MBD 29A.

DEPTH	INTERVAL	DEPTH from-to : ROCK UNIT (capital letters, underlined) Depth : Description and notes (indented about 10mm)	POINTER	GRAPHIC LOG	POINTER	MINERALISATION	ASSAYS AVAILABLE	BULKED ASSAYS

FOR ABBREVIATIONS SEE "FIELD GEOLOGIST'S MANUAL", D.A. BERKMAN & W.R. RYALL (ED), MONOGRAPH No.9 AUSTRALAS. INST. MIN. METALL. - 1976

028452

0-4.0 (4.0m)	TRICONE TO 4.0 m - NO CORE		
4.0-39.5 (35.5m)	4.0-39.5 DOLOMITE, recrystallised and faulted. Brecciated fabric - mottled creams, whites, yellows and greys in rock fragments contained in muggy yellow and brown matrix (later faulting). Intact rock frags and short runs of core to 3m have been more or less recrystallised - segregation of qtz, calcite, dolomite, with some rare thin films of talc/serpentinite along fracture planes. Some short intervals of DSL to 2.8m - talc/serpentinite matrix, weakly foliated at 22-24.8m, 39.2-39.5m, and as sparse fragments in crushed zones. 4.0-42.4 - fault zone - intervals of fault pug, with runs of broken core to 3m (mostly <1m), washed rock fragments		4-14.9 py, sp, trace fluorite, rare galena in fragments, relict py in fault pug. Blebs and grains concentrated along brecciation fractures and in cavities, 10%. 14.9-17.1 as above, core not so weathered and broken - 50%. 17.1-22 As for 4-14.9, 10%. 22-24.8 (DSL) py, sp, fluorite, granular blebs, veins, stringers, 10-15%. 24.8-35.0 sp, py, blebs etc, <1%. 35.0-39.5 py, sp, fluorite (?) cassiterite in interstices of brecciated dolomite, 15%
39.5-61.1 (21.6)	39.5-61.1 QUARTZ-FELSPAR PORPHYRY. Broken. Matrix creamy white, fine grained, some fine fracturing. b ow 42.4m. Phenocrysts - qtz - rounded grains to 6x5mm, 15%; felspar - creamy white with some greenish and brownish alteration to 1.5mm, 5-7%. 47.5-51.6 - inclusion of dolomite? - qtz, carbonates, serpentinite, talc in irregular patches, well fractured and veined by carbonate, qtz, fluorite etc.		Py, trace fluorite, weak trace cassiterite, arseno. sp. Py rounded distinct grains to 4mm, others as small discrete grains, some intergrown with py to 1.5m 10-15%. 47.5-51.6 py > fluorite, trace sp as granular aggregates and vein fillings, 20-25%. 57.2-61.1 Stockworks of dolomite, fluorite, py, sp veins in addition to porphyry mineralisation as above TOTAL 40-50%.
61.1-65.5 (4.4)	61.1-65.5 DOLOMITE SULPHIDE LODE. 65° Bronze coloured due to po, grey qtz-carbonate gangue.		Py, po, fluorite, trace arseno, ga, sp, cp. Fine grained and granular, 70%.
65.5-78.9 (13.4)	65.5-78.9 DOLOMITE, brecciated and recrystallised. 40° Creamy rounded fragments of dolomite with some talcose alteration, with grey qtz. and white and cream carbonates as infillings of brecciation fractures. 0.7m massive sulphides on contact.		Py, sp. Fluorite, weak trace arseno. Sulphides as blebs along brecciation fractures, granular aggregates. Fluorite as cavity filling. TOTAL 2-3%, variable 0-5%.
78.9-89.0 (10.1)	78.9-89.0 SILTSTONES AND BLACK SHALES, minor QUARTZITE. Brecciated and silicified - siltstones dark grey, locally massive or as rounded clasts in contorted black shale matrix. Some siltstones faintly greenish - sericitic?		py > po, dolomite, fluorite. po as blebs to 2cm, finely dissem; py dissem or in dolomite - fluorite - qtz veins and stringers. TOTAL 5-7%.
	END OF HOLE 89.0m.		

5 cm

AFTER TYPING THIS SIZED FORM WILL BE PHOTO-REDUCED TO A4 SIZE

FIELD COPY - COPY TO BE SENT TO MELBOURNE FOR TYPING

METALS EXPLORATION LTD.
EXPLORATION DEPARTMENT

SUMMARY DRILL LOG
Scale 1:1000, (1:500) 1:250 (when reduced to A4)

Prepared by: G. BROADBENT
Date: 12.3.80

HOLE No. MBD 29A
Sheet of

SAMPLE NO.	SAMPLE NO	FROM	TO	INTER-VAL	Sn	Sn	Cu	Pb	Zn	Ag	W	As	Check Sn	Bulked Assays
SPLIT CORE	GROUND CORE	m	m	m	SPLIT	GROUND								
97636		4.0	8.0	4.0	170									
38		8.0	10.0	2.0	1550									
39		10.0	12.0	"	540									
40		12.0	14.0	"	430								560	Pulp check Sn
41		14.0	16.0	"	1200									
42		16.0	18.0	"	1700									
43		18.0	20.0	"	1550									
44		20.0	22.0	"	920									
45		22.0	24.0	"	3950									
46		24.0	26.0	"	680									
47		26.0	28.0	"	740									
48		28.0	30.0	"	400									
49		30.0	32.0	"	220									
650		32.0	34.0	"	95									
51		34.0	36.0	"	420									
52		36.0	38.0	"	260									
53		38.0	39.5	1.5	3200									
54		39.5	41.5	2.0	1000		160	3860	840	3	<10	700		
55		41.5	43.5	"	3850		220	260	140	1	25	230		
56		43.5	45.5	"	2400		250	100	110	2	30	310		
57		45.5	47.5	"	3850		250	90	50	2	10	330		
58		47.5	49.5	"	1350		610	620	5100	6	30	350		
59		49.5	51.5	"	1300		820	300	3600	8	50	170		
6660		51.5	53.5	"	2600		270	110	160	1	35	230	2150	Pulp Check
61		53.5	55.5	"	1300		230	760	640	2	10	320		
62		55.5	57.5	"	1650		270	480	340	2	10	7500		
63		57.5	59.5	"	600		95	640	860	3	10	470		
64		59.5	61.1	2.6	1600		260	2500	6500	7	<10	320		
65		61.1	63.1	2.0	4.99%		930	350	100	1	210	1.41%		
66		63.1	65.1	2.0	2.68%		850	190	36	<1	200	2.10%		

Notes :— Sn by XRF Bi Method.

METALS EXPLORATION LTD - MT BISCHOFF TIN PROSPECT

ASSAY SUMMARY SHEET HOLE NO. MBD 29A

SAMPLE TYPE : DRILL CORE FROM 4.0 TO 65.1

0284 53

SAMPLE NO.	SAMPLE NO	FROM	TO	INTER-VAL	Sn	Sn	Cu	Pb	Zn	Ag	W	As	Check Sn	Bulked Assays
SPLIT CORE	GROUND CORE	m	m	m	SPLIT	GROUND								
97667		65.1	66.5	1.4	1.24%		840	180	480	1	160	1.02%		
68		66.5	68.5	2.0	390									
69		68.5	70.5	"	520									
670		70.5	72.5	"	940									
71		72.5	74.0	1.5	240									
72		74.0	74.5	0.5	600									
73		75.8	77.8	2.0	450									
74		77.8	78.8	1.0	8900		1700	4600	1.10%	32	280	2.16%		
75		78.8	80.8	2.0	1000									

Notes :— Sn by XRF Bi Method.

METALS EXPLORATION LTD - MT BISCHOFF TIN PROSPECT

ASSAY SUMMARY SHEET HOLE NO. MBD 29A

SAMPLE TYPE : DRILL CORE FROM 65.1 TO 80.8.

028455

REPORT No.

METALS EXPLORATION LTD.
& SUBSIDIARY COMPANIES

MINERAL EXPLORATION
DIAMOND DRILL LOG

MBD-39A

Prospect, area, project or mine. MOUNT BISCHOFF

HOLE No. MBD 39A

COLLAR LOCATION

Grid name | Rectangular space co-ordinates: PLANAR CO-ORDINATES | ELEVATION

(1) MBJV	1823·13 N	950·10 E	625·52
(2)	N	E	
(3) Aust. Map Grid (PRECISE / APPROX.)	mE	mN	m A.H.D.

1:250 000 Sheet No. BURNIE SK 55-3 | 1:100 000 Sheet No. HELLYER 8015 | State TASMANIA

Mineral Tenement EL 13/79 | Holder METALS EXPLORATION LTD.

Cadastral location and details (CROWN LAND / PRIVATE)

W.C. Bearing from collar
- magnetic
- — grid (1)
- grid (2)
- grid (3)
- true

Inclination at collar 90°

Total length 89·0 m

Commenced: 25 / 2 / 80
Completed: 1 / 3 / 80

Drilling contractor: LONGYEAR AUST PTY LTD

Rig type: LONGYEAR 33

Core size and non-coring (NC)

TRIGONE	0	TO 3·5 m
HQ	3·5	TO 39·0
NQ	39·0	TO 89·0 m
		TO
		TO
		TO

Details of down hole location-survey methods.
TROPARI every 40 m.

Purpose of drilling and anticipated lengths to targets.
Drilled as substitute hole for MBD 24, which was lost at depth 46 m. Purpose: to investigate nature of dolomite horizon 0-43 m, White Face porphyry dyke 43-59 m and further dolomite 59-81 m. Planned depth approximately 90 m.

Results of down hole location-survey.

LENGTH FROM COLLAR	W.C. BEARING type: Azimuth (mag. or -)	DIP
445 m	280	87°
865 m	295°	89°

Comments on drilling.

Legend for graphic log column (see drill log for Hole No. _____)
'DERWENT' PENCIL NO | FIELD ROCK NAME, ETC

Symbols and abbreviations for drilling notes column.

LOGGED BY G. BRADBENT | FROM 0 TO 890 m | DATE 9.3.80
LOGGED BY _____ | FROM _____ TO _____ | DATE _____
LOGGED BY _____ | FROM _____ TO _____ | DATE _____

Company managing exploration programme.
METALS EXPLORATION LTD

HOLE No. MBD 39A
Log sheet 1 of 3

028456

TRICONE TO 4.0 m – NO CORE.

Drill advance	Core length recovered	% Recovery estimate
1.1	0.9	82
1.5	0.6	40
2.0	0.9	45
1.0	0.4	40
0.6	0.6	100
0.6	0.4	67
1.2	0.3	25
0.6	0.4	67
1.1	0.9	82
0.5	0.4	80
1.2	1.2	100
0.5	0.5	100
0.5	0.5	100
0.5	0.5	100
0.8	0.8	100
0.7	0.5	71
1.5	0.8	53
1.5	0.7	47
1.5	0.7	47
0.9	0.9	100
0.4	0.4	100
0.8	0.8	100
1.2	0.8	67
0.3	0.3	100
1.3	0.3	23
0.6	0.6	100
0.4	0.4	100
1.6	0.4	25
0.6	0.5	83
0.6	0.6	100
1.5	1.5	100
0.8	0.8	100
0.9	0.9	100
1.0	1.0	100
0.8	0.8	100
1.3	1.3	100
0.3	0.3	100
1.5	1.5	100
0.4	0.4	100
0.8	0.8	100
0.7	0.6	86
1.0	1.0	100
0.7	0.7	100
1.9	1.9	100
4.0	3.1	78

Depth from-to : Rock unit / description	Graphic log	Structural and vein information	Mineralisation	Percent mineralisation	Notes
4.0-14.7 FAULTED Recrystallised DOLOMITE Puggy fault zone – ochreous yellow-whites, browns and black crushed rock with fragments grey dolomite, recrystallised dolomite and calcite and quartz. Minor fragments green serpentinite – some serpentinous alteration is visible in runs of relatively intact core.	3/F	4.0 Fault zone to 14.7 m. ↙ Contact Broken.	4.0-14.7 py, sp, trace fluorite, rare grains galena, as resistant fragments, concentrated mainly in recrystallised dolomite. Original percentage difficult to estimate – possibly 2-3%	10%	
14.9-17.1 DOLOMITE SULPHIDE LODE. Coarsely granular recrystallised dolomite, calcite and grey quartz with grossly brecciated structure. Abundant py, well fractured and sheared with small puggy zones.	8/4	Well fractured and sheared but not shattered. ↙ Contact Broken.	14.7-17.1 py, marcasite, 3-5% sp, intergrown with qtz, carbonates as blebs and patches to 2×5 cm	50%	
17.1-?22 FAULTED recrystallised DOLOMITE As for 4.0-14.7	3/F	17.1 Fault zone to 42.4 m, not as puggy as 4.0-14.7, extent of fracturing decreases with depth. ↙ Contact Broken.	17.1-?22. As for 4-14.9	7-10%	
?22-24.8 DOLOMITE SULPHIDE LODE, faulted. Green and grey talcy serpentinite, almost massive, weakly foliated with some recrystallised dolomite along fractures and as small core stones to 5-10 cm. Shattered and brecciated.	7/6/F	↙ Contact Broken	22-24.8 Py, trace sp, fluorite. Pitted py in rock fragments, as small blebs, veins, stringers.	10-15%	
24.8-25.4 (?)PORPHYRY Mottled creamy white f.gr. matrix, small brown phenocrysts to 1 mm, 2-3%	1?/F	↙ Contact Broken	24.8-25.4 non mineralised	—	
25.4-35.0 DOLOMITE, recrystallised. Mottled grey white weakly recrystallised dolomite with thin grey serpentinite films along fracture planes. Some short intervals (infillings of breccia zones) of banded creamy white recrystallised dolomite and other carbonates to 10 cm. Brecciated, with intervals of dolomite clasts in a soft friable matrix to 30 cm. (The original unaltered dolomite has fine, dark grey stained, non penetrative, brecciation fractures)	3/2/(F)	↙ Contact Graded	25.4-35.0 trace sp, py as blebs and grains along fracture planes. Sparse thin carbonate-qtz-fluorite veining	<1%	
35.0-39.5 RECRYSTALLISED DOLOMITE. Brecciated and recrystallised – white and grey coarsely crystalline dolomite with calcite and grey quartz. Recrystallisation has proceeded along fractures – colloform textured carbonates etc surrounding clasts of coarsely crystalline impure dolomite. 39.2-39.5 Hard bluish fluorite rich talc/serpentinite with dolomite-sp veins	3	↙ Contact Broken.	35-39.5 Fluorite, py, sp, rare grains cassiterite. Intergrown as blebs and grains with crystalline dolomite and in veining. Abundant dol-sp-py-fluorite veining on contact.	15%	
39.5-61.1 QUARTZ FELSPAR PORPHYRY. 39.5-41.6 Pale grey fine grained matrix. Phenocrysts: Qtz, rounded grains to 2 mm, 7%. Felspar: sparse, poorly defined creamy coloured grains to 1 mm, <10%.	1	←39.6, dolomite vein, 20 mm. 39.5-42.4 faulted and very broken.	39.5-41.6 py, fluorite, trace ascno and rare cassiterite. Py as f.gr aggregates 10%, fluorite small phenocrysts 5-7%	15%	
41.6-48.2 Matrix – creamy white, finely crystalline. Phenocrysts: qtz as subhedral-rounded grains to 6×5 mm, 15%. Felspar – creamy white with brownish or greenish alteration to 1.5 mm, 5-7%. Fine fractures occur in discrete zones to 5 cm, separated by 0.5 runs of unbroken core – well broken, pitted by weathering 47.5-48.2.		←47.8 30 mm band of hard blue talc/serpentinite/fluorite, 55°	41.6-48.2 py, strong trace fluorite, trace cassiterite, ascno, sp. Py occurs as distinct grains to 4 mm and finely dissem around fine fracture planes. Fluorite, cassit, sp, ascno as grains to 1.5 mm. 47.5-48.2 pitted by weathering.	10-15%	

5 cm

DRILL ADVANCE | LOST CORE ZONE | CORE LENGTH RECOVERED | % RECOVERY ESTIMATE OR CORE LENGTH

DEPTH from-to : ROCK UNIT capital letters, underlined
Depth : Detailed rock description and notes
indented about 15 mm

DEPTH POINTER | DRILL LOG DEPTH TAG | GRAPHIC LOG (SEE LEGEND ON SHEET 1) | DEPTH POINTER | STRUCTURAL AND VEIN INFORMATION (ATTITUDE = Angle between feature and LONG CORE AXIS) | MINERALISATION | PERCENT MINERALISATION Visual estimate | NOTES

METALS EXPLORATION LIMITED

MINERAL EXPLORATION DRILL LOG
Scale 1:100

Prospect or project: MOUNT BISCHOFF
Logged by: G. BROADBENT   date 9/3/80

HOLE No. MBD 29A
LOG SHEET 2 OF 3
from 0 m. to 48.0 m.

028457

Continued from page 2

Core recovery

Drill advance	Lost core zone	Core length recovered	% recovery
3.0		3.0	100
1.0		1.0	100
0.7		0.7	100
1.3		1.3	100
1.8		1.8	100
3.2		3.2	100
3.1		3.1	100
0.9		0.9	100
3.0		3.0	100
3.0		3.0	100
3.0		3.0	100
0.5		0.5	100
1.3	//////		0
1.2		1.2	100
3.0		3.0	100
3.0		3.0	100
3.0		3.0	100
3.0		3.0	100

Depth from-to : Rock unit

Depth tags: 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96

48.2 - 51.6 ? DOLOMITE SULPHIDE LODE INCLUSION

Granular recrystallised dolomite, grey qtz and calcite, magnesite(?) with dark greenish blue hard ? sepentinite in thin zones and irregular patches of pale grey talc.
Extensively veined with carbonates, fluorite, qtz and py.

51.6 - 61.1 As for 41.6 - 48.2, extensively sheared and veined.

57.2 - 61.1. Stockwork of dolomite / pale brown sp? veins

61.1 - 65.50 DOLOMITE SULPHIDE LODE.

Mottled brassy yellowish green / grey due to pyrite and granular recrystallised qtz and carbonates.
Some finely banded carbonates and fluorite with a hard bluish mineral in lower 2.5 m, and some bronze pyrrhotite.

65.5 - 78.87 RECRYSTALLISED DOLOMITE.

See 35.0 - 39.2 m on page 2.
Some yellowish and greenish talcose alteration assoc. with post - recrystallisation shearing - patches up to 5 cm with fractures.

69 - 72 Recrystallised carbonates are vuggy, with minor blue fluorite in cavities.

75.9 - 78.4 Dark grey recrystallised dolomite with thin films of almost black material on brecciation fractures. Some weak greenish talcose alteration

78.4 - 78.87 Almost massive py, which extends into upper 20 cm of siltstones and shales.

78.87 - 89.0 SILTSTONES AND BLACK SHALES, MINOR QUARTZITES

Brecciated and weakly silicified. Sub angular clasts of grey siltstone in an almost black clay rich siltstone matrix. Some faintly greenish, disrupted intervals of clay rich siltstones, quite well bedded, with quartzite beds to 0.5 m and thin pale grey siltstone beds (quartzose) to 1 cm.
Finely fractured near contact - thin clay films along fractures - extent of broken core decreases with depth.

END OF HOLE 89.0 m.

Graphic log

8/1; 1; 5/8; 8/4; 3; 5/8

Structural and vein information

← Contact indistinct, 35°
← 50.4 small fault
← 50.9 200 mm massive py, marcasite, carbonate, fluorite.
← Contact indistinct.
← 56.4 80 mm mineralised zone - fluorite 20%, py 20%, arseno 10%, carbonates 15%.
57.2 - 58.4 dolomite breccia zone, 10% porphyry, 90% dolomite veins, trace fluorite, sp at 30° LCA.
← 58.8 0.5 m dolomite vein, 40°.
← Contact irregular, 65°.
← Contact 40°
Breccia zone - small fault.
← Gradual change through massive py.
← 79.0 Bedding 60°
← 81.6 Bedding 30°
← 83.5 Bedding 45°
← 86.4 Bedding 65°
← 88.9 10 mm dolomite - sp vein, 80°

Mineralisation

Mineralisation	Percent mineralisation (visual estimate)
48.2 - 51.6 py > fluorite, trace sp. Py as granular aggregates, and in veins with qtz, carbonates, fluorite. Fluorite is finely dissem throughout and in veining. (7-10%)	20-25%
51.6 - 58.4 py, fluorite, trace sp, cassiterite. Rounded distinct grains to 3 mm. Dolomite - fluorite - qtz - sp - py veining, increasing towards base.	10-15%
58.4 - 61.1. Mineralisation as for 51.6 - 58.4, with 30% dolomite - fluorite - sp - py veining (stockwork)	40-50%
61.1 - 63.0 py >> po, fluorite 5%; cassiterite as f.gr. aggregates 3%, trace ga, arseno, sp, cp.	70%
63 - 65.5 po >> py, fluorite 3-5%, cassiterite 1-2%, trace ga, sp, arseno, cp. Fine granular aggregates, blebs po to 2 cm.	70%
65.5 - 69.0 Fluorite, weak trace py, sp in brecciation cavities with recryst. carbonates	1-2%
69.0 - 75.9. Weak trace fluorite, py, sp as above, 65.5 - 69.0	
75.9 - 78.4 py, trace arseno as blebs and grains in breccia infillings	3-5%
78.4 - 79.1 Vuggy py, trace marcasite, arseno, cassiterite?	
79.1 - 89.0 py > po, Py finely dissem in siltstones and as irregular blebs to 3×7 mm. Po as sparse rounded blebs to 2 cm. Carbonate - fluorite - py veining, some rare irregular masses to 7×6 cm - breccia zones? Veining decreases away from upper contact.	5-7%

5 cm

DRILL ADVANCE	LOST CORE ZONE	CORE LENGTH RECOVERED	% RECOVERY ESTIMATE OR	DEPTH from-to : ROCK UNIT capital letters, underlined Depth : Detailed rock description and notes indented about 15 mm	DRILL LOG DEPTH TAG	DEPTH POINTER ▶	GRAPHIC LOG SEE LEGEND ON SHEET 1	DEPTH POINTER ◀	STRUCTURAL AND VEIN INFORMATION ATTITUDE = Angle between feature and LONG CORE AXIS	MINERALISATION	PERCENT MINERALISATION Visual estimate	NOTES

METALS EXPLORATION LIMITED

MINERAL EXPLORATION DRILL LOG
Scale 1:100

Prospect or project: MOUNT BISCHOFF
Logged by: G. BROADBENT date 9 / 3 / 80
HOLE No. MBD 29A
LOG SHEET 3 OF 3
from 48.0 m. to 89.0 m.

Prepared 8/6/80