

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

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A SOURCE-BOOK FOR THE OFFICER BASIN
AREA IN SOUTH AUSTRALIA

Report No. 3 of the OFFICER BASIN
STUDY GROUP

By

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and

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ABSTRACT

This report compiles approximately two hundred references to the Officer Basin area of South Australia. They include studies of the petroleum potential, geology, geophysics and palaeontology of the Proterozoic-Palaeozoic Officer Basin as well as the post-Palaeozoic geology of the area and related topics such as regional tectonics. Selected references are included on other topics such as the early exploration of the area and the geology of the Western Australian part of the Officer Basin and the Amadeus Basin in the Northern Territory. In view of the occurrence of both chert and evaporites in the Observatory Hill Beds, some references are included on the geology of this association.

The references are keyword-indexed to facilitate retrieval. A list of principal references, and key-maps to compilation plans available from this Department, are provided.

INTRODUCTION

This source-book is a bibliographic compilation of geological and geophysical work in the Officer Basin area of South Australia, and in addition covers other areas and aspects of geology considered relevant to the Officer Basin.

A "Subject Index" (p. 4) offers a guide to all of the references : the numbers refer to the sequential order of references in the "Bibliography" (p. 14).

The "List of Principal References" (p. 10) presents 26 major references that deal most directly with the geology and geophysics of the Officer Basin in South Australia. These selected references are repeated in the complete "Bibliography".

Entries in the "List of Principal References" and the "Bibliography" have been given sequential numbers (in brackets)

and code numbers (below the sequential number). The code numbers relate to the major topics covered in each reference:

<u>Code Number</u>	<u>Topic</u>
1	Officer Basin, South Australia: petroleum potential.
2	Officer Basin, South Australia: regional geology, stratigraphy, drilling.
3	Officer Basin, South Australia: geophysics and geophysical exploration for petroleum.
4	Officer Basin, South Australia: biostratigraphic studies.
5	Officer Basin area, South Australia: post-Palaeozoic geology.
6	Officer Basin area, Western Australia, and Amadeus Basin, Northern Territory: selected references.
7	Officer Basin area, South Australia: early exploration and geological references of some historical interest.
8	Related topics and selected references including regional tectonics.
9	The geology of the evaporite/chert association: selected references.

An example of one reference is presented below:

(184)

2, 5, 8 Thomson, B.P. (Compiler), 1979. Geological Map of South Australia, 1:1 000 000 scale. Geol. Surv. S. Aust. (in press).

This reference is number 184 in the sequential order and the major topics covered by it are those listed above against code numbers 2, 5 and 8.

Almost one half of the present bibliography is contained in the SADME computer-based Bibliography Index, and such references (primarily company and SADME reports) may be selectively retrieved

using that system. All SAMDE geological and geophysical Report Books and Envelopes referenced here are on Open File, and are available from this department upon request.

A bibliography rarely succeeds in being exhaustive: we would therefore welcome advice on omissions, corrections or future additions.

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COMPILATION PLANS

The following compilation plans covering western South Australia are available from the South Australian Department of Mines and Energy. Most 1:1 000 000 maps, Explanatory Notes and stipulated 1:250 000 geological maps are published. Unpublished material is available both as uncoloured paper prints and as "Ozafilm" transparencies.

Geological:

1. Regional geological maps, 1:250 000 scale: Fig. 2.
2. Explanatory Notes for 1:250 000 scale Atlas Series geological maps: Fig. 3.
3. Geological map of South Australia, 1:1 000 000 scale (in four parts; to be published in mid-1980; paper prints available at present).

Geophysical

4. Regional aeromagnetic surveys, composite maps prepared, 1:250 000 scale: Fig. 4.
5. Regional gravity surveys, 1:250 000 scale map compilations: Fig. 5.
6. Seismic shothole location maps, 1:250 000 scale: Fig. 6.
7. Seismic shothole location maps of Arckaringa Basin area, 1:100 000 scale.
8. Total magnetic intensity map of South Australia 1:1 000 000 scale (in four parts, published).
9. Bouger Gravity Anomaly map of South Australia 1:1 000 000 scale (in four parts, published)
10. The reader also is referred to Finlayson (1979), who presents a geophysical interpretation of the TALLARINGA 1:250 000 area, with plans of interpreted magnetic provinces, structural provinces, depths to magnetic basement and radiometric correlation.

Metallic exploration:

11. Metallic Exploration Index Series - each area is covered by a series of six maps (geological, geophysical, drilling, mineral occurrences, uranium and geochemistry) displaying the available open

file information. The status of compilation is reported in the Mineral Industry Quarterly series. Maps compiled at 1:250 000 or 1:500 000 scale:

Fig. 7.

Hydrology:

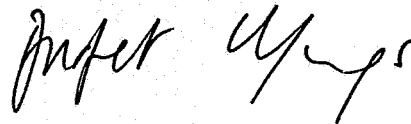
12. Borehole location maps, 1:250 000 scale (water wells and stratigraphic wells predominantly; company exploration drillholes generally not included):

Fig. 8.

GMP/BCY:NK

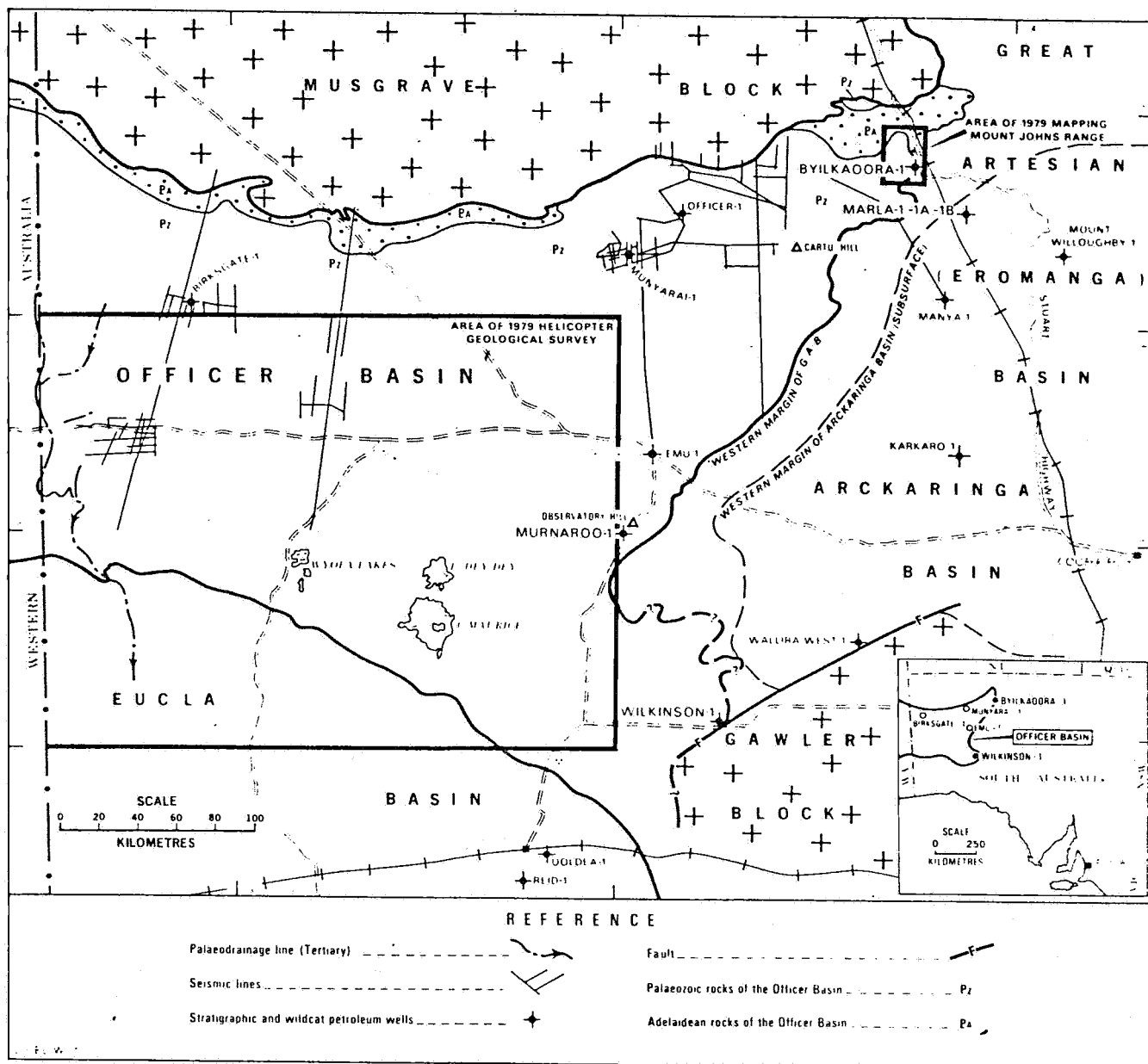


G.M. PITT



B.C. YOUNGS

Officer Basin Study Group.



Ref. 79-731

FIG. 1

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

SCALE 1:3,300,000

COMPILED G. Pitt

OFFICER BASIN - SOUTH AUSTRALIA
LOCALITY PLAN

DATE Dec. 6, 1979

DRN E.C. CKD

PLAN NUMBER
S14477

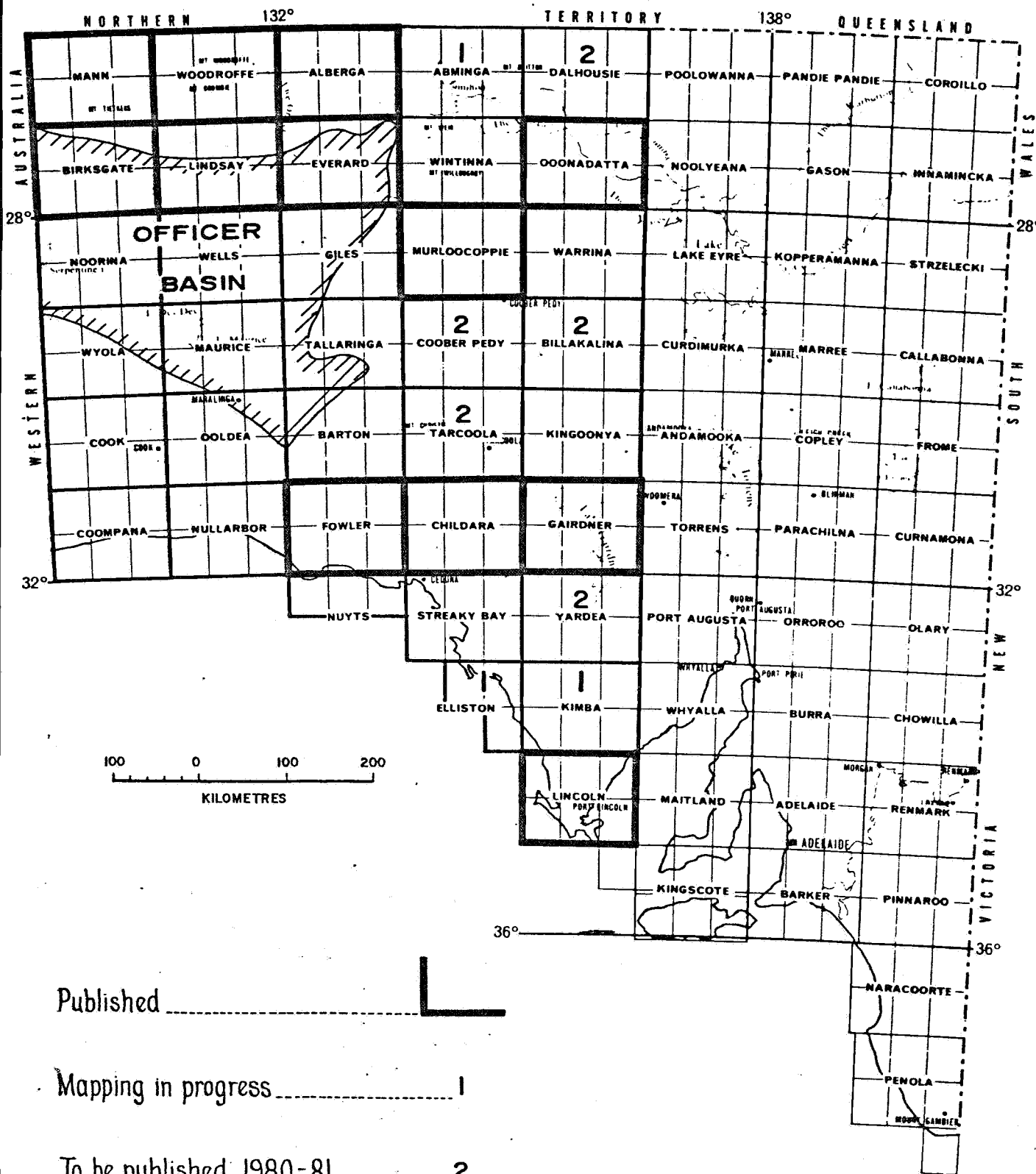


Fig. 2

		DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA		SCALE: 1:6,500,000	
COMPILED: G. Pitt		WESTERN SOUTH AUSTRALIA 1:250,000 REGIONAL GEOLOGICAL MAPS		DATE Dec. 1979	
DRN M.R.	CKD:			PLAN NUMBER	
E.H.				S 14498	

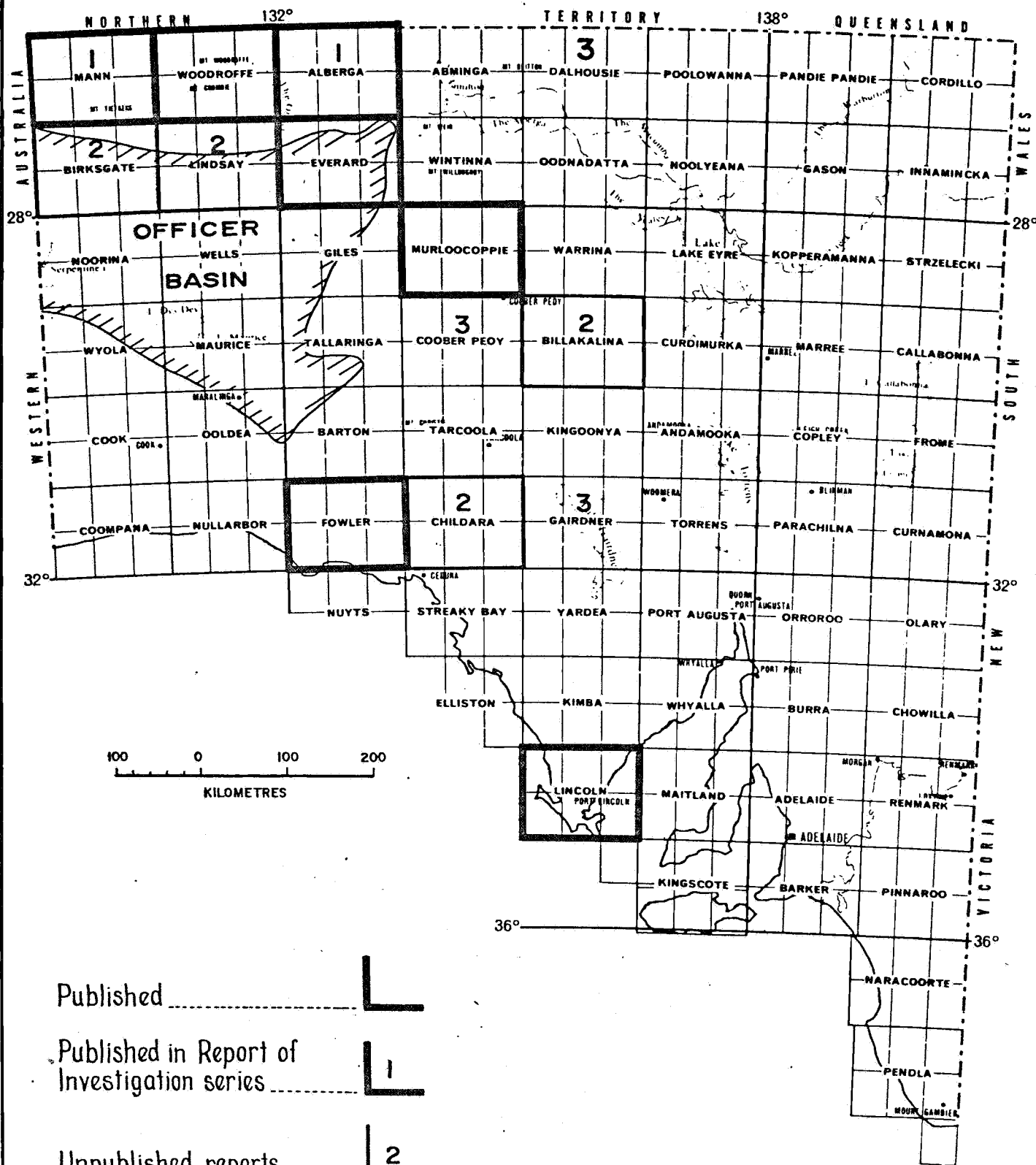


Fig. 3

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA		SCALE: 1:6,500,000
WESTERN SOUTH AUSTRALIA		DATE Dec. 1979
EXPLANATORY NOTES FOR 1:250,000 GEOLOGICAL MAPS		PLAN NUMBER S 14499
COMPILED: G. Pitt		
DRN: M.R. CKD:		
1746		

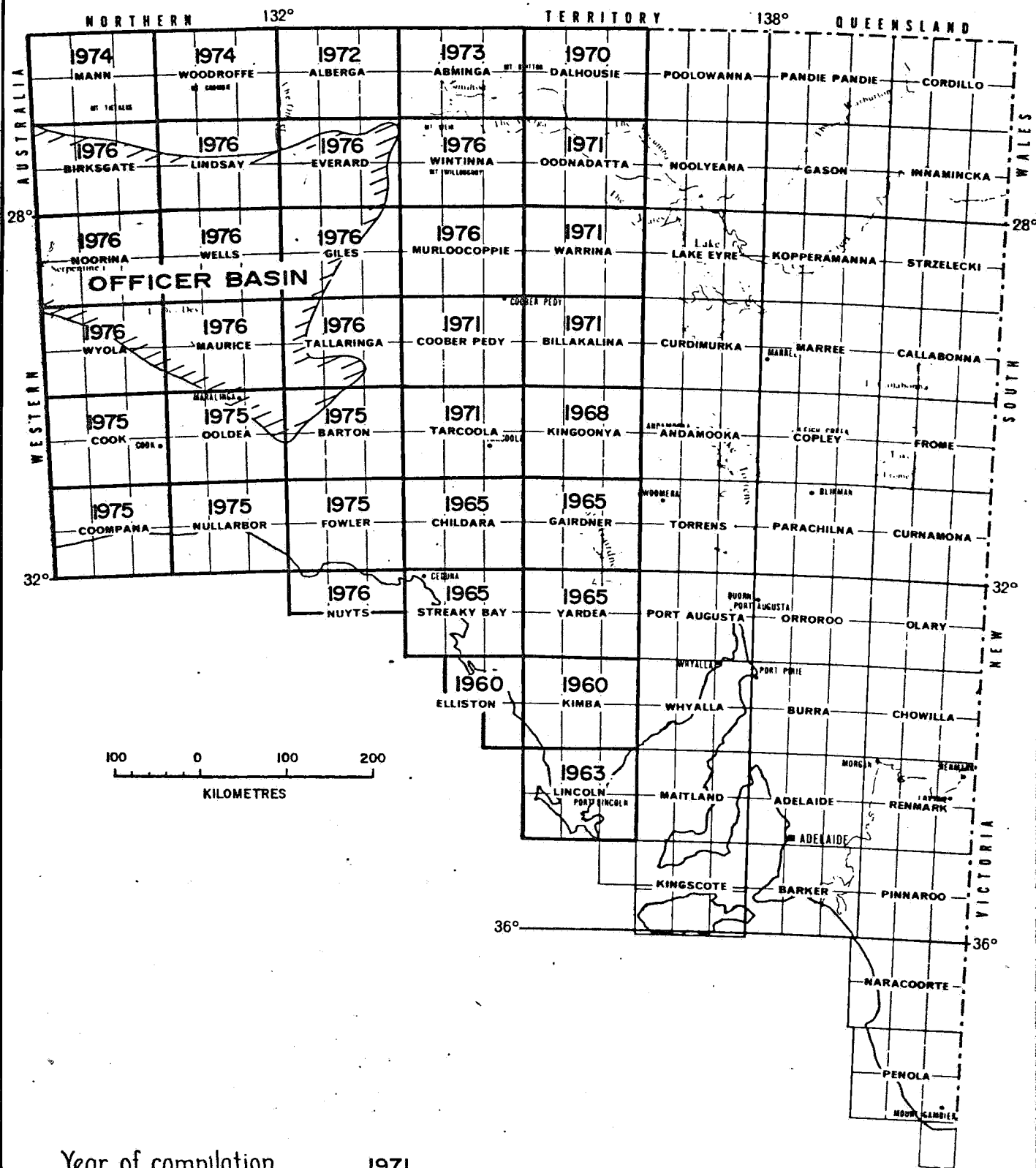


Fig. 4

		DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA		SCALE: 1:6,500,000	
COMPILED: G. Pitt		WESTERN SOUTH AUSTRALIA REGIONAL AEROMAGNETIC SURVEYS 1:250,000 COMPOSITE MAPS PREPARED		DATE Dec. 1979	
DRN: M.R.	CKD:			PLAN NUMBER	
L7K				S 14500	

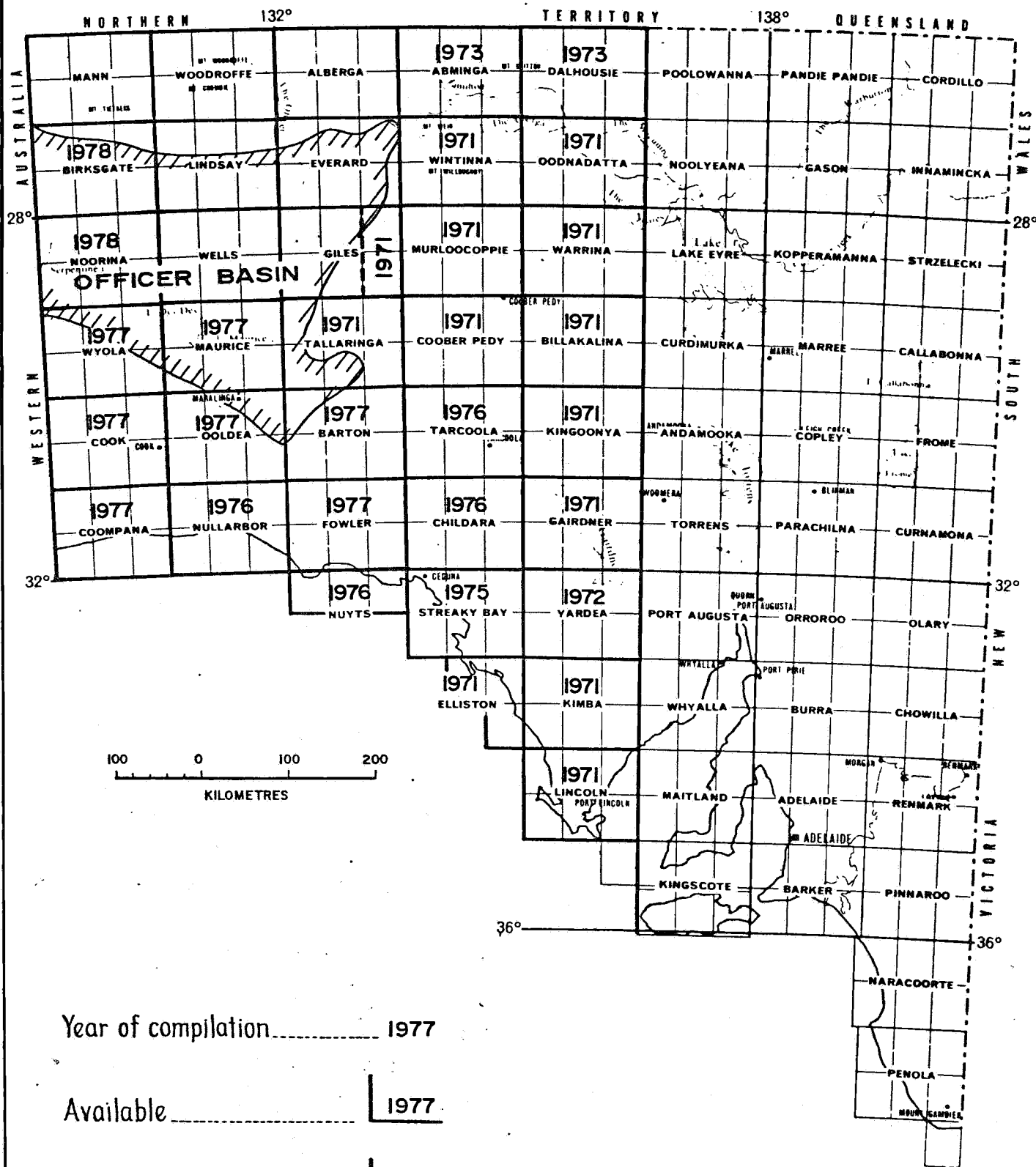


Fig. 5

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA			SCALE: 1:6,500,000	
COMPILED: G. Pitt			DATE Dec. 1979	
DRN: M.R.	CKD:		PLAN NUMBER	
1746			S 14501	
WESTERN SOUTH AUSTRALIA REGIONAL GRAVITY SURVEYS 1:250 000 MAPS				

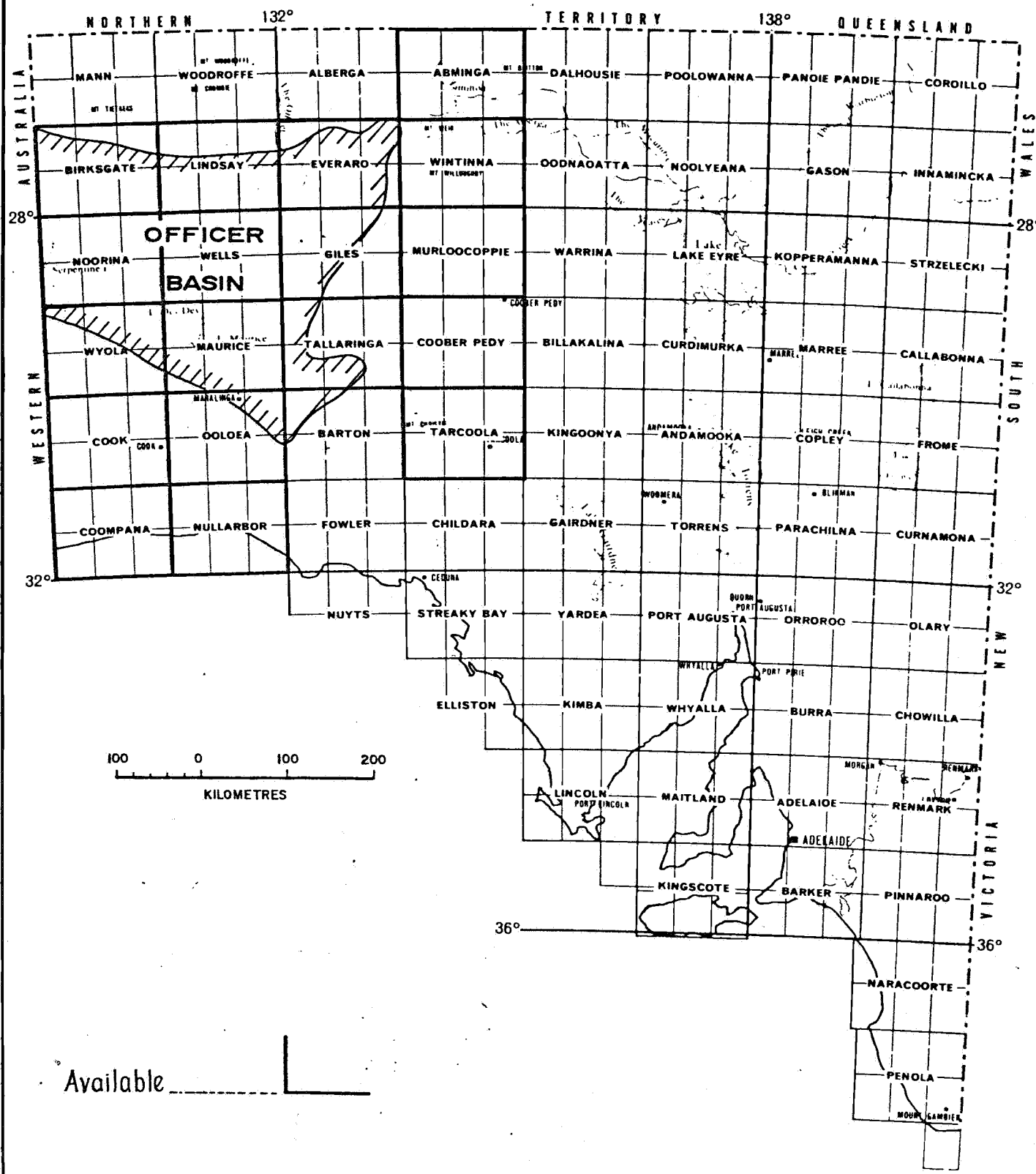


Fig. 6

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA			SCALE: 1:6,500,000	
COMPILED: G. Pitt			DATE Dec. 1979	
DRN: M.R. CKD:			PLAN NUMBER	
1:250,000 SEISMIC SHOTPOINT LOCATION MAPS			S 14502	

1746

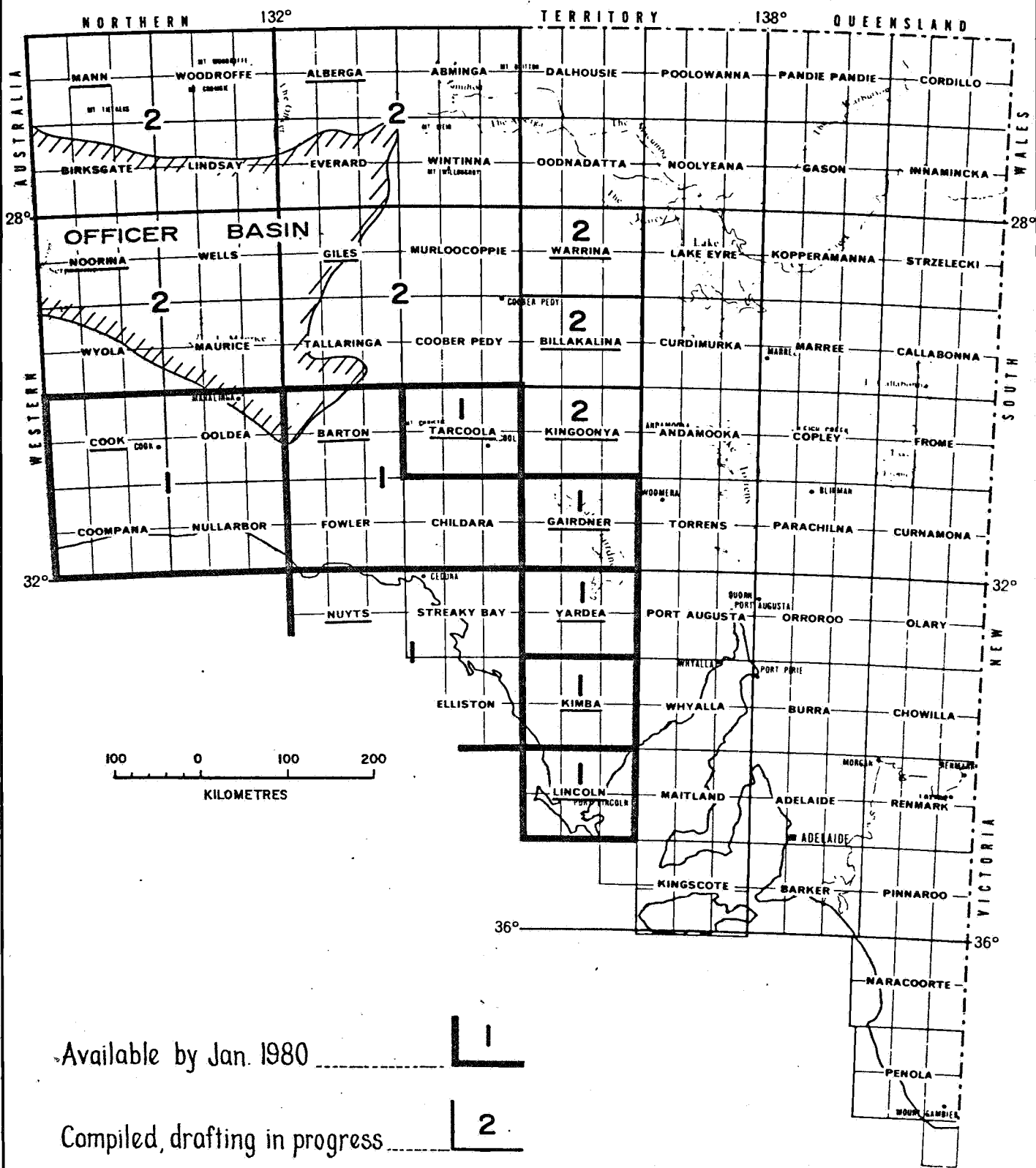


Fig. 7

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA		SCALE: 1: 6,500,000
COMPILED: G. Pitt	WESTERN SOUTH AUSTRALIA METALLIC EXPLORATION INDEX SERIES	DATE: Dec. 1979
DRN: M R CKD:		PLAN NUMBER
<i>EL</i>		S 14503

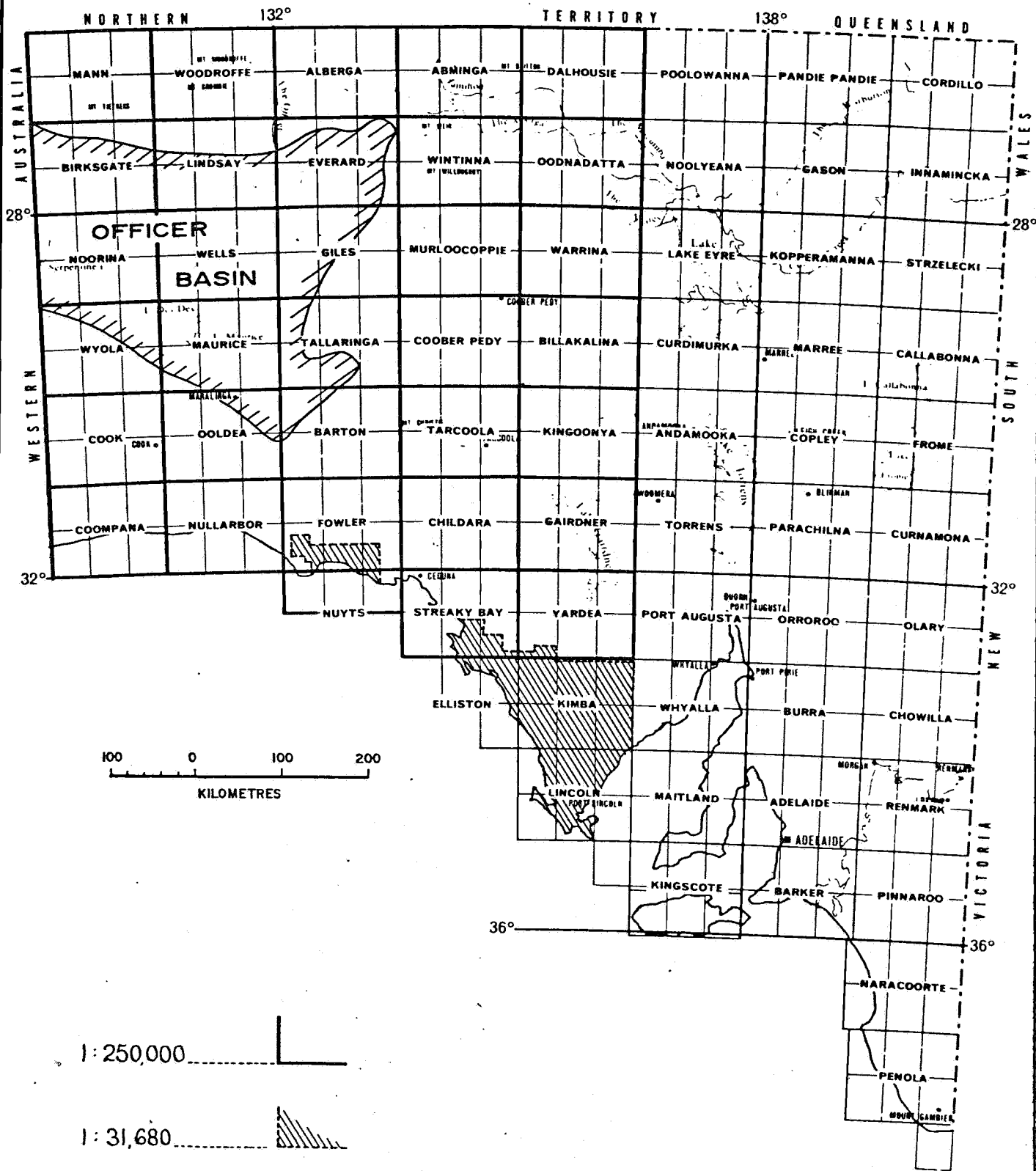


Fig. 8

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

SCALE 1:6,500,000

COMPILED: G. Pitt

WESTERN SOUTH AUSTRALIA

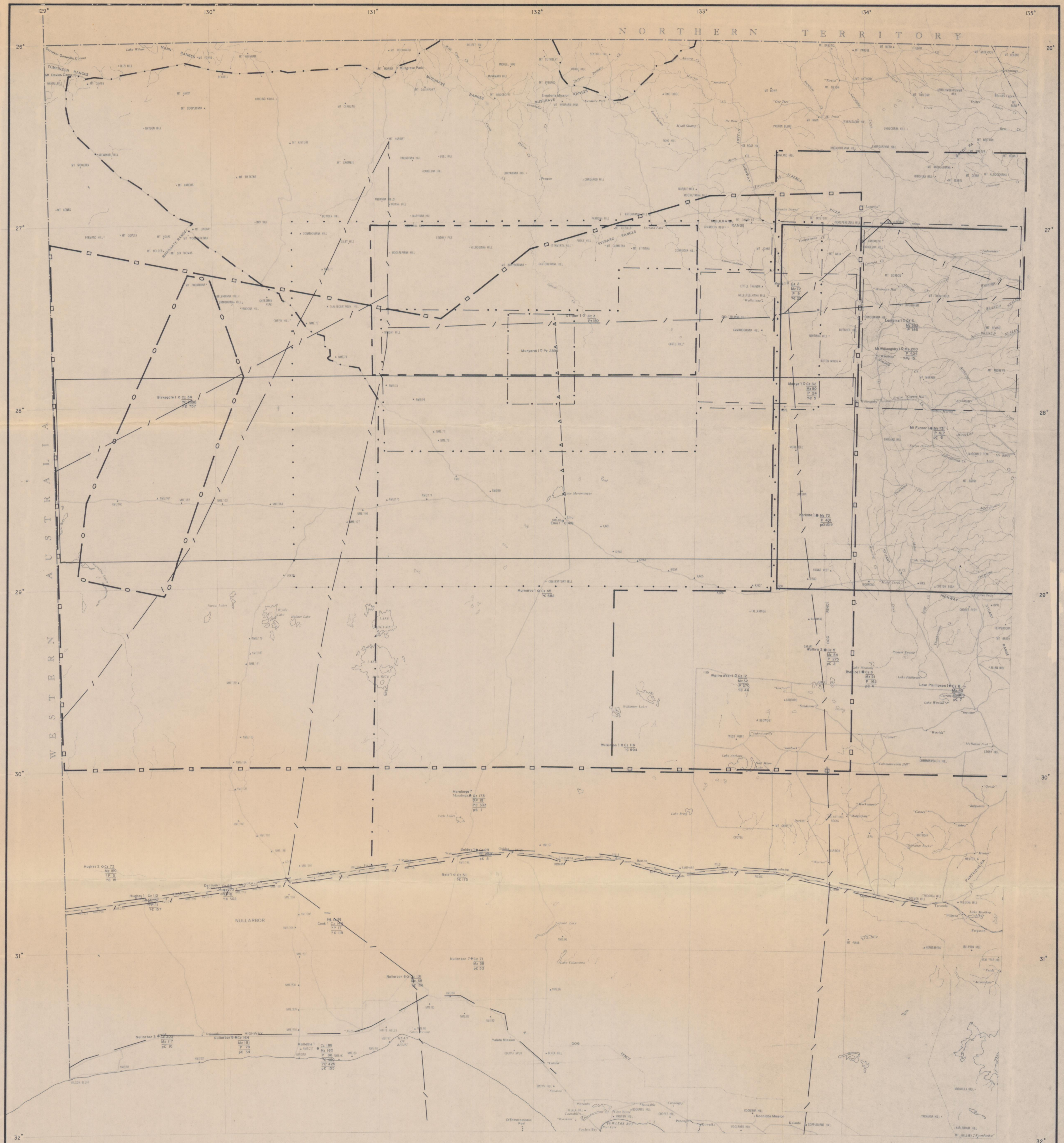
DATE Dec. 1979

DRN: M.R. CKD:

BOREHOLE LOCATION MAPS

PLAN NUMBER

S 14504



- | | | |
|---|---|--|
| — — — — — Bowman & Harkey 1962 | — — — — — Milton & Thornton 1970 | - / - / - Quilty & Goodeve 1958 (flight lines) |
| — — — — — Gunson & Van der Linden 1956 (land lines) | — — — — — Milton & Parker 1973 | — — — — — Raitt & Bowman 1967 |
| - - - - - Hall 1973 | — Δ — Δ — Moorcroft 1969 (seismic line) | New Ventures Team, Shell 1975 |
| — — — — — Hall & Townsend 1971 | — — — — — Mumme 1963 (land lines) | — ○ — — — Shorey 1966 |
| — — — — — Milton 1973 | Nettleton 1970 | — □ — — — Steenland 1965 |

Scale in kilometres
20 0 20 40 60 80 100

FIG. 9 DEPARTMENT OF MINES AND ENERGY—SOUTH AUSTRALIA			
WESTERN SOUTH AUSTRALIA AREAS COVERED BY GEOPHYSICAL SURVEYS			
COMPILED B.C. Youngs	DRN. E.C.	SCALE 1:1000,000	PLAN NUMBER
DIRECTOR GENERAL	CKD.	DATE Dec. 1979	79-862

See also the following (areas not plotted here) :- Milton 1972, 1974 a, 1974 b, 1975.