.8 | |
| 3.2 | 35 | FAULT - Broken core 10° to c.A. | F | | | | | 35 35.1 | Py rare |
| .5 | | FAULT - 45° to c.A. Plug | F | | | | | 36.5 | |
| | | FAULT - Broken core ?° c.A. | F | | | | | 37.0 | |
| | | FAULT? c healed breccia 40° to c.A. | F | | | | | 38.0 | |
| 3.0 | | FAULT - Plug 25° to c.A. | F | | | | | 39.0 | |
| | 40 | FAULT - Plug 0° to c.A. | F | | | | | 40.0 | |
| 8.0 | | FAULT - Broken core, // c.A. | F | | | | | 41.5 | |
| | | | | | | | | 42.5 | |
| | | Interval of complexely interbedded mudstone & lithic wacke containing variable amounts of carbonate mainly assoc. w. the wacke. | | | | | | | |
| 3.0 | 45 | Bedding is gen. 30-40° to c.A. but from 38 m to 45 m the angle increases to 70-90 gen. (50°). | | | | | | 45 | |
| | | FAULT - Plug 30° to c.A. | F | | | | | 46.2 | |
| 3.0 | | | | | | | | | |
| | 50 | | | | | | | 50 | |

ABERFOYLE DIAMOND DRILL LOG HOLE No [illegible] Page No 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 |
|---|---|---|---|---|---|---|---|---|---|
| 3.0 | | Lithology - as above - Dk. grey to black mudstone to shale w. grey lithic wacke (calcareous) interbeds and rare dolomite. | | | | | | 51.9 | 2 cm py 95 sp, Aspy, sid vei 50° c.A. |
| | | rare bedded py | | | | | | | |
| 3.0 | 53.3 | FAULT ZONE Broken core, c veining & c. healed fault breccia | | | | | | | |
| | | ?° to c.A. | | | | | | | |
| 2.0 | 55 | | | | | | | 55 | py rare v.f.g. bedded |
| | 57.5 | | | | | | | | |
| 3.1 | | Bedding 50 m - 45° to c.A. 55 - 50° 60 - 65° 65 - 50° 70 - 55° 75 - 45° | | | | | | | |
| | 60 | | | | | | | 60 | |
| 3.1 | | | | | | | | | |
| 3.1 | 65 | | | | | | | 64.9 65 | 10 cm py 40 Aspy 2 sp, c.vei 50° to c.A. |
| .3 | | 10 cm sid vein ?° c.A. | | | | | | 66.7 | |
| 3.0 | | | | | | | | | |
| | 69.5 | | | | | | | | |
| | 70 | Dk. grey massive to bedded dolomite. Rare lithic component to gen. v.f.g carbonate. | | | | | | 70 | |
| 3.0 | 70.3 | c. veins very common no. f.o. | | | | | | | py rare. |
| 2.7 | | Dk grey to black mudstone to shale w. grey lithic wacke interbeds + rare dol. | | | | | | 73.5 | |
| | 75 | | | | | | | 75 | |

ABERFOYLE — DIAMOND DRILL LOG — HOLE No. [illegible]

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 | ABUNDAN | MASSIVE | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|---|---|---|---|
| 3.0 | 77.0 | lithology - as above<br>Fault - broken core ? °c.A. | F | | | | | 77.0 | |
| 2.4 | 79.0<br>80<br>81.0 | Lt. grey green f.g. volc. wacke.<br>Gen massive sand size tuffaceous sed.<br>FAULT - Broken core, low angle? c.A.<br>FAULT ZONE<br>Broken core ? °c.A. | F | | | | | 79.3<br>80 | Py rare. |
| 1.0 | 83.5 | | | | | | | | |
| 1.4 | 84.0 | Dk. grey to black cong. mudstone w. interbedded grey siltstone to lithic wacke; slumped | | | | | | 85 | |
| 1.3 | 85.4 | FAULT ZONE Broken core - 20-30°? to c.A. | | | | | | | |
| 3.2 | 87.0<br>90 | much slumping. Rounded to angular grey dol. frag to 4cm.<br>88.7-89.5 - sid/c. py vein or altered (repl) c: interbed. r-10° c.A. | | sid | | | | 88.7<br>89.5<br>90 | Py 5-7 veined f.g. |
| 3.1 | 90.6 | Lt. grey silicified dolomite<br>Moderately to highly silicified massive locally highly brecciated dolomite. Sericite veinlets common in highly silicic interval at top. | | | | | | | Py rare. |
| 2.5 | 95 | | | | | | | 95 | |
| HQ NQ .2 | 95.5 | Dk. green to pink highly silicified brecciated rock - poss. silicic dol. (pink) & mudstone (calc. green).<br>Extremely silicified interval.<br>Locally rock appears cong. w. pink frag in green matrix. Elsewhere green stringers permeate pink rock. Rock is gen. glassy in nature. Local pink dol. downhole ⇒ pink here may be silicic dol. Local vein qtz. | | | | | | 95.5 | Py rare f.g. |
| 1.6 | | | | | | | | | |
| 3.0 | 100 | | | | | | | 100 | |

ABERMOYLE — DIAMOND DRILL LOG — HOLE No 482 — Page No

**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 |
|---|---|---|---|---|---|---|---|---|---|
| 2.0 | 15 | FAULT ZONE — Broken core & core loss. Unknown angle to C.A. | | | | | | | By rare v.f.g. bedded. |
| | 153.6 | | | | | | | | |
| 3.0 | 155 | | | | | | | 155 | |
| | 158 | END OF HOLE | | | | | | | |
| | 160 | | | | | | | 160 | |
| | 165 | | | | | | | 165 | |
| | 170 | | | | | | | 170 | |
| | 175 | | | | | | | 175 | |

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM ABERFOYLE EXPLORATION QUEEN HILL PROGRAMMER David Adams DATE

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm -SNT- | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm -ZINC- | ASSAY ppm -LEAD- | ASSAY ppm TUNGSTEN | grammes per Tonne -SILVER- | S.G. | Sulphur on samples → 0·25% Sn | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G 82 | 116·00 | -5·00 | | | | | | | | | |
| | 117·00 | <0·01 | | 0·21 | 360 | 240 | | <10 | 2·35 | | 264201 |
| | 118·00 | 0·09 | | 0·01 | 4000 | 1300 | | <10 | 3·64 | | 264202 |
| | 119·00 | 0·12 | | 0·01 | 4800 | 2600 | | <10 | 3·25 | | 264203 |
| | 120·00 | 0·03 | | <0·01 | 4300 | 1900 | | <10 | 3·30 | | 264204 |
| | 122·50 | CAVITY | NO | CORE | | | | | | | |
| | 123·00 | <0·01 | | <0·01 | 3900 | 1300 | | <10 | 3·30 | | 264205 |
| | 124·00 | 0·02 | | 0·01 | 12600 | 5100 | | 10 | 3·52 | | 264206 |
| | 125·00 | 0·02 | | <0·01 | 8000 | 2800 | | <10 | 3·51 | | 264207 |
| | 126·00 | 0·02 | | <0·01 | 6500 | 2700 | | <10 | 3·52 | | 264208 |
| | 127·00 | 0·01 | | <0·01 | 3300 | 720 | | <10 | 3·43 | | 264209 |
| | 128·00 | 0·62 | | 0·01 | 2500 | 1100 | | <10 | 3·57 | 5·3 | 264210 |
| | 129·00 | 0·04 | | <0·01 | 5700 | 3400 | | <10 | 3·55 | | 264211 |
| | 130·00 | 0·01 | | <0·01 | 1900 | 1900 | | <10 | 3·53 | | 264212 |
| | 131·00 | 0·01 | | <0·01 | 540 | 180 | | <10 | 2·93 | | 264213 |
| | 132·00 | <0·01 | | <0·01 | 380 | 140 | | <10 | 2·86 | | 264214 |
| | 133·00 | 0·04 | | 0·01 | 6000 | 7600 | | 10 | 3·52 | | 264215 |
| | 134·00 | 0·03 | | 0·01 | 10400 | 4700 | | 10 | 3·74 | | 264216 |
| | 134·30 | 0·04 | | <0·01 | 5200 | 3400 | | <10 | 3·56 | | 264217 |
| | 135·00 | 0·02 | | 0·04 | 6200 | 2100 | | <10 | 3·60 | | 264218 |

ABERFOYLE

# DRILL HOLE RECORD

Location MONTANA Property QUEEN HILL District ZEEHAN Bearing (M) 351:0° Hole No G83

Commenced 5/1/82 Completed 20/1/82 % Recovery 88.3% Grid bearing (M) -11.25° Date 20-5-82

Objective MONTANA LODE RL 00 SECTION Core size HQ → 126M NQ → 263.1M Logged S. RICHARDSON M. ROMBOUTS.

Co-ordinates 5362051.46N 361239.37E Dip 58.0 Alt./R.L. 1180.8

| SURVEY DATA | | | | GRAPH DERIVED DATA | | | CALCULATED CO-ORDINATES | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH | DIP | BEARING(M) | INSTRUMENT TYPE | DEPTH | DIP | BEARING(M) | NORTHING | EASTING | ALTITUDE | |
| 28M | -58.0 | IN RODS | EASTMAN S/S | 0M | 58.0 | 351.0 | 5362051.46 | 361239.37 | 1180.8 | |
| 60 | -59.5 | 349.0 | " | 25 | 58.0 | 350.0 | 5362055.66 | 361226.81 | 1159.60 | MONTANA BEDS NOT |
| 91 | -60.75 | 348.0 | " | 50 | 59.0 | 349.1 | 5362059.60 | 361214.35 | 1138.28 | INTERSECTED. |
| 120 | -61.0 | IN RODS | " | 75 | 60.3 | 348.5 | 5362063.26 | 361202.26 | 1116.71 | |
| 160 | -62.0 | 345.5 | " | 100 | 61.0 | 347.6 | 5362066.64 | 361190.49 | 1094.92 | NO CASING LOST. |
| 190 | -62.5 | 346.0 | " | 125 | 61.2 | 347.0 | 5362069.83 | 361178.83 | 1073.03 | |
| 220 | -62.5 | 345.0 | " | 150 | 61.8 | 346.5 | 5362072.87 | 361167.30 | 1051.06 | |
| 247 | -62.25 | 345.0 | " | 175 | 62.4 | 346.0 | 5362075.75 | 361155.96 | 1028.97 | |
| E.O.H. | 263.1M | | | 200 | 62.5 | 345.3 | 5362078.48 | 361144.72 | 1006.80 | |
| | | | | 225 | 62.5 | 345.0 | 5362081.10 | 361133.48 | 984.63 | |
| | | | | 250 | 62.4 | 345.0 | 5362083.71 | 361122.22 | 962.46 | |

ACCENTOYLE — DIAMOND DRILL LOG — HOLE No 683 — Page No

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 |
|---|---|---|---|---|---|---|---|---|---|
| | | No Core - H.W. Casing. | | | | | | | |
| 0 | 5 | | | | | | | 5 | |
| HW / HQ | 7.3 | | | | | | | | |
| .4 | | 4. grey green f.g. lithic wacke. | | | | | | | |
| 2.2 | 10 | and size tuffaceous sed interval. Massive to poorly bedded at mod angle to c.A i.e. ≈ 30°. c. veis common. no. p.o. Slumping locally intense. | | | | | | 10 | Py rare. |
| .7 | | | | | | | | | |
| 1.5 | | | Sh | | | | | 12.2 | 20cm 30, 30, Cm 2-3 sid vei 80° c.A. |
| .7 | | | | | | | | | |
| 2.0 | 15 | | | | | | | 15 | |
| .8 | | | | | | | | | |
| 2.0 | | | | | | | | | |
| | 17.2 | ← Ground Improves. | | | | | | | |
| 1.8 | 20 | | | | | | | 20 | |
| 1.7 | | FAULT - Pug 30° to c.A. 3cm c. vei 15° to c.A. FAULT - slickenside 30° c.A. | F C F | | | | | 21.3 21.8 22.1 | |
| | 22.0 | | | | | | | | |
| 2.9 | | Interbedded grey lithic wacke and dk. grey (dol.) mudstone (slumped). Incomming of pelitic component. Tuff rapidly becomes less dominant. | | | | | | | |
| | 25 | | | | | | | 25 | |

DIAMOND DRILL LOG

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 | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|
| 3.1 | 28.1 | Bedding 30-40° to c.A. | | | Py rare. |
| 1.4 | 29.8 | FAULT ZONE Broken core. unknown angle to c.A. | | | |
| 1.4 | 30 | Dk. grey to black dolomitic mudstone to dolomite w (lt grey dolomite interbeds) | | 30 | |
| 1.0 | 31.8 | FAULT ZONE Broken core & pug probably 20° to c.A. | | | |
| 3.1 | 33.0 | FAULT - slickensides 30° c.A | F | 33.8 | Py rare to trace as v.f.g. syn?? |
| | 35 | much carbonate in this interval. Gen as dk. grey to black massive dolomite to dolomitic mudstone. Bedding indicated by lighter coloured (cong) well bedded dolomite So now // at very low angle to c.A. | | 35 | |
| 3.0 | | FAULT - pug 20° c.A. | F | 38.9 | |
| 3.0 | 40 | | | 40 | |
| 2.7 | | | | | |
| 2.0 | 45 / 45.3 | | | 45 / 45.3 | |
| 1.6 | 46.1 | FAULT ZONE - as below. | | | Py trace (1-2) elongate v.f.g. aggreg // bedding. syng? |
| 1.6 | | Dk. grey to black (pyritic) (dolomitic) (carbonaceous) (cong.) mudstone to shale. Dolomitic character of the sed. decreases. Gen. a dark mudstone. Top of interval elongate py. aggreg // to bedding (syn?) are common. | | | |
| | 50 | | | 50 | |

ZN-L KLEINHYLE — DIAMOND DRILL LOG — HOLE No. [illegible] — Page No. 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 |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | | FAULT ZONE — Broken core and c. veins. Local dol. clasts rounded to 15cm. | | | | | | | |
| 1.8 | | Bedding: 50m – ?° c.A.; 55 – 5° c.A.; 60 – 5° "; 65 – 0° "; 70 – 5° "; 75 – 0° c.A. | | | | | | | |
| | 55 | | | | | | | 55 | |
| 2.3 | 56.4 | | | | | | | | |
| 3.1 | | FAULT – Pug 25° c.A. | F | | | | | 29.3 | Py trace to (1-2) as above. |
| | 60 | | | | | | | 60 | |
| 1.0 | | | | | | | | | |
| 3.0 | | | | | | | | | |
| .8 | | FAULT – Broken core 0° c.A. | F | | | | | 4.5 | |
| | 65 | | | | | | | 65 | |
| 2.0 | | | | | | | | | |
| 1.3 | | | | | | | | | |
| | 70 | | | | | | | 70 | |
| | | FAULT – Broken core 20°? c.A. | F | | | | | 70.7 | |
| 2.3 | | | | | | | | | |
| 3.1 | | | | | | | | | |
| | 70 | | | | | | | 75 | |

Feature — Bedding, Foliation, Fragment (size & shape), Slickenside, 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 |
|---|---|---|---|---|---|---|---|---|---|
| | | Lithology - as above - dk. grey to black (pyritic) (dolomitic) (carbonaceous) (cong.) mudstone to shale. | | | | | | | |
| 3.1 | | | | | | | | | |
| 1.9 | 80 | | | | | | | 80 | |
| | 81.5 | FAULT ZONE Broken core & pug, ?° c.a | | | | | | | Py trace (1-2) as above. |
| 3.1 | 82.2 | | | | | | | | |
| | 84.5 | | | | | | | | |
| | 85 | FAULT ZONE Broken core & pug. Fractures 30° to c.A. | | | | | | 85 | |
| 2.5 | | | | | | | | | |
| | 87.3 | | | | | | | | |
| 3.1 | | | | | | | | | |
| | 90 | | | | | | | 90 | |
| 1.0 | | | | | | | | | |
| 2.5 | 92.9 | Interbedded dk. grey mudstone & grey green tuffaceous siltstone to f.g. vole. wacke. | | | | | | | |
| | 95 | Interbedded v.f. to f.g. tuffaceous? and pelitic sed. Slumping & rafting common. Bedding 0 - 65° to c.A. | | | | | | 95 | Py rare. |
| 3.0 | | | F | | | | | | |
| | | FAULT - Broken core | | | | | | 97.1 | |
| 3.0 | | | | | | | | | |
| | 100 | | | | | | | 100 | |

ABERTOYLE — DIAMOND DRILL LOG — HOLE Nº C83 — Page No 5

**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 |
|---|---|---|---|---|---|---|---|---|---|
| 3.0 | | Lithology - as above - Interbedded dk. grey mudstone & grey green tuffaceous siltstone to f.g. vole. wacke. | | | | | | | |
| 3.0 | 104.0 | | | | | | | | |
| | 105 | FAULT ZONE — Broken core & Rug 30° c.A. | | | | | | 105 | |
| | 105.4 | Dk. grey mudstone to shale w. grey (cong.) lithic wacke interbeds | | | | | | | |
| 3.0 | | Bulk of interval is dk grey bedded mudstone but toward base lithic wacke (cong.) becomes dominant. Bedding - 0 to 15° to c.A. | | | | | | | |
| 3.0 | 110 | | | | | | | 110 | Py rare. |
| | 112.0 | FAULT ZONE — Broken core and pug. Unknown orientation. | | | | | | | |
| 1.1 | | | | | | | | | |
| 1.2 | 115 | | | | | | | 115 | |
| 1.0 | | | | | | | | | |
| 1.5 | | | | | | | | | |
| 1.2 | 120 | | | | | | | 120 | |
| 1.6 | | | | | | | | | |
| .7 | | | | | | | | | |
| | 123.7 | | | | | | | | |
| 2.4 | 124.0 | Lt. grey green f.g. vole. wacke as below | | | | | | | |
| | 125 | | | | | | | 125 | |

ZINKGRUVE — DIAMOND DRILL LOG — HOLE No [illegible] — Page No 6

**Feature**

Bedding — Foliation — Fragment (size & shape) Qa

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 |
|---|---|---|---|---|---|---|---|---|---|
| HQ / NQ | | Lt. grey green f.g. volc. wacke w. local dk. grey green tuffaceous shale interbeds. | | | | | | | |
| 1.0 | | FAULT - Broken core ? c.A. | F | | | | | 127.1 | |
| 1.3 | 128.3 | Gen bedded to locally massive tuffaceous sed. | | | | | | | |
| | | FAULT ZONE Broken core pug & core loss. Unknown orientation | | | | | | | |
| 1.0 | 130 | | | | | | | 130 | |
| .2 | | | | | | | | | |
| .3 | | | | | | | | | |
| 1.0 | | | | | | | | | |
| .3 | | | | | | | | | ly rare. |
| .9 | | | | | | | | | |
| .8 | 135 | | | | | | | 135 | |
| | 136.7 | | | | | | | | |
| 3.0 | | | | | | | | | |
| | | FAULT - Broken core ? c.A. | F | | | | | 139.1 | |
| | 140 | | | | | | | 140 | |
| 3.0 | | | | | | | | | |
| | 143.3 | | | | | | | | |
| 2.0 | | FAULT ZONE Pug. Unknown orientation | | | | | | | |
| | 145 | | | | | | | 145 | |
| | 145.2 | | | | | | | | |
| 3.1 | | | | | | | | | |
| 1.2 | 149 | FAULT ZONE Pug. Unknown orientation | | | | | | | |
| | 149.8 | | | | | | | | |
| | 150 | | | | | | | 150 | |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| 1.4 | | Lithology as above — lt. grey green f.g. vole wacke & local dk grey green tuffaceous shale interbeds. FAULT-Broken core 30° CA | | | | | | 150.7 | |
| | 152.1 | | | | | | | 152.1 | |
| 3.3 | | Interbedded DK grey mostly slumped mudstone & lt grey white f.g vole. wacke | | | | | | | |
| | 152.9 | FAULT ZONE Broken core pug | | | | | | | |
| | 153.8 | Unknown Orientation | | | | | | | |
| | 154.5 | | | | | | | | |
| | 155 | FAULT ZONE Broken core pug | | | | | | 155 | |
| 3.0 | | Unknown Orientation | | | | | | | |
| | 155.7 | | | | | | | | |
| | 157.1 | | | | | | | 157.1 | |
| 3.4 | | Interbedded lt. grey white f.g wacke & dk grey mudstone | | | | | | | |
| | | Locally massive, mostly numerous millimetre sized beds; mudstone dominant, 5 to 10° to CA. | | | | | | | |
| | 159.4 | FAULT ZONE Broken core (pug) | | | | | | | |
| | 159.9 160 | | | | | | | 160 | |
| 1.0 | | | | | | | | | |
| 3.1 | | | | | | | | | |
| | 165 | | | | | | | 165 | |
| 3.0 | | | | | | | | | |
| | 166.8 | | | | | | | 166.8 | |
| | | Massive mudstone | | | | | | | |
| | | rare Py | | | | | | | |
| 3.0 | 169 | | | | | | | 169 | |
| | | Interbedded lt grey green f.g. wacke & dk grey mudstone | | | | | | | |
| | 170 | (171.2 to 172.0 dolomite bed ± q vngs @ 0.5cm w/ct 15° to CA) | | | | | | 170 | |
| 1.6 | | Before dolomite bed section mudstone greywacke slumped afterwards fine beds, 0-5° to CA | | | | | | | |
| 2.9 | | | | | | | | | |
| | 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%

| CORE RECD | DEPTH m | GEOLOGY | VISUAL LOG | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|
| 2.6 | 175.4 | lt grey white f.g-m.g wacke ± (mudstone beds). Rare dissem Py aggregates | | 175.4 | Trace Py < 1%. |
| 3.1 | 179.2 | FAULT ZONE Broken core, pug & core loss Unknown orientation | | | |
| | 180 | | | 180 | |
| | 180.1 | Interbedded f.g. grey green wacke and dk grey black tuffaceous mudstone beds of millimetre size, minor (coarse) beds; 5-12° to CA | | 180.1 | |
| 0.9 | 182.8 | | | | |
| 2.9 | | FAULT - Broken core & pug 22° to CA | F | 183.8 | |
| | 185 | | | 185 | |
| 3.1 | | (178.8-188.0 silic'd mudstone ± 3 sets of $CO_3$ vlets 1-3mm, 10° to CA cutting 130° to CA cutting 60° to CA) | | | |
| 2.0 | 190 | FAULT ZONE Broken core, pug & core loss Unknown Orientation | | 190 | |
| 1.3 | | (190-192.3 grey green f.g. wacke bed) | | | |
| 0.7 | | | | | |
| 1.1 | | | | | |
| | 195 | | | 195 | |
| 1.3 | | | | | |
| | 196 | Grey (Dol) Mudstone slumped | | 196 | |
| 1.1 | | | | | |
| | | (198.2-198.8 numerous disrupted $CO_3$ vlets) | | | |
| 1.3 | 200 | | | 200 | |

Feature: Bedding, Foliation, Fragment (size & shape), Shearing, Fault, Vein (c carbonate, q quartz)

Mineralization: Trace 1-5%; Common 5-15%; Abundant 15-60%; Massive > 60%

| CORE REC'D | DEPTH m | GEOLOGY | VISUAL LOG | TRACE | COMMON | ABUNDANT | MASSIVE | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 200.8 | |
| 1.2 | | Lt. grey green wacke becoming a darker grey siltstone towards the end. orange coloured siderite v'lets common 40°, 50°, 70° to CA. minor black mudstone fragments as trails // to possible bedding | | | | | | | |
| 2.6 | 205 | | | | | | | 205 | |
| | 205.3 | | | | | | | | |
| 3.1 | 207.1 | FAULT ZONE Broken core + pug unknown orientation | | | | | | 207.1 | |
| | 207.9 | 207.1-207.9 Dolomite and Dolomitic mudstone, lt. grey slumped & brecciated. Interbedded shale lt. grey green & wacke green white massive black (mudstone) beds to 10 cms | | | | | | 207.9 | |
| 3.1 | 210 | Lt grey green wacke, massive sl. brecciated & black mudstone matrix which also occurs as fragments <1mm throughout | | | | | | 209.6 210 | |
| | 212 | | | | | | | 212 | |
| 3.2 | | FAULT ZONE Broken core + pug unknown orientation. Light grey green (dol) massive siltstone minor elongated & convoluted (mudstone) fragments possibly // to bedding (brecciation) | | | | | | | |
| | 214.3 | | | | | | | | |
| 3.1 | 215 | | | | | | | 215 | |
| 3.1 | 218.8 | Lt green grey shale ≈ 20° to CA; slumped from 221.1 & lt grey matrix surrounding lt green fragments and disturbed bedding | FAULT 0-5° to CA broken core + pug; FAULT ? to CA broken core + pug | F F | | | | 218.8 219.7 | |
| | 220 | | | | | | | 220 | |
| | 221.1 | FAULT ZONE Broken core + pug ≈ 50° to CA | | | | | | | |
| 3.2 | 221.7 | | | | | | | | |
| 2.9 | 225 | | | | | | | 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%

| CORE REC'D | DEPTH m | GEOLOGY | VISUAL LOG | TRACE | COMMON | ABUNDANT | MASSIVE | DEPTH m | MINERALIZATION |
|---|---|---|---|---|---|---|---|---|---|
| | | Group of $CO_3$ v'lets 25° to CA | | | | | | 225.3 | |
| | | 226.3-226.6 Black dolomitic rock ± numerous white vein $CO_3$ fragments | | | | | | | |
| 2.5 | | FAULT Broken core & pug 15° to CA | F | | | | | 227.9 | |
| | | 229.2-231.3 Dolomite & qtz ± siltstone patches, core missing | | | | | | | |
| 0.5 | 230 | | | | | | | 230 | |
| | 231.3 | Green grey slumped siltstone-mudstone; minor black carbonaceous mudstone matrix; towards end elongated fragments & veins of dolomite & siderite; one rounded white dolomite fragment to 4.5cm | | | | | | 231.3 | |
| 3.3 | 233.4 | FAULT ZONE Broken core unknown orientation | | | | | | | |
| | 234 | | | | | | | | |
| | 235 | | | | | | | 235 | |
| 3.0 | | FAULT Broken core & pug 25° to CA | E | | | | | | |
| | 236.6 | Grey green f.g. wacke - siltstone slight size gradation, siderite & other $CO_3$ v'lets common 20°, 30° & 60° to CA; massive | | | | | | 236.6 | |
| | | FAULT Broken core & slickensides 15° to CA | F | | | | | 237.1 | |
| | 238.2 | Last ½ of section v'lets are siderite | | | | | | | |
| 2.8 | | FAULT ZONE Broken core, pug & slickensides ± 25° to CA | | | | | | | |
| | 239.4 | | | | | | | | |
| | 240 | | | | | | | 240 | |
| | 240.4 | FAULT ZONE Broken core & pug Unknown Orientation | | | | | | | |
| 2.5 | | | | | | | | | |
| | 242.8 | | | | | | | | |
| 3.0 | | | | | | | | | |
| | 245 | | | | | | | 245 | |
| | 245.2 | FAULT ZONE Broken core & pug Unknown Orientation | | | | | | | |
| | 245.9 | | | | | | | 245.9 | |
| 2.2 | | Light grey cream shale slightly disrupted along small fractures 70° to CA); 5-15° to CA | | | | | | | |
| 2.0 | | | | | | | | | |
| | 250 | | | | | | | 250 | |

ABERFOYLE DIAMOND DRILL LOG HOLE No C83 Page No 11

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 |
|---|---|---|---|---|---|---|---|---|---|
| 1.2 | | Grey to light grey v f-g wacke - siltstone massive; common siderite & other $CO_3$ vlets | | | | | | | |
| | 251.2 | | | | | | | 251.2 | |
| 2.1 | | Lt grey cream shale siltstone 0 - 5° to CA; Csiderite vlets 10°, 25° to CA) | | | | | | | |
| | 253.1 | | | | | | | | |
| 1.9 | | FAULT ZONE Broken and missing core & rug Unknown orientation | | | | | | | |
| | 255 | | | | | | | | |
| 2.3 | | | | | | | | | |
| | 258.5 | | | | | | | 258.5 | |
| 1.0 Hole ≈1.5 | | Black carbonaceous mudstone; massive. | | | | | | | Py trace (3-4) disem, blebs & trails // bedding. |
| | 260 | | | | | | | | |
| 1.3 | | | | | | | | | |
| | 263.1 | | | | | | | 263.1 | |
| | | EO HOLE | | | | | | | |

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER D. ADAMS DATE 10·12·81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G81 | 345·00 | -5·00 | | | | | | | | | |
| | 346·00 | 400 | | 300 | | | | | | | 264484 |
| | 347·00 | 1200 | | 600 | | | | | | | 264485 |
| | 348·00 | 700 | | 300 | | | | | | | 264486 |
| | 349·00 | 800 | | 200 | | | | | | | 264487 |
| | 350·00 | 600 | | 600 | | | | | | | 264488 |
| | 351·00 | 500 | | 300 | | | | | | | 264489 |
| | 352·00 | 200 | | 300 | | | | | | | 264490 |
| | 353·00 | 200 | | 200 | | | | | | | 264491 |
| | 354·00 | 100 | | 100 | | | | | | | 264492 |
| | 355·00 | 6300 | | 500 | | | | | | | 264493 |
| | 356·00 | 800 | | 200 | | | | | | | 264494 |
| | 357·00 | 300 | | 200 | | | | | | | 264495 |
| | 358·00 | 1000 | | 100 | | | | | | | 264496 |
| | 359·00 | 100 | | 200 | | | | | | | 264497 |
| | 360·00 | 200 | | 200 | | | | | | | 264498 |
| | 361·00 | 400 | | 300 | | | | | | | 264499 |
| | 262·00 | 200 | | 500 | | | | | | | 264555 |
| | 263·00 | 2500 | | 600 | | | | | | | 264556 |
| | 364·00 | 200 | | 800 | | | | | | | 264557 |

CLEVELAND

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER D.ADAMS DATE 10.12.81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|
| G81 | 365·00 | 4600 | | 300 | | | | | | 264558 |
| | 366·00 | 3600 | | 400 | | | | | | 264559 |
| | 367·00 | 600 | | 100 | | | | | | 264560 |
| | 368·00 | 400 | | 100 | | | | | | 264561 |
| | 369·00 | 100 | | 100 | | | | | | 264562 |
| | 370·00 | 100 | | 100 | | | | | | 264563 |

CLEVELAND

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER R de BOMFORD & P S DATE 15/12/81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|
| 681 | 391·00 | −5·00 | | | | | | | | |
| | 392·00 | 400 | | 200 | | | | | | 264564 |
| | 393·00 | 100 | | 300 | | | | | | 264565 |
| | 394·00 | 200 | | 200 | | | | | | 264566 |
| | 395·00 | 1800 | | 400 | | | | | | 264567 |
| | 396·00 | 100 | | 200 | | | | | | 264568 |
| | 397·00 | 100 | | 200 | | | | | | 264569 |
| | 398·00 | 200 | | 200 | | | | | | 264570 |
| | 399·00 | 100 | | 100 | | | | | | 264571 |
| | 400·00 | 200 | | 200 | | | | | | 264572 |
| | 401·00 | 300 | | 200 | | | | | | 264573 |
| | 402·00 | 200 | | 400 | | | | | | 264574 |
| | 403·00 | 400 | | 100 | | | | | | 264575 |
| | 404·00 | 2800 | | 400 | | | | | | 264576 |
| | 405·00 | 800 | | 100 | | | | | | 264577 |
| | 406·00 | 600 | | 100 | | | | | | 264578 |
| | 407·00 | 1100 | | 100 | | | | | | 264579 |
| | 408·00 | 100 | | 400 | | | | | | 264580 |
| | 409·00 | 3900 | | 900 | | | | | | 264581 |
| | 410·00 | 2700 | | 1100 | | | | | | 264582 |

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER R de Bomford & B. S. DATE 15/12/81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 681 | 411·00 | 8500 | | 600 | | | | | | | 264583 |
| | 412·00 | 4100 | | 200 | | | | | | | 264584 |
| | 413·00 | 400 | | 200 | | | | | | | 264585 |
| | 414·00 | 300 | | 100 | | | | | | | 264586 |

403 – 413 : .27 / 414 : 0.48

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.

PAGE 1 OF 1

PROGRAM PROGRAMMER B.S. DATE 17/12/81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|
| 681 | 430·00 | −5·00 | | | | | | | | |
| | 431·00 | 200 | | 100 | | | | | | 264587 |
| | 432·00 | 400 | | 100 | | | | | | 264588 |
| | 433·00 | 1000 | | 100 | | | | | | 264589 |
| | 434·00 | 400 | | 100 | | | | | | 264590 |
| | 435·00 | 2200 | | 100 | | | | | | 264591 |
| | 436·00 | 1300 | | 100 | | | | | | 264592 |
| | 437·00 | 1000 | | 100 | | | | | | 264593 |

Note : Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER R De B & D.A. DATE 14/12/81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|
| G81 | 437·00 | −5·00 | | | | | | | | |
| | 438·00 | 3500 | | 100 | 50 | <50 | | <10 | | 264526 |
| | 439·00 | 4300 | | 100 | 50 | <50 | | <10 | | 264527 |
| | 440·00 | 9100 | | 200 | 50 | <50 | | <10 | | 264528 |
| | 441·00 | 2100 | | 100 | 30 | <50 | | <10 | | 264529 |
| | 442·00 | 1900 | | 100 | 30 | <50 | | <10 | | 264530 |
| | 443·00 | 4700 | | 300 | 40 | <50 | | <10 | | 264531 |
| | 444·00 | 8100 | | 400 | 30 | <50 | | <10 | | 264532 |
| | 445·00 | 8300 | | 500 | 30 | <50 | | <10 | | 264533 |
| | 446·00 | 24500 | | 500 | 20 | <50 | | <10 | | 264534 |
| | 447·00 | 15700 | | 400 | 20 | <50 | | <10 | | 264535 |
| | 448·00 | 20500 | | 500 | 30 | <50 | | <10 | | 264536 |
| | 449·00 | 3800 | | 800 | 60 | 50 | | <10 | | 264537 |
| | 450·00 | 10800 | | 1000 | 50 | <50 | | <10 | | 264538 |
| | 451·00 | 12700 | | 700 | 40 | <50 | | <10 | | 264539 |
| | 452·00 | 7900 | | 300 | 100 | <50 | | <10 | | 264540 |
| | 453·00 | 3500 | | 200 | 140 | <50 | | <10 | | 264541 |
| | 454·00 | 1200 | | 300 | 100 | 100 | | <10 | | 264542 |
| | 455·00 | 700 | | 400 | 120 | 400 | | <10 | | 264543 |
| | 456·00 | 2300 | | 300 | 260 | 100 | | <10 | | 264544 |

CLEVELAND

Note: Intervals not analysed should be recorded such that a complete hole is itemised.
For any section not analysed, a value −5·00 should be entered in the relevant assay columns.
It is not necessary to record a zero.



PROGRAM PROGRAMMER R de B & DA. DATE 14/12/81

| HOLE IDENT. | DISTANCE FROM COLLAR TO BOTTOM OF SAMPLE (metres) | ASSAY ppm SNT | ASSAY ppm STANNITE | ASSAY ppm COPPER | ASSAY ppm ZINC | ASSAY ppm LEAD | ASSAY ppm TUNGSTEN | grammes per Tonne SILVER | grammes per Tonne GOLD | SAMPLE No. |
|---|---|---|---|---|---|---|---|---|---|---|
| 4281 | 457·00 | 1700 | | 100 | 260 | 100 | | <10 | | 264545 |
| | 458·00 | 2400 | | 200 | 140 | 50 | | <10 | | 264546 |
| | 459·00 | 1400 | | 300 | 50 | <50 | | <10 | | 264547 |
| | 460·00 | 1900 | | 900 | 60 | 260 | | 15 | | 264548 |
| | 461·00 | 300 | | 100 | 40 | <50 | | <10 | | 264549 |
| | 462·00 | 1200 | | 200 | 40 | <50 | | <10 | | 264550 |
| | 463·00 | 9900 | | 700 | 30 | <50 | | <10 | | 264551 |
| | 463·70 | 14700 | | 600 | 30 | <50 | | <10 | | 264552 |
| | 464·00 | 2200 | | 300 | 30 | <50 | | <10 | | 264553 |
| | 465·00 | 800 | | 200 | 20 | <50 | | <10 | | 264554 |

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# APPENDIX II

Petrological descriptions as follows:

| ZG 79 Golf Course: | Sample No. | Depth (m) |
|---|---|---|
| | 250 505 | 88.9 |
| | 250 506 | 92.4 |
| | 250 507 | 101.0 |
| | 250 508 | 108.3 |
| | 250 509 | 113.0 |
| | 250 510 | 154.7 |
| ZS 81 Severn: | | |
| | 250 511 | 441.2 |
| | 250 512 | 445.7 |
| | 250 513 | 447.2 |
| | 250 514 | 449.6 |
| | 250 515 | 450.6 |
| | 250 516 | 455.6 |
| | 250 517 | 459.2 |
| | 250 518 | 463.5 |
| | 250 519 | 465.6 |
| | 250 520 | 476.7 |

# 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 February, 1982

REPORT CMS 81/12/35

| | |
|---|---|
| YOUR REFERENCE: | Order No. 3437 |
| DATE RECEIVED: | 21st December, 1981 |
| SAMPLE NOS.: | 250505 - 250520 |
| SUBMITTED BY: | S. Richardson |
| WORK REQUESTED: | Petrology |

H.W. Fander, M.Sc.

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

# REPORT CMS 81/12/35

## Petrology of Core Samples from G 79 and G 81

Sixteen samples were received, from two drill holes G 79 and G 81; thin-sections were prepared and are described in the accompanying tables. The term "mineralised" is used only where cassiterite was recognised.

### Summary


#### G 79

These intersections consist of laminated siltstones and a soft-pebble conglomerate, with two siderite bodies, presumably conformable with the adjacent sediments. The sediments are well indurated and perhaps incipiently metamorphosed; two are distinctly carbonaceous, indicating a reducing environment of deposition.

The siderite veins carry sulphides (pyrite, sphalerite, galena); in addition, 250508 contains thin ptygmatic veinlets of hydrothermal clay (?illite) and carbonaceous matter, with small embedded cassiterite crystals; the paragenesis here would appear to be different to that of the other Queen Hill occurrences, where cassiterite is a very early-formed minerals, whereas the veinlets in 250508 seem to be younger than the siderite.

#### G 81

Though detailed descriptions were requested, it was felt that the "lode" material, whilst complex in terms of textures, is compositionally straightforward; probably too, an endless variety of textures and intergrowths could be seen and described without being of much practical benefit. Thus, brief descriptions are given, with additional comments (see below) on metallurgical aspects.

Some sediments are recognisable in this sequence, despite considerable modification by metasomatism, but many of the intersections consist of hydrothermal, vein-type minerals, probably added to the system rather than forming the replacement of pre-existing material.

Tourmaline is very widespread, especially in the metasomatised sediments above and below the lode; it is not easily recognised, because of its generally exceedingly fine-grained habit.

The vein-type rocks are generally of simple composition, usually consisting of two major phases and a few accessory minerals, comprising the same assemblage. 250518 is the exception, consisting dominantly of a hydrothermal mica (?hydromuscovite); this rock also contains the best (not the most) cassiterite.

Cassiterite is erratically distributed, and individual sections would be difficult to relate to assays. It is very poorly defined (except in 250518), with highly irregular, interlocking boundaries, and is almost opaque, generally of a creamy to buff colour which is difficult to distinguish from siderite and leucoxene in these particular rocks. The opacity suggests that individual cassiterite patches represent aggregates of much smaller grains. Occasional radiating groups of cassiterite needles ("needle tin") occur. The cassiterite is intergrown with all the other minerals, especially with pyrrhotite; it is not particularly fine-grained, but liberation may be a problem because of its complex textural relationships

Cassiterite in 250518 occurs as well-formed individual crystals from 5 μ to 300 μ, mostly > 50 μ, in a soft illite matrix and thus easily liberated. In the others, cassiterite grains range from 10 μ to 600 μ, with most in the 50-200 μ range.

Sulphides are pyrrhotite and pyrite with sporadic chalcopyrite, sphalerite and possible stannite.

H.W. Fander, M. Sc.

Central Mineralogical Service

| Sample No. | Rock Type - Composition | Fabric | Minor Minerals | Comments |
|---|---|---|---|---|
| G 79 250 505 (T.S. 40323) 88.9m | Siderite Rock (Vein). Small interlocking siderite crystals, with scattered small sphalerite and galena grains, carbonaceous veinlets. | Even-textured; subtle brecciation accentuated by carbon veinlets. | Thin quartz veinlets with carbon selvedges. ?Other sulphides. | The assemblage suggests a vein. Possibilibyt of fine wolframite. $WO_3$ assay recommended. |
| 250 506 92.4m | Sheared Soft-Pebble Conglomerate. Pebbles, grit- and sand-size deformed grains of siltstone, shale, carbonate rock; chlorite-siderite matrix/cement. | Softer sediments were deformed before lithification. Later shearing. | Quartz-siderite veins, sphalerite-galena veinlets. Orthoquartzite grains. | Rock represents reworked lithified and semi-consolidated sediments. Mineralisation correlates with 250505. |
| 250 507 101.0 m | Indurated, Laminated Siltstone. Thin, parallel laminae of sericite (recrystallized clay); thicker beds of angular quartz grains, clay matrix/cement. | Good lamination/bedding. Minor faulting. Two types of veining. | Fine pyrite throughout and in pre-consolidation veins. Siderite grains and veins. | Conventional indurated siltstone subsequent history complex, but subtle. Siderite veins correlate with 250505. |
| 250 508 108.3m | Mineralised Siderite Rock. Interlocking siderite crystals, irregular quartz grains and veins, carbonaceous illite veinlets, scattered pyrite, sphalerite, galena. | Fairly uniform, structureless, vein-type fabric; medium-grained. | 10-50 μ dark cloudy cassiterite grains embedded in illite veinlets. | The cassiterite seems to be closely associated with the illite veinlets which appear to fill late fractures. |
| 250 509 113.0m | Indurated CArboneaceous Siltstone. Silt-sized quartz grains, mica flakes, interstitial recrystallized clays. Thin clay/carbon laminae; fine siderite grains. | Incipient slaty cleavage developed. Minor tight folding. | Patches, veins of siderite with sphalerite, trace galena. Fine pyrite throughout. | Quite similar to 250507, though carbonaceous matter causes dark colour. Incipiently metamorphose |
| 250 510 154.7m | Laminated Carbonaceous Siltstone. Argillaceous carbonaceous laminae alternating with silty bands of quartz, micas, carbon wisps, sericite matrix/cement. | Well-laminated; incipient slaty cleavage in finer layers at 40° to bedding. | Concordant and cross-cutting siderite veins. Pyrite (?syngenetic). | Little significant difference from 250509, though perhaps more pronounced slaty cleavage and metamorphism. |
| G 81 250 511 441.2m | Metasomatised Sediment. Angular clastic quartz grains embedded in a matted mass of fine tourmaline, chlorite, siderite and introduced quartz. | Relict clastic textures and bedding recognisable; extensive replacement. | Irregular small sellaite patches. Widespread cloudy leucoxene. Pyrrhotite patches. | Sporadic small (< 20 μ) cassiterite grains may be presen but cannot be confidently distinguished from leucoxene. |
| 250 512 445.7m | Mineralised, Metasomatised Sediment. Abundant replacive sulphides (pyrrhotite ± chalcopyrite) matted-fibrous tourmaline, quartz; cloudy cassiterite, conspicuous but poorly developed. | Relict bedded, structure, fine-grained. Well-orientated replacive minerals. | Sporadic patches of sellaite and siderite. | Cassiterite has very irregular boundaries, poor crystal outline mostly 50-100 μ, embedded in all otherminerals, especially pyrrhotite; contains tourmaline fibres. |

| le<br>lo. | Rock Type - Composition | Fabric | Minor Minerals | Comments |
|---|---|---|---|---|
| :50 513<br>447.2m | Metasomatised Impure Chert. Microcrystalline quartz, with fine, diffuse laminae of ultra-fine tourmaline, and large poikiloblastic pyrite aggregates. | Intricately folded and deformed. Originally very finely laminated; no clastic textures. | Ultrafine leucoxene. Quartz-tourmaline-sellaite veins, siderite veinlets. | Probably an argillaceous chert, subtly tourmalinised. No cassiterite identified; if present must be ultrafine. |
| :50 514<br>449.6m | Quartz-Sulphide Vein. Massive pyrrhotite with embedded and intergrown vein-quartz, scattered fine topaz, and tourmaline needles, matted patches. | More or less random, medium-grained, typical vein fabric. | Isolated cloudy <50μ ?cassiterite grains. Sellaite and siderite patches. | No indication of replacement; seems to be a vein, but poorly mineralised here - cassiterite probably very sporadic. |
| :50 515<br>450.6m | Mineralised Quartz-Sulphide Rock. Massive pyrrhotite, intergrown vein-quartz, matted fine tourmaline, sellaite. Cloudy semi-opaque cassiterite conspicuous, but very poorly defined. | Random, structureless. Cassiterite 10-600 μ, mostly 50-200 μ, very irregular. | A few siderite patches, traces of chalcopyrite. Leucoxene plates. | Cassiterite complexly intergrown with all other minerals; rare, well-defined crystals up to 600 μ. Cream/buff, cloudy. |
| :50 516<br>465.6m | Mineralised, Metasomatised Sediment. Fine cherty quartz, abundant pervasive siderite and sericite, tourmaline needles; quartz-sulphide veins with cassiterite. | Quartz textures suggest chert origin; relict fibrous textures - cp. Cleveland. | Sulphides are pyrrhotite, trace chalcopyrite. Fine leucoxene throughout. | Rock was probably impure chert. Cassiterite very cloudy, variable from clusters of ultrafine needles to crystals up to 300 μ, but cloudy, with poor outlines. |
| :50 517<br>459.2m | Tourmaline-Sulphide Rock. Small radiating needles of very pale tourmaline; masses of pyrrhotite/pyrite, arsenopyrite crystals; siderite patches, rims on sulphides. | Vein-type fabric with radiating and crustiform textures. | Sellaite patches. Chalcopyrite grains. | Unusually pale tourmaline. No cassiterite recognised; stannite could be present, but not confirmed. |
| :50 518<br>463.5m | Mineralised Sericite Rock. Dominantly matted fine sericite (hydromuscovite); siderite veins sulphide patches. Good cassiterite crystals 5 μ - 300 μ, mostly > 50 μ. | Very fine-grained, uniform, structureless. No relict features. | Sellaite-quartz-sulphide veins. Sulphides are pyrrhotite, pyrite. | Cassiterite crystals are clear, well-defined, mostly embedded in sericite, erratically distributed, pre-dating siderite veins. |
| :50 519<br>465.6m | Mineralised, Sheared Chert Breccia. Chert and quartz grains, impure chert lenses, selectively tourmalinised along shears. Sporadic cloudy cassiterite, siderite. | Soft-sediment deformation with superimposed shearing, fracturing. | Irregular pyrite patches and fragmented veins, with siderite, quartz, cassiterite. | Rock broadly resembles 250513. Evidently mineralised mainly by veins, then sheared and tourmalinised. Poor cassiterite, up to 200 μ. |
| :50 520<br>T.S.<br>0338) | Tourmalinised Siltstone. Thin quartzose bands alternating with tourmalinised laminations; lenses of coarser clastic quartz, micas. Siderite-sulphide bodies. | Finely laminated, folded, crenulated. Later concordant shearing. | Fragmented pyrite-siderite veins with traces of sphalerite. | Broadly similar to 250516; thoroughly tourmalinised on a fine scale. No cassiterite detected. |

# APPENDIX III

## TIME DOMAIN DOWN HOLE EM SURVEY RESULTS

**ABERFOYLE** MEMORANDUM

| | | | |
|---|---|---|---|
| Date | 14th April, 1982. | Ref | JS:JAB |
| To | S.M. Richardson | From | J. Silic |
| At | Zeehan | At | Hawthorn East |
| Copies to | EHS, JRS, CHY | Keep | QH 2000 |

Subject QUEEN HILL DOWN HOLE EM SURVEY

The down hole EM survey outlined three conductors in the three separate holes. The subsequent computer modelling of responses for sheet like conductors showed that the conductors on the EL are:

(a) all conductors are "pods";

(b) the G78 hole has gone through the center of mineralisation;

(c) G82 has "knicked" the edge of the mineralisation;

(d) G79 has missed the conductor by about 5-10 meters;

(e) the strike direction of the G79 conductor is more or less parallel to the line that joins the collar of G79 and the Golf Course pit. However there is insufficient data to conclusively state that the conductor extends from G79 towards the Golf Course pit, i.e. it is possible that the conductor is extending in the opposite direction;

(f) the strike of the G82 conductor has not been determined accurately and also there is insufficient data to suggest that the conductor extends away from G82 in the direction of G79.

The summary of the results from the three positive holes is as follows:

(1) DRILL HOLE G78

(a) The data as shown in Plates 1, 2 and 3, shows a "narrow" predominantly positive anomaly centered on 345 meters (down hole distance), which is co-incident with the intersected mineralisation.

(b) The "narrowness" of the anomaly implies that the conductor is a small "pod" i.e. for a plate type conductor the interpreted down-dip dimension is between 50-75 meters while the strike extent is indeterminate, however the strike extent could also be "small".

(c) In order to understand the significance of the preceding statement, it must be understood that the EM systems only see conductors (electrically continuous mineralisation) and not the total mineralisation which in a replacement style deposit may be confined to a single (small or large) conductor or it may be made up of a number of electrically disconnected "pods" which may be connected in a mineralogical sense. Should the total mineralisation include a number of electrically disconnected conductive "pods" then the response

../2

(c) Continued.....

from the nearest small conductor would mask the decaying fields from the "far pods". For example: the response of a 50 x 50 meter plate conductor drops off by ten times when the conductor is placed 70 meters away from the drill hole, implying that it would be very difficult to differentiate between single small conductor near the hole and conductively "poddy" large body of mineralisation which is also near the hole.

(d) Considering that Loop 2 and Loop 5 were at right angles to each other and that the response from the mineralisation does not change for both loops, one has to conclude that Montana mineralisation may be

(i) a blob

(ii) its strike direction is 45° from the present interpreted strike direction

(iii) the mineralisation is "L" shaped.

## (2) DRILL HOLE G82 - Plates 11-14

This predominantly negative anomaly centered on 125 meters (down hole distance) coincides with the intersected minor mineralisation. The nature and the size of the anomaly is similar to the G78 Montana mineralisation anomaly, the essential difference being that the G82 anomaly is predominantly negative while the Montana anomaly is totally positive. The conclusions drawn from a preliminary interpretation (which was confirmed by subsequent computer modelling), is that G82 hole has intersected the mineralisation near one of the conductor edges; i.e. the drill hole is about 2-5 meters inside the conductor. The evidence for this is in the change in the anomaly in the very early time channels, where the response is predominantly positive, to the late time channels responses where the anomaly is totally negative. Note: if the drill hole is near the center of the conductor all time channels are positive - as the drill hole approaches the edge of the conductor more and more of the late time channels become negative, while less and less of the early time channels remain positive and when the drill hole completely misses the conductor all of the time channels are negative.

The narrowness of the anomaly indicates that one of the edges of a plate like conductor is small (50-75 meters).

There is insufficient data to determine on which side of the hole the conductor is located, although the best guess at this stage is that the mineralisation runs towards Severn and not towards the Golf Course.

(3) DRILL HOLE G79 - Plates 4,5,6 and 7

A sharp totally negative anomaly is centered on 130 meters (down hole distance) is "roughly" coincident with the intersected barren carbonate horizon.

The totally negative nature of the response implies that the drill hole has completely missed the mineralisation while the sharpness of the negative anomaly indicates that the conductor is about 5-10 meters away from the drill hole.

The lack of response from the conductor for the Loop 6 survey, indicates that the conductor is striking at right angles to Loop 6, which gives its strike direction as being approximately parallel to the line that joins G79 to the Golf Course pit.

Once again the narrowness of the negative anomaly indicates that the conductor is a "pod".

Also, there is insufficient data to suggest that the conductor extends from the hole towards the Golf Course pit.

RECOMMENDATIONS

It is recommended that more downhole data be obtained so that we can determine with certainty the directions in which the conductors are extending away from holes G79 and G82.

The budget to do this work will be presented as soon as the availability of the contractors to do the job is resolved. I have made arrangements to check with the contractors over the Easter break.

J. SILIC

# APPENDIX IV

ROCK CHIP ASSAY RESULTS FOR MAGNETITE SKARN OUTCROPS DONNELLYS PROSPECT.

Appalachian Exploration — GEOCHEMICAL SAMPLE LEDGER

PROJECT: DONNELLY'S

BSS SIEVE SIZE CODE - MESH NUMBER: A 200, B 150, C 100, D 80, E 80, F 40, G 30, H 20, T = TOTAL

SAMPLE TYPE CODE: ☐ OXIDIZED PRODUCTS O; ☑ FRESH ROCK R; ☐ STREAM SEDIMENTS S; ☐ WEATHERED BEDROCK W; ☐ SURFACE TRANSPORTED T; ☐ RESIDUAL SOIL E; ☐ MINE DUMP M

CARD PUNCH PRINT: YES ☐ NO ☐ VERIFY: YES ☐ NO ☐

DATE: 31-3-82

SHEET: 1

| EASTINGS | NORTHINGS | SAMPLE NUMBER | DEPTH in CMS | SIZE FRACTION | Sample Type | METAL VALUES PPM Sn | METAL VALUES PPM Wo3 | GEOLOGICAL LOG |
|---|---|---|---|---|---|---|---|---|
| | 4700N 3050E | 264295 | | | | 100 | X | MAGNETITE SKARN |
| | | 264296 | | | | 280 | 40 | |
| | | 264297 | | | | 340 | 25 | |
| | | 264298 | | | | 4150 | 50 | |
| | | 264299 | | | | 490 | 15 | |
| | | 264300 | | | | 13500 | 90 | |

N

264298
264297
264300
264299
264296
264295

MAGNETITE OUTCROP

OPERATOR COMPUTER CHECK PLOTTER DATE