009

LAKE MACKINTOSH, EXPLORATION LICENCE 106/87

TASMANIA

REPORT ON EXPLORATION OF

AREAS TO BE RELINQUISHED

FEBRUARY 1990

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January 1990

Distribution

Aberfoyle - Hawthorn (1)
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Department of Mines (1)

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4. Geological Abbreviations.

FIGURE

1. Mackintosh EL 106/87 - Areas to be relinquished.

PLATES

Plate	Scale	Title
MAC 114		Surface geological mapping legend
MAC 193A	1:10,000	Outcrop Geology
MAC 193G	1:10,000	Outcrop Geology

1. SUMMARY

Six areas totalling approximately 40.2 square kilometres (see Appendix 1 and Figure 1 for locations). have been selected for relinquishment from EL 106/87, Lake Mackintosh, as required under the terms of the Hellyer Mine Agreement Ratification Act 1987.

The major targets for exploration on EL 106/87 are Cambrian volcanogenic massive sulphide deposits of the Que River and Hellyer type. The areas for relinquishment were selected on the basis that:

i) Exploration for Cambrian VMS through both Tertiary basalt and underlying mid-upper palaeozoic Sedimentary cover is currently considered to be impractical (areas 5 and 6).

ii) Cambrian volcanics are concealed by a considerable thickness of mid-upper palaeozoic cover (>1km thick?) and may be of a less prospective type, i.e. Tyndall Group, based on a regional interpretation (areas 1 to 4).

No exploration work requiring rehabilitation has been completed.

004

537005

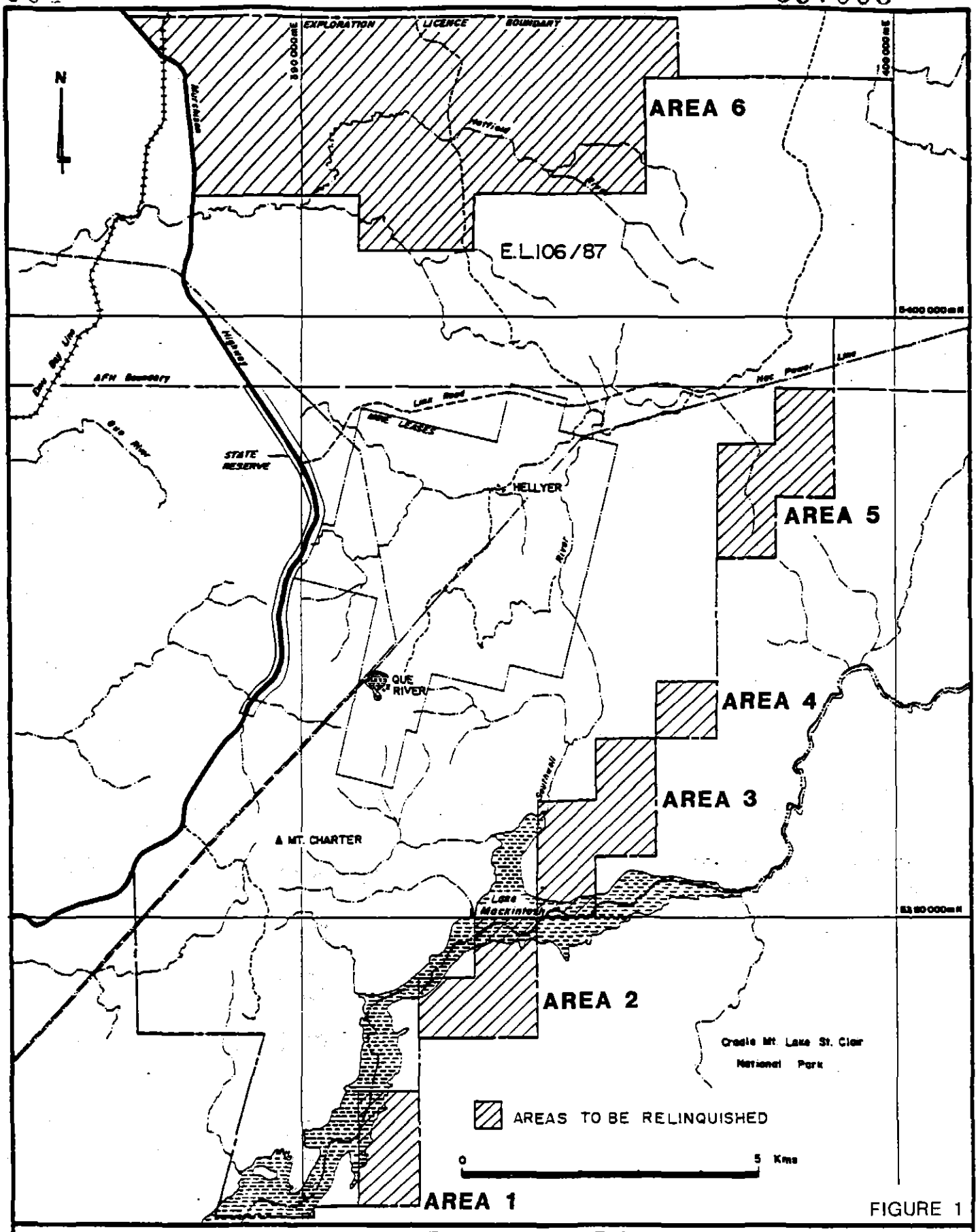

FIGURE 1

Aberfoyle Resources Limited

EXPLORATION DIVISION

5 cm

NORTH WEST TASMANIA

MACKINTOSH E.L.106/87

AREAS TO BE RELINQUISHED

Compiled :	A McN
Drawn :	
Traced :	RJE
Checked :	
Location Code : K55/6/44	
Scale :	As shown
Date :	December, 1989
Plate No. :	MAC 274

2. INTRODUCTION

The Lake Macintosh licence (EL 106/87) was granted to Aberfoyle Resources Ltd. on February 5th, 1988 as provided by the Hellyer Mine Agreement Ratification Act 1987. The licence comprises 135 square km previously covered by EL's 2/70 (Mackintosh) and 15/73 (Hatfield) and encloses the 20.32 square km. of CML's 68m/84 and 103m/87 (around the Que River and Hellyer Mines and facilities).

This report summarises exploration completed on areas selected for relinquishment in the first phase of EL reduction, to a maximum of 95 square kilometres, due on February 5th 1990.

3.1 Areas 1 to 4

Tenure

These areas (see Figure 1 and Appendix 1 for locations) were covered by EL 2/70, granted on 1 January, 1970 with initial exploration under the terms of the Aberfoyle-Paringa Joint Venture. As a result of the 1972 airborne EM survey (Slade and Webster, 1972), much of this area was relinquished but following the discovery of the Que River deposit, was re-applied for and granted as EL 5/74 on 29 March, 1974. At licence renewal on 30 December, 1977 EL's 2/70 and 5/74 were consolidated to form EL 2/70. On 5 February, 1988 EL 2/70 and EL 15/73 were reissued as EL 106/87.

Geology

No geological mapping has been completed by Aberfoyle in the areas to be relinquished, however, Mapping by Barton et al (1966) and Komyshan (1986) indicate these areas are dominantly underlain by sandstones and mudstones of the Siluro-Devonian Eldon Group and limestones of the Ordovician Gordon Group forming a north to northeast trending syncline, possibly disrupted by faulting in the Mackintosh River. Cambrian volcanics to the east and south are dominated by intrusive quartz-feldspar-biotite porphyries (the Bond Range Porphyry of Vicary and Pemberton [1988]).

No known prospects or workings occur in the areas to be relinquished (Green and Bamford, 1986).

Geochemistry

Several stream sediment samples from the 1970-71 regional programme test the drainage from Area 3. No anomalous Cu, Pb or Zn values were detected (Varney, 1971).

Geophysics

These areas were covered by both the 1972 (Slade and Webster, 1972) and 1975 (Webster, 1975) airborne EM Surveys. No high priority targets were located and no follow-up work was completed.

3.2 Areas 5 and 6

Tenure

Area 5 (see Figure 1 for location) was covered by EL 2/70, granted to Aberfoyle Ltd. on 1 January, 1990, while area 6 formed part of EL 15/73, granted to Cominco exploration on 5 May, 1973. These two licences were consolidated, to form EL 106/87 on 5 February, 1988.

Geology

No mapping has been completed by Aberfoyle in area 5 however, Komyshan (1986) interprets the area to be underlain by Tertiary basalt and sediments, and Owen Conglomerate.

Two phases of 1:10,000 scale reconnaissance mapping have been completed over area 6. Results of this mapping are shown on plates MAC 193A and G (see plate MAC 114 for legend).

An initial phase of mapping (McNeill, 1989) failed to locate the window of Owen Conglomerate at CQ907029 (AMG) shown on Barton et al (1966) but located an outcrop of north dipping grey-pink sandstone, at the southern end of Painter Road (18200N, 5000E), containing fossils of Silurian age that indicate a probable correlation with the Crotty quartzite.

Mapping during the 1988-89 field season located a further five windows of palaeozoic sediments. In the Moory Mountain area (16400N, 1700E) outcrop is dominated by white, red or purple medium to coarse grained, well bedded and bioturbated quartz-mica sandstone with rare lenses of conglomerate with chert clasts. Bedding is typically moderately to steeply north to west dipping. Tertiary silcretes crop out in the valley east of Moory Mountain while in a railway cutting to the south, the moderately west dipping contact between conglomerate and Tertiary basalt is exposed. These sediments are interpreted to be correlates of the upper-upper Owen Conglomerate (using the terminology of Corbett [pers. comm. 1988]).

In the Clipper Road - Hellyer River area a small outcrop of moderately northwest dipping orange to brown fine grained quartz-minor mica sandstone is tentatively correlated with the Eldon Group.

To the west of Painter Road, around 20000N, 2000E tertiary silcrete flanks a large area of quartz sandstone and massive quartz pebble breccia. Brachiopod fossils in a medium grained sandstone from the north of this area indicate a probable Silurian age (Appendix 3). No structural data was obtained from this area.

White to orange, fine to medium grained, mica-quartz sandstone with coarse sandstone interbeds and weak cross bedding crops out south of the Painter Road and is similar to the Crotty quartzite correlate described by McNeill (1989).

No prospects or old workings are known in these areas (Green and Bamford, 1986).

Diamond Drilling

DDH SDP-6 was collared in the area to be relinquished (see plate MAC 193A for location) as part of the Tasmanian Department of Mines sub-basalt drilling programme. Core was made available to Aberfoyle and a brief log and description of petrological samples are included as Appendix 2. while a detailed report on this hole has been prepared by Baillie and Green (1988). A summary log is as follows:

0 - 226m	Tertiary basalt and sediments.
226 - 316m	Bell Shale Correlate (Devonian) in inter-bedded quartz sandstone and shale/siltstone.

3.3 Summary and Recommendations

Areas 1 to 4

These areas are underlain by Ordovician Owen Conglomerate and Siluro-Devonian Eldon Group Correlates. Based on exposed sections in this region the top of the Mount Read Volcanics should be at approximately 800-1000m below surface. The underlying volcanics exposed to the south and east are predominantly correlates of the Tyndall Group, regionally less prospective than the Que-Hellyer volcanics or Central Volcanic Complex, which in this area comprise dominantly instrusive quartz-feldspar-biotite porphyry.

Areas 5 and 6

The geology of these areas is dominated by Tertiary basalt with windows of palaeozoic sediment. Possibly prospective volcanics are interpreted to occur at depths of 800 to 1900m based on a regional interpretation and the stratigraphic thickness of units exposed to the south.

These areas are interpreted to have low VMS potential, at currently explorable depths, and are therefore recommended for relinquishment.

4. REFERENCES

Baillie, P. W., and Green, G. R., 1988. Completion Report Sub-basalt Drilling Project Hole 6. Unpub. Rep. Dept. Mines, Tasmania 1988/06.

Barton, C. M., et al 1966. Geological Atlas 1 Mile Series. Zone 7 Sheet 44 (8014N) Mackintosh. Dept. of Mines, Tasmania.

Green, G. R. and Bamford, A. L., 1986. Tullah-Mount Read Volcanics Project, Mineral Deposit Map. Dept. Mines, Tasmania.

Komyshan, P., 1986. Geology of the Mount Charter - Hellyer area. Map 1- Mount Read Volcanics Project. Department of Mines, Tasmania.

McNeill, A. W., 1989. Lake Mackintosh, Exploration Licence 106/87, Tasmania. Technical Progress Report for the period February 1988 to February 1989. Report to Tasmania Department of Mines by Aberfoyle Resources Ltd.

Slade, J. and Webster S. S. , 1972. Report on Combined helicopter magnetic and EM Survey in the Mackintosh River area (EL 2/70) Tasmania, for Paringa Mining and exploration Ltd.

Varney, R. J., 1971. EL 2/70, Report on the Mackintosh area 1970-71. Report to Tasmania Department of Mines by Aberfoyle Management Pty. Ltd.

Vicary, M. J. and Pemberton, J., 1988. Geology of the Back Peak-Cradle Mountain Link Road area. Map 7 - Mount Read Volcanics Project. Dept. of Mines, Tasmania.

Webster, S. S., 1975. Airborne geophysical Survey of an area within EL 2/70, Mackintosh, EL 15/73 Hatfield and EL 5/74, Mayday. Unpub. report to Cominco Exploration Pty. Ltd.

APPENDIX 1

EL 106/87 Lake Mackintosh

Areas proposed for Relinquishment

Area 1. Lunch Creek an area of approximately 1.8 square km as described hereunder.

Schedule 1A

Commencing from its northeast corner at 5387000N, 392000E thence grid south to 5385190N, grid west to 391000E, grid north to 5387000N and then grid east to the point of commencement.

Area 2. Backwater an area of approximately 3 square km as described hereunder.

Schedule 1B

Commencing from its northeast corner at 5390000N, 394000E thence grid south to 5388000N, grid west to 392000E, grid north to 5389000N then grid east to 393000E, grid north to 5390000N and grid east to the point of commencement.

Area 3. Southwell east an area of 4 square km as described hereunder.

Schedule 1C

Commencing at its northeastern corner at 5393000N, 396000E thence grid south to 5391000N then grid west to 395000E, grid south to 5390000N, grid west to 394000E grid north to 5392000N, grid east to 395000E, grid north to 5393000N and grid east to the point of commencement.

Area 4. Cripps south an area of 1 square km as described hereunder.

Schedule 1D

Commencing at its northeastern corner at 5394000N, 397000E thence grid south to 5393000N, grid west to 396000E, grid north to 5394000N and grid east to the point of commencement.

Area 5. Mount Cripps an area of 4 square km as described hereunder.

Schedule 1E

Commencing at its northeastern corner at 5399000N, 399000E thence grid south to 5397000N, grid west to 398000E, grid south to 5396000N, grid west to 397000E, grid north to 5398000N grid east to 398000N, grid north to 5399000N thence grid east to the point of commencement.

Area 6. Moory being an area of approximately 26.4 square km as described hereunder.

Schedule 1F

Commencing at the northeast corner of the area whose co-ordinates are 5405000N, 396370E thence grid south to 5404000N, grid west to 396000E, grid south to 5402000N, grid west to 393000E, grid south to 5401000N, grid west to 391000E, grid north to 5402000N, grid west to the intersection of 5402000N and the Murchison Highway then by that highway in a generally northern direction to its intersection with 5405000N and thence grid east to the point of commencement.

APPENDIX 2

ABERFOYLE EXPLORATION

PROJECT : Dept. of Mines

PROSPECT: Tertiary Basalt drilling programme

DIAMOND DRILL LOG

537016

HOLE NO: BDP-6

PAGE: one of 3

LOGGED: Ayant

DATE: May '87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
200				Tertiary Basalt - not logged. Hole cored from surface. No P.V.C. casing.								
202												
204												
206												
208												
209.4												
210			Tertiary Basalt.	Massive and hyaloclastite breccia fed Tertiary Basalt lava. Black to dull purple. Massive sections are feldspar-phyric. No response to hand magnet.								
212												
214												
216												
218												
220												
220.6				Intense hyaloclastite breccia								
222												
223.7					M contact: • Inclusions of Quartzite in Basalt • Seam (<1cm) of Lignite • 5cm of Pub right on contact							
224												
226												
226.5			Quartzite	Massive light-grey/white quartzite or fine quartz sandstone. Friable, jointed. Patchily with Shattered, with fuggy zones 231 - 234.					226.5 Patchy ox 3		Tertiary weathering surface.	
228												
230												
232												
234												
236					Pub zone (fault) at contact				236.0 Fresh ox 2			
238.0				Strongly weathered black quartz or mafic								
240												

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

537017

PROJECT : Dept. of Mines

PROSPECT: Yeatmans Bores drilling programme

HOLE NO: BDP-2

PAGE: 2 of 3

LOGGED: A.M.H

DATE: May '87

DEPTH	DRILL RUNS	CORE LOSS	LITHOLOGY: ROCK NAME	LITHOLOGY: DESCRIPTION	ALTERATION	VEINING	MINERALISATION	STRUCTURE	WEATHERING	VISUAL LOG	REMARKS	DEPTH
242												
244												
246												
248												
250												
252												
254												
256												
258												
260												
262												
264												
266				266.7					266.7			
268				MASSIVE TO POORLY LAMINATED BLACK SILTSTONE/FINE SANDSTONE.					FINISH OF 3			
270				LAMINATION (=BEDDING) AT 45° C.A.								
272				FOSSILIFEROUS - BRACHIOPODS?								
274												
276									276.0			
278												
280												
282												

FOSSILS INDICATE A SILURIAN AGE AND THAT THESE ROCKS ARE ELDON GROUP (BELL SHALE/FLORENCE SS)

- GEOFF GREEN 17/6/87

017

PROJECT: Dept. of Mines

PROSPECT: Tertiary Basin Drilling Programme

ABERFOYLE EXPLORATION

DIAMOND DRILL LOG

537018

HOLE NO: BPP-6

PAGE: 3 of 3

LOGGED: RMH

DATE: May '87

Depth	Rock Name	Description	Alteration	Veining	Mineralisation	Structure	Remarks
301.0		Quartz Dirty light grey sandstone with very mudstone bands and trace — fragments of black mudstone.					
305.0		Massive light grey Qtz sandstone					
307.0		As for 301.0 – 305.0					
309.5		Mixture (chaotic) of black siltstone + grey quartz sandstone					
314.2		Solid light grey quartz sandstone			Trace Py. on joint		
316.0		EOH					

SAMPLE NO	:	379443
LOCATION	:	BDP-6/210.9
REPRESENTATIVE OF	:	
REMARKS	:	Tertiary Basalt

SAMPLE NO	:	379444
LOCATION	:	BDP-6/230.9
REPRESENTATIVE OF	:	226.5 - 238.0
REMARKS	:	(Florence?) Quartzite

SAMPLE NO	:	379445
LOCATION	:	BDP-6/279.2
REPRESENTATIVE OF	:	226.5 - 301.0
REMARKS	:	Black siltstone (marl) Fossiliferous

SAMPLE NO	:	379446
LOCATION	:	BDP-6/302.6
REPRESENTATIVE OF	:	301.0 - 305.0
REMARKS	:	Sandstone with shale fragments/lenses

SAMPLE NO	:	379447
LOCATION	:	BDP-6/315.5
REPRESENTATIVE OF	:	314.2 - 316.0
REMARKS	:	Sandstone

GIS

537020

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659
FAX. 08-363 1820

10 SEP REC'D

Mr. A.M. Hespe
Project Geologist
Aberfoyle Resources Ltd.
Exploration Division
P.O. Box 952
BURNIE / TAS. 7320

7th September, 1987

REPORT CMS 87/8/3

YOUR REFERENCE:	Letter dated 29.7.1987
DATE RECEIVED:	3rd August, 1987
SAMPLE NOS.:	379443 - 379447
SUBMITTED BY:	A.M.Hespe
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Copy to:
Mr. H. Skey
Exploration Manager
Aberfoyle Resources Ltd.
Exploration Division
123, Camberwell Road
HAWTHORN EAST / VIC. 3123

REPORT CMS 87/8/3

Five drill core samples from BDP-6 to the north of Hellyer were received for petrological examination. Representative thin-sections were prepared and examined together with respective offcuts. Attached tabulated descriptions summarise the microscopic data.

Summary

Sample 379443 represents an incipiently altered olivine basalt with Tertiary characteristics and clear affinities to the two recently described examples.

Samples 379444-379447 inclusive represent a sequence of carbonaceous quartzose to quartzofeldspathic psammopelitic sediments. These rocks are typically carbonaceous and are weakly syngenetic-pyritic.

Individual sediments exhibit rather subtle alteration effects. Sample 379444, primarily relatively feldspathic, exhibits sericitic alteration of feldspar, bleaching of carbonaceous matter, and subtle induration effects, possibly reflecting the overlying basic extrusives. Similar, but distinctly less marked effects are evident in 379445.

Sample 379446 and 379447, representing weakly feldspathic protoquartzites, reflect incipient (379446) to minor (379447) development of sideritic carbonate. In 379447, there are traces of sericitic-degraded adularia and disseminations of poikilitic red-brown sphalerite. This assemblage is of intergranular distribution with respect to the clastic framework, and is of marginal hydrothermal character. Analyses for Au and Ag would be warranted.

D. Cowan, B. Sc.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
379443 (T.S. 58515)	Olivine Basalt. Weakly montmorillonitised ("bowlingitised") olivine phenocrysts in a groundmass of titanaugite and labradorite laths with an Fe-oxide-pigmented subvitric mesostasis. Minor quartz (lussatite) amygdales.	Olivine-porphyritic/ trend glomeroporphyritic, basaltic to incipiently subophitic.	Very fine magnetite, minor montmorillonitic micro-amygdales. Rare ultrafine pyrite.	Incipiently montmorillonite-altered olivine basalt with an incipiently devitrified glassy mesostasis. Amygdale quartz is fibrous cristobalite.
379444	Sericitic Siltstone. Subangular silt-sized quartz grains and sericitic indeterminate feldspar grains, relatively minor muscovite flakes with a sericitic matrix/cement, minor carbonaceous matter.	Well-sorted, silty clastic; slump-brecciated with semi-orientated millimetric-scale intraclasts.	Conspicuous clastic leucoxenic semi-opaques, minor detrital tourmaline, zircons.	Slump-brecciated arkosic siltstone ("siltstone breccia"). Exhibits sericitic alteration, bleaching of carbonaceous matter, incipient micro-scale hornfelsing effects.
379445	Carbonaceous Pelite. Silt- to fine sand-sized subangular quartz, minor sericitic indeterminate feldspar grains, muscovite flakes. Matrix of semi-sericitic white mica with pervasive ultrafine carbonaceous matter.	Argillaceous, slightly fine sandy siltstone with sub- to millimetric silty shale units. Variably slumped.	Clastic leucoxene, tourmaline, zircon, chlorite-degraded biotite flakes. Pervasive ultrafine pyrite. Minor carbonaceous microfossils.	Slumped, contorted to intraclastic carbonaceous siltstone/silty shale, weakly sericitic, feldspathic in comparison with 379444. Incipient fossiliferous (algal ?filaments).
379446	Sericitic Quartzite. Framework of fine sand-sized subangular quartz grains/minor composites with an overgrowth quartz/intergranular sericitic microcrystalline quartz cement. Sporadic sericitic shaly partings.	Well-sorted, subangular fine sandstone with slump-contorted shale partings. Incipiently stressed.	Clastic leucoxene, degraded feldspar, biotite flakes, carbonaceous pelite clasts, rare chromite. Rare rhombs of siderite.	Very incipiently siderite-sericite altered carbonaceous-sericitic proto-quartzite. Includes sparse chert vein type quartz clasts, zircons, tourmali grains.
379447 (T.S. 58519)	Altered Protoquartzite. Overgrown subangular to rounded quartz grains, relatively minor carbonaceous pelite, cherty argillite clasts, mica flakes, sericitised feldspar grains. Minor partly degraded siderite and adularia rhombs.	Well-sorted fine sandstone, incipiently banded and very incipiently stressed.	Leucoxene, rare zircons and tourmaline. Sparse poikilitic clots (to 700 μ) of red-brown sphalerite.	Affinities with 379446. Exhibits rather subtle siderite-adularia alteration with sparse poikilitic sphalerite; complexed by a mild sericitic overprint.

537022

537023

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
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FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.04787

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

Aberfolye Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

ORDER No.	PROJECT
1877	

DATE RECEIVED	RESULTS REQUIRED
29/09/87	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
1	06/10/87	1	5

REFER BELOW	STATE OF SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
		379443/47	RC Prep: 016							Cu,Pb,Zn,Ag/101,As/114		
		379443/47	RC							Au/309		

RESULTS TO

R. de Bomford
Aberfoyle Resources Exp. Division
P.O. Box 952
Burnie
Tasmania 7320

RESULTS TO

REMARKS

BDP-6
Petrology samples

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

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623

537024

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.04787	06/10/87	1877	1 OF 1

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Au			
1	379443	60	30	130	0.5	4	<0.008			
2	379444	30	45	150	1.5	1	<0.008			
3	379445	25	40	120	0.5	12	<0.008			
4	379446	15	75	400	<0.5	4	<0.008			
5	379447	15	30	1400	2.5	9	<0.008			
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	0.5	1	0.008			
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM			
25	METHOD	101	101	101	101	114	309			

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

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APPENDIX 3

025

537026

Palaeontology Report Sample 515242

Indurated medium-grained quartz sandstone with abundant fragmentary brachiopod moulds. None are sufficiently well preserved for exact determination but ?Eatonia, ?Cyrtia and ?Notoconchidium are possibly present. The presence of a strophic spiriterid (?Cyrtia) indicates an age no older than Silurian, and the abundance and variety suggests the Florence Formation (Early Devonian) rather than the Crotty Formation (Early Silurian) in a western Tasmanian context. A Florence Formation age is definitive if the Notochidium determination is correct.

M. J. Clarke
PALAEONTOLOGIST

APPENDIX 4

027

537028

Abundant	abn
Adularia	Adl
Agglomerate	agg
Albite	Ab
Alkali feldspar	Afd
Altered	alt
Amphibole	Amb
Amygdaloidal	amg
Andesite	A
Angular	ang
Aplite	Ap
Approximate	apx
Arcuate	ar
Arenaceous	arn
Argillaceous	arg
Argillite	Arg
Arkose	Ak
Arkosic	ak
Arsenopyrite	Ap
Ash volcaniclastic	av
Autobrecciated	aub
Average	ave
Banded	bnd
Barite	Ba
Basalt	B
Bedded	bd
Black	bk
Black shale	Bsh
Blue	bl
Boulder	bld
Breccia	b
Breccia volcaniclastic	bv
Bright	brt
Brown	br
Calcareous	cc
Calcite	Cc
Carbonaceous	g
Carbonate	Co
Cavernous	cav
Chalcopyrite	Cp
Chert	Ch
Chlorite	Cl
Chromite	Cr
Chromitiferous	cr
Clay	cy
Coarse	c
Coarse grained	cg
Colour	col
Common	com
Conglomerate	Cg
Conglomeratic	cg
Crystal	x
Crystal volcaniclastic	xv
Dacite	D
Dark	dk
Dense	dns
Devitrification	dv
Diorite	Di
Disseminated	dis
Dolerite	Dol
Dolomite	Dm
Dyke	dy
Elongated	el
Emphasised	emp
Epiclastic (adj.)	e
Epiclastic (noun)	E
Epidote	Ep
Euhedral	euh
Eutaxitic	eux
Fabric	fab
Fault	F
Fault zone	FZ
Feldspar	Fd
Feldspar phyric	fp
Felspathic	fel
Ferruginous	fer
Fibrous	fb
Fine	f
Fine grained	fg
Fissile	fis
Flowbanded	fbn
Fragments	fr
Fuchsite	Fu
Galena	Gn
Glass	Gl
Glassy	gl
Granular	glr
Graphite	Gt
Graphitic	gt
Green	gn
Grey	gy
Greywacke	Gw
Haematite	Hmt
Hornblende	Hb
Ignimbrite	Ig
Illite	Ill
Interbedded	ibd
Intercalated	icl
Intrusive	int
Jurassic	Ju
K-Feldspar	Kfd
Khaki	kh
Laminated	lm
Lapilli volcaniclastic	lv
Lava	l
Lava breccia	lb
Leached	lch
Limonitic	Lim
Light	lgt
Limestone	Lst
Lithic	lh
Magnetite	Mt
Massive	mas
Matrix	mtx
Matrix dominated	md
Medium	med
Medium grained	mg
Metamorphosed	meta
Mica	Mic
Micaceous	mic
Minor	mnr
Mixed	mxd
Mottled	mtl
Mudstone	Mst
Nodule	nd
Off white	ow
Olivine	Ol
Orange	or
Ordovician	O
Oxidised	ox
Patchy	pat
Peperitic	pep
Perlitic	prl
Pervasive	per
Phenocrysts	phn
Phyllite	phyl
Phyric	p
Picrite	Pic
Pillow lava	pl
Pink	pk
Polymict	Y
Porphyritic	por
Pumice	Pu
Pumiceous	pu
Purple	pp
Pyrite	Py
Pyritic	py
Pyroxene	Px
Quartz	Q
Quartzite	Qtz
Quellite	Qll
Questionable	?
Recrystallised	rx
Red	rd
Rehealed	rhd
Reworked	rw
Rhyodacite	RD
Rhyolite	R
Ripple marks	rmk
Round	rnd
Rubble	rbb
Sandstone	Ss
Schist	Sch
Schistose	sch
Sediment	sed
Selected fragments	sfr
Sericite	Se
Serpentine	Srp
Shale	Sh
Sheared	shd
Siderite	Sid
Silica	Si
Siliceous	sil
Siltstone	Slt
Slickenside	slk
Sphalerite	Sp
Spotted	spt
Spotty	spt
Stockwork	stw
Strong	str
Structure controlled	stc
Talc	Tc
Tertiary	T
Trace	tr
Trachyte	Tr
Tuff	Tf
Tuffaceous	tf
Variolitic	vr
Vein	vn
Vein concordant to bedd	cV
Vein discordant to bedd	dV
Very	v
Vesicular	ves
Vitric	vtr
Volcanic	vlc
Volcaniclastic	vlcl
Weak	wk
Weathered	wth
White	wh
Yellow	yw

FACT GEOLOGICAL MAPPING LEGEND MAC 79,110 PLAN SERIES

(NOTE : COMPLETE LIST OF ABBREVIATIONS IS STORED ON HP-1000 FILE ABBRV:HL:14)

LITHOLOGY COMPOSITION

R	Rhyolite
D	Dacite
A	Andesite
B	Basalt
Y	Polymict
Se	Sandstone
Sh	Shale
Slt	Siltstone
Ba	Barite
Py	Pyrite
BMS	Base Metal Sulphide
Ch	Chert
TB	Tertiary Basalt
JDo	Jurrassic Dolerite
OCg	Ordovician Conglomerate

LITHOLOGY TEXTURE / FORM

l	lava
lb	lava breccia
pl	pillow lava
av	ash volcaniclastic
flv	fine lapilli volcaniclastic
mlv	medium " "
clv	coarse " "
bv	breccia "
xv	crystal "
ves	vesicular
por	porphyritic
aux	autoxitic
fbn	flowbanded
gnlr	granular
lbd	interbedded
md	matrix dominant
gl	glassy
mas	massive
lm	laminated
fp	feldspar phyric
rnd	rounded
pep	peperitic

VOLCANICLASTIC SIZE RANGE

> 2mm	ash
2-8	fine lapilli
8-32	medium lapilli
32-64	coarse lapilli
> 64	breccia

ALTERATION COMPOSITION

Co	Carbonate
Cl	Chlorite
Kf	K-feldspar
Fu	Fuchsite
Py	Pyrite
Se	Sericite
Si	Silica

ALTERATION TEXTURE / FORM

per	pervasive
dis	disseminated
pat	patchy
spt	spotty
sfr	selected fragments
stw	stockwork
stc	structure controlled
vn	vein
mtx	matrix

ALTERATION INTENSITY WEATHERING INTENSITY

1	trace
2	weak
3	moderate
4	strong
5	extreme

COLOUR

br	brown
bk	black
gy	grey
gn	green
or	orange
pk	pink
wh	white
yw	yellow
bl	blue

FAULT TERMS

cav	cavernous
lch	leached
slk	slickenside
rhd	rehealed
rbb	rubble
shd	sheared

GENERAL TERMS

fr	trace
lgt	light
dk	dark
brt	bright
ox	oxidised
fg	fine grained
mg	medium grained
cg	coarse grained

ABBREVIATED DESCRIPTION FORMAT

LITHOLOGY :

LITHOLOGY | WEATHERING | ALTERATION

colour . composition . form . texture / intensity / composition . intensity . form . texture

example gy - gn . YA . flv / Ox 3 / Fu 3 . dis

Interpretive comment can be added in brackets ( )

FAULT :

WIDTH (cms) / MINERALOGY . TEXTURE

example F 20 / Cl . cav .

VEIN :

WIDTH (cms) / MINERALOGY . TEXTURE

example V 5 / Q . Py . cav

INTERPRETIVE GEOLOGICAL MAPPING LEGEND MAC89,111 PLAN SERIES

VOLCANICS

R.l, R.lb	25	Rhyolite lava, lava breccia
R.av, R.lv, R.bv, R.xv	25	Rhyolite volcaniclastic
YR.av, YR.lv, YR.bv	68	Rhyolitic Polymict volcaniclastic
D.l, D.l.b	63	Dacite lava, lava breccia
D.av, D.lv, D.bv, D.xv	54	Dacite volcaniclastic
YD.av, YD.lv, YD.bv	56	Dacitic Polymict volcaniclastic
A.fp.l, A.fp.lb	48	Andesite feldsparphyric lava, lava breccia
A.l, A.lb	41	Andesite lava, lava breccia
A.av, A.lv, A.bv, A.xv	44	Andesite volcaniclastic
YA.av, YA.lv, YA.bv	40	Andesitic Polymict volcaniclastic
B.l, B.lv	45	Basalt lava, lava breccia
B.pl	50	Basalt pillow lava
B.av, B.lv, B.bv, B.xv	49	Basalt volcaniclastic
YB.av, YB.lv, YB.bv	42	Basaltic Polymict volcaniclastic
Y.av, Y.lv, Y.bv	58	Polymict rock
av	52	Ash volcaniclastics (composition not determined)

SEDIMENTS

Se, Gw	71	Sandstone, micaceous Greywacke
Sh	68	Shale, black (carboneceous, pyritic)
Slt	69	Siltstone, tuffaceous Siltstone

SULPHIDES, SULPHATES

BMS	21	Base Metal Sulphide rock
MPy	29	Massive pyrite rock
GS P	23	Glassy silica, colloform pyrite rock
Ba	22	Barite

POST CAMBRIAN ROCKS

TB	8	Tertiary Basalt
JD	32	Jurassic Dolerite
OCg	20	Ordovician Siliciclastics

ALTERATION ROCK TYPES

HA	6	Highly altered rock
Qll	16	Quallite
Q-lv, Q-bv	17	Quallite fragmental

PARTIAL STRATIGRAPHIC COLUMN

TB	8	TERTIARY BASALT
JD	32	JURASSIC DOLERITE
OCG	20	ORDOVICIAN SILICICLASTICS
URS	66	UPPER RHYOLITIC SEQUENCE
QRS	68	QUE RIVER SHALE
MGW	71	MT. CHARTER MICACEOUS GREYWACKE
HBS	45	HELLYER BASALT SEQUENCE
HVS / SWS	56	HANGINGWALL VOLCANICLASTIC SEQUENCE / SWITCHBACK VOLCANICLASTIC SEQUENCE
HMS	21	HELLYER MINERALISED SEQUENCE
FPS	46	ANDESITE FELDSPAR PHYRIC SEQUENCE

ALTERATION SYMBOLS

Overprint on "HA" symbol

(Combinations can be used)

Carbonate, Chlorite, Fuchsite, Sericite, Illite, Feldspar, Pyrite, Silica

SYMBOLS MAC79,110 AND MAC89,111 SERIES

(SYMBOLS AS SHOWN IN ABEX "STANDARDS FOR GEOLOGICAL DRAWINGS", JAN. 1983)

LINE THICKNESS / LEROY LETTER SIZE (LENGTH AS SHOWN)

.35		Outcrop boundary
.35		Float
.35		Contact known
.35		Contact interpreted
.35	-?-	Contact inferred
.35		Facies change
.35		Unconformity
.25		Anticline, syncline with plunge and trend
.25		Minor fold with plunge and trend
.25/60	20 → 350	Bedding, strike, dip
.25/50	20 → 350	Foliation, strike, dip
.25/50	20 → 350	Joint, strike, dip
.5/50,100	F 70 → 200	Fault, definite, strike, dip, mineralogy
.5/100	F -?-	Fault, inferred
.35		Shear zone
.35/60	A.lv	DDH collar and trace, top 20m geology shown
.25		Grid line, stadia surveyed
.25		Grid line, tape and compass survey
.25		Grid line, nominal position
/60	P 355012	Petrology sample location
.35		Track, unsurveyed
.35		Road (unsealed) or track, surveyed
.7		*Major road*
.35		Costean
.25		Creek
.35		Mining Lease boundary
.5		Exploration Licence boundary
/60	• 13	Peg with number, tape and compass surveyed
/60	● HT17	Peg with number, stadia surveyed
.25		Alteration boundary

90-3073

537029

Aberfoyle Exploration Pty Ltd

REVISIONS			
Init.	Date	Init.	Date
GLC	12-85		
GLC	1-86		

Location Code: K55/6/44

NORTH WEST TASMANIA

MACKINTOSH E.L.2/70, HATFIELD E.L.15/73

SURFACE GEOLOGICAL MAPPING LEGEND

Scale: ———— Date: November, 1985

Compiled:	AMH
Drawn:	AMH
Traced:	GLC
Checked:	AMH
Plate No:	MAC 114

RMO 554


MINES DEPARTMENT
EXEMPT AREA
E.L.14/85 PAN.CON.
E.L. 106/87
20000mN
16000mN
8000mE
Moory
Hellyer
River
Road
Hatfield
Button
Leven
Middlesex
Tertiary Silcrete
BDP2
BDP10
5 cm
G
A
E
H
B
F
C
D
0650 N
6200 S
0600 W
9400 E
90-3073
537030
Aberfoyle Resources Limited
EXPLORATION DIVISION
REVISIONS
Init. Date Init. Date
NORTH WEST TASMANIA
MACKINTOSH E.L. 106/87
OUTCROP GEOLOGY
Compiled : AMcN
Drawn :
Traced : JLR
Checked :
Location Code :
Scale : 1:10,000
Date : June,88
Plate No : MAC 193A

039


MINES DEPARTMENT EXEMPT AREA
E.L. 106/87
Murchison Highway
Fossey River
Hellyer River
Shorts Road
Staffords Road
Moory Road
Trackham Road
Pearsefield Road
EMU BAY LINE
Moory Mt
Mt Pearse
20000mN
16000mN
18
10000m W
2000m W
5412000mN
5406000mN
383000mE
391000mE
5 cm
Aberfoyle Resources Limited
EXPLORATION DIVISION
537031
NORTH WEST TASMANIA
MACKINTOSH AREA
OUTCROP GEOLOGY
REVISIONS
Init. Date Init. Date
Location Code :
Scale : 1:10 000
Date : May, 1989
Compiled : SWR
Drawn :
Traced : JLR
Checked :
Plate No : MAC 193 G