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SML 548

[MOUNT] CHAMBERS GORGE

FINAL REPORT AT LICENCE SURRENDER FOR THE PERIOD 15/2/1971 TO 28/9/1971

Submitted by
North Flinders Mines Ltd
1971

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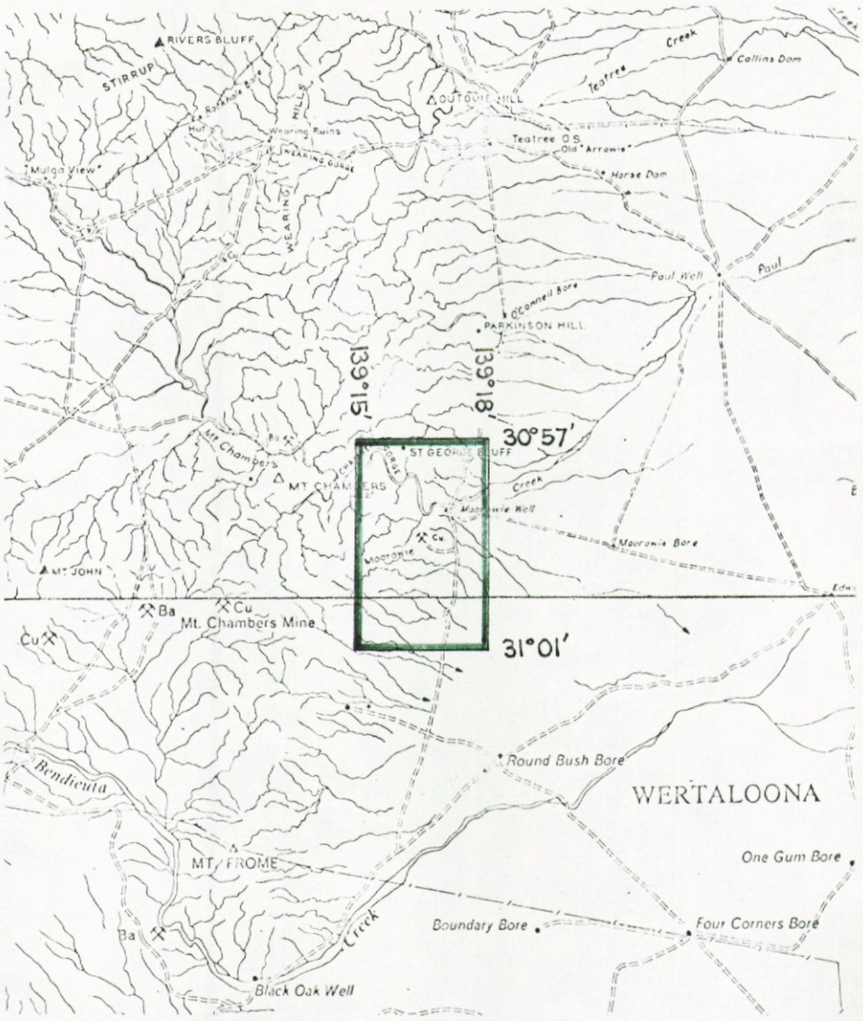
Government of South Australia
Primary Industries and Resources SA



SCALE 1:250000

NORTH FLINDERS MINES N.L.

DOCKET D.M. 255/71 AREA 13 SQ MILES

1:250000 PLANS . COPLEY

. PARACHILNA

LOCALITY

S.M.L. No. 548 EXPIRY DATE 3·3·72

CONTENTS ENVELOPE 1657. D.M.255/71.

TENEMENT S.M.L.548.
TENEMENT HOLDER. NORTH FLINDERS MINES N.L.

REPORT

WILSON.R.B. 1971.

Final report
Chambers Gorge.
S.M.L. 548
July 1971. PGS.3-12

PLANS

B115-13	Moorowie Copper Mine grid rock chip geochemistry copper values (ppm)	(1657-1)
B115-15	Moorowie Copper Mine grid rock chip geochemistry zinc values (ppm)	(1657-2)
B115-34	Moorowie Copper Mine grid copper, lead,zinc detail rock chip.	(1657-3)

DRAWING

548-1	Location Map S.M.L. 548 S.A.	(pg-5)

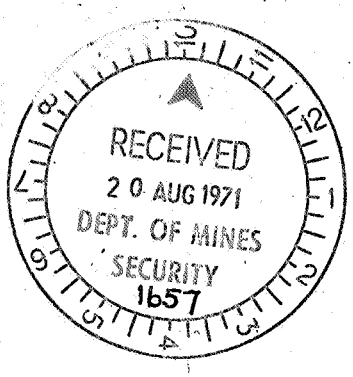
FINAL REPORT

CHAMBERS GORGE

S.M.L. 548

R.B. WILSON
Chief Geologist
NORTH FLINDERS MINES LIMITED

JULY, 1971



C O N T E N T S:

I INTRODUCTION

A small Special Mining Lease, No. 548, of approximately 13 square miles in area, was taken-up in the Chambers Gorge - Morrowie Mine area on 15th February, 1971, for a period of Tenure of one year.

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II PREVIOUS WORK AND GEOLOGY

Earlier work (Electrolytic Zinc Co. of A'sia Ltd.) had indicated that secondary copper-zinc mineralization associated with the main fault at the Moorowie Mine, was probably high-grade but occurring in narrow lenses of limited dimensions. However, detailed geological studies carried out by University of Adelaide Honours Students, suggested copper-lead-zinc mineralization in the area to be related to zones of hydrothermal silicification and replacement in the Cambrian Limestones. Furthermore, this work indicated "the presence of siliceous plugs and masses in the Moorowie Area, where selective alteration of non-dolomitic blocks in the mega-breccia units within the lime-stone along joints etc., is accompanied by disseminations of chalcopyrite", which are now mainly oxidized to carbonate-minerals.

For these reasons, further work in the area seemed desirable, with the object to investigate the possibility of large-tonnage, low-grade, disseminated-type, copper mineralization being associated with such stratigraphic units as the above-mentioned mega-breccia horizons. The possibility that such 'stratiform' mineralization could extend down-dip, away from the main fault, which appears to be the centre of hydrothermal activity, also was thought worthy of consideration.

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Earlier sampling by Electrolytic Zinc Co. of A'sia Ltd., (Plan 8115-13) had indicated high copper and zinc grades in rock-chip samples of the Cambrian Limestones, both to the east and west of the Moorowie Fault. Reports of E.Z. operations indicated that some re-sampling of these highly anomalous zones had considerably down-graded the earlier results, to the effect that Electrolytic Zinc Co. relinquished the area. Results of this re-sampling programme (Plan 8115-34) were not available until July, 1971

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III PRESENT PROGRAMME

A geological reconnaissance of the Moorowie Mine - Chambers Gorge area was carried-out during June, 1971, to assess the possibility of the association of low-grade copper mineralization with a particular widespread stratigraphic horizon (such as the mega-breccia unit mentioned above).

During this programme, several of the 'high grade' zones indicated by the E.Z. - sampling, were resampled by North Flinders Mines Ltd. Results are given in the following table, together with the earlier E.Z. results:-

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COORDINATE	North Flinders Sample No.	North Flinders Assay (ppm) AAS-McPhar Cu.	Zn.	Electrolytic Zinc Co. Initial Rock-chip Results Cu%	Zn %
Line 1000N ; 999E-1000E	M1	60	40	8.0%	1.55%
Line 1000N ; 1001E-1002E	M2	1400	60	4.4%	0.14%
Line 1001N ; 1003E-1004E	M3	20	65	13.8%	350 p.p.m.
Line 1001N ; 1001E-1002E	M4	130	160	11.0%	0.18%
Line 1001N ; 1000E-1001E	M5	1900	600	1.2%	0.6%
Line 1001N ; 000E-1000E	M6	60	240	12.0%	0.26%
Line 1006N ; 1000E-1001E	M7	950	260	4.0%	0.27%
Line 1007N ; 1003E-1004E	M8	45	65	4.2%	7.2%
Line 1007N ; 999E-1000E	M9	430	2000	3.6%	3.4%

Sample M 10 was taken in the vicinity of peg 1004N; 1000E over an area of approximately 100 feet by 25 feet of copper-carbonate staining in silicified limestone. This sample assayed 0.13% copper and was considered to be representative of several such areas of copper-staining, associated with irregular silicified 'patches' within the Wilkawillina Limestone.

The later E-Z programme of detailed rock-chip sampling (See Plan B115-34), also confirmed generally low-copper and zinc values away from the main Moorowie Fault and suggest spurious results from their earlier sampling-programme.

Geological reconnaissance of the general area to the north of the Electrolytic Zinc Co., survey-grid, confirmed the continuance in this direction of low-grade copper mineralization associated with hydrothermally-altered, silicified zones within the lower Cambrian limestones. However, these zones are sporadic and of limited dimensions and would not be expected (visually) to assay any higher than the area of detailed-sampling outlined above.

The probability of a mineralized stratigraphic unit (mega-breccia horizon) of large tonnage-potential as originally hopefully anticipated, seemed remote from this geological inspection.

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IV CONCLUSIONS

The presence was confirmed of low-grade copper mineralization, related to zones of hydrothermal silicification and replacement in the Cambrian limestones of the Moorowie Mine area. However, both dimensions and grades of these silicified zones appear too low to be of economic interest. The existence of a 'mineralized' stratigraphic unit (mega-breccia) is suggested in places, but again mineralization is patchy (altered zones) and of low grade.

Although small rich pods of carbonate-ores are likely to be present along the Moorowie and other small faults in the area, these do not offer sufficient tonnage-potential to be of interest to the Company.

It is recommended that S.M.L. 548 is relinquished in favour of more prospective targets in the northern leases held by North Flinders Mines Limited.

R B Wilson

R.B. WILSON.

Chief Geologist

	1000N	1001N	1002N	1003N	1004N	1005N	1006N	1007N	1008N	1009N	1010N	1011N	1012N	1013N	1014N	1015N	
996E–997E	-40	-170	-110	-65	-55	-55	60	-60	-110	-130	-40	-110	-50	-50	-45	-45	-15
997E–998E	-30	-320	-150	-310	-30	-90	-55	-95	-70	-55	-80	-0.2%	-380	-170	-65	-20	
998E–999E	-30	-0.13%	-120	-110	-200	-200	-190	-480	-100	-70	-320	-360	-170	-310	-85	-0.32%	
999E–1000E	60 -8.0%	60 -12.0%	-0.55%	-160	-0.91%	-1.4%	-800	430 -3.6%	-370	-220	-0.45%	-250	-170	-0.6%	-140	-180	
1000E					⊙1300											Base Line	
1000E–1001E	-0.21%	1900 -1.2%	-290	-250	-510	-360	950 -4.0%	-220	-260	-50	-0.28%	-0.55%	-130	-170	-140	-240	
1001E–1002E	1400 -4.4%	130 -11.0%	-160	-150	-0.85%	-0.4%	-600	-220	-100	-65	-160	-0.74%	-140	-130	-140	-25	
1002E–1003E	-0.34%	-0.16%	-110	-50	-130	-110	-300	-900	-60	-75	-150	-85	-65	-65	-70	-10	
1003E–1004E	-130	20 -13.8%	-40	-90	-100	-120	-65	45 -4.2%	-75	-45	-80	-40	-160	-60	-25	-35	
1004E		⊙30															

Grid lines: 999N–1015N; 996E–1005E

60: CHECK SAMPLES
BY NORTH FLINDERS MINES
VALUE P.P.M. Cu.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. CHAMBERS — SOUTH AUSTRALIA

MOOROWIE COPPER MINE GRID
ROCK CHIP GEOCHEMISTRY
COPPER VALUES (P.P.M.)

1657-1

SCALE: 1in to 100 ft	Survey: D. Muller	REF. NO.
Reference		B 115·13
Date January 1970	Drawn M.D.C	Checked

	999N	1000N	1001N	1002N	1003N	1004N	1005N	1006N	1007N	1008N	1009N	1010N	1011N	1012N	1013N	1014N	1015N	
996E																		996E
		-25	-35	-110	-110	-45	-65	-150	-75	-90	-110	-170	-70	-50	-80	-30	-15	-15
997E																		997E
		-15	-110	-90	-330	-20	-35	-35	-80	-50	-110	-130	-280	-0·1%	-600	-35	-15	
998E																		998E
		-20	-140	-120	-170	-140	-110	-120	-330	-250	-130	-110	-0·30%	-520	-100	-50	-10	
999E																		999E
		410 -1·55% 240	-0·26%	-540	-320	-0·25%	-450	-65	2000 -3·4%	-0·16%	-0·1%	-160	-320	-85	-210	-80	-10	
1000E						⊙950											Base Line	1000E
		-0·48% 600	-0·60%	-950	-490	-370	-120	260 -0·27%	-85	-0·16%	-55	-250	-180	-140	-40	-75	-10	
1001E																		1001E
		60 -0·14% 160	-0·18%	-170	-210	-170	-480	-55	-300	-330	-120	-540	-150	-85	-140	-500	-45	
1002E																		1002E
		-320	-200	-70	-65	-30	-130	-100	-0·20%	-180	-45	-430	-95	-150	-45	-70	-15	
1003E																		1003E
		-80	65 -350	-20	-110	-50	-230	-70	65 -7·2%	-95	-60	-130	-70	-100	-35	-50	-20	
1004E			⊙70															1004E
1005E	999N	1000N	1001N	1002N	1003N	1004N	1005N	1006N	1007N	1008N	1009N	1010N	1011N	1012N	1013N	1014N	1015N	1005E

60: CHECK SAMPLES
TAKEN BY NORTH FLINDERS MINES
VALUE P.P.M. Zn.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. CHAMBERS — SOUTH AUSTRALIA

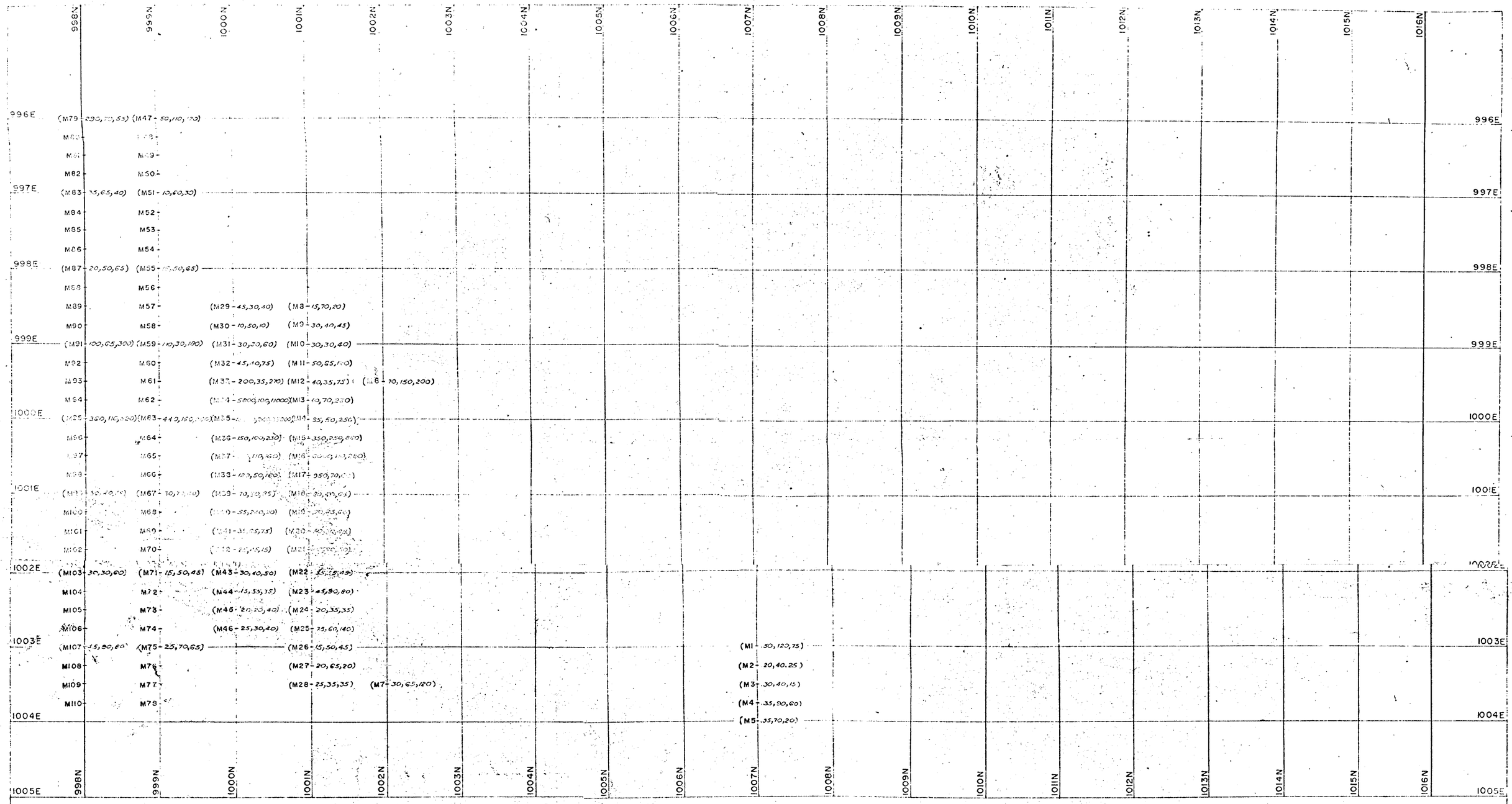
MOOROWIE COPPER MINE GRID
ROCK CHIP GEOCHEMISTRY
ZINC VALUES (P.P.M)

1657-2

SCALE: 1in to 100ft — Survey D Muller — REF. NO B.115·15

Reference

Date January 1970 — Drawn M D C — Checked



ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. CHAMBERS — SOUTH AUSTRALIA

RECEIVED 20 AUG 1971 DEPT. OF MINES SECURITY 1657

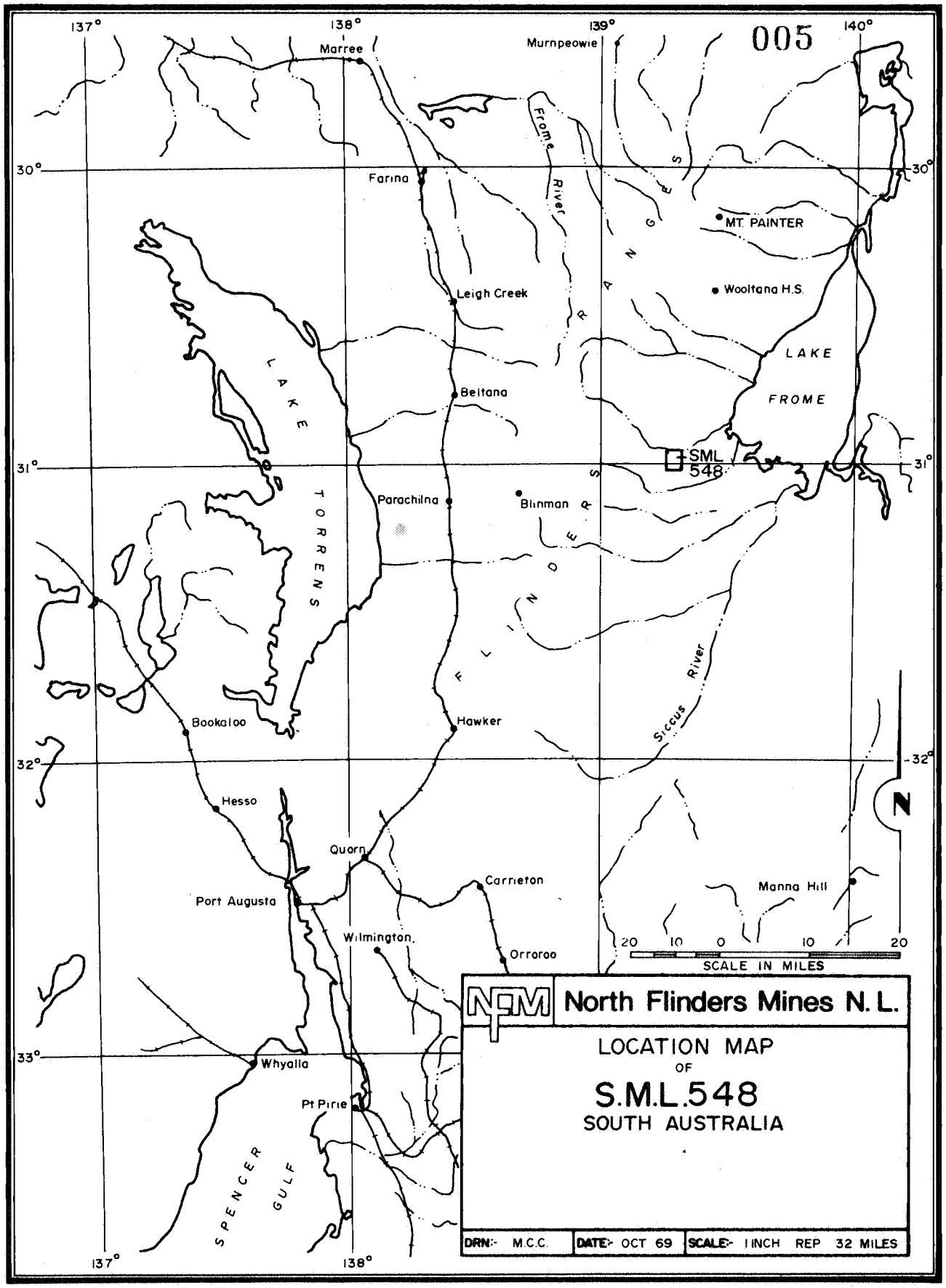
MOOROWIE COPPER MINE GRID

COPPER, LEAD, ZINC

DETAIL ROCK CHIP

1657-3

SCALE: 1in to 100ft	Survey: D. Muller	REF. NO. B 11534
Reference:		
Date: August 1970	Drawn: F.L.S.	Checked:



NFM **North Flinders Mines N. L.**

LOCATION MAP
OF
S.M.L.548
SOUTH AUSTRALIA

DRN:- M.C.C.	DATE:- OCT 69	SCALE:- 1 INCH REP 32 MILES

DWG 548-1