DEPTH	INTERVAL	DEPTH from-to : ROCK UNIT (capital letters, underlined) / Depth : Description and notes (insertes 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

028512 MBD-40

0-4.0 (4.0m) TRICONE TO 4.0 m - NO CORE.

4.0-25.6 (21.6m) 4.0-25.6 THINLY BEDDED SILTSTONES WITH QUARTZITES.

Pale greys - fractured, and bleached by subsequent weathering, gradually becomes darker with depth. Well bedded, fine grained, sandstones / quartzose siltstones, medium hard and silicified, alternate with soft medium grey argillaceous siltstones.
Minor disruption and contortion, followed by later fracturing ≈40° LCA.

22.5-25.6 some sparse black carbonaceous shale beds. Gradational change.

10/11

10/9/c

4.0-16.5 rare qtz - cassiterite veinlets <2mm thick.

16.5-22.5 trace py in sparse veinlets & stringers.

22.5-25.6 Py as thin bedded laminae, veinlets and stringers 3-5%.

25.6-74.6 (49.0m) 25.6-74.6 QUARTZITES WITH THINLY BEDDED SILTSTONES

As for 4.0-25.6, but qtzites are harder, and less well bedded - mostly massive and brecciated, up to 4 m thick -, and separated by intervals of thinly bedded clay rich siltstones. Well fractured, some limonitic material on fracture planes

11/10

25.6-32.7 py, qtz as veinlets, some dissem/g along bedding planes. 1-2%.

32.7-60.5 as for 25.6-32.7, weathered, <1%

Quartzites decrease in abundance towards base of interval, some minor shales appear.

60.5-69.5 as for 25.6-32.7, 1-2%.

69.5-74.6 Some sparse bedded laminae py; also dissem, and in veinlets etc with qtz 3-5%

70° →

74.6-93.1 (18.7m) 74.6-93.1 QUARTZ FELSPAR PORPHYRY.

Matrix fine grained, bleached white, or stained greyish brown by weathering or orange brown by limonite. Very fractured and broken, pitted by weathering.
Qtz - rounded colourless grains to 4mm, 15-20%.
? Felspar - altered, hard faintly brownish phenocrysts, locally 10%, overall 1-2%
Core losses 82.6-91.5 m, and an inclusion of weathered thinly bedded siltstone from (?) 88.7 → ? 91.5 m

1

10/1

residual py, rare cassiterite in pitted veinlets. Original Fe sulphides in porphyry almost totally removed by weathering (originally ≈10-15%) now <1%. trace rounded cassiterite 78.1-79.5.

83.5 irregular mass (?) cassiterite 2×3 cm in qtz vein

91.5-93.1 trace fgr. cassiterite

55° →

93.1 (22.3) 93.1-115.4 THINLY BEDDED SILTSTONES WITH QUARTZITES

As for 4.0-25.6, quartzites not so well bedded, hard and bluish grey.
Core well fractured and broken low angles LCA.

10/11

py, marcasite, qtz in stringers & veinlets
Some dissem. blebs py in qtzites. 3-7%.

5 cm

115.4 END OF HOLE 115.4 m.

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: 10.4.80.

HOLE No. MBD 40
Sheet of

028513

REPORT No.

METALS EXPLORATION LTD.
& SUBSIDIARY COMPANIES

MINERAL EXPLORATION
DIAMOND DRILL LOG

MBD.40

Prospect, area, project or mine. MT BISCHOFF

HOLE No. MBD40

COLLAR LOCATION

Grid name — Rectangular space co-ordinates

		PLANAR CO-ORDINATES		ELEVATION
(1)	MBJV	2170·50 N	1419·99 E	702·37
(2)		N	E	
(3) Aust. Map Grid (PRECISE / APPROX.)		mE	mN	mA.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

150°	magnetic
180°	grid (1)
	grid (2)
	grid (3)
	true

Inclination at collar −60°

Total length 115·4 m.

Commenced: 27 / 3 / 80

Completed: 31 / 3 / 80

Drilling contractor: LONGYEAR AUSTRALIA P/L

Rig type: LONGYEAR 38

Core size and non-coring (NC)

TRICONE	0	TO 4·0m
NQ	4·0m	TO 49·2m
BQ	49·2	TO 115·4m
		TO
		TO
		TO

Details of down hole location-survey methods.
TROPARI

Purpose of drilling and anticipated lengths to targets.
To intersect tin mineralization in Stanhope Porphyry Dyke ... 90 - 105m
Planned depth of hole 110m.

Results of down hole location-survey.

LENGTH FROM COLLAR	W.C. BEARING type MAG AZIMUTH	DIP
31·0m	138	57
74·5m	146·5	62
114·5m	146·0	62

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.C. BROADBENT — FROM 0 TO 115·4 — DATE 10-4-80

LOGGED BY ____ — FROM ____ TO ____ — DATE ____

LOGGED BY ____ — FROM ____ TO ____ — DATE ____

Company managing exploration programme.
METALS EXPLORATION LTD

HOLE No. MBD40
Log sheet 1 of 2

028514

TRICONE TO 4·0m - NO CORE.

Depth: Rock unit and description	Drill log depth tag	Structural and vein information	Mineralisation	Percent mineralisation (visual estimate)
4·0 - 22·50 THINLY BEDDED SILTSTONES with QUARTZITES. Pale greys - broken core, bleached by weathering. Soft, thinly bedded clay rich siltstones in intervals to 1·5 m alternating medium hard grey fine grained quartzites. Finely fractured at approx 40° LCA + small pyggy zones to 1cm on the larger, more persuasive fractures.	10/11	∠6·5 Bedding 60°; ∠10·8 Bedding 60°; ∠14·2 Bedding 55°; ∠17·5 Bedding 60°; Gradual Change	4·0-16·5 rare thin qtz-cassiterite veinlets in broken core.	≪1%
			16·5-22·5 sparse py-qtz (rarely with cassiterite) stringers and veinlets, py is pitted by weathering	<1%
22·5 - 25·6 THINLY BEDDED SILTSTONES AND BLACK SHALES. Medium grey clay rich siltstones thinly interbedded with pale grey quartzose siltstones and very dark grey shaley beds. Most beds are less than 2cm, well bedded with discrete brecciated intervals to 20cm.	10/4/c	∠22·6 Bedding 60°; Gradual Change	22·5-25·6 py as thin bedded laminae with shaley beds; finely dissem in some siltstone beds and as small irregular stringers	3-5%
25·6 - 60·0 QUARTZITES WITH THINLY BEDDED SILTSTONES. Hard, bluish grey quartzites as massive, brecciated, beds varying in thickness from 1-4m. The siltstones are clay rich and thinly bedded 1-2cm with rare shaley laminae <5mm. Some sparse pale grey quartzose beds to 1cm. Overall, alternating intervals of siltstone in varying proportions divide the quartzite beds, thicknesses 10cm to 2m. Well bedded, with only minor disruption and contortion but extensive later shearing - well jointed, with occasional small pyggy zones to 5cm at 30-70°	11/10	∠26·2 Bedding 40°; ∠28·2 Bedding 55°	25·6-32·7 py, finely dissem in quartzites and in thin irregular stringers with qtz. Some isolated qtz-py 'sweat-outs' to 2×1cm.	1-2%
		∠35·4 Bedding 70°; ∠42·2 Bedding 40°; ∠47·6 Bedding 70°; ∠50·2 Bedding 65°; ∠57·5 Bedding 65°; ∠59·5 Bedding 85°	32·7-60·00 As above, weathered - some brown Fe oxide films with clay along fractures.	<1%
60·0 - 74·6 THINLY BEDDED SILTSTONES, minor SHALES, WITH QUARTZITES. As above, 25·6-60·0m, but siltstones (thinly bedded, with sparse shale beds) greater than sandstones.	10/11/9	∠62·5 Bedding 45°; ∠64·8 Bedding 65°; ∠67·3 Bedding 55°	60·0-69·5 py, in thin veinlets and stringers and finely dissem in quartzite beds. Pitted and weathered with minor Fe oxide staining.	1-2%
71·5-74·6 Hard, silicified and well fractured and broken.		∠70·3 Bedding 75°; ∠73·2 Bedding 80°; Contact 70°	69·5-74·6 Py as thin veinlets and stringers, dissem in some sandy beds and as rare thin bedded laminae <2mm in the more shaley sections.	3-5%
74·60 - 93·7 QUARTZ FELSPAR PORPHYRY. 74·6-82·6 Very fractured and broken - greyish - brownish or totally bleached pitted finely crystalline matrix with orange-brown limonitic Fe oxide fronts surrounding fractures and the white totally bleached portions. Phenocrysts - Qtz - rounded turbid grains to 4mm, 15-20%. Felspar - altered to hard brownish topaz(?), up to 3mm. Variable concentrations - locally 10%, average 1-2%.	1		74·6-82·6 pitted py as distinct grains to 3mm, almost totally removed by weathering. Qtz-pyrite veins to 10mm at low angles to core.	1-2%
			78·1-79·5 Strong trace rounded black cassiterite to 2mm.	
82·6-91·5 Inclusions of weathered pyggy siltstone to 2m, with high core losses.	10/2	∠83·5 Quartz-cassiterite vein, 30mm, ∠15° in broken core.	82·6-91·5 Minor qtz veins, pyrite almost totally removed by weathering.	1%
91·5-93·1 Less fractured, but still highly weathered and pitted. Decrease in size and abundance of phenocrysts - Qtz - max 2mm, 7%. Felspar - weathered, trace pitted white grains.	1	∠92·7 Qtz vein, 15mm, 20°; Contact irregular, 55°	91·5-93·1 pitted py, with scattered quartz veins to 15mm and a trace black cassiterite in cavities left by pyrite.	2-3%
93·7 - 112 THINLY BEDDED SILTSTONES, minor SHALES WITH QUARTZITES. Thinly bedded pale grey clay rich siltstones, in some places faintly greenish and sericitic, with intercalated quartzite beds 0·5-0·7m. Some minor soft sediment disruption, with later extensive shearing and minor faulting at low angles to core axis.	10/11/9	∠95·9 Bedding 20°; ∠99·8 Bedding 85°; ∠102·5 Bedding 65°; ∠105·5 Bedding 45°; ∠108·5 Bedding 75°; ∠110·4 Bedding 60°; Gradual Change	93·1-112 py-marcasite veinlets and stringers in small irregular vein zones.	3-7%
112 - 115·4 MASSIVE QUARTZITES. Very hard bluish grey massive quartzites - individual beds to 2·0m divided by thin siltstone beds <2cm. Well fractured and broken.	11	∠112·7 Bedding 65°; ∠114·8 Bedding 70°	112-115·4 py-qtz veining with minor blebby disseminated py.	3-5%

END OF HOLE 115·4m

5 cm

DRILL ADVANCE | LOST CORE ZONE | CORE LENGTH RECOVERED OR % RECOVERY ESTIMATE | **DEPTH from-to : ROCK UNIT** capital letters, underlined. Depth : Detailed rock description and notes indented about 15mm | 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.I.BROADBENT date 2/4/80
HOLE No. MBD 40
LOG SHEET 2 OF 2
from 0 m. to 115·4 m

Prepared 10/6/80

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								
97900		72.6	74.6	2.0	300								330	Pulp check.
1		74.6	76.6	"	2200		65	520	20	1	25	620		
2		76.6	78.6	"	5200		70	760	14	2	30	600		
3		78.6	80.6	"	6000		65	1750	28	1	50	1450		
4		80.6	82.6	"	2.18%		150	1050	50	<1	110	1000		
5		82.6	84.6	"	8000		100	410	32	2	70	250		
6		84.6	86.6	"	1.08%		180	400	65	1	75	490		
7		86.6	88.6	"	1.02%		210	420	75	<1	85	600		
8		88.6	90.6	"	7500		220	1050	100	1	70	800		
9		90.6	93.1	2.5	3350		320	150	30	2	45	210		
10		93.1	95.1	2.0	580									

028515

Notes:— XRF Bi Method.

METALS EXPLORATION LTD - MT BISCHOFF TIN PROSPECT

ASSAY SUMMARY SHEET HOLE NO. MBD 40

SAMPLE TYPE: DRILL CORE FROM 72.6 TO 95.1

MBD-41

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

028516

INTERVAL	DEPTH from-to : ROCK UNIT / Depth : Description and notes	GRAPHIC LOG	MINERALISATION
0-3.0	TRICONE DRILLED TO 3.0 m - NO CORE.		
3.0-62.95 (59.95)	**3.0-62.95 SILTSTONES, BLACKSHALES, minor SANDSTONES.** Dark grey clay rich siltstones, (some almost black and carbonaceous) with medium grey quartzose siltstones which sometimes grade into fine grained sandstones. The black shales occur as fine laminae / thin beds to 0.5cm dividing siltstone beds. Very brecciated - sub-angular → rounded siltstone clasts in a cemented matrix of finely bedded siltstone and blackshale. Some sparse well bedded intervals of siltstone to 2m thick occur. Well fractured and broken, some minor fault zones to 1m. Contact 30°	10/9c	3.0-19.6 Finely disseminated py, concentrated in some siltstone beds and clasts, also as blebs to 5mm 3-5%. Abundant dolomite-fluorite-qtz-py-sepeolite-marcasite-phlogopite-sp-ga veining TOTAL: 7%. 19.6-22.4 Vein zone, as above, but total 10-15% 22.4-62.95 disseminated py, some blebs py, marcasite and rare po. Sparse veining as above. TOTAL 3%.
62.95-86.8 (23.85)	**62.95-86.8 QUARTZ FELSPAR PORPHYRY** Matrix greyish cream in colour, finely crystalline, in places greenish and brownish grey. Qtz - subhedral → rounded grains to 4mm 10-15%. Felspar - variable, some alteration to hard brownish cream mineral (esp. near margins) 2-15%. Highest proportion and least alteration in central 13m (10-15%) Contact 40°	1	62.95-66.5 py marcasite, sp. Minor qtz-py-fluorite veining. TOTAL 10%. 66.5-71.3 sp, trace py, weak qtz-py veining 2-3% 71.3-81.9 py, marcasite, sp, fluorite, wisps and rare amethyst 10-15%. sp locally > py 81.9-86.8 py, sp, marcasite; dolomite-fluorite-qtz-py-po veining 30-40° CA 2-3%.
86.8-123.45 (33.65)	**86.8-123.45 SILTSTONES, BLACK SHALES.** As for 3.0-62.95 116.4-123.45 As above, but lighter greys and weakly sericitic. Contact 70°	10/9c	86.8-104.1 py as rounded blebs to 5mm and heavily disseminated in some siltstone beds. qtz-py-marcasite-carbonate-fluorite-sepeolite-pyrite mica-chlorite(?) veining. TOTAL 7%, 10% in 2.5m adjacent to contact. 104.1-116.4 As for 86.8-104.1, but only 2-3% 116.4-123.45 py, marcasite, po as blebs, some finely disseminated. Veining as above TOTAL: 5-7%.
123.45-126.6	123.45-126.6 DOLOMITE SULPHIDE LODE. serpentinite, minor talcy patches	7/6	po, py, trace sp, fluorite 35%
126.6-147.5 (20.9)	**126.6-147.5 DOLOMITE** (contact irregular, 30°) Fine grained, pale grey and brecciated (dark grey staining along fine brecciation fractures) Some weak talcose and serpentinous alteration along brecciation fractures - irregular patches with bleached haloes ~2cm. Gradual Change	2	sp, po, fluorite, white mica as irregular infillings in brecciation cavities. Minor dolomite-qtz veining. TOTAL 1%, sparse intervals 10-15% up to 0.4m thick.
147.5-160.6 (13.1)	**147.5-160.6 RECRYSTALLISED DOLOMITE** Mottled pale greys and creams, with abundant purple fluorite in places. Brecciated and well fractured, minor talcose etc alteration along fracture planes. Contact irregular	3	147.5-150.1 py, cp, fluorite, marcasite, po 2-3% 150.1-160.6 fluorite, py, marcasite, po, sp as blebs and patches to 10cm, intergrown throughout. Patches fluorite to 30cm thick TOTAL 15-20%.
160.6-199.55	**160.6-199.55 SILTSTONES, BLACK SHALES, MINOR SANDSTONES** 160.6-185.7 As for 3.0-62.95, with the addition of some quartzose sandstone beds to 1m thick. Well fractured and broken - fine clay filled fractures 185.7-199.55 As above, but well bedded, with only minor brecciation and contortion. Siltstones and shales thinly bedded (< 2cm). Some thinly laminated siltstone / silty shale intervals to 1m.	10/9c/12/5	160.6-166.5 py as disseminated blebs to 3mm, also finely disseminated. Fine dol-calcite-qtz-fluorite veining TOTAL 7-10%. 166.5-185.7 py, finely disseminated, rare blebs and thin stringers. Sparse qtz-carbonate-py veining TOTAL 2-3%. 185.7-200.00 Py etc as above, with the addition of some thin bedded py laminae to 3mm. TOTAL 3%, locally 5-7%
199.55-200.00	199.55-200.00 'TUFF' +0.45m * END OF HOLE 200.00 m.	12	

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: 7/5/80

HOLE No. MBD 41

Sheet of