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FAR NORTH EAST PLANNING OFFICE

NORTH EAST SEGMENT

NOTES ON FIRST INSPECTION TOUR BY INVESTIGATING COMMITTEE (STATE PLANNING OFFICE)

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DEPARTMENT OF MINES
SOUTH AUSTRALIA

FAR NORTH EAST PLANNING AREA
NORTH EAST SEGMENT

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by

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PLANS

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6th June, 1973

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From Maree to the north-eastern corner of the State and southwards to beyond Lake Frome the tour traverses the Great Artesian Basin (see Figure 1). This area lies in the vast Lake Eyre drainage basin and the smaller drainage system of the Frome Embayment. Here individual landforms extend over large areas and reflect the younger near surface sediments and geological structures. However deeper geological features, some with considerable economic significance, exist which have no surface expression.

South of Curnamona are the ancient upper Proterozoic sedimentary rocks of the Olary Arc and the even older metasediments and igneous rocks of the Willyama Block in which the Broken Hill lodes lie.

These dissected highlands are flanked to the south by the plains of the northern Murray Basin.

The margin of the Great Artesian Basin is defined by the limits of Mesozoic sediments. Underlying the Mesozoic sequence are discrete infra-basins of Palaeozoic rocks, the Pedirka and Cooper Basins being located in the area under review.

The Cooper Basin extends north-easterly into Queensland and in South Australia contains the Moomba and Gidgealpa gasfields which produce hydrocarbons from Permian sediments. Gas and oil have been discovered in wells drilled in several other structures in the basin (see Figure 2) and this area is a major Australian hydrocarbon producing province.

Distribution of natural gas to Adelaide markets via pipeline from the Cooper Basin commenced in November 1969 and contracts have been signed to supply natural gas to Sydney. Discoveries of petroleum are sufficiently encouraging to forecast the construction of a liquids pipeline to the South Australian sea-board in the near future. Exploration, well drilling, product collection and processing practices and land requirements will be seen on the tour and the environmental effects of these activities can be observed.

The Pedirka Basin underlies the Simpson Desert and extends into Northern Territory. To date only six wells, all dry, have been drilled but the geological data obtained have enhanced the already extensive geophysical picture of the basin to the point where it is confidently expected that the basin will become a producer of hydrocarbons. The area is located near the route of any future pipeline system connecting the Palm Valley-Mereenie gas discoveries in the Northern Territory with the Cooper Basin. Access tracks for exploration first penetrated the Simpson

Desert about 10 years ago and the committee will be able to observe the effect of these on the desert environment.

Artesian water from Mesozoic aquifers is the mainstay of the pastoral industries over much of the area. In the past most of the bores were permitted to flow unrestricted and falls in pressure indicate that depletion of the aquifers could occur if this practice continues. A programme of installing controlled bore heads has been initiated. The high temperature and corrosive nature of the waters necessitates the use of stainless steel and P.V.C. materials. Studies of groundwater characteristics and behaviour are to be implemented.

West of Lake Frome, exploration has located significant occurrences of uranium at depths of up to 400 feet. The mineralization occurs in a sedimentary environment in buried stream channels and overburden comprises sand and clay. A possible alternative to open cut mining is in situ leaching. A similar geological environment exists to the north, east and south of Lake Frome in the planning area and is currently being explored (see Figure 4). White clay of commercial quality, derived from erosion of the adjacent highlands, may also exist.

The basement rocks of the Olary Province, particularly the metasediments of the Willyama Block, have produced a wide variety of minerals including gold, base metals, barite, feldspar, beryl and mica from small relatively shallow

workings. Small working operations exist at Dome Rock (copper), Mt. Mulga (barites) and Baratta (silver-lead) and production from other workings will occur from time to time. A recent discovery of fluorite north of the old Radium Hill uranium mine has yet to be evaluated.

Current exploration for copper at the Mutooroo workings is sufficiently promising to anticipate that re-opening of the mine on a larger scale is probable at some future time. Copper ore bodies have been located at the old Luxemburg Mine near Cutana.

Iron deposits in the Olary Mannahill area have some potential for development.

Further south in the Anabama and Bendigo areas near the margin of the Murray Basin, a porphyry type sulphide environment has been recognised but insufficient exploration has been completed at present to determine whether economic grades of copper exist. ~~Watering~~ Mining would be by open cut. This area also contains the Teetulpa, Wadnaminga and other goldfields.

The marginal areas of the Murray Basin provide a potential environment for sedimentary uranium and lignite but exploration to date has not produced significant results.

Development of mineral and hydrocarbon deposits brings wide local benefits by providing employment, towns with modern facilities which are available to the indigenous pastoral population and improved transportation services.

They also benefit the State by providing raw materials for local use or export. A Development Plan should thus contain policy principles which encourage exploration and permit the establishment of industries on the resultant discoveries.

However ~~uncontracted~~ uncontrolled exploration and mining and poorly planned siting of support facilities have potential for irrepairable damage to the environment and the landscape. The environmental consequences of developing individual deposits are unique in every case because of differences in the type, size and location of mineral occurrences, and the point in time when they are discovered and developed. It is therefore difficult to specify other than very general policy directions in a Development Plan and it is considered more practical to rely on legislation such as the Mines and Works Inspection Act and the Planning and Development Act to ensure that proper and orderly development takes place. Such legislation is designed to control individual sites and has wide environmental safeguards.

However for areas of high scientific, historial or biological value it is recommended that the Plan enunciate the principle that exploration be restricted to Departmental agencies.

6th June, 1973

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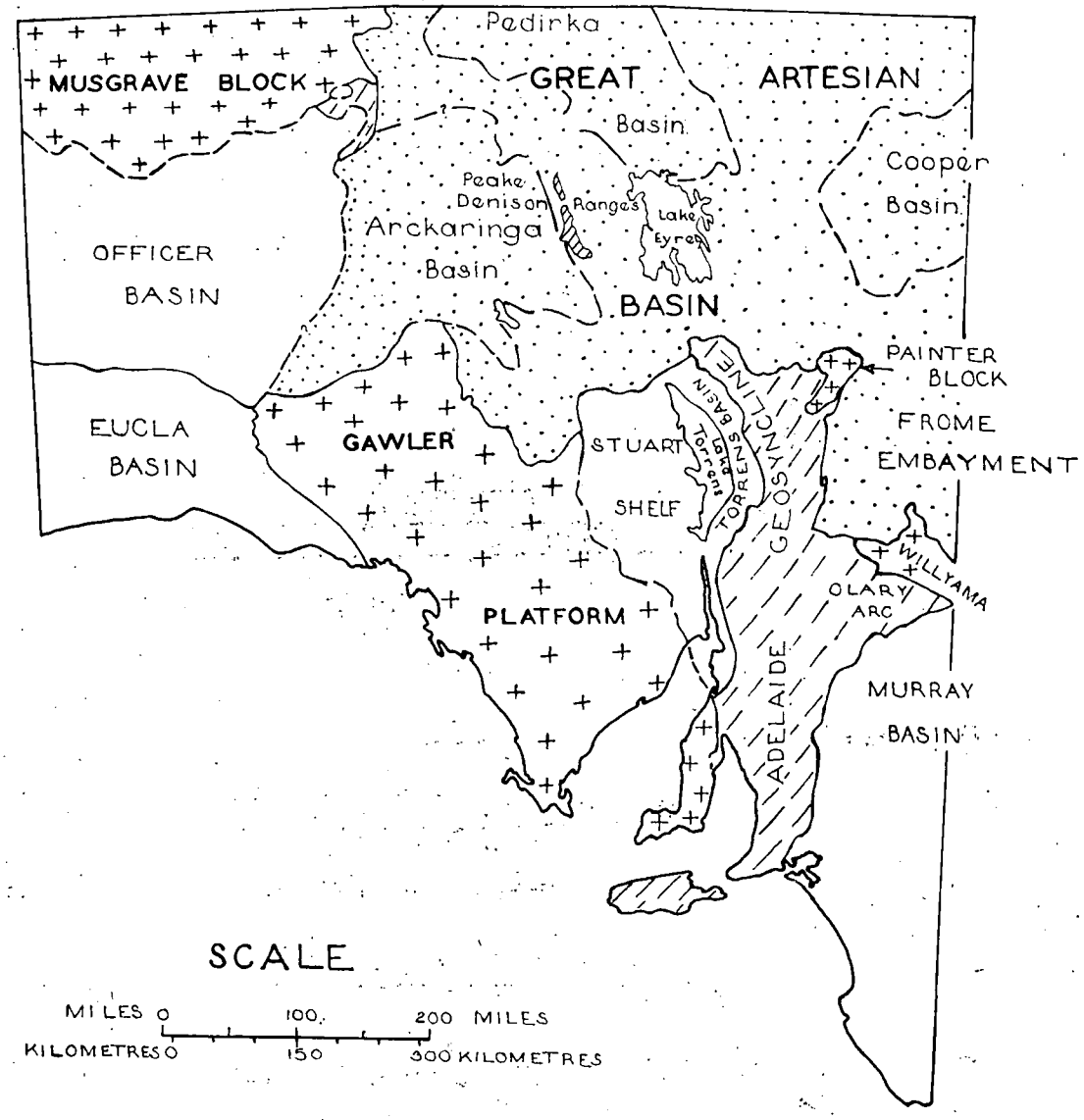

FIG. 1

	DEPARTMENT OF MINES – SOUTH AUSTRALIA	Scale: 1:10000000
Compiled: M.N.H.	FAR NORTH PLANNING AREA	Date: 6 June 1973
Drn. R.B. | Ckd.	MAJOR STRUCTURAL UNITS	Drg. No. S10348
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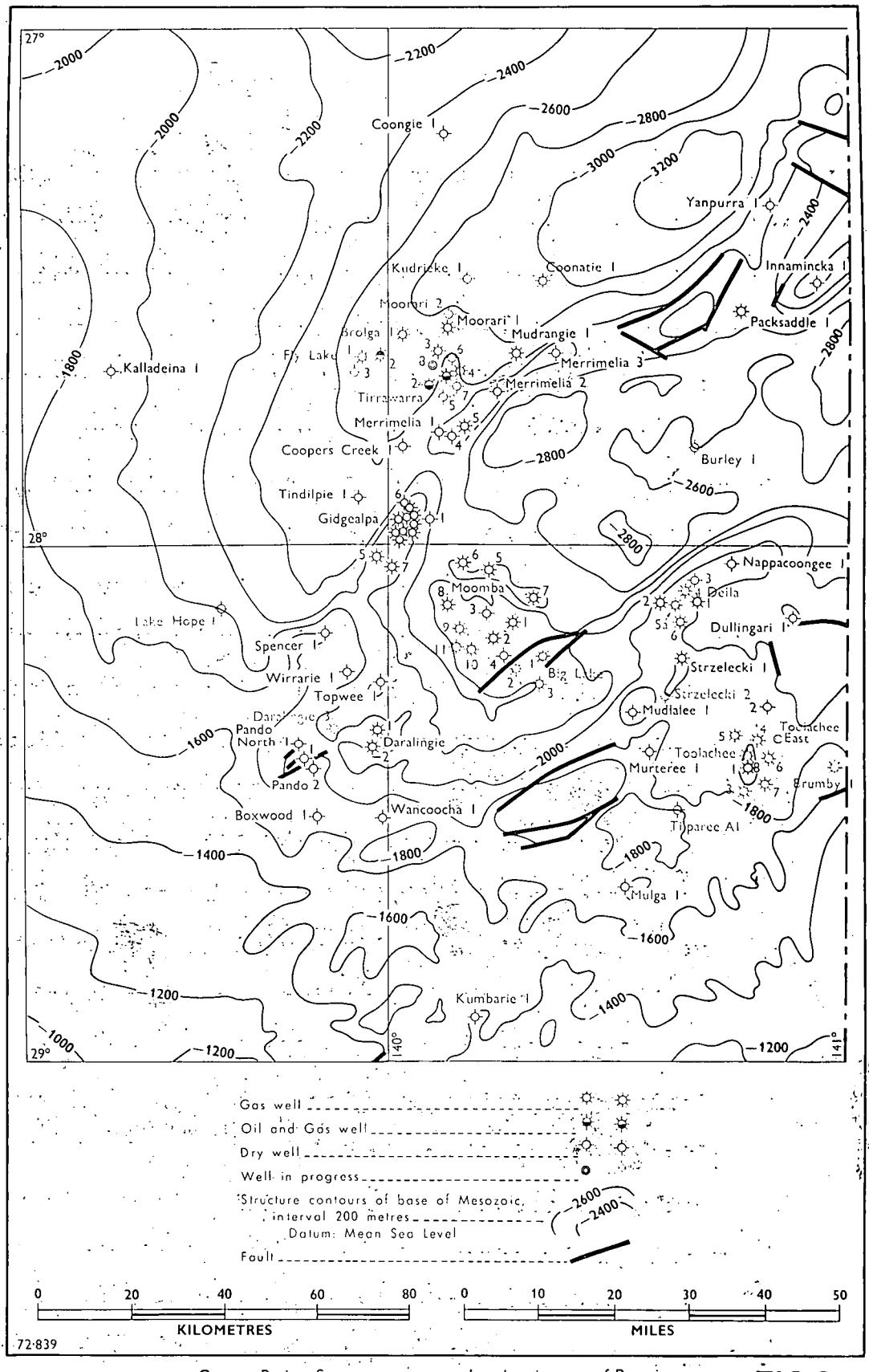
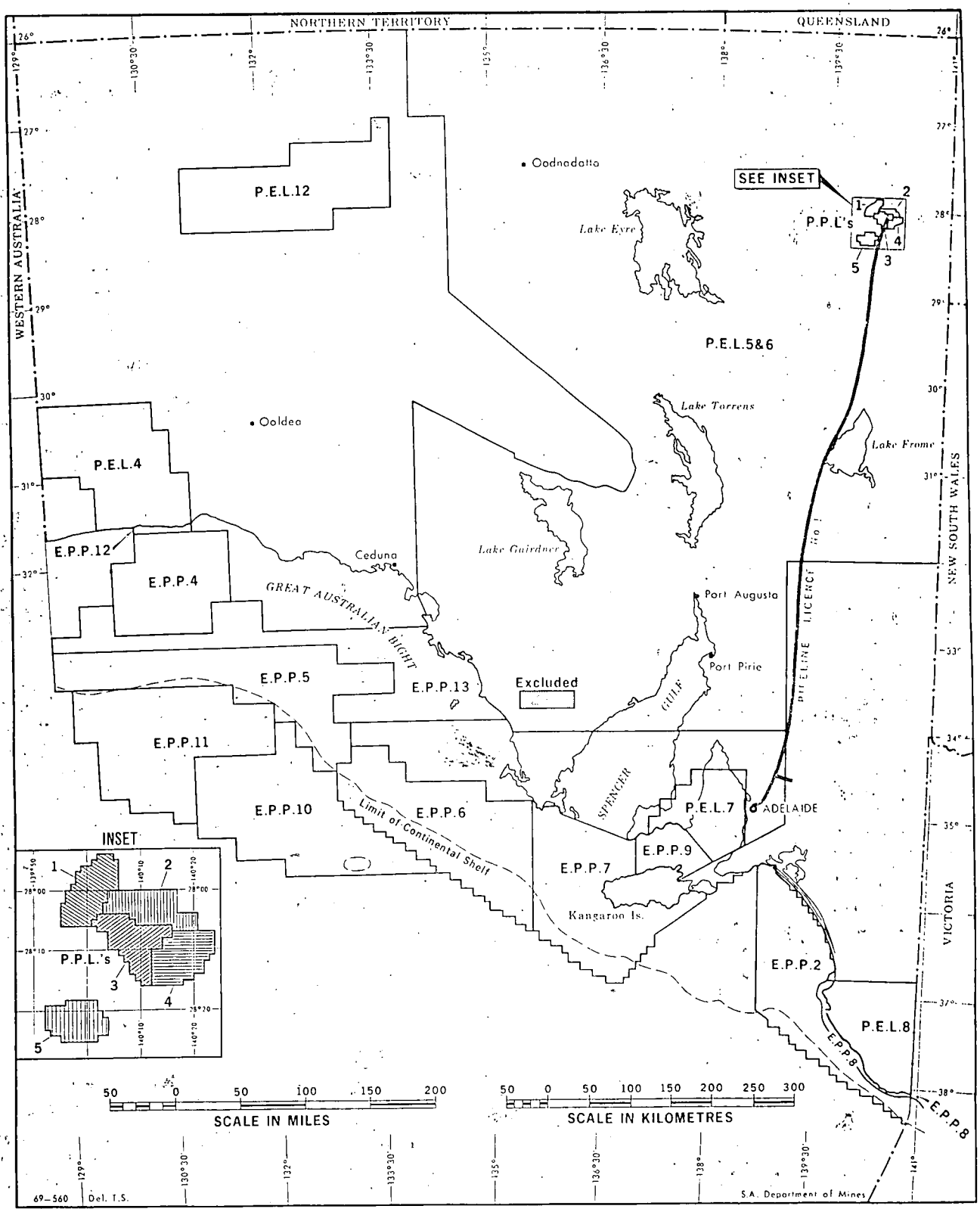


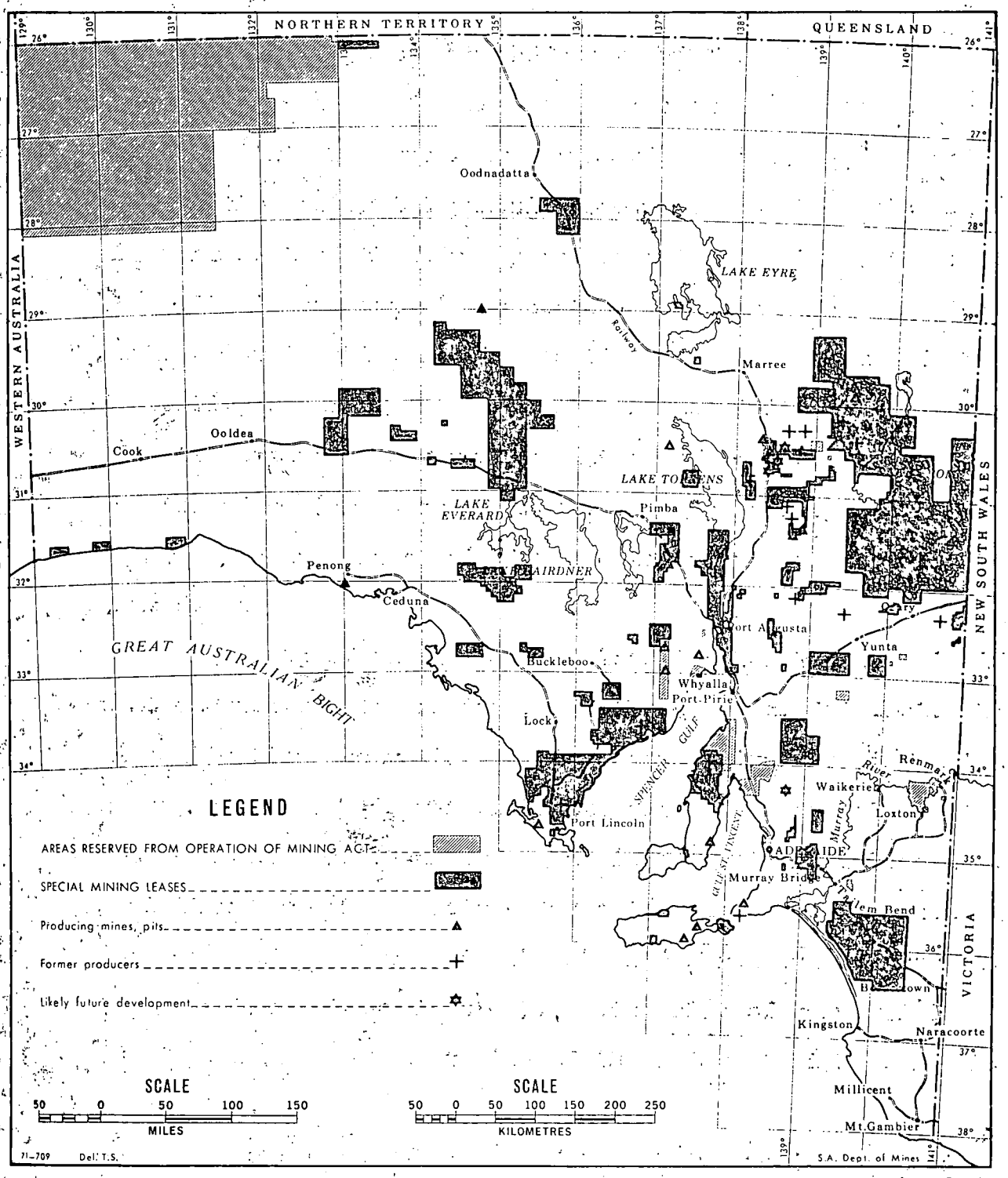
Cooper Basin—Structure contour plan showing top of Permian
Wells drilled in Report period shown green (see Table 2, p..79)

FIG. 2



Petroleum Exploration and Development Titles held on 30th June, 1972

FIG.3



Mining and Exploration, 1971-72

FIG. 4