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NUMBER 8083

PETROLEUM EXPLORATION OPPORTUNITIES
DATA PACKAGE BROCHURES - 1989

Submitted by

South Australian Department of Mines and Energy
[Oil, Gas and Coal Division]

1989

MINES AND ENERGY
SOUTH AUSTRALIA

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ENVELOPE 8083

TENEMENT: Not applicable

TENEMENT HOLDER: Mines and Energy, South Australia [*Oil, Gas and Coal Division*]

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END OF CONTENTS

PETROLEUM

EXPLORATION OPPORTUNITY

WESTERN PEDIRKA BASIN

AREA A

DATA PACKAGE BROCHURE

DEPARTMENT OF
MINES AND ENERGY

SOUTH AUSTRALIA

March, 1989

WESTERN PEDIRKA BASIN
EXPLORATION OPPORTUNITY

DATA PACKAGE BROCHURE - AREA A

Prepared by

OIL, GAS & COAL DIVISION

DEPARTMENT OF MINES & ENERGY
SOUTH AUSTRALIA

MARCH, 1989

EXPLORATION OPPORTUNITY - AREA A

DATA PACKAGE BROCHURE

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EXPLORATION OPPORTUNITY - AREA A
DATA PACKAGE BROCHURE

1. STATEMENT OF INTENT

Applications are invited by the 30th September, 1989 for a Petroleum Exploration Licence (PEL) in the WESTERN PEDIRKA BASIN, over Area A, or part thereof, shown on Figure 1. Area A covers approximately 16 500 km^2 of the Eringa Trough and western margins of the Pedirka Basin. The area is one of seven covering portions of the Mesozoic Eromanga and Simpson Desert Basins; Permian Pedirka and Arckaringa Basins, and the Cambrian Arrowie Basin (Fig. 2), which are now available for application following the relinquishment in early 1989 of 88 406 km^2 of the Pedirka Sector and 4 589 km^2 of the Arrowie Sector of PELs 5 and 6, plus the relinquishment of PEL 31 (held from 1985 until late 1988).

A data package has been prepared for each of the seven areas which contains a selection of regional gravity and magnetic data, seismic sections, well completion reports from petroleum, mineral and stratigraphic wells and relevant geological maps. Each selection provides a basis for a technical assessment of each area but is not intended to be comprehensive.

References to all relevant petroleum exploration work carried out to date in Area A are listed in the bibliography.

A brief review of the geology and hydrocarbon potential of Area A is set out below, together with a detailed breakdown and costing of the data package and includes a bibliography and licence application information. An

order form is provided at the back of this brochure. Please note that orders received before May 31st 1989 will receive preference. Packages will be supplied promptly after that date.

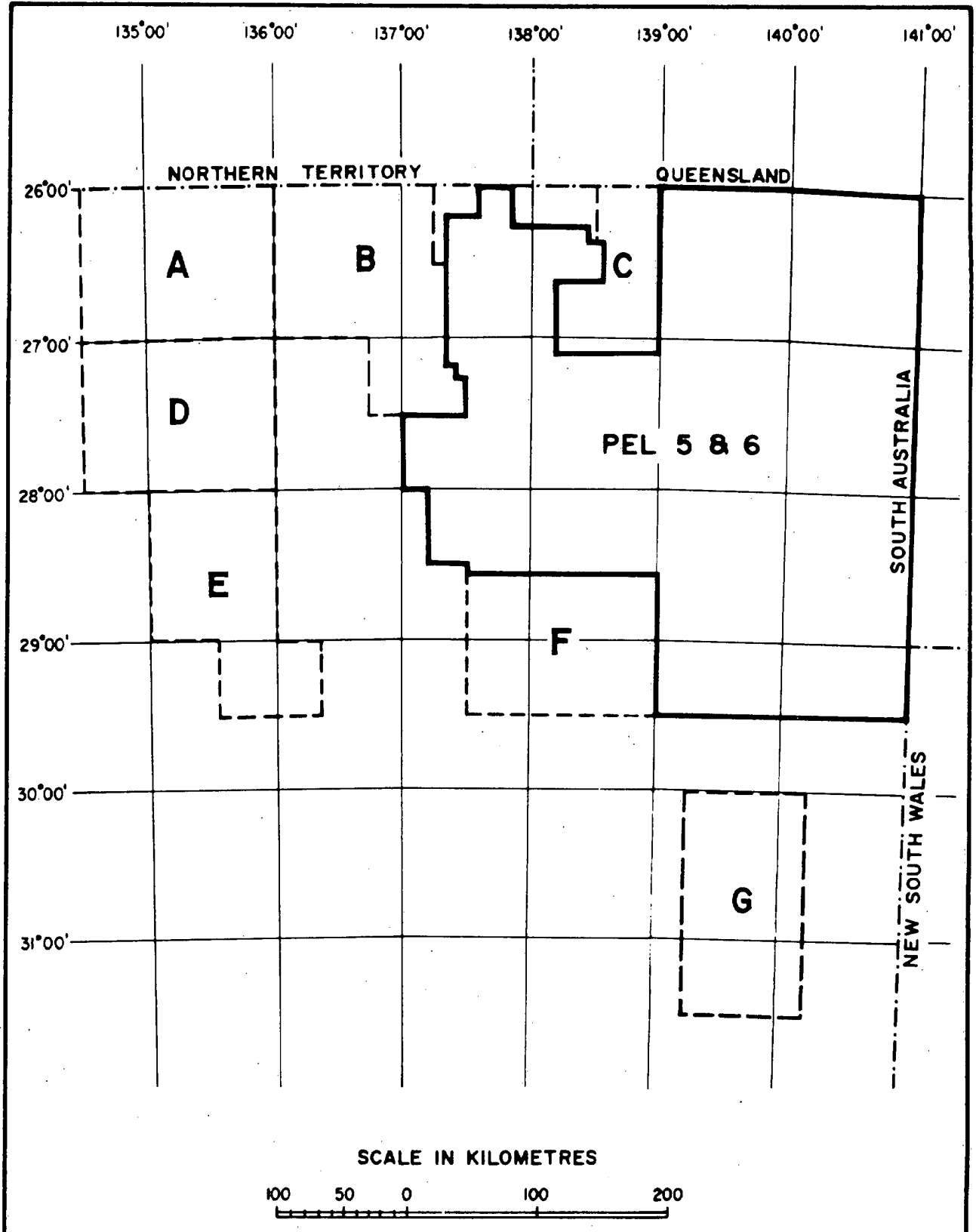


Figure 1

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED R. Frears	CDO	DATE
	DRAWN E. Calabio	SCALE As shown	
AREAS AVAILABLE FOR APPLICATION	DATE Jan.'89	PLAN NUMBER	
	CHECKED		

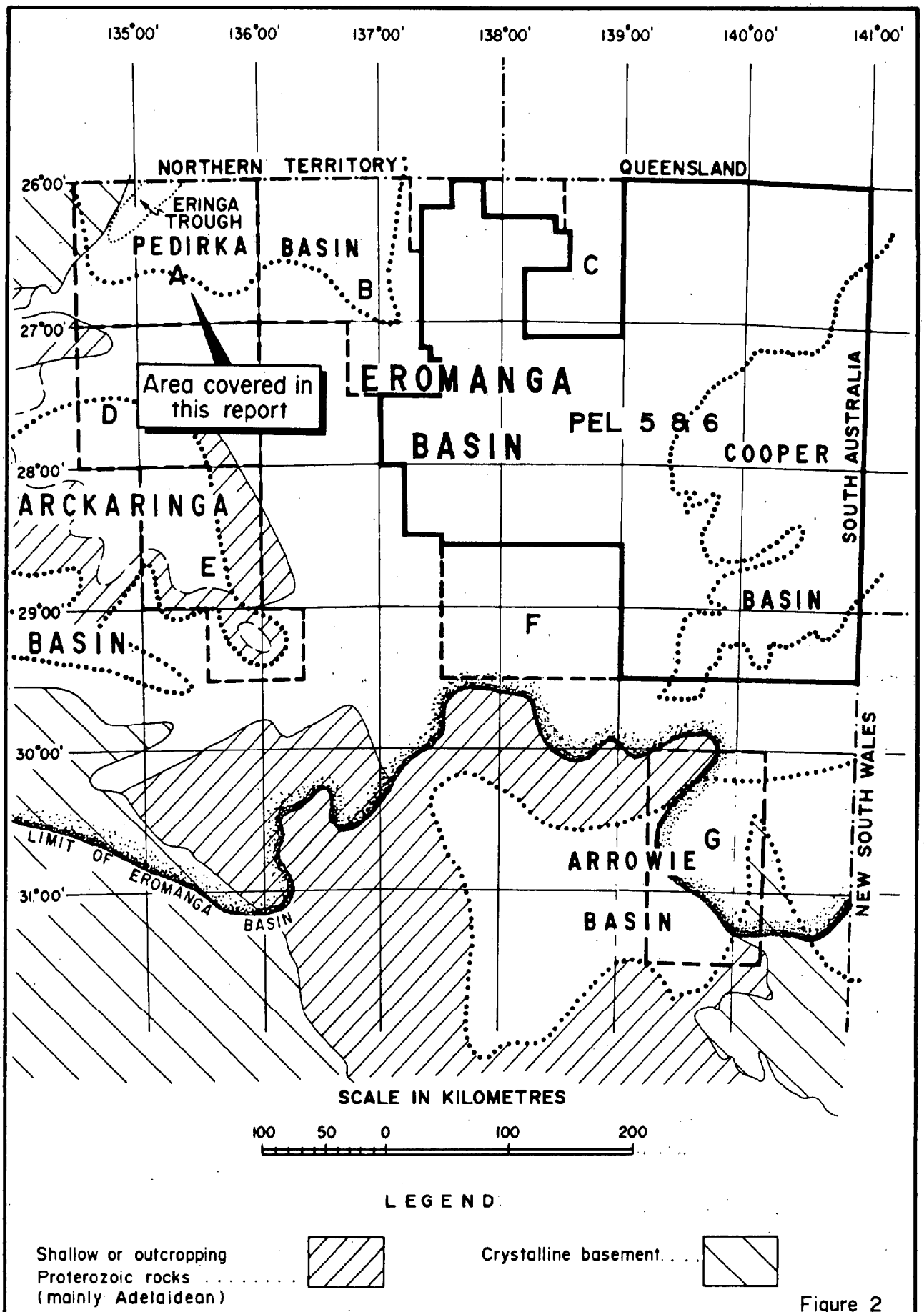


Figure 2

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

NORTHEASTERN SOUTH AUSTRALIA
SEDIMENTARY BASINS

COMPILED R. Frears	C D D DATE
DRAWN E. Calabio	SCALE As shown
DATE Jan. '89	PLAN NUMBER
CHECKED	

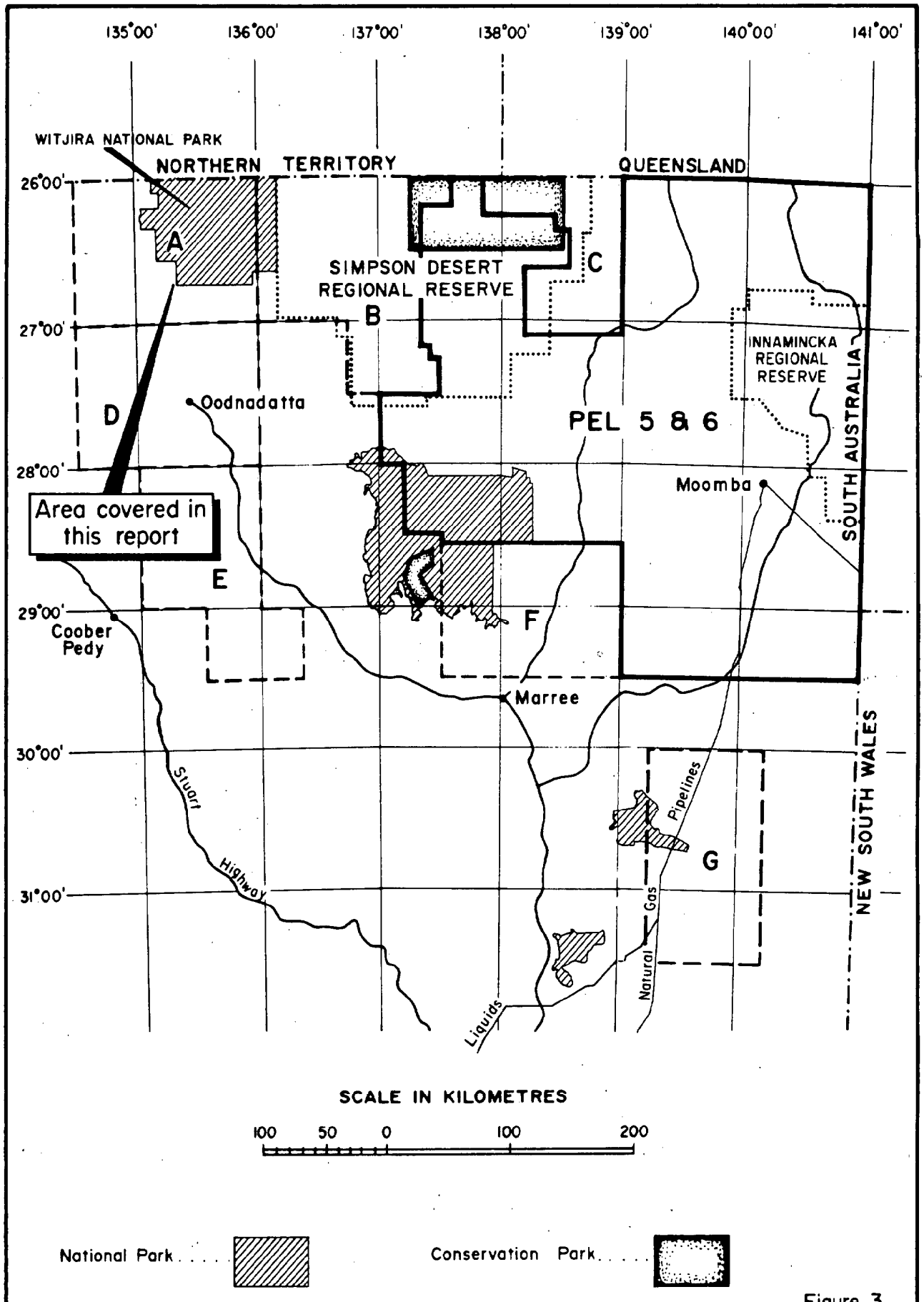


Figure 3

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA	COMPILED R. Frears	C D O DATE
NORTHEASTERN SOUTH AUSTRALIA	DRAWN E. Calabio	SCALE As shown
PARKS and RESERVES	DATE Jan. '89	PLAN NUMBER
	CHECKED	

2. GEOLOGICAL SUMMARY

2.1 Introduction

Area A comprises approximately 16 500 km^2 in a total of 88 406 km^2 relinquished from the Pedirka Sector of PEL's 5 and 6. Four petroleum wells (Table 1) and 1747.2 km of seismic exploration have failed to delineate economic accumulations of hydrocarbons although a number of prospective structures remain to be fully evaluated and more undoubtedly remain to be found. The geology and hydrocarbon potential is outlined below.

The Witjira National Park includes a large portion of Area A. Access under the Petroleum Act is permitted into the Park under the conditions set out in Section 5.1.

Applications for petroleum exploration licences covering the area will close on 30th September 1989. Any enquiries should be directed to:

Bob Laws, Director of Oil, Gas and Coal Division
Dept. of Mines and Energy
P.O. Box 151
EASTWOOD S.A. 5063

2.2 Geological Setting

2.2.1 Structure

The main structural trends within the Pedirka Basin (Fig. 4), trend from north-south to northwest-southeast. A structural cross section of the Pedirka Basin is illustrated in Figure 5.

The major structural feature within Area A is the Mt. Hammersley-Dalton Trend which lies to the eastern margin of the Eringa Trough. The trend consists of en-echelon folded & faulted anticlines with Mt. Hammersley No. 1 to the south, Dalmatia No. 1 in the centre and the Dalton prospect to the north.

The McDills-Mayhew Trend lies to the east of the Mt. Hammersley-Dalton Trend. The McDills-Mayhew Trend consists of a regional north-south anticline that plunges to the north. Mt. Crispe No. 1 was drilled on the crest of the trend, whilst Witcherrie & McDills wells were drilled to the north.

A thick accumulation of Permian sediments has been proven in the Eringa Trough. The Trough is a large arcuate depression in the centre and west of Area A, with a projected Permian thickness of 1500 metres (Southwell, 1988).

2.2.2 Stratigraphy

Pre Permian consists of flat to steeply dipping Cambro-Ordovician sediments of the Warburton and Amadeus Basins.

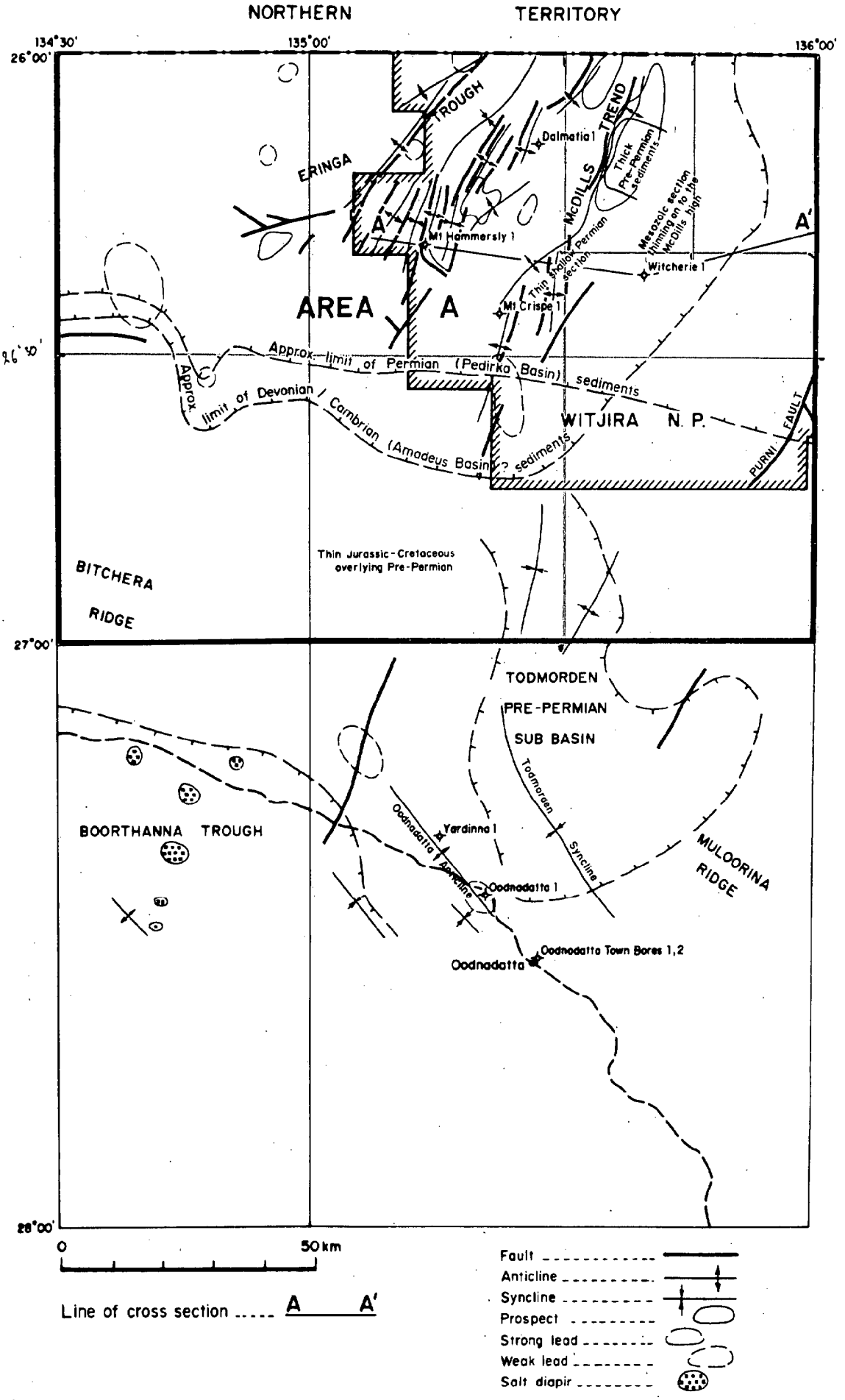
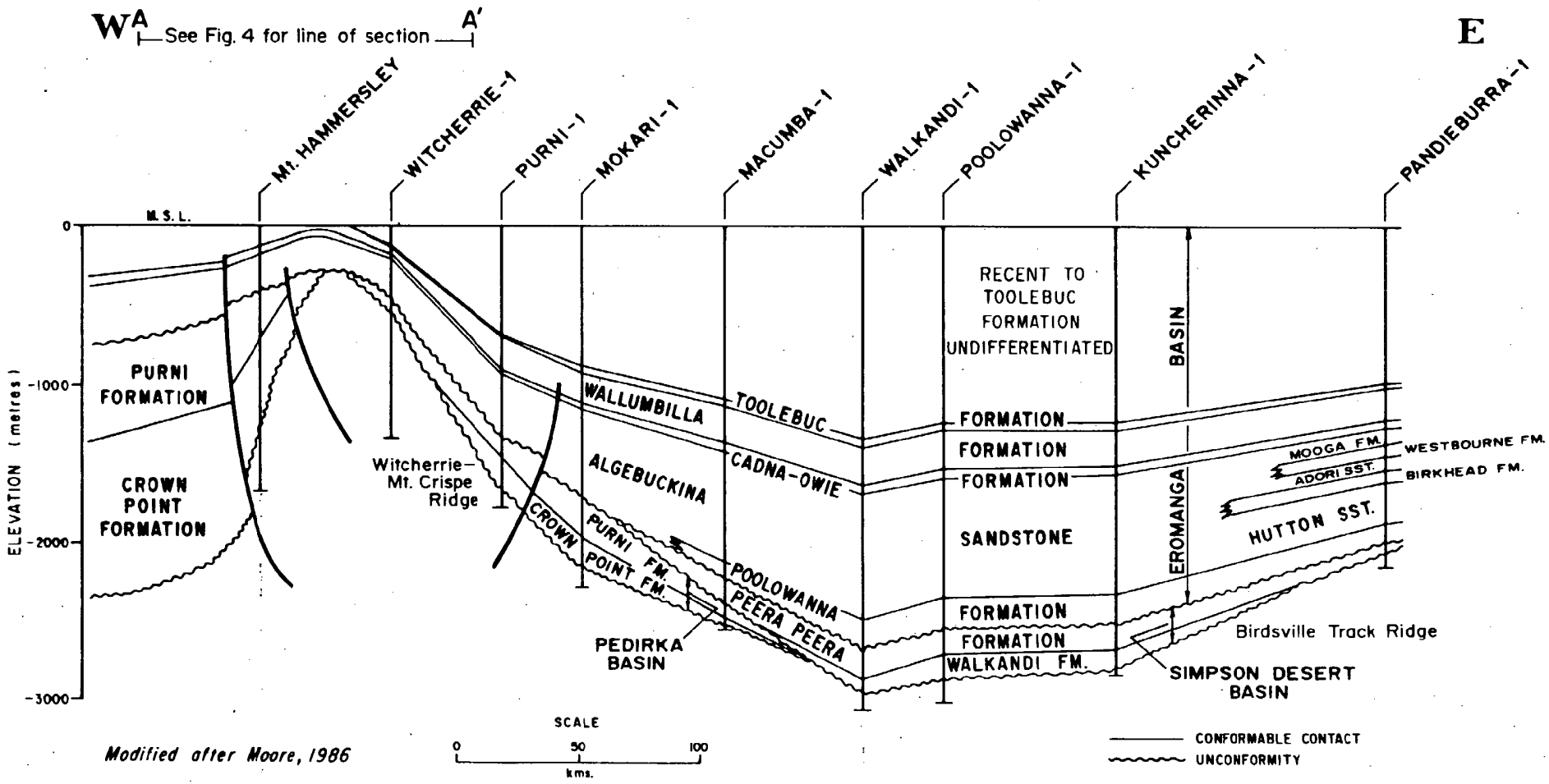


Figure 4. Geological summary, Area A



Modified after Moore, 1986

STRUCTURAL CROSS-SECTION
PEDIRKA BASIN

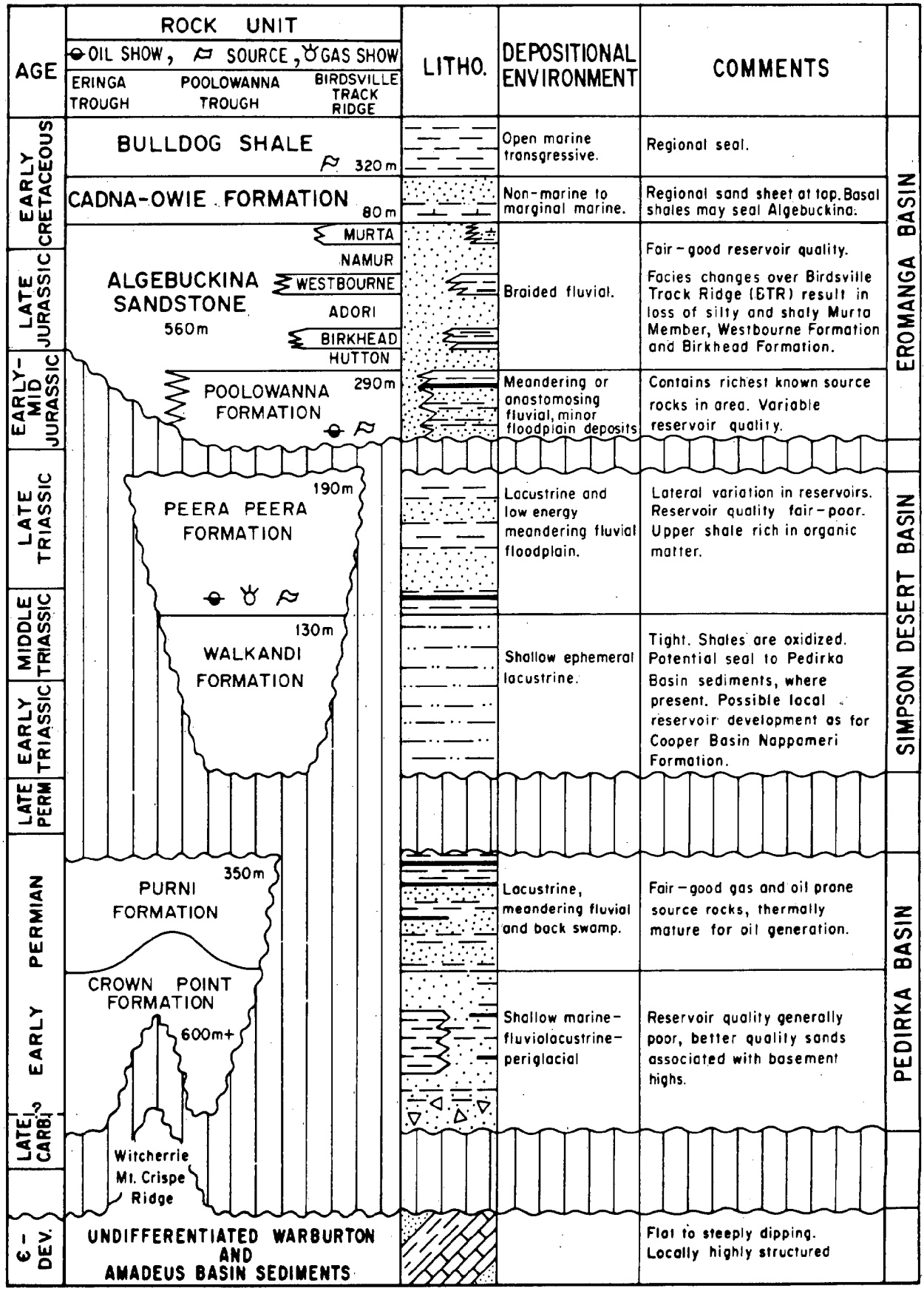
SADME S20677

Figure 5

The Pedirka Basin (Fig. 6) contains units of Late Carboniferous to Early Permian age consisting of the lower glaciogenic Crown Point Formation, and the overlying coal swamp facies of the Purni Formation. These sediments outcrop on the northern and western margin of the basin, in the Northern Territory. Early Permian tectonics indicative of a tensional regime have been interpreted in this area, akin to that observed in the Cooper Basin.

The Crown Point Formation is essentially glaciogene containing diamictites, pebbly sandstones and clays (Crowell and Frakes, 1971) and is thought to be equivalent to the Merrimelia Formation of the Cooper Basin. The Crown Point Formation is thickest to the west, at Mt Hammersley No. 1 (701 m) while to the east it thins and becomes dominated by siltstone and shale facies. This unit is probably equivalent to the Tirrawarra Sandstone in the Cooper Basin.

The Purni Formation attains a maximum thickness of 286 m in Mt Hammersley within Area A. The unit consists of interbedded sandstones, siltstones, shales and coal deposited in a meandering fluvial regime. The Purni Formation is laterally equivalent to the Patchawarra Formation of the Cooper Basin.



350m Max. known thickness.

ERINGA TROUGH, PEDIRKA AND SIMPSON DESERT BASINS

SADME S20676

Figure 6

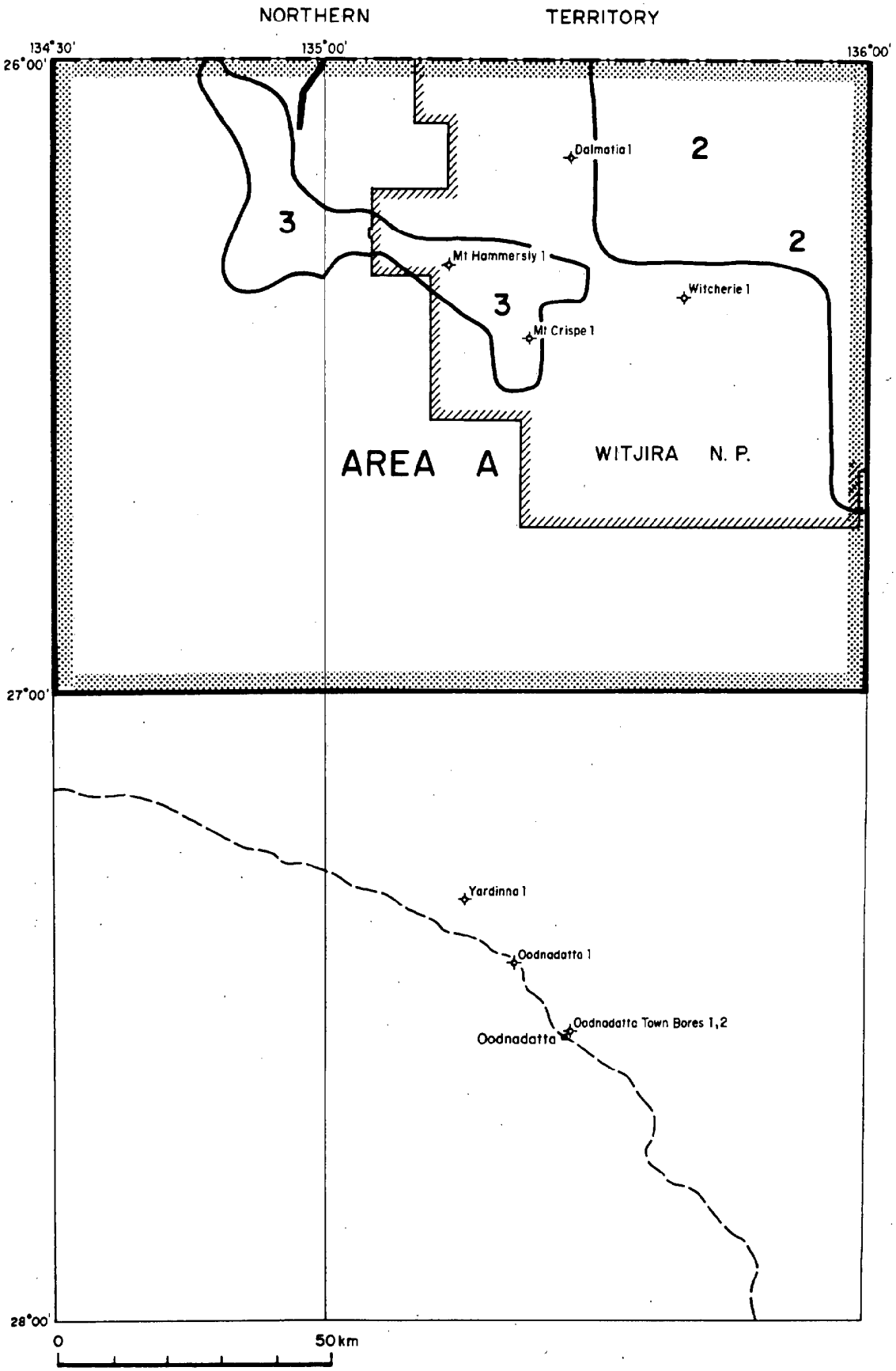


Figure 7. Gravity surveys, Area A

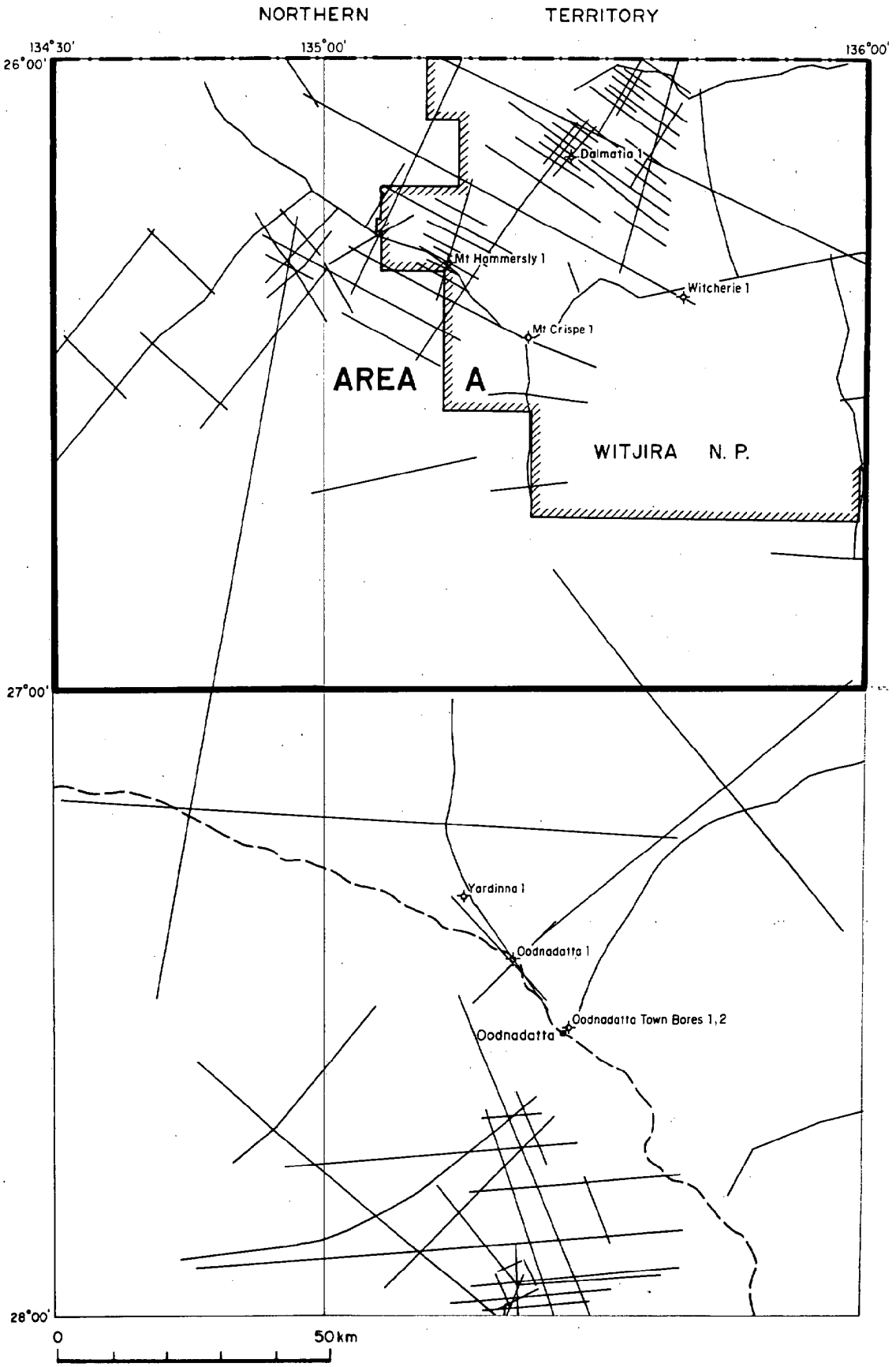


Figure 8. Seismic line locations, Area A

The Walkandi Formation is the basal unit of the Triassic Simpson Desert Basin and attains a maximum thickness of 133 m in the east at Poolowanna No. 1. This unit consists of interbedded shale, siltstone and minor sandstone deposited in a shallow lacustrine environment (Moore, 1986). The Peera Peera Formation (maximum thickness 190 m) conformably overlies the Walkandi Formation and consists of interbedded highly carbonaceous shale, siltstone, sandstone and minor coal deposited on the floodplain of a low energy, meandering fluvial system (Moore, 1986). The unit flowed gas at rate too small to measure in Poolowanna No. 1.

The Poolowanna Formation (over 200 m thick in the Poolowanna Trough) is the lowermost unit of the Jurassic to Cretaceous sediments of the Eromanga Basin and rests unconformably on the Peera Peera Formation. The unit consists of interbedded sandstone, shale and minor coal deposited by meandering or anastomosing streams and associated floodplains. The Poolowanna Formation flowed oil at 57 barrels per day and 17 barrels of water per day from Poolawanna No. 1, in 1978.

The Algebuckina Sandstone conformably overlies the Poolowanna Formation, and consists of a thick sequence of poorly sorted, fine to coarse sandstones with rare siltstones, deposited by high energy braided streams. Conformably overlying the Algebuckina Sandstone is the Cadna-

owie Formation, the top of which forms a distinctive seismic reflector ("C" horizon) over the entire Eromanga Basin. The unit consists of a coarsening upwards sequence of non-marine siltstones at the base, grading upwards to beach and marine shoreface calcareous sandstones. The Cadna-owie Formation is overlain regionally by the Bulldog shale, deposited in a shallow water marine environment.

2.3 Hydrocarbon Potential

2.3.1 Source

The Poolowanna Formation possesses the richest known source rocks in the area, and may have up to 15 per cent TOC (Moore, 1986 and Cook, 1986). Thin coals are common, and may have yielded liquid hydrocarbons. The Purni Formation contains up to 4 percent dispersed organic matter. Vitrinite reflectance approximates 0.9 per cent, equivalent to peak oil generation (Smyth & Saxby, 1981).

There is a possible Devonian lacustrine source in the west of the Basin, in the Eringa Trough. Fish fauna (Thelodonts) have been found in Devonian sediments in the Eastern Officer Basin (Munyarai 1).

2.3.2 Reservoir

The Crown Point reservoir are generally of variable quality, with coarser sands to be found on the structural highs and in sandstones found to the west of the McDills trend.

The Poolowanna Formation contains variable quality reservoirs, with fine to very fine grains cemented by silica in the deeper parts of the Trough, while the sands are more unconsolidated towards the margins (Moore, 1986).

Peera Peera Formation reservoirs are laterally variable and contain few porous and permeable sandstone units.

The Algebuckina Sandstone has good reservoir quality and is a major aquifer in the Eromanga Basin.

2.3.3 Seal

Sealing of the potential reservoirs is achieved by both

a) Intraformational seals

- such as the siltstones and shales of the Peera Peera, Poolowanna and Purni Formations. These seals are laterally

extensive while the silts and shales of the Crown Point Formation may not contain a thick lateral component.

b) Regional seals

- The Walkandi Formation and the lower silts of the Peera Peera Formation could provide excellent regional seals to the underlying Purni Formation. The basal shales of the Cadna-owie Formation may provide an adequate seal to the Algebuckina Sandstone, while the Bulldog Shale is a regional seal in both units.

2.3.4 Maturity

Present day geothermal gradients indicate that the Pedirka basin has a significantly lower maturity than the nearby Cooper Basin. Thus the Purni Formation has been at least, recently mature for oil generation. The Poolowanna Formation may have generated significant volumes of oil in the deeper parts of the Simpson Desert Basin, while limited generation may have occurred at the margins. It is expected that Permian sediments in the Eringa Trough have had a similar history of maturity and hydrocarbon generation as the Pedirka Basin.

2.3.5 Hydrocarbon Prospectivity

The recent drilling of Mt Hammersley has led to the knowledge that the thick sediments in the Eringa Trough are Permian rather than Mesozoic. This significantly upgrades the potential of this region. Higher geothermal gradients and hence mature Permian source rocks within the Eringa Trough cannot be discounted. Although Mt Hammersley did not encounter any hydrocarbon shows, oil could have migrated into traps further down dip and to the west of Mt Hammersley.

3. DATA PACKAGE CONTENTS

If you wish to purchase the data package for Area A please complete and mail the order form at the back of this brochure. Orders received before May 31st will receive preference. Well completion reports will be supplied as microfiche copies, the geological reports and maps will be supplied as paper copies. Seismic sections, shotpoint location maps, and well logs will be supplied as sepia copies. Additional reports as listed in the bibliography can be ordered, and will be included in the package at extra cost. The cost of the data package is $Aust 2620 including freight costs.

The SADME contact person for enquiries relating to the data package is:

Vic Hilditch - Information Services on (08) 274 7523.

3.1 Geological data

3.1.1 Geological maps, 1:250 000 scale geological atlas series

Dalhousie (published with explanatory notes)

Abminga (published with explanatory notes)

3.1.2 Well Completion Reports

Well	Env.	Date	Depth (feet)
Dalmatia # 1	7113/6	1988	5 063
Mt Crispe # 1	626	1966	5 647
Mt Hammersley # 1	7116/6	1987	6 117
Witcherrie # 1	347	1963	4 803

Table 1. Well details

Note: digital (LIS format) tapes of limited log data are available from the Department at an additional cost of $35/tape plus $30/well (normally 10 wells per tape) for all wells listed. Complete well data tapes can also be purchased from Wiltshire Geological Services & Ian Northcott and Associates Pty Ltd.

3.1.3 Geological Reports

(N.B. This represents a selection of the most relevant open file Delhi-Santos data and is not a comprehensive listing of all relinquished information).

Delhi 1984 - Petroleum and Water Well data for the Dalhousie Block (Unpubl.)

Delhi 1985 - Dalhousie block summary and five year plan (unpubl.).

Hunt, J.W. and Johnstone, D.C., 1985. Pedirka Sector. A reassessment of geology, porosity, and maturity history (Unpubl.).

Moore, P.S, 1982. Geology and hydrocarbon prospects of the Dalhousie block PEL 5 & 6, South Australia. Vol 1 & 2. SADME Env. 4881 (Unpubl.).

Moore, P.S., 1983. Block Prospective summary Dalhousie Block. SADME env. 4881 (Unpubl.).

3.2 Geophysical data

3.2.1 Regional Bouguer gravity contour maps, 1:250,000 scale.
Dalhousie (1973), plan no. 74-365.
Ambinga (1973), plan no. 73-615

Both plans are based on a density of 1.90 qm/cm^3. Gravity station values maps are available. Figure 7 illustrates gravity surveys within Area A. Table 3 details gravity surveys to date.

3.2.2 Total magnetic intensity maps, 1:250 000 scale.
Dalhousie (1970), plan no. 71-28
Abminga (1970), plan no. 71-27.

3.2.3 Seismic line location base map at 1:250 000 scale.

3.2.4 Selected seismic sections.
The following sections will be supplied as sepia copies with the data package. Figure 8 illustrates the total seismic courage within Area A, while Figure 9 illustrates the following selected seismic lines.

Christmas Creek Seismic Survey

82-RAP
82-RAQ
82-RAR
82-RAS
82-RAW
82-RAX

Hogarth Seismic Survey (DAL)

84-XAF

84-XAG

84-XAH

Morphett Seismic Survey (DAL)

85-YGN

85-YGS

85-YGW

85-YJR

Fletcher Seismic Survey (DAL)

86-ADS

86-ADT

86-AEB

86-AEC

86-AEC

86-AED

86-AEF

86-AEG

86-AJE

3.2.5 Geophysical Report

The following report contains regional contour maps at the "C" and "P" horizons.

Southwell, P., 1988. Dalhousie Block Regional seismic Interpretation Report. SADME Env. 6483 Vol 8 (Unpubl.).

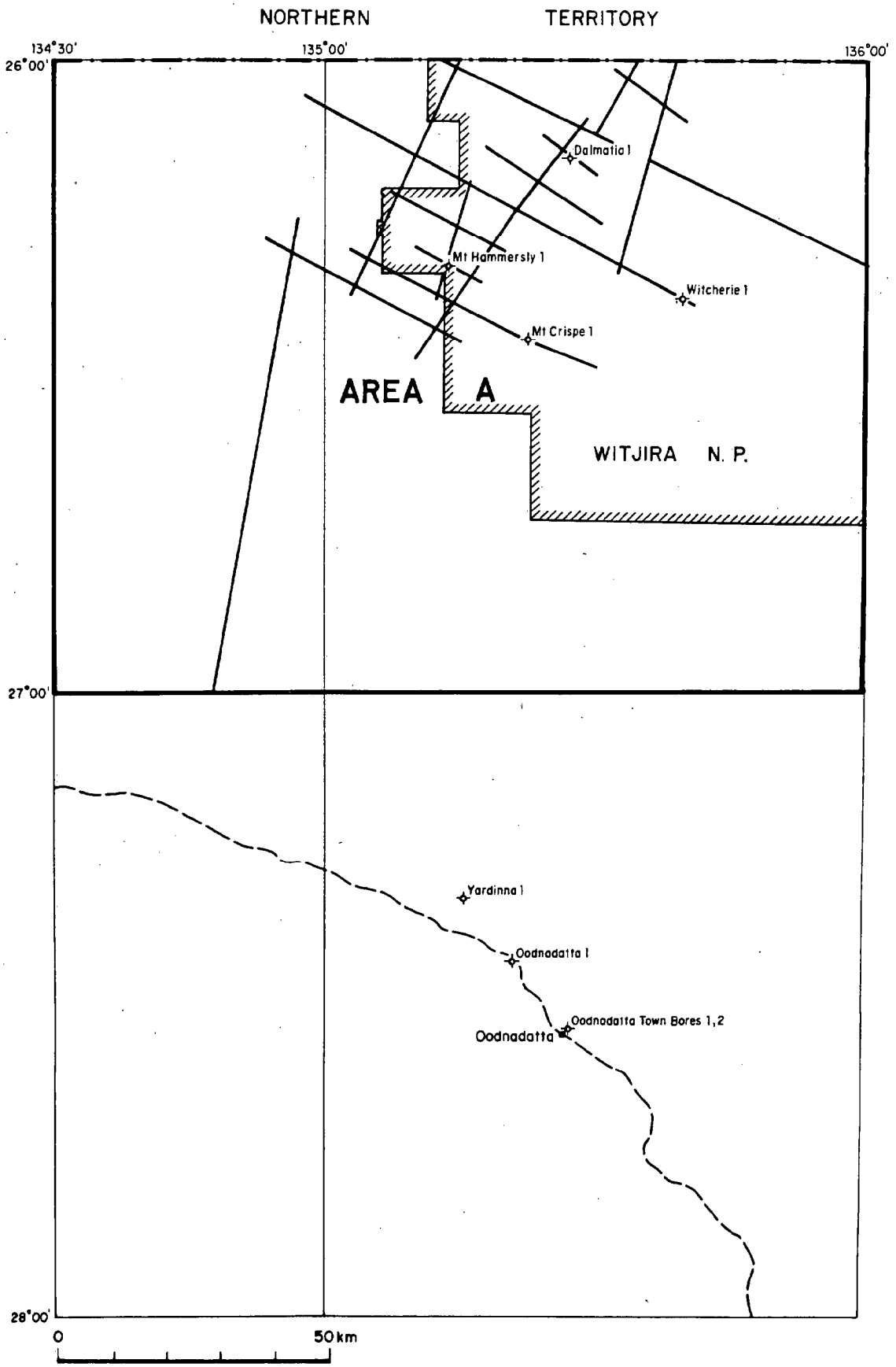


Figure 9. Seismic data included in data package, Area A

SURVEY NAME	OPERATOR	CONTRACTOR	YEAR	SADME REFERENCES
Pedirka Seismic Survey	French Petroleum Co	Compagnie Generale De Geophysique	1963	Envelope 336
Kallakoopah	French Petroleum Co	United Geophysical Corp	1964	Envelope 405 Vol 1-3
Emery Seismic and Gravity Survey	French Petroleum Co	Compagnie Generale De Geophysique	1966	Envelope 546, 791
Mt Ross Seismic Survey	Vamgas NL	United Geophysical Corp	1970	Envelope 1473, 1295
Christmas Creek Seismic Survey	Delhi Petroleum	Geophysical Exploration Services	1982	Envelope 5064 Vol 1-3 4879, 5058
Hogarth Seismic Survey	Delhi Petroleum	Norpac International	1984	Envelope 5561
Morphett Seismic Survey	Delhi Petroleum	Norpac International	1985	Envelope 5995
Fletcher Seismic Survey	Delhi Petroleum	Geophysical Services Inc	1986	Envelope 6483 Vol 1-2

Table 2. Seismic Surveys

AREA "A"
GRAVITY SURVEYS

SEISMIC SURVEY NAME	REFERENCE	YEAR	SURVEY TYPE	STATUS	SURVEY CODE	BY	FOR
1. Gravity and Magnetic Traverses in far North-West of S. Aust.	MINING REV # 104 R.B. # 42/023	1953	- Road 1-3 mile intervals	Not on Gravity file Barometric	53-E4	SADME	SADME
2. Andado, Gravity Survey, N.T.	BMR Record 6134	1960	Road 1 mile Optical levels	On file	6100 6134	Geosurveys	Geosurveys
3. Dalhousie Gravity Survey	BMR Record 6340 Env. 327, 333 346	1963	Helicopter 4-5 mile grid	On file Barometric	6340	Wongela	French Petroleum Co.
4. Poolowanna Seismic and Gravity Survey	Env 448, 791 773, 845, 798 BMR Record 6442	1964/65	Seismic Lines Optical levels	On file	6405	C.G.G.	French Petroleum Co.
			MAGNETIC SURVEYS				
1 Aeromangetic Survey - OODNADATTA	Env 202, 12, 166 167	1961/62	Airborne Lines E-W 8.0 km spacing 460 m flight height		61SA01,61SA02	Aero Service Corporation	Delhi

Table 3. Gravity and Magnetic Surveys

4. BIBLIOGRAPHY

4.1 Published References

Canaple, J. and Smith, L., 1965. The pre-Mesozoic geology of the western Great Artesian Basin. APEA J. 5, 107-110.

Cook, A.C., 1986. The nature and significance of the organic facies in the Eromanga Basin; in Gravestock, D.I., Moore, P.S., and Pitt, G.M. (Eds) Contributions to the geology and hydrocarbon potential of the Eromanga Basin. Geol. Soc. Aust. Spec. Publ. 12:203-220.

Cowell, J.C. and Frakes, L.A., 1971. Late Palaeozoic glaciation of Australia. J. geol. Soc. Aust. 17(2) 115-155.

Devine, S.B. and Youngs, B.C., 1975. A review of the Palaeozoic stratigraphy and petroleum potential of northern S. Aust. APEA J., 15, 45-54.

Moore, P.S., 1986. Jurassic and Triassic stratigraphy and hydrocarbon potential of the Poolowanna Trough (Simpson Desert region) northern South Australia; in Gravestock, D.I., Moore, P.S. and Pitt, G.M. (eds) Contributions to the geology and hydrocarbon potential of the Eromanga Basin. Geol. Soc. Aust. Spec. Publ. 12:39-51.

Senycia, P.G., 1989. Sand dune development within the Simpson Desert and its effects on statics calculation. In O'neill, and Laws (ed.). Proceedings, Cooper - Eromanga Basin Symposium. PESA/SPE/ASEG (S.A. Branch), Adelaide.

Smyth, M. and Saxby, J.D., 1981. Organic petrology and geochemistry of source rocks in the Pedirka-Simpson Basins, central Australia. APEA J., 21(1), 187-199.

Wofpner, H., 1972. Depositional history and tectonics of South Australian sedimentary basins. Mineral Resour. Rev. S. Aust., 133: 32-50.

Wopfner, H., 1985. Some thoughts on the post-orogenic development of northeastern South Australia and adjoining regions. SADME Spec. Publ. 5, 365-373.

Youngs, B.C. and Wopfner, H., 1972. Subsurface faults and recent earthquakes in the Simpson Desert. Q. geol. Notes, geol. Surv. S. Aust., 43: 8-11.

Youngs, B.C., 1975. The Early Permian Purni Formation of the Pedirka Basin. Q. geol. Notes, geol. Surv. S. aust., 54.

Youngs, B.C., 1975. The geology and hydrocarbon potential of the Pedirka Basin. Rep. Invest. geol. Surv. S. Aust., 44.

Youngs, B.C., 1976. Pedirka Basin. In: Leslie, R.B., Evans, H.J. and Knight, C.L. (eds.), Economic Geology of Australia and Papua New Guinea, 3, Petroleum. Australas. Inst. Min. Metall., Melbourne, 372-373.

4.2 Unpublished

Cooper, B.S., Coleman, S.H., Simpson, W.B. and McEwan, J., 1977. Report on a geochemical evaluation of the Mokari 1 and Purni 1 wells, Pedirka Basin, S. Aust. Beach Petroleum. W/L Robertson Research (Aust.) Pty. Ltd. Env. 3033 SADME (unpubl.).

Moore, P.S., 1982. Geology and hydrocarbon prospects of the Dalhousie block PEL 5 & 6, South Australia. Vol 1 & 2. SADME Env. 4881 (Unpubl.).

Moore, P.S., 1983. Block Prospecting Summary. Dalhousie Block. SADME Env. 4881 (unpubl.).

Southwell, P., 1988. Dalhousie Block Regional seismic Interpretation Report. SADME Env. 6483 (Unpubl.).

Surdam, R.C., et al 1982. Bulk mineralogy, clay mineralogy and total organic carbon of cores from B.M.R. library. Reort for the Bureau of Mineral Resources SADME Env. 3859. (Unpubl.).

4.3 SAMREF

Comprehensive information is available in the Department's SAMREF bibliographic database. SAMREF is available for public access either at this Department, or through ARID (Australian Resources Industry Database), forming part of GEOPAC on INFO-ONE International. Prior to November 1, 1988 INFO-ONE International was known as CLIRS Information Services. With this change of name, there is now a lower price schedule applying to membership and annual fees and connect time rates. New access menus have also been provided to facilitate use by causal and inexperienced users. INFO-ONE International is available Australia-wide and overseas and can be accessed online by computer.

The South Australian Department of Mines and Energy is progressively adding abstracts to the SAMREF database on INFO-ONE International, including:

- company reports released since 1983
- Departmental reports and publications released since 1981 and
- some pre-1981 revised company and Departmental reports

Other references are only available at the Department in Adelaide.

5. LICENCE APPLICATION PROCEDURES

Petroleum exploration and development in South Australia are administered under the Petroleum Act, 1940 (onshore) and the Petroleum (Submerged Lands) Acts, 1967 of the Commonwealth and 1982 of the State (offshore). Vacant onshore areas are continuously available for licence applications, whereas offshore permits are open to application only after release of areas by the Commonwealth and State Governments.

There is no set form for making an application other than by a written request addressed to the Director General, Department of Mines and Energy. Application guidelines, licence conditions, obligations, etc. for onshore petroleum exploration are summarised in Table 4.

In summary, all applications should be signed under seal and include a $400 application fee (cheques should be made out to SADME), a proposed program and cost for each year of the initial 5 year licence term, evidence of the applicants financial ability to undertake such a program and the technical qualifications and expertise of personnel available to the applicant to undertake the program. For any enquiries relating to licence applications contact:

Mr Bob Laws
Director, Oil, Gas and Coal Division
Phone (08)a 274 7612

5.1 Witjira National Park

NATIONAL PARKS AND WILDLIFE ACT, 1972: SECTIONS 28 and 43: CONSTITUTION OF WITJIRA NATIONAL PARK

SOUTH AUSTRALIA, *to wit* { *Proclamation by His Excellency the Governor of the State of South Australia*

(L.S.) D. B. DUNSTAN

PURSUANT to the National Parks and Wildlife Act, 1972, I, the Governor, with the advice and consent of the Executive Council, make the following proclamation:

1. The following Crown lands are constituted as a national park to be known as "Witjira National Park":

Section 1495, Out of Hundreds (Dalhousie).

2. Subject to clause 4, existing rights of entry, prospecting, exploration or mining under the Mining Act, 1971, or the Petroleum Act, 1940, may continue to be exercised in respect of the lands constituting Witjira National Park.

3. (1) Subject to subclause (2), rights of entry, prospecting, exploration or mining may, with the approval of the Minister for Environment and Planning, be acquired pursuant to the Mining Act, 1971, or the Petroleum Act, 1940, in respect of the lands constituting Witjira National Park.

(2) The approval of the Minister for Environment and Planning is not required for the acquisition of mining rights under the Petroleum Act, 1940, by the holder of an exploration licence in force under that Act in relation to the lands immediately before the making of this proclamation.

4. A person in whom rights of entry, prospecting, exploration or mining are vested pursuant to the Mining Act, 1971, or the Petroleum Act, 1940 (whether those rights were acquired before or after the making of this proclamation) shall not exercise those rights in respect of the lands constituting Witjira National Park unless he complies with the following conditions:

(a) at least 3 months before commencing any drilling or excavation, any vegetation clearance, the making of any road, track or airstrip or the construction of any building or other structure, the person shall notify the Minister for Environment and Planning and the Minister of Mines and Energy of the proposed work and shall supply each Minister with such information relating to the proposed work as that Minister may require;

(b) the person, in carrying out any work referred to in paragraph *(a)*—

(i) shall comply with such directions as the Minister for Environment and Planning may give in writing in relation—

(A) to carrying out the work in a manner that minimizes damage to the land or the environment or to vegetation or wildlife on the land;

(B) to preserving objects, structures or sites of historic, scientific or cultural interest;

or

(C) to rehabilitating the land upon the completion of the work;

and

(ii) if the work is being carried out in pursuance of a right of entry, prospecting, exploration or mining acquired after the making of this proclamation (other than a mining right acquired under the Petroleum Act, 1940, by the holder of an exploration licence in force under that Act immediately before the making of this proclamation), shall comply with such directions as the Minister for Environment and Planning or the Minister of Mines and Energy may give in writing in relation to prohibiting or restricting access to any specified area of the lands that the Minister believes would suffer significant detriment as a result of carrying out the work;

(c) if a plan of management is in operation under section 38 of the National Parks and Wildlife Act, 1972, in respect of Witjira National Park, the person shall have regard to the provisions of the plan of management;

(d) the person, in addition to complying with any directions given under paragraph *(b)*—

(i) shall take such steps as are reasonably necessary to ensure that objects, structures and sites of historic, scientific or cultural interest, features of scientific or scenic interest and any wildlife on the lands are not unduly affected by the exercise of those rights;

(ii) shall take reasonable steps to minimize damage to vegetation;

(iii) shall maintain all work areas in a clean and tidy condition;

and

(iv) shall, upon the completion of any work, obliterate or remove all roads, tracks, airstrips, buildings or other structures (other than a road, track, airstrip, building or structure designated by the Minister for Environment and Planning and the Minister of Mines and Energy as suitable for retention) used exclusively for the purposes of that work.

Given under my hand and the public seal of South Australia, at Adelaide, 21 November 1985.

By command,

D. J. HOPGOOD, for Premier

D.E.&P., 459/83TC1

GOD SAVE THE QUEEN!

Table 5: Onshore Petroleum Exploration guidelines

PETROLEUM ACT, 1940

Note: The area to which this Act applies covers all of onshore South Australia exclusive of Commonwealth Lands; it extends south to the State Territorial Sea Baseline and includes the waters of Spencer and St Vincent Gulfs.

	ONSHORE PETROLEUM PRODUCTION	Petroleum Act Reference
Title of Tenement	Petroleum Exploration Licence (P.E.L.)	
Who Can Apply	An individual, a body corporate (i.e. a company) or an unincorporated association of persons and bodies corporate (i.e. a joint venture involving several persons and/or companies.)	6(1)
	Where application is made on behalf of a company, the application must be made under the company seal.	41(b) & (c)
When Application Can be Made	Initial Licence - At time over any area not already under licence	6(1a)
	Renewal of Licence - not less than 3 months before existing licence is due to expire.	18(5b)
Maximum Area	26 000 sq kms.	15(1)
Application Fee	For initial application - $400	7(2)
	For each renewal - $400	7(2)
Bond (to ensure compliance with licence conditions)	$4 000 minimum. Amount required is specified in letter of offer. Bond may be in the form of cash, cheque or bank guarantee.	13(1)
Term of Licence	Initial Term - 5 years	15(2)
	Each Renewal - (to a maximum of 3) - 5 years	15(2)
Annual Rental Payable	Initial 5 year licence term - 16c/sq km	18c(a)
	First Renewal (2nd 5 Year licence term) - 24c/sq km	18c(b)
	Second Renewal (3rd 5 Year licence term) - 32c/sq km	18c(c)
	Third & Final Renewal (4th 5 Year licence term) - 40 c/sq km.	18c(d)
Minimum Work Commitments	As negotiated with applicant after application (which must contain a proposed 5 year work program) has been received.	
Minimum Expenditure Commitments	Initial 5 Year licence term	
	- first two years - $16 per sq km per year	17(1)(a)
	- last three years - $24 per sq km per year	17(1)(b)
	First Renewal (2nd 5 Year licence term) - $62 per sq km per year	18a(1)(a)
	Second Renewal (3rd 5 Year licence term) - $80 per sq km per year	18a(1)(b)
	Third $ Final Renewal (4th 5 Year licence term) - $94 per sq km per year	18a(1)(c)
Area to be Relinquished on each Renewal	25% of original licence area. This is in addition to any areas voluntarily surrendered during each 5 Year licence term.	18(2)

Fee for Minister's Consent to Dealings in Licence	$400 per transaction (document)	42(3)
Fee for Inspection of Register	$2	Reg.7(1)
Fee for Copy or Extract from Register	50¢ per page	Reg.7(2)
Method of Application	Letter of application addressed to the Director-General, Department of Mines and Energy (there is no prescribed form).	7(1)
	Attached to the application should be:	
	(1) full names and addresses of the party/ parties making the application, including (where applicable) the percentage interests of the various parties.	
	(2) two copies of a map and description of the area being applied for.	7(3)
	(3) a table showing the work intended to be carried out, and the estimated cost of that work, during each year of the five year licence term.	7(3a)
	(Expenditure estimates should satisfy the minimum expenditure commitments set out in Section 17 and 18)	
	(4) particulars of the technical qualifications and expertise available to the applicant party/parties (e.g. qualifications and experience of employees, consultants retained etc.)	7(4)
	(5) particulars of the financial resources available to the applicant party/parties to carry out the proposed terms and conditions of the licence.	7(4)
	(In the case of a company application, this is generally supplied in the form of a copy of the company's most recent Annual Report).	
	(6) the $400 application fee.	7(2)
	Where the application is made on behalf of a company, the application must be made under the company seal.	41(b) & (c)
Penalty for Non-Payment of Annual Rental Fees	All fees are payable in advance. If fees are not paid by the due date, a fine of 10% is imposed and in addition, interest accrues at the rate of 6% per annum. If any fee is in arrears for 3 months or more, the licence may be cancelled.	83(1) & (2)
Licence Variations	Only on application by the licensee, the Minister may at any time during the term of the licence, vary or revoke a condition of the licence or attach new conditions to the licence.	17(3)
Environmental Conditions	These will be outlined in the letter of offer attached to the licence.	
Surrenders (Partial or Whole of Licence)	The Act requires the licensee to:	
	(1) apply to the Minister for permission to surrender.	38(1)
	(2) give three months notice in writing.	38(1)(a)
	(3) pay all outstanding fees.	38(1)(b)
	(4) pay all outstanding monies and wages to workmen and employees.	38(1)(c)

	Surrenders are only permitted if the licensee has fulfilled all the terms and including the year in which the application to surrender is lodged.	38(2a)
	Licences are required to lodge all outstanding data on their licences and carry out the cleanup and rehabilitation of their licence areas (where necessary) as a condition of surrender. Surrenders are effective from the end of the appropriate year of the term of the licence (unless specified otherwise). (where necessary) as a condition of surrender.	38(2b)
Required Notice for Approval to Undertake Work in Licence Area	Three months notice is required to arrange necessary clearances with other Government Agencies, this us carried out by DME on the licencee's behalf.	
Required Notice of Entry to Landholders	No risk of damage to land or improvements thereon - 14 days.	51(1)
	Risk of damage to land improvements thereon - 28 days.	51(1)
Gazettals	Gazettals occur on: (1) Grant of Licence.	6(2)
	(2) Surrender of Licence. (3) Cancellation of Licence.	71(1)
Suspension and Cancellation	The Act provides for suspension and/or cancellation for failure to comply with licence conditions.	87a(1)

Note: All monetary amounts are subject to review.

March 1989.

SR 27/2/89

To the Director-General
South Australian Department of Mines and Energy
PO Box 151
EASTWOOD SA 5063

ATTENTION: OIL, GAS AND COAL DIVISION

Dear Sir/Madam,

Re: Area A Data Package

Please provide the Area A data package as specified in Section 3.

Company .....

Address ..... Postcode .....

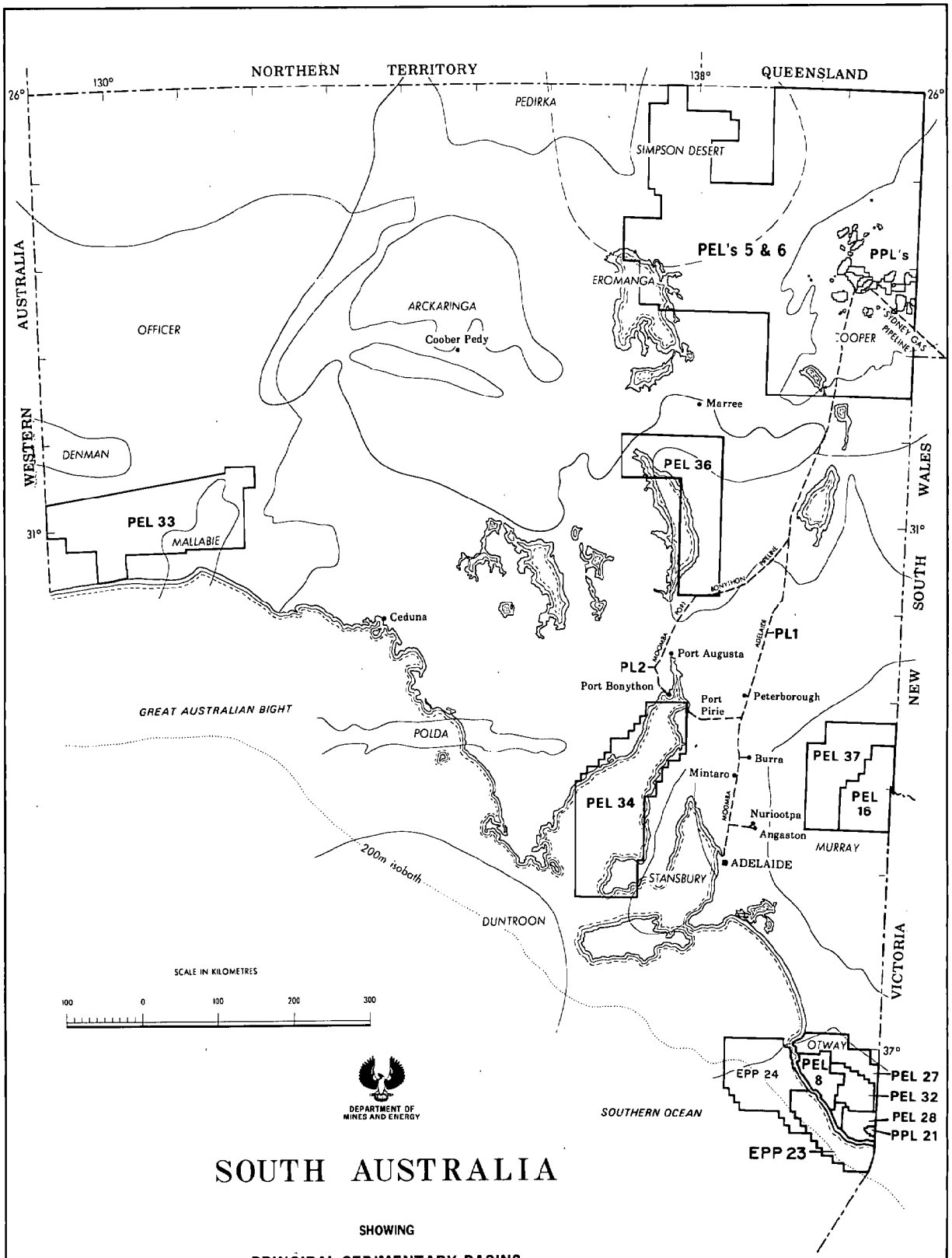
Contact .....

Telephone ..... Telex .....

Facsimile .....

Please enclose a cheque for A$2620, made out to: Dept. Mines & Energy, account # 86G25144/076.

Date ..... Signed .....



SOUTH AUSTRALIA

SHOWING

PRINCIPAL SEDIMENTARY BASINS

AND

CURRENT PETROLEUM TENEMENTS

1 MARCH '89

DEPARTMENT OF MINES AND ENERGY – SOUTH AUSTRALIA

Figure 10

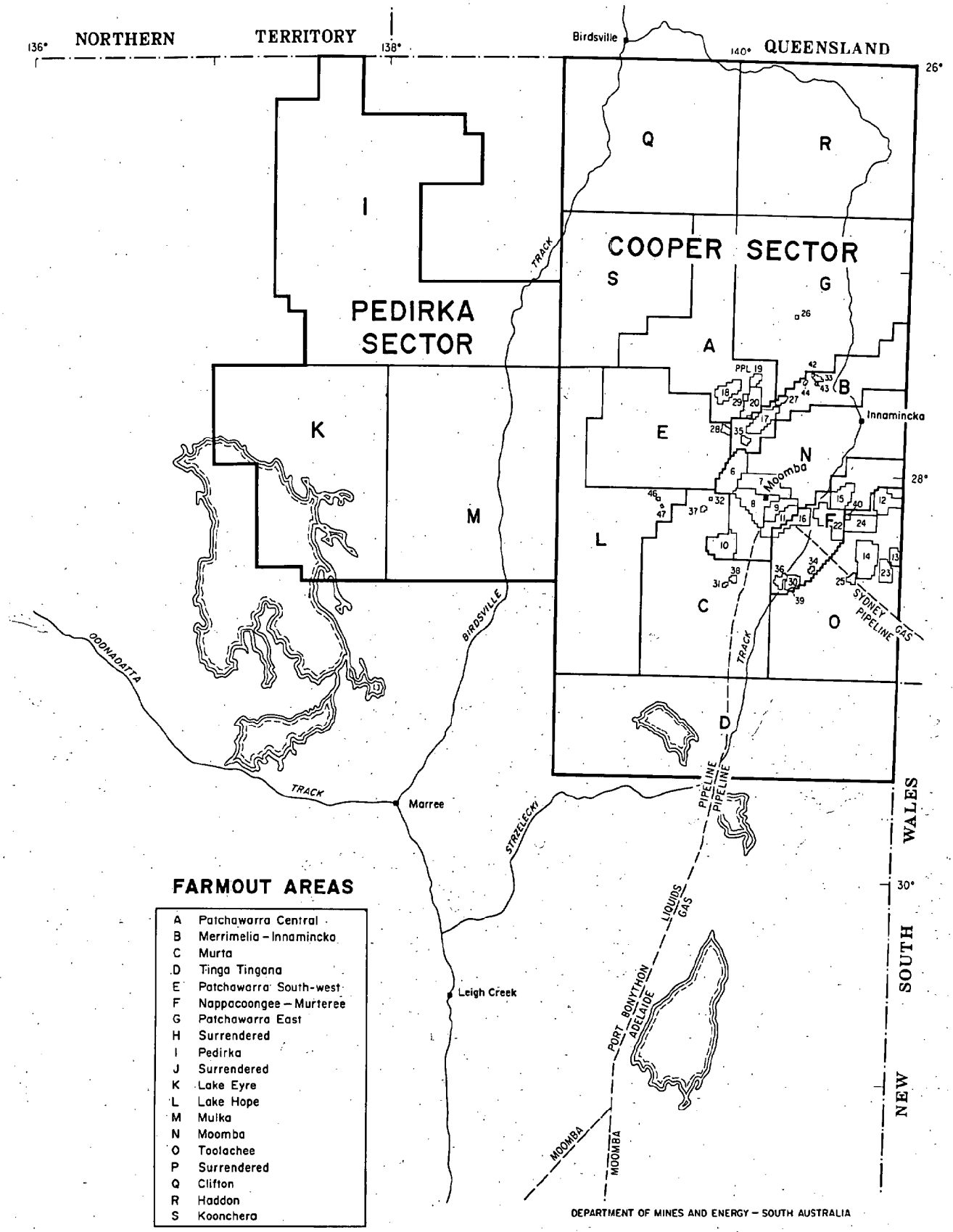
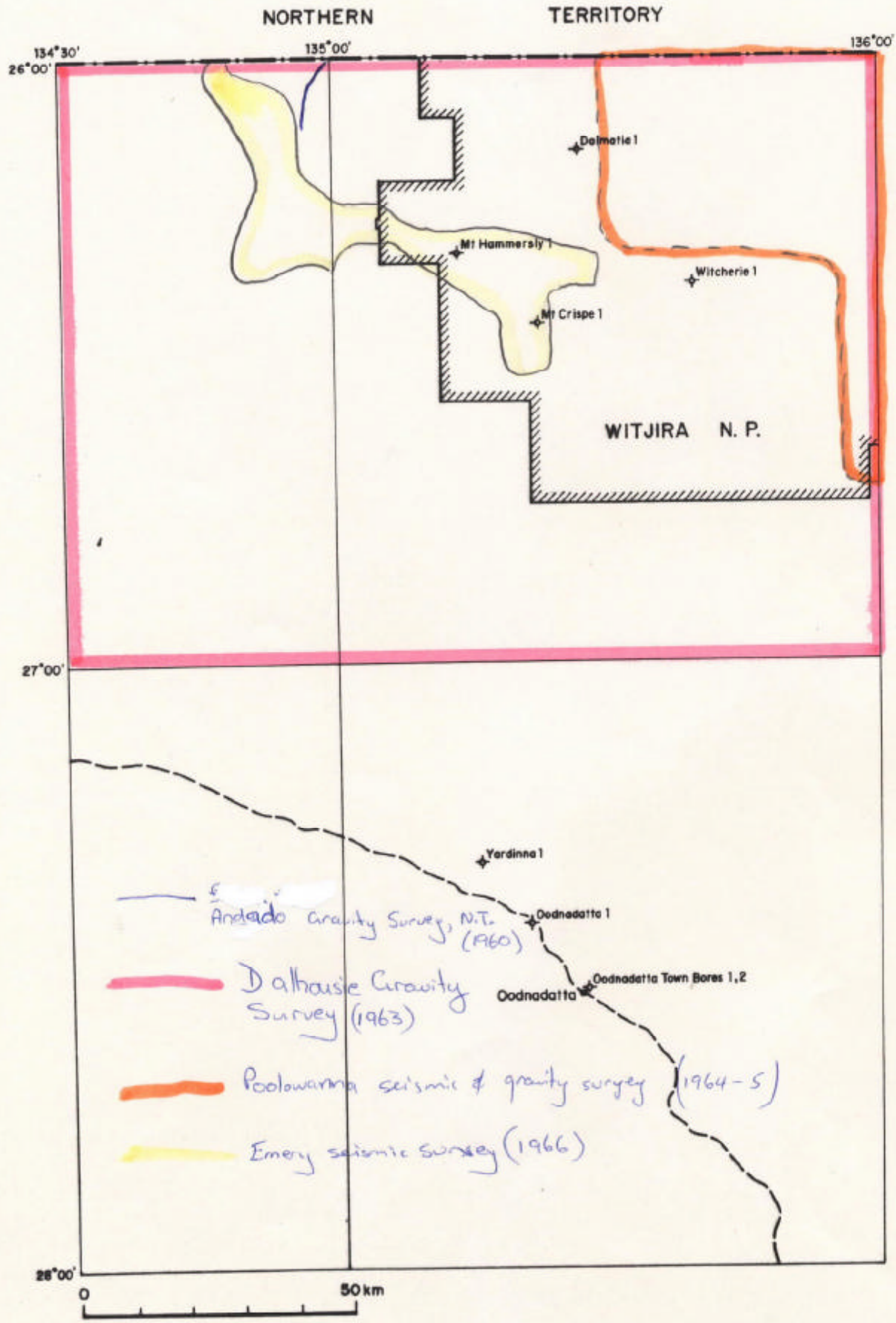

136°
NORTHERN TERRITORY
138°
Birdsville
140°
QUEENSLAND
26°
28°
30°
Q
R
I
COOPER SECTOR
S
G
A
B
PEDIRKA SECTOR
K
M
E
N
L
C
O
F
D
Innamincka
Moomba
PPL 19
TRACK
BIRDSVILLE
OODNADATTA
TRACK
Marree
STRZELECKI
TRACK
SYDNEY GAS PIPELINE
PIPELINE
PIPELINE
LIQUIDS GAS
PORT BONYTHON
ADELAIDE
MOOMBA
MOOMBA
Leigh Creek
NEW SOUTH WALES
FARMOUT AREAS
A Patchawarra Central
B Merrimelia – Innamincka
C Murta
D Tinga Tingana
E Patchawarra South-west
F Nappacoongee – Murteree
G Patchawarra East
H Surrendered
I Pedirka
J Surrendered
K Lake Eyre
L Lake Hope
M Mulka
N Moomba
O Toolachee
P Surrendered
Q Clifton
R Haddon
S Koonchera
SCALE IN KILOMETRES
50 0 50 100
DEPARTMENT OF MINES AND ENERGY – SOUTH AUSTRALIA
PELs 5 & 6
PETROLEUM PRODUCTION LICENCES
FARMOUT AREAS
SECTORS
1 MARCH '89

Figure 11


NORTHERN TERRITORY
134°30'
135°00'
136°00'
26°00'
27°00'
28°00'
Dalmatie 1
Mt Hammersly 1
Witcherie 1
Mt Crispe 1
WITJIRA N. P.
Yardinna 1
Andado Gravity Survey, N.T. (1960)
Dalhausie Gravity Survey (1963)
Poolowanna seismic & gravity survey (1964-5)
Emery seismic survey (1966)
Oodnadatta 1
Oodnadatta
Oodnadatta Town Bores 1,2
0
50 km