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NUMBER 4311

PEL 5 AND PEL 6, PEDIRKA BLOCK

EROMANGA, SIMPSON AND PEDIRKA BASINS

1979 PEERA PEERA SEISMIC SURVEY

FINAL REPORT

Submitted by

**Delhi Petroleum Pty Ltd
1981**

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MINES AND ENERGY
SOUTH AUSTRALIA



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ENVELOPE 4311

TENEMENT: PEL 5 and PEL 6, Pedirka Block; Eromanga, Simpson and Pedirka Basins

TENEMENT HOLDER: Delhi Petroleum Pty Ltd (operator), Western Mining Corp. (Exploration) Pty Ltd, Santos Ltd, Total Exploration Australia Pty Ltd, Vamgas Ltd and South Australian Oil and Gas Corp. Pty Ltd

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PEERA PEERA

SEISMIC SURVEY

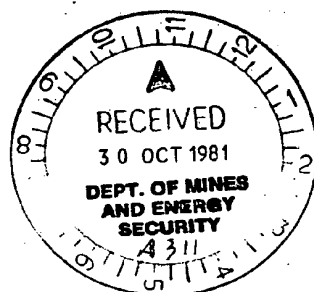
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for

DELHI PETROLEUM PTY. LTD.



E.F. Tadiar

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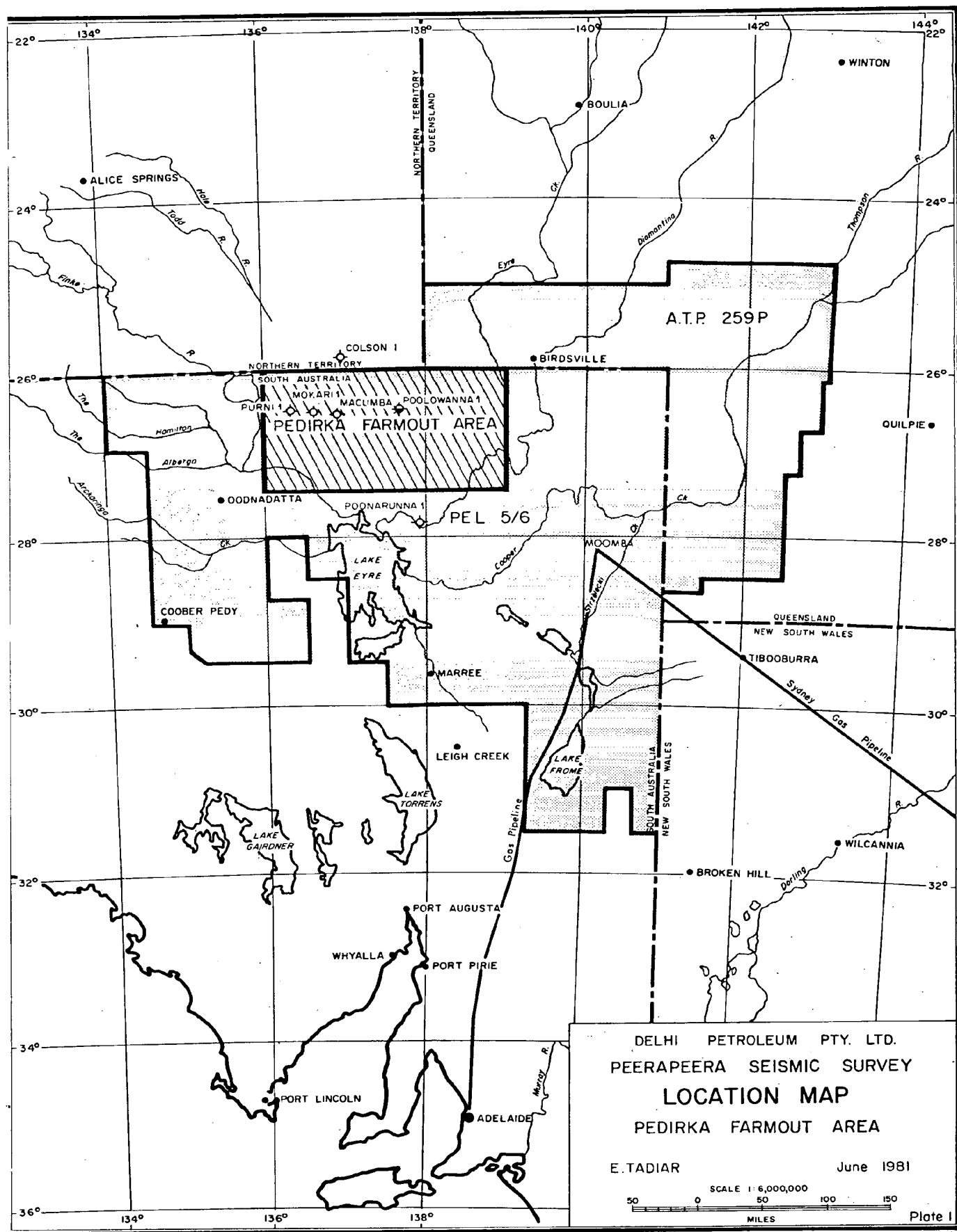
1.0 INTRODUCTION

The Peera Peera Seismic Survey was conducted by Delhi Petroleum Pty. Ltd. during 1979 in the Pedirka Block jointly held by Western Mining Corporation, A.A.R., Santos, Delhi Petroleum, Bridge Oil, South Australian Oil and Gas Corporation, and Vamgas. The Pedirka Farmout Area is part of P.E.L. 5 and 6 at the northeastern corner of South Australia (see Plate 1).

Delhi was operator for the survey and contracted Geophysical Exploration Services (G.E.S.) of Brisbane for field acquisition and Seismograph Service Ltd. (S.S.L.) in Adelaide for data processing. Line clearing was carried out mostly by the Thorpe Bros. Pty. Ltd. and partly by the Nicholls Bros. of Birdsville.

The lines recorded during the Peera Peera Survey are shown on Plate 2. The scope of the 1979 programme was, in general, regional in nature. A total of 1578 kilometres were shot with 12-fold split-spread recording using a T.I. DFS-V system. Geoflex was used as the energy source. Production began on 27 May, 1979 and the programme was completed on 25 November, 1979.

Several leads were discovered and the regional structural configuration in the southern part of the block has been delineated.



2.0 PURPOSE OF THE SURVEY

The good shows from Poolowanna No. 1, drilled in 1977 on the results of the 1976 Pillan Hill Survey have given considerable encouragement for exploration of the Pedirka Block. This survey was intended to extend the regional seismic grid to areas not previously covered, to find leads for subsequent detailing, and to investigate the regional structural configuration to further assess the prospectivity of the Block. Some semi-detail work was done over a weak lead, subsequently named Walkandi, located to the southwest of Poolowanna on line 76-WBG to define the extent of the apparent structure for subsequent detailing.

Regional lines were programmed in the salt lake areas east and northeast of the Poolowanna structure (Larry's Lake Area) in the southeastern and southwestern corners of the Farmout block, and in the Walkandi area southwest of Poolowanna. This survey will provide control for future seismic work in these areas of the Pedirka Block.

3.0 REGIONAL GEOLOGY

The Pedirka Block embraces the deepest part of a large sedimentary depression which accumulated sediments in the Cambro-Ordovician (Warburton Basin), Permian (Pedirka Basin), Triassic (Simpson Desert Basin), Jurassic, Cretaceous (Eromanga Basin) and Cainozoic times. The sedimentary depression is bounded to the north and northwest by the Georgina and Amadeus Basins, to the west by the Musgrave Ranges, to the southwest by the Officer Basin, to the south by the Gawler Craton and to the east by the Birdsville Track Ridge.

A thick sequence of metamorphosed and folded Ordovician shales and siltstones underlies the main prospective section, and may in turn be underlain by Early Cambrian dolomites. Gently dipping Devonian redbeds are restricted to the central northern part of the Block in the Macumba No. 1 area, and probably represent an extension of the Amadeus Basin sequence.

Permian Pedirka Basin sediments are restricted to the northwestern portion of the block, with a thin sequence recorded in Macumba No. 1 but not extending as far as Poolowanna No. 1. The Permian consists of a basal glaciogene unit (the Crown Point Formation) overlain by a meandering-fluvial sequence of shale, sandstone and coal (the Purni Formation). The Permian depocentre was in the vicinity of Mokari No. 1, in the northwest of the Pedirka Block.

Mild uplift and erosion of the Permian Pedirka Basin, particularly in the west, resulted in the eastward shift of the basin depocentre when sedimentation resumed in the Triassic. A thick sequence of Late Triassic lacustrine shale and siltstone with minor sandstone occurs in the central northern part of the block (the Peera Peera Formation), particularly in the vicinity of Poolowanna No. 1.

After a short period of mild erosion or non-deposition, sedimentation again resumed in the Poolowanna area, with the development of an Early Jurassic sequence of meandering fluvial shale, siltstone and sandstone with minor coal (the lower Poolowanna Beds). A marked time break separates this unit from the lithologically similar Late Jurassic Poolowanna Beds, which also have their thickest known development in the Poolowanna area.

Major tectonic movements in the source areas to the southwest of the Pedirka Block are probably responsible for the thick sequence of Late Jurassic-Early Cretaceous braided-fluvial Algebuckina Sandstone which covers the area. The overlying Cadna-Owie Formation (Transition Beds and Murta Member equivalent) reflects the onset of a major marine transgression. This was followed by the deposition of up to several thousand feet of marine shale (Oodnadatta Formation and Bulldog Shale), also of Early Cretaceous age. The uppermost Cretaceous unit (Winton Formation) is a meandering fluvial sequence which marks the final regression of the sea. The entire Cretaceous sequence is masked in the Pedirka Block by Quaternary sands and playa deposits of the Simpson Desert.

4.0 PREVIOUS GEOPHYSICAL EXPLORATION

YEAR	TYPE OF SURVEY	SURVEY NAME	FOR	BY
1961	Aeromagnetic	Innamincka/ Betoota	Delhi	Aero Service
1962	Aeromagnetic	Oodnadatta	Delhi	Aero Service
1962	Seismic-dynamite	Clifton Hills	Delhi	United
1963	Gravity	Dalhousie	F.P.C.	Wongela
1963	Seismic-dynamite	Pedirka	F.P.C.	C.G.G.
1964	Seismic-dynamite	Kallakoopah	F.P.C.	United
1964-65	Seismic-dynamite	Poolowanna	F.P.C.	C.G.G.
1974	Seismic-vibroseis	Beal Hill	Delhi	SSL
1974	Seismic-vibroseis	Lake Thomas	Delhi	SSL
1976	Seismic-vibroseis	Pillan Hill	Delhi	SSL

The 1962 and 1963 magnetic and gravity surveys indicated the presence of thick sediments in the general area of the Pedirka. Seismic surveys provided a better indication of sediment thickness and structural detail and led to the drilling of a number of exploration wells. Four of the nine wells drilled in the Pedirka Basin were drilled within the Pedirka Farmout Area. These are Mokari No. 1, Purni No. 1, Poolowanna No. 1, and Macumba No. 1.

5.0 DATA ACQUISITION

Data acquisition for the 1979 Peera Peera Seismic Survey was contracted to Geophysical Exploration Services (G.E.S.) of Brisbane. Field operations commenced on 25 May, 1979 and the work was completed in November of the same year.

Full operational details are given in Appendices I, II, III and IV.

6.0 DATA PROCESSING

Data processing was contracted to SSL, Adelaide. A description of hardware and processing parameters is given in Appendix V.

7.0 INTERPRETATION

Two horizons were mapped - the 'C' Horizon, which is a strong, persistent reflection originating from the top of the Cretaceous Cadna-Owie Formation and the 'J1' Horizon, which corresponds to the top of the Lower Jurassic Poolowanna Beds. Both Horizons were mapped in time only.

The 'C' Horizon is a continuous reflector which is readily correlatable over the entire survey area and with a similarly designated reflection in other parts of the Eromanga Basin. This Horizon was picked in the seismic trough response from the positive impedance at top Cadna-owie on the synthetic seismograms derived from Macumba No. 1 and Poolowanna No. 1 sonic logs (generated in SEG polarity).

The 'J1' Horizon was mapped because of the proven potential of the Poolowanna Beds. Poolowanna No. 1 encountered a thick and prospective Triassic and early Jurassic sequence with good source and reservoir characteristics from which subcommercial oil flows were obtained.

The Poolowanna and Macumba synthetic seismograms (Encl. 21 and 22) show a peak at the top of the lower Jurassic. This response was not difficult to correlate with the 1976 vibroseis data but became intermittent to absent on the current seismic sections which were recorded with geoflex. Hence, the mapping of the 'J1' Horizon is in part phantom. Plates 8 and 9 are sections of lines 74-WAH and 79-WAH illustrating the difference between vibroseis and geoflex-recorded data.

Initial structural interpretations were made using machine-contoured maps which served to identify gross trends from the widely spaced data grid. Final contouring was done by hand.

Some of the 1976 Pillan Hill, the 1974 Beal Hill and Lake Thomas seismic data were incorporated in the interpretation. Lines used in the current interpretation are summarized in Appendix VI.

Two sets of Time Structure maps and a set of Time interval maps, at 1:100,000 are presented with this report. These are titled 'C' Horizon (Encl. 1 to 6), 'J1' Horizon (Encl. 7 to 12), and 'C-J1' Time Interval (Encl. 13 to 18).

In addition, two regional machine-contoured Time Structure maps (1:250,000) of the 'C' and 'J1' Horizons are included to give a regional structural picture of the Peera Peera seismic survey area (Encl. 19 and 20).

8.0 DISCUSSION OF RESULTS

The Peera Peera Seismic Survey was subdivided into five programme areas which are described in this report under separate headings as Walkandi Lead, Larry's Lake, Pedirka Southeast, Miandana and Pedirka Southwest.

8.1 Walkandi Lead

This lead is in an area 20 kilometres south-west of Poolowanna No. 1 and on the downthrown side of the prominent NNW-SSE trending Poolowanna Fault.

Short, parallel east-west dip lines and a north-south tie line were run over the feature to further delineate structure previously recognized from the Pillan Hill Survey.

This work defined a north-south elongate anticlinal feature possibly associated with late Cretaceous compressional folding. Isopach thinning of seismic horizons over the feature is negligible suggesting relatively late growth similar to the Poolowanna anticline. Several anomalies were mapped on both 'C' and 'J1' Horizons occurring along a north-south trending belt about 40 km long and 13 km wide. At 'C' level at least three separate culminations are present, yielding a total areal closure in excess of 90 square kilometres. Northward, the Walkandi structure swings to the northeast, where two more anomalies are mapped at 'J1' level. Most of the anomalies mapped within the Walkandi complex will require

further seismic coverage to confirm north-south dip closure. The anomalies at the 79-WEA/76-WBG and 79-WEA/79-WDY intersections (Plate 3) and possibly the one along 76-WBG between 79-WDY and 79-WEB, have four-way dip.

8.2 Larry's Lake Area

The Larry's Lake Area contains a series of N-S elongate salt pans and ephemeral salt lakes immediately east and northeast of Poolowanna. About 280 kilometres of reconnaissance work was programmed in this region. Due to environmental considerations it was not possible to programme this work on a regular grid.

The results of the survey indicated the presence of south to southwest-plunging nose features at 'C' and 'J1' levels. No significant closure was defined in this area except for a small culmination at the intersection of lines 79-WEH, 79-WEG, and 79-WDJ, where closure of about 15 square kilometres was mapped at 'J1' level (see Plate 4). At the northern end of line 76-WBP a probable "high" that could represent the northeastern extension of the Poolowanna structure, was also mapped on both horizons. Another lead is seen at the intersection of 79-WEE and 79-WEF.

A broad low separates Poolowanna from the Larry's Lake structures. The southern end of this low area is apparently flanked by an apparent east-west trending ridge that joins the southeastern tip of the Poolowanna anticline to the western end of the Kuncherinna structure. This ridge, which marks the southern terminus of the Poolowanna anticline, needs more seismic to determine its relationship to the Poolowanna and Kuncherinna structures. The possibility of having a separate structure with equal potential for hydrocarbon entrapment must be considered.

8.3 Pedirka Southeast Area

The Pedirka Southeast programme consists of a series of lines totalling about 660 kilometres shot on an approximate 15 km x 20 km grid to investigate the southeastern sector of the Farmout block. The programme was successful in locating prospective leads that justify further seismic work in the area.

The most significant of these leads is the Kuncherinna structure, mapped at the northeastern corner of the grid and roughly centred along line 79-WDH (Plate 5). Prominent time interval thinning across the structure can be noted, suggesting pre-Cretaceous growth. Three culminations at both 'C' and 'J1' levels were mapped over the structure giving a total area closure of more than 100 square kilometres.

Apart from the Kuncherinna structure, other leads are present in this area. A couple of anomalies at 'J1' level can be noted along line 79-WDG between stations 380 and 600, and at least three more anomalies were mapped directly south of the Kuncherinna structure. At 'C' level a probable closure was mapped near the northern end of line 79-WDF, immediately west of Kuncherinna. This apparent closure noses at 'J1' level.

Time interval thinning across the three 'J1' Horizon leads described above suggests contemporaneous development of these features with the Kuncherinna anomaly.

8.4 Miandana Area

This area, 52 km south of the Walkandi anticline, shows good structural development from the Permian to the Cretaceous. This is best observed on line 79-WDS (Plate 6), which shows some interesting reversals on both 'J1' and 'C' Horizons. Two separate lobes at both levels were mapped but since the interpretation was based on three lines, it would be necessary to have additional coverage across the interpreted structures to confirm north-south dips

and to ascertain their nature and relationship to other structures in the region.

Thinning across the top of the feature is seen giving an indication of early growth. A northwest-trending fault cuts through the western flank of the Miandana structure.

It is difficult to determine areal closure on the basis of one or two lines but a rough estimate would be of the order of 100 square kilometres for the entire Miandana complex at 'J1' level. A vertical relief of 30 ms (approximately 200 feet) was mapped.

Aside from the feature occurring along 79-WDS, a separate culmination was also mapped at the southern end of line 76-WBJ, about 10 km northeast of the Miandana structure. This anomaly requires further seismic detailing.

8.5 Pedirka Southwest Area

The Pedirka Southwest Area includes the S.W. quarter of the farmout block south of the Macumba No. 1 and directly west of the Miandana anomaly and has had no previous seismic coverage. The reconnaissance grid of approximately 20 km spacing shows regional east dip with down-to-the-basin block faulting.

Two anomalies are noted, the most significant being a probable culmination on top of a broad nose mapped on the 'J1' Horizon 5 km north of the 79-WDU/79-WDX intersection (Plate 7). The other possible closure is just west of this feature. Both features are classed as weak leads. There are also trapping possibilities associated with the faults.

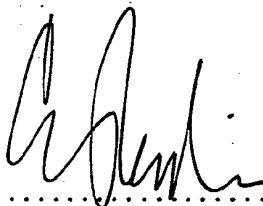
Control in the area is very sparse.

9.0 CONCLUSIONS AND RECOMMENDATIONS

1. The Peera Peera Seismic Survey located areas of interest within the Pedirka Farmout Block and enhanced the Walkandi lead for maturation as a drilling target.
2. In addition the following leads defined by this survey warrant immediate follow-up detail seismic work:
 - (a) Kuncherinna structure
 - (b) Kuncherinna South anomaly
 - (c) Miandana anomalies
 - (d) Pedirka Southwest anomaly
3. With the possible exception of the anomaly at the intersection 79-WDU and 79-WDX, no additional seismic work is recommended at this stage in the Pedirka Southwest area.
4. No immediate seismic work is recommended southwest and southeast of the Kuncherinna structure. Additional work in these areas will depend on the results of any future drill test in this part of the Farmout block.
5. No immediate seismic detailing is recommended at this stage over the small structures mapped in the Larry's Lake Area.

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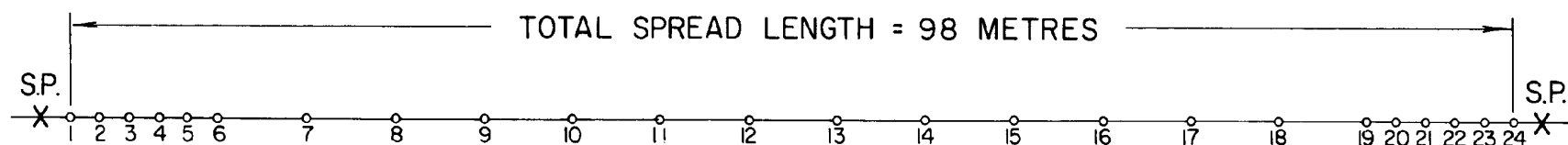
E.F. TADIAR



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TAPERED REFRACTION SPREAD



TRACE 1-6, 19-24 ARE 2 METRES APART

TRACE 6-19 ARE 6 METRES APART.

S.P.^s ARE 2 METRES IN-LINE OFFSET EACH END.

A P P E N D I X ISTATISTICS

Total surface coverage (km)	1578
Total days recording production	168
Average daily production-overall (km)	8.62
Average daily production on recording days only (km)	9.39
Days Experimental shooting	4
Days camp move	4
Days maintenance	3
Days lost due to rain	3
Days lost due to instrument failure	2
Days due to standby (no lines ready)	1
Days lost due to cable repairs	2
Total refraction location	793
Total reflection profiles	7593
Survey duration (days)	183

A P P E N D I X 11FIELD OPERATIONS

The Peera Peera acquisition was contracted to Geophysical Exploration Services (G.E.S.) Party 4.

Field operations commenced on 25 May 1979 and were completed six months later. A total of 1578km of 12 fold reflection data were recorded with a T.I. DFS-V system using geoflex as the energy source.

Production recording began on 27 May after completing a two-day experimental programme between Stations 344 and 346 on line 79-WDA. The experiments consisted of:

- (a) a foldback spread noise analysis (point source and in-line shots),
- (b) source and receiver array comparisons, and
- (c) a source array comparison test for lake shooting (line 79-WEC).

The source dimension comparison tests made on line 79-WDE are illustrated by Plates 10 A and 10 B.

RECORDING

A 6-fold CDP coverage was used at the beginning of the survey with 200 metres of in-line geoflex (capped in centre) as source and using a 12-phone in-line weighted receiver array (123321) having 10-metre element spacing. However, at an early stage in the programme, the receiver array was modified to an in-line unweighted configuration (111 111 111 111) but maintaining 12 phones per trace spaced 10 metres apart. This was found to give as good, if not better, noise rejection as the weighted array plus the considerable ease and speed gained in laying-out the unweighted configuration. A split-spread cable configuration was used and the station interval chosen was 100 metres.

Recording multiplicity was increased to 1200% after shooting four lines in the southeastern sector of the survey area. This was done to improve data quality and because the increased number of shots per kilometre was found to have little effect on production rates. Six- and twelve-fold comparison of line 79-WDE are shown on Plates 10B and 10C. Recording with the revised source and receiver arrays continued throughout the survey with the exception of the

RECORDING (Cont.)

close grid around Lake Poolowanna where the station interval was reduced from 100 metres to 75 metres.

Quality was generally good. The consistent source of concern was a "static burst" problem where high frequency, high energy spikes appeared across 3 or 4 traces at various stages of some records. This was apparently caused by capacitive buildup of static electricity in the cables and geophone strings.

The ephemeral lakes posed some difficulties where lines were programmed to cross them. The pre-loading dozer was too heavy to walk across lake surfaces, precluding any ploughing work. Lake shots had to be hand-loaded into auger-drilled holes about one metre deep. On many occasions recording crew vehicles were bogged down in the process of crossing these lakes, resulting in some production downtime. Where it was impossible to employ Toyota trucks on soft lake surfaces, ARGO buggies proved to be useful.

LINE CLEARING

Three bulldozers - two Caterpillar D7Gs and one D7F - were initially contracted from Thorpe Brothers Pty. Ltd. of Adelaide. The D7Gs were used as cutting dozers while the D7F was for ploughing geoflex. The contractor also supplied an Aveling Barford 6x6 grader for line and access-smoothing. Other equipment supplied by the Thorpe Bros. include 5 Toyota LS8 Land Cruisers, 2 International ACCD 4x4 supply trucks, a Mercedes Benz 6x6 truck fitted with Hyab articulated crane, and a Cessna 206 light aircraft.

Although line-clearing began in April, production was seriously delayed by heavy rains during the months of April and May. When the recording crew arrived on 22 May a lead of only 79 km had been established necessitating the mobilization of another bulldozer - an Allis Chalmers MD16 from Nicholls Bros. of Birdsville - from 11th to 26th July.

SUPPLY AND COMMUNICATION

Fuel was supplied by the Shell Company of Australia and delivered

SUPPLY AND COMMUNICATION (Cont.)

to either Clifton Hills or Andrewilla from Adelaide via the Birdsville Track. Explosives were supplied by ICI and also delivered to Andrewilla by a trucking contractor. Crew vehicles then collected the fuel and explosives at either of the two locations for transport to the various camp sites as required. Food was partly supplied and transported to the crew by means of a chartered crew-change Navajo aircraft from Brisbane and was partly purchased from Oodnadatta through a leased Cessna 206 light aircraft which transported the food and other purchased supplies to the camp sites.

Drinking water was drawn from either Purni Bore, Clifton Hills or Birdsville.

Vehicle spare parts were either flown from Brisbane via the crew change plane or through commercial aircraft to Windorah or Birdsville. Heavy supplies, such as survey pegs, were shipped from Brisbane to Betoota by road and then carried to the crew by 4x4 supply trucks.

Communication between GES Party 4 and its office in Brisbane was made through SSB transreceivers. A similar communication system was also maintained on a daily basis between the client representative on the crew and Delhi's office in Adelaide.

SURVEYING

The survey was carried along lines on a magnetic compass heading. Wooden pegs were used as station markers. Permanent markers were placed every 5 km along individual lines and at line intersections. A list of permanent markers is included in this report.

Surveying was completed one week before recording ended. Vertical misties were generally within 0.1 metre per root km while horizontal misties were generally within 1 metre per root kilometre.

Distances were checked against gross error by tacheometry while elevations were produced by tacheometric heighting. As a check against gross error in the levelling, vertical angles were taken on both faces to the top of the staff on turn points and reduced each day to check for errors.

SURVEYING (Cont.)

Azimuths for line computation were established by observing included angles at flag stations along the line connecting sun azimuth values.

Ties were made as often as possible with old seismic lines in the area and control was established from old seismic lines and government survey stations.

A separate Tellurometer crew was mobilized for about a week to tie the work to old Tellurometer stations.

WEATHERING CONTROL

Short offset refraction shots were used to determine the weathering profile. These refractions were performed by the observer and shooter on the reflection crew during normal breaks in production, i.e. while moving from one instrument set-up to another.

A 24-trace refraction cable was used and recording was through the DFS-V on channels 1-24 using normal production parameters. Geospace 200 14Hz geophones were utilized as receivers. A tapered spread (shown in Plate 11) symmetrical about the centre was used. One shot was taken at either end of the spread using 5 metres of coiled geoflex buried in a shallow hole. The shots were offset by 2 metres from the near geophone.

Refractions were recorded at intervals of 1.5 to 1.8 km along each line. The location of each refraction spread was varied to allow a fair sampling of the weathering thickness at different elevations, that is, one location might be on top of a sand dune while the next might be on a clay pan. The profile was always recorded on level ground to avoid additional surveying.

Velocities and intercept times were determined from a plot of first breaks taken from monitor records. In general the refraction shots conformed to either a single or double layer case. Although a shot was taken at each end of the refraction spread, the information from only one of these shots was used in computations. This expediency was found to be justified by the good agreement of total statics computed from each shot on level ground. A programmable HP19C calculator was used to compute statics in the field.

WEATHERING CONTROL (Cont.)

For each refraction control point the static time to datum was plotted against elevation. A regional average static curve was then drawn from the elevation vs static plot and this average was compared to the actual computed static at each control point. Deviations from the average value were noted and interpolated between control points. The results of interpolation were added to the regional average static computed at each intermediate station to give a final static to datum. The interpolation process assumed a linear relationship only where the surface contour was a level grade, otherwise subjective judgment based on empirical knowledge was made.

Typical velocities encountered were:

Vo sand layer: 300-400 m/s

V1 layer (consolidated sand or clay): 800-2000 m/s

Previous surveys ignored the slow Vo layer because geophone spacing and shot offset were beyond the critical distance necessary to resolve it. Since this layer was up to 6 metres thick it sometimes added up to 20 milliseconds to the computed static. Taking this Vo layer into account led to improved coherency in the final sections as exemplified by a comparative section of line 74-WAH which was re-shot and processed by taking Vo into account (see Plate 7B).

DATA DESPATCH

Field tapes and ancilliary data were normally despatched weekly to Brisbane via the GES crew change aircraft. From Brisbane the tapes were sent by courier mail to SSL's processing centre in Adelaide.

A P P E N D I X 111CONTRACT EQUIPMENTG.E.S.

- 9 - Toyota diesel LWB Landcruisers:
 - 3 line trucks
 - 1 shooting truck
 - 3 survey trucks
 - 1 pre-loading truck
 - 1 Party Manager's truck
- 1 - Toyota petrol LWB Landcruiser (recording truck)
- 1 - ARG0 Buggy (8-wheel drive)
- 2 - Bedford 4x4 supply trucks
- 1 - Bedford Isuzu 4x4 supply truck

THORPE BROS.

- 2 - Caterpillar D7G Bulldozers
- 1 - Caterpillar D7F Bulldozer
- 1 - Aveling Barford 6x6 grader
- 5 - Toyota LWB petrol Landcruisers
- 2 - International ACCO 4x4 supply trucks
- 1 - Mercedes 6x6 supply truck fitted with Hyab articulated crane
- 2 - Sleeper caravans
- 1 - Kitchen-shower caravan
- 1 - Cessna 206 light aircraft

NICHOLLS BROS.

- 1 - Alice chalmers HD16 Bulldozer

A P P E N D I X I VTECHNICAL AND CAMP EQUIPMENT

- 1 - T.I. DFS-V System
- 1 - T.I. 20 cm portable tape transport unit
- 1 - Geosource DW-500 dry-write 48-trace camera
- 1 - 10 Rotating switching box
- 1 - 10 Seismic Source Synchronizer (Encoder 200)
- 2 - 10 Decoder 200 Shooting boxes
- 25 - TESCO 102 trace cables, 420 m long, 4 take-outs per cable
at 105 m interval
- 110 - 12-phone 10Hz geophone strings with 10 metre cable between
phones (ETL model MD79 with Muller type clips)
- 1 - 24-trace refraction cable with 10-metre take-out intervals
- 29 - Geospace 200 14Hz refraction geophones
- 1 - 10 cable checker model CC1
- 5 - Tate 25-watt VHF radios
- 1 - Tektronix 464 Dual Beam oscilloscope
- 1 - QUANTUM precision voltage source
- 1 - 5 metre Olympic fibreglass office caravan
- 1 - 4 metre Shower caravan
- 8 - 5 m x 5 m 4-man tents
- 1 - 6 m x 9 m mess tent
- 1 - Dunlight 12 kVA Generator
- 2 - Deep freeze refrigerators
- 1 - Upright refrigerator
- 2 - Gas ovens
- 1 - Washing machine
- 1 - Movie projector

PERSONNEL

Party Manager (s)	- Tony Mahoney/John Elworthy
Observers	- Alex Robinson/D. Johnson
Surveyor	- Peter Hurcombe
Assistant Surveyors	- Tony Midgely/Bruce Rudd
Mechanics	- W. Young/W. Chambers
Instrument Engineer	- Peter Metcalfe
Cooks	- D. Hatton/K. Watkins
Supervisor	- Chris Neilson

A P P E N D I X VPROCESSING

Field tapes were sent to Seismograph Service Ltd. (SSL) Phoenix centre for processing.

The hardware consisted of one Raytheon 706 processing system, which includes:

- a) CPU with 24K memory
- b) One teletype
- c) Three 9-track tape drives and controller
- d) Two disc storage drives and controller
- e) Array transform processor
- f) One electrostatic plotter/printer
- g) One card reader
- h) One card punch
- i) One tape cleaner
- j) One tape eraser

The supporting software consisted of five phases and a set of utility programmes. The processing sequence and parameters that were applied are as follows:

- Phase I Demultiplex at 4 ms sampling rate including Binary Gain Recovery. Frequency domain cross-correlation.
- Phase II (a) CDP Sort/Edit - removal of dead and noisy traces.
 (b) Application of statics derived from field computations (Datum = M.S.L.).
- Phase III (a) Deconvolution before stack (DBS) using 50 ms operator derived below first breaks, 10 ms gap, 10% noise, applied 0-4 seconds.
 (b) Filter, 8-10-60-70 Hz (0-4 seconds).
 (c) Automatic Gain Control (A.G.C.).
 (d) Analysis programmes to determine NMO velocities and optimum trace muting times.

PROCESSING (Cont.)

- Phase IV
- (a) Normal move-out (NMO) and trace muting.
 - (b) Application of surface-consistent residual statics.
 - (c) Application of CDP-aligned residual statics using 11-trace pilot, 80% taper, and 200 ms window.
 - (d) Stack.
- Phase V
- (a) Time-varying filter application.
 - (b) Trace equalization.
 - (c) Coherency filtering.
 - (d) Final Display - variable area/wiggle, 14 TPI horizontal scale, 5 inches/second vertical scale.

A P P E N D I X V I

SUMMARY OF SEISMIC LINES USED
IN THE INTERPRETATION

LINE	SURVEY NAME	SOURCE/ RECORDING	MULTIPLICITY	SPACING	STATIONS	KM
74-WAA	Beal Hill	Vibroseis/ Digital	1200%	135M	110-982	117.7
74-WAF	"	"	"	"	1973-2197	30.2
76-WBB	Pillan Hill	Vibroseis/	"	150M	99-433	50.1
76-WBD	"	"	"	"	101-269	25.2
76-WBG	"	"	"	"	101-791	103.5
76-WBH	"	"	"	"	100-214	17.1
76-WBJ	"	"	"	"	100-591	73.6
76-WBK	"	"	"	"	100-270	25.5
76-WBL	"	"	"	"	100-374	41.1
76-WBM	"	"	"	"	100-300	30.0
76-WBP	"	"	"	"	100-281	27.2
76-WBQ	"	"	"	"	95-209	17.1
76-WBR	"	"	"	"	100-344	36.6
76-WBS	"	"	"	"	100-268	25.2
76-WBT	"	"	"	"	100-388	43.2
76-WBU	"	"	"	"	105-206	15.2
76-WBY	"	"	"	"	151-456	45.8
76-WCB	"	"	"	"	100-237	20.6
76-WCD	"	"	"	"	100-181	12.2
79-WAH	Peera Peera	Geoflex/ Digital	1200%	100M	100-314	21.4
79-WDA	"	"	600%	"	101-789	68.8
79-WDB	"	"	600%	"	114-839	72.5
79-WDC	"	"	600%	"	114-839	72.5
79-WDD	"	"	600% - 1200%	"	141-749	60.8
79-WDE	"	"	600% - 1200%	"	106-859	75.3
79-WDF	"	"	1200%	"	233-578	34.5
79-WDG	"	"	"	"	101-710	60.9
79-WDH	"	"	"	"	108-740	63.2
79-WDJ	"	"	"	"	93-878	78.5
79-WDK	"	"	"	"	101-254	15.3
79-WDL	"	"	"	"	105-709	60.4
79-WDM	"	"	"	"	73-314	24.1
79-WDN	"	"	"	"	102-644	54.2
79-WDP	"	"	"	"	96-159	6.3

Cont.

SUMMARY OF SEISMIC LINES USED
IN THE INTERPRETATION

(Cont.)

LINE	SURVEY NAME	SOURCE/ RECORDING	MULTIPLICITY	SPACING	STATIONS	KM
79-WDQ	Peera Peera	Geoflex/ Digital	1200%	100M	101-420	31.9
79-WDR	"	"	"	"	100-349	24.9
79-WDS	"	"	"	"	101-464	36.3
79-WDT	"	"	"	"	89-884	79.5
79-WDU	"	"	"	"	60-881	82.1
79-WDV	"	"	"	"	80-779	69.9
79-WDW	"	"	"	"	109-836	72.7
79-WDX	"	"	"	"	102-709	60.7
79-WDY	"	"	"	75M	104-335	23.1
79-WDZ	"	"	"	"	107-348	24.1
79-WEA	"	"	"	"	101-774	67.3
79-WEB	"	"	"	"	103-335	23.2
79-WEC	"	"	"	"	102-310	20.8
79-WED	"	"	"	100M	101-268	16.7
79-WEE	"	"	"	"	101-488	38.7
79-WEF	"	"	"	"	101-466	36.5
79-WEG	"	"	"	"	91-674	58.3
79-WEH	"	"	"	"	100-208	10.8
79-WEJ	"	"	"	"	100-305	20.5
79-WEK	"	"	"	"	100-278	17.8
TOTAL						2269.1 km

APPENDIX VII

PERMANENT MARKERS

Coordinates are in metres, Zone 5,
Clarke 1858 Spheroid.

Elevations are in metres based on
Australian Height Datum.

000033

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WAH			
100	573944	1555055	38.6
150	578936	1555050	25.9
200	583929	1555043	9.8
300	593909	1555022	23.0
LINE 79-WDA			
100	611911	1556803	17.8
121	612619	1554826	19.1
150	613595	1552093	16.7
180	614502	1549230	24.5
200	614954	1547280	22.8
250	616075	1542402	17.0
300	617195	1537524	20.3
310	617419	1536548	19.8
350	618313	1532645	20.9
400	619431	1527766	19.7
450	620547	1522887	19.0
500	621658	1518009	19.2
550	622767	1513129	18.9
593	623719	1508925	19.1
633	624602	1505019	18.5
LINE 79-WDB			
650	625052	1503378	19.1
700	626288	1498528	17.8
790	628213	1489734	17.7
LINE 79-WDB			
225	565077	1537364	7.0
249	567475	1537336	35.7
300	572557	1537271	33.1
350	577536	1537151	41.1
450	587513	1536989	11.0
500	592495	1536919	33.3
550	597484	1536847	19.2
601	602571	1536773	18.4
650	607458	1536699	30.4
700	612442	1536614	17.8
800	622419	1536500	22.8
850	627418	1536448	19.6
900	632407	1536396	24.6
950	637406	1536350	29.0

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDB			
1000	642404	1536308	23.8
1050	647404	1536260	25.6
1100	652404	1536240	24.8
1150	657404	1536222	25.3
1200	662404	1536236	25.8
1250	667404	1536251	26.4
1285	670904	1536262	25.9
1300	672404	1536267	26.8
1310	673404	1536270	26.5

LINE 79-WDC			
110	579147	1556164	7.9
121	579374	1555087	13.5
150	579971	1552250	25.1
200	581007	1557365	20.1
250	581965	1542469	22.5
300	582802	1537554	22.2
350	583648	1532626	22.3
400	584500	1527699	11.8
450	585353	1522774	7.8
500	586200	1517851	11.9
550	587050	1512923	9.9
600	587900	1507996	12.2
700	589609	1498147	10.9
750	590466	1493226	26.8
800	591329	1488305	13.9
840	592022	1484365	10.3

LINE 79-WDD			
140	574973	1505255	8.1
178	578762	1505353	13.4
274	588317	1505577	33.0
300	590916	1505613	13.4
350	595902	1505680	14.5
400	600887	1505760	15.6
500	610868	1505893	16.7
550	615860	1505964	18.3
600	620852	1506036	17.7
635	624345	1506086	19.1
650	625845	1506110	18.5
700	630844	1506189	19.5
750	635844	1506260	19.5

000035

STATION	EASTING	NORTHING	ELEVATION
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LINE 79-WDE

105	593089	1556777	16.9
123	593466	1555017	17.1
150	594010	1552369	26.4
200	595024	1547460	21.6
250	596034	1542574	42.4
308	597195	1539909	12.2
350	598037	1532798	28.4
400	599042	1527898	17.7
500	601039	1518102	16.5
550	601908	1513186	16.4
600	602997	1508328	12.1
650	603996	1503434	24.3
700	604976	1498533	15.9
750	605956	1493631	19.7
800	606926	1488718	17.0
850	607898	1483811	16.0
860	608093	1482831	15.3

LINE 79-WDF

100	562982	1548306	37.5
117	563774	1546795	33.7
150	565283	1543861	19.3
200	567565	1539414	26.7
224	568658	1537278	23.9
250	569843	1534965	10.8
350	572817	1525429	17.9
400	574279	1520651	29.0
450	575689	1515858	12.3
500	577026	1511044	19.5
580	579361	1503398	18.4

LINE 79-WDG

100	579625	1522837	7.5
150	584617	1522923	17.2
200	589616	1523013	16.8
251	594713	1523096	15.2
304+13m	600012	1523170	16.0
350	604582	1523193	14.0
400	609566	1523207	16.2
450	614549	1523210	19.5
500	619533	1523214	17.9
509	620430	1523214	19.2
550	624530	1523220	21.5

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDG			
601	629628	1523224	20.6
650	634528	1523223	23.6
700	639521	1523222	21.9
711	640621	1523221	23.8
LINE 79-WDH			
107	576196	1546045	7.2
150	580486	1546166	30.4
158	581280	1546189	37.9
199	585372	1546302	16.6
250	590462	1546452	36.4
300	595446	1546585	27.2
350	600425	1546727	32.4
403	605702	1546907	11.0
450	610385	1547056	45.9
550	620383	1547385	18.6
600	625381	1547539	26.7
650	630378	1547680	19.5
700	635376	1547820	22.4
741	639472	1547935	25.4
LINE 79-WDJ			
91	545513	1621908	32.1
107	545798	1620334	32.6
150	546566	1616103	38.1
164	546816	1614716	50.7
200	547441	1611173	37.8
250	548275	1606241	35.5
300	548875	1601264	29.3
350	549476	1596300	29.4
368	549693	1594510	33.2
399	550064	1591434	43.9
450	550997	1586423	26.6
500	551946	1581514	18.0
550	552895	1576607	29.2
600	553854	1571694	30.8
650	554907	1566805	21.8
700	556074	1561958	30.5
750	557443	1557157	22.0
800	558808	1552360	27.1
850	560198	1547619	13.8
860	560412	1546648	11.8
880	560952	1544743	17.2

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STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDK			
100	588690	1568839	40.2
150	589796	1563970	22.6
200	590867	1559100	33.0
242	591778	1555012	30.0
255	592066	1553744	31.0
LINE 79-WDL			
104	548016	1488555	2.1
138	551416	1488594	19.7
150	552610	1488600	18.5
199	557483	1488610	24.0
250	562559	1488619	26.3
300	567535	1488626	29.0
350	572519	1488642	12.9
400	577503	1488658	18.6
450	582492	1488667	12.3
499	587375	1488676	19.1
538	591263	1488678	15.8
550	592461	1488679	12.8
600	597450	1488686	10.4
650	602440	1488697	16.0
695	606926	1488718	17.0
LINE 79-WDM			
150	612748	1490829	16.3
200	617442	1492556	17.0
250	622139	1494252	17.5
300	626907	1495743	18.2
LINE 79-WDN			
150	546489	1504475	7.9
191	547898	1500634	13.9
200	548243	1499805	17.2
250	549894	1495100	20.3
300	551050	1490247	20.1
350	552131	1485376	5.3
400	553162	1480494	7.5
450	554075	1475587	25.3
500	554962	1470677	18.4
550	555875	1465772	43.3
600	556764	1460862	18.0
645	557529	1456438	3.7

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDP			
100	544850	1506768	29.3
110	545559	1507467	15.1
145	548086	1509877	14.6
LINE 79-WDQ			
150	522602	1500078	8.7
200	527585	1500038	2.2
250	532567	1500200	9.8
300	537545	1500376	18.1
350	542521	1500504	23.8
400	547501	1500627	18.2
404	547898	1500634	13.9
420	549498	1500673	4.5
LINE 79-WDR			
100	518955	1501668	27.1
200	520474	1491804	9.6
250	521271	1486881	12.1
300	522008	1481948	11.1
350	522776	1477021	6.1
LINE 79-WDS			
150	495767	1489124	24.3
200	500277	1491249	22.2
250	504787	1493378	25.7
300	509289	1495509	33.7
350	513794	1497641	26.2
400	518289	1499766	26.6
450	522789	1501919	14.7
LINE 79-WDT			
88	472768	1555339	45.9
104	473280	1553822	37.1
150	474860	1549516	30.1
200	476472	1544793	32.9
250	478060	1540062	29.4
300	479653	1535332	34.6
350	481249	1530603	26.2
400	482843	1525874	33.0
450	484434	1521144	34.7
500	486021	1516412	18.7
550	487610	1511681	26.8
600	489196	1506949	25.4

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STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDT			
613	489608	1505718	21.4
650	490783	1502218	19.6
700	492369	1497490	39.7
750	493954	1492696	33.0
791	495251	1488881	23.8
800	495529	1488036	22.2
850	497100	1483289	21.7
885	498202	1479967	16.6
LINE 79-WDU			
59	409776	1504652	41.2
100	413876	1504712	40.0
150	418875	1504774	37.3
200	423866	1504838	36.5
250	424427	1504912	33.5
299	433728	1504989	31.5
350	438802	1505078	37.5
400	443783	1505156	29.6
450	448762	1505228	45.0
500	453746	1505301	27.1
550	458731	1505345	45.6
600	463709	1505434	27.2
700	473668	1505546	37.9
751	478754	1505606	19.1
800	483629	1505661	11.7
850	488612	1505709	31.4
860	489608	1505718	21.4
LINE 79-WDV			
79	417906	1542925	52.9
100	418707	1540984	52.6
150	420613	1536362	50.1
200	422520	1531740	46.7
250	434427	1527117	50.6
303	426463	1522225	44.4
350	428294	1517894	45.4
400	430240	1513288	41.3
450	432186	1508680	44.9
490	433728	1504989	36.6
550	436014	1499442	36.3
600	437902	1494812	28.9
650	439773	1490175	39.5

000040

STATION	EASTING	NORTHING	ELEVATION
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LINE 79-WDV

700	441646	1485539	33.4
750	443520	1480903	33.9
780	444641	1478121	37.3

LINE 79-WDW

108	413331	1522151	44.6
150	417515	1522187	46.8
200	422496	1522181	43.3
250	427477	1522185	46.8
300	432459	1522203	49.4
350	437441	1522227	39.1
400	442423	1522267	46.3
450	447405	1522317	39.6
500	452386	1522366	46.3
550	457368	1522418	32.2
599	462251	1522479	34.7
650	467332	1522544	38.2
700	472314	1522615	40.9
750	477295	1522693	16.2
800	482277	1522761	44.7
816	483870	1522801	26.7

LINE 79-WDX

120	451611	1537512	41.9
150	452676	1534717	43.9
200	454447	1530048	35.0
250	456215	1525394	44.6
282	457368	1522418	32.2
350	459878	1516114	43.5
400	461709	1511466	43.0
450	463542	1506817	32.7
465	464093	1505423	29.0
500	465377	1502167	34.6
550	467206	1497514	28.0
600	469033	1492859	25.8
650	470853	1488224	18.2
700	472680	1483570	25.6
710	473045	1482639	31.9

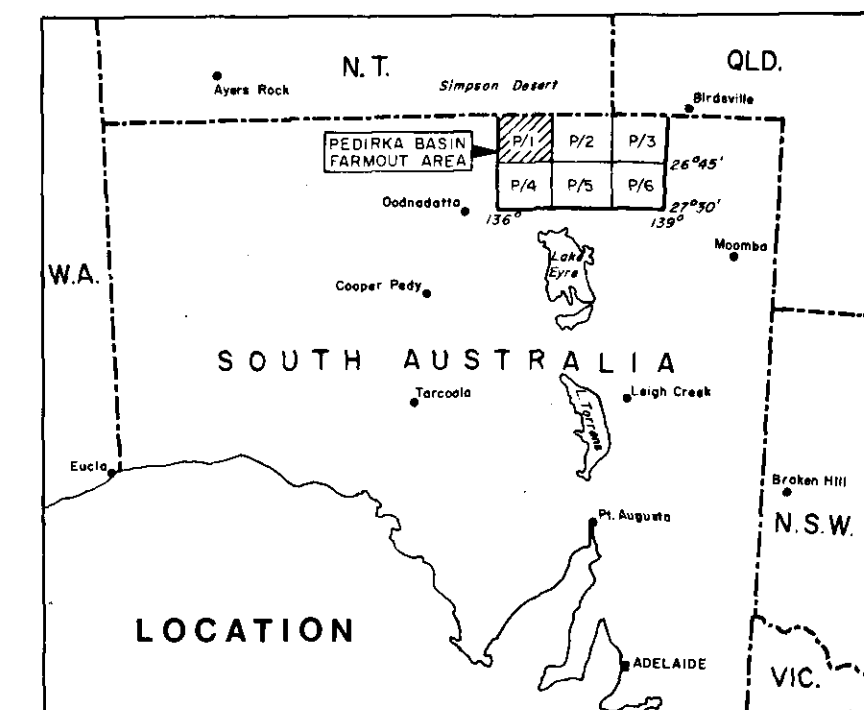
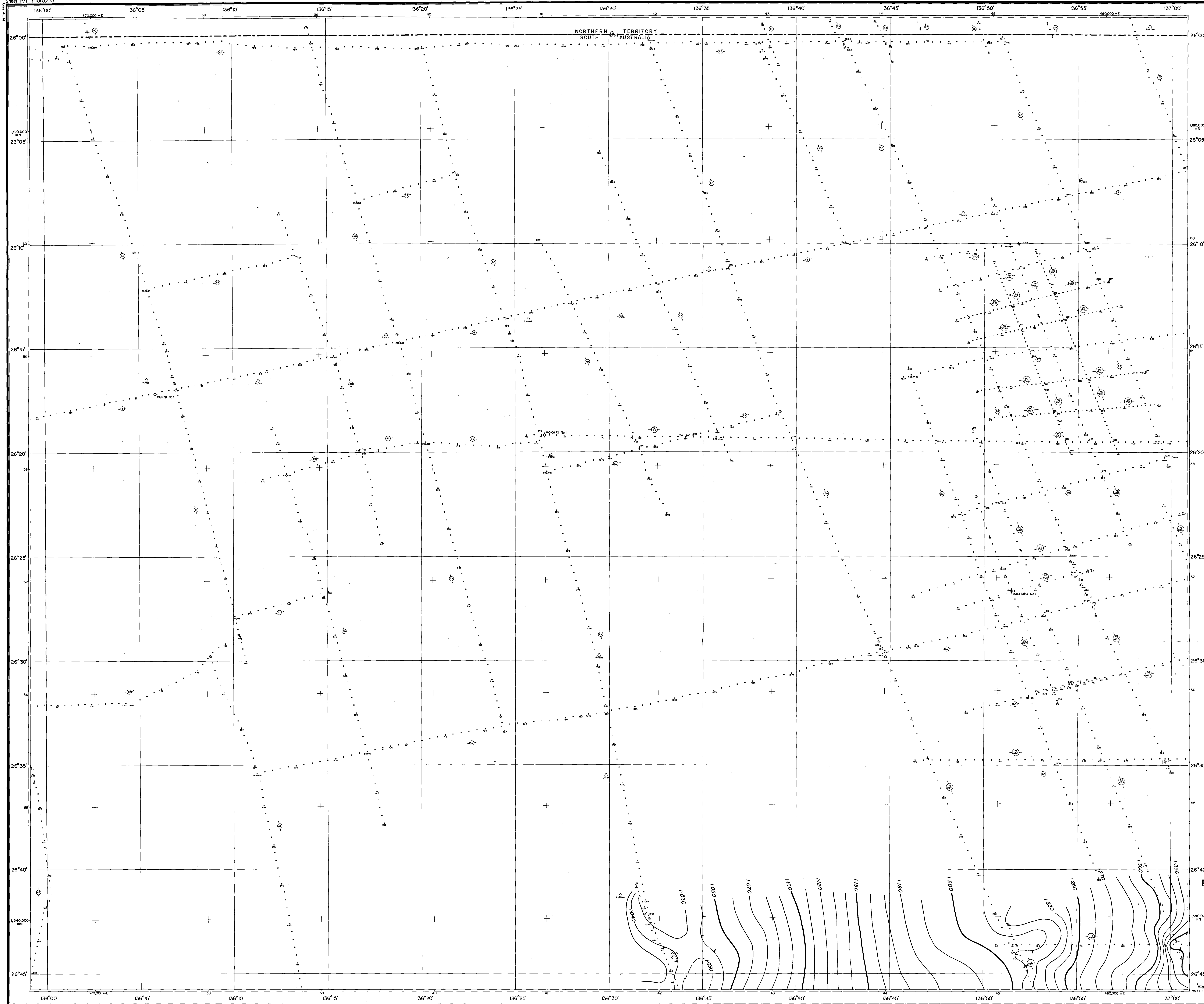
LINE 79-WDY

120	509129	1549632	30.9
150	511370	1549586	21.3

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WDY			
200	515115	1549508	30.9
208	515711	1549496	34.7
250	518861	1549435	17.7
300	522613	1549353	31.3
321	524189	1549321	10.1
LINE 79-WDZ			
120	504536	1563771	28.7
150	506765	1563726	28.0
250	514212	1563587	30.3
300	517942	1563521	12.7
330	520189	1563484	37.6
LINE 79-WEA			
120	509703	1570037	36.8
150	510343	1567895	38.3
200	511394	1564334	36.3
210	511603	1563622	39.6
250	512441	1560774	40.5
300	513485	1557211	40.9
346	514451	1553912	26.6
450	516650	1546422	23.1
475	517178	1544627	21.2
500	517708	1542831	21.9
550	518773	1539220	24.7
600	519831	1535621	24.5
650	520884	1532030	15.1
700	521946	1528417	16.0
750	523002	1524829	9.9
754	523087	1524541	11.2
LINE 79-WEB			
120	510805	1544820	31.9
150	513045	1544756	25.2
200	516785	1544639	20.7
250	520547	1544522	10.2
300	524324	1544420	26.7
317	525605	1544385	29.8
LINE 79-WEC			
150	516904	1537768	16.7
180	519154	1537742	27.2
200	520666	1537731	25.5

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WEC			
291	527530	1537689	28.5
300	528204	1537683	33.6
LINE 79-WED			
100	531738	1569394	21.8
115	533112	1570001	33.8
150	536304	1571413	27.4
250	545438	1575740	26.8
269	547175	1576609	14.8
LINE 79-WEE			
100	539527	1574067	42.6
115	540913	1573469	24.4
150	544167	1572066	29.7
200	548847	1570050	10.8
250	553451	1568068	9.2
264	554735	1567516	24.6
300	558045	1566094	8.4
355	563109	1563927	13.5
400	567240	1562168	23.2
450	571826	1560215	31.5
474	574030	1559277	20.2
LINE 79-WEF			
115	541039	1554773	36.8
168	545797	1557085	14.1
215	550011	1559129	12.8
250	553155	1560654	36.1
300	557650	1562808	26.9
341	561343	1564574	10.2
350	562156	1564956	15.6
401	566762	1567136	11.8
453	571456	1569351	22.6
LINE 79-WEG			
90	531643	1609936	35.3
150	536221	1606055	31.6
204	540333	1602551	28.0
250	543832	1599547	28.1
300	547625	1596294	26.5
350	551297	1592925	18.6
400	554541	1589126	31.8

STATION	EASTING	NORTHING	ELEVATION
LINE 79-WEG			
450	557784	1585332	28.8
549	564215	1577819	33.3
600	567537	1573940	18.1
660	571457	1569375	20.9
LINE 79-WEH			
100	543493	1592891	14.9
155	548175	1595807	23.5
209	552770	1598653	18.2
LINE 79-WEJ			
100	556845	1577463	11.1
150	559193	1581882	20.3
163	559809	1583030	12.8
200	561564	1586295	30.3
248	563838	1590526	22.0
279	565305	1593250	31.6
294	566019	1594576	36.1
LINE 79-WEK			
101	552307	1603171	16.6
150	556211	1600221	28.2
200	560194	1597189	28.3
250	564175	1594151	23.3
279	566476	1592387	24.0



4311-11

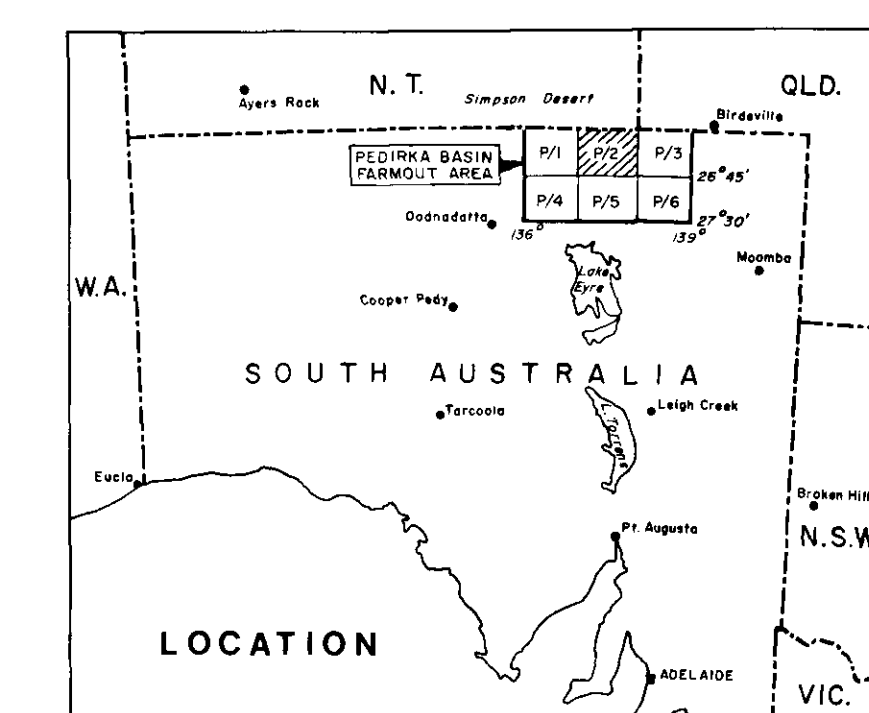
DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010 secs
INTERPRETATION: E. TADIAR
DATE: MAY, 1981

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

SCALE 1:100,000

Dwg. 81 XP-0521 Drafted AGH, MSM File P-40



26°40' DELHI PETROLEUM PTY. LTD.

PEERAPEERA SEISMIC SURVEY

P.E.L. 5 & 6; SOUTH AUSTRALIA

PEDIRKA BASIN FARMOUT AREA

'C' HORIZON

TIME STRUCTURE

CONTOUR INTERVAL: 0.01secs DATUM

INTERPRETATION: E. TADIR DATE: MAY, 1981

TRANSVERSE MERCATOR PROJECTION BASED ON CLARKE'S 1858 SPHEROID. CROSSSES INJUNCTION 1000 metre GRID INTERSECTS FROM THE FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SHEETS.

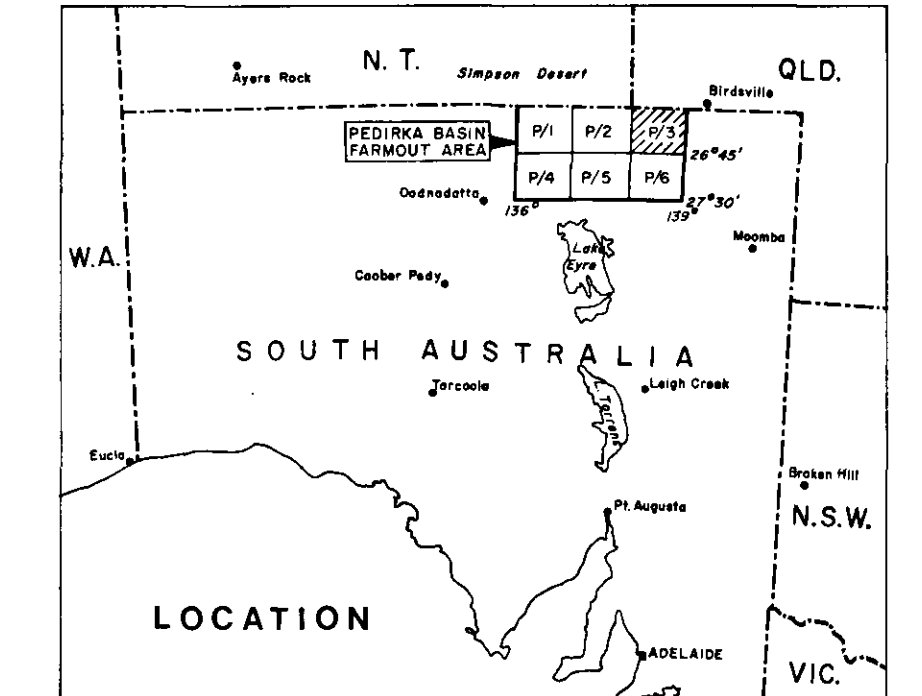
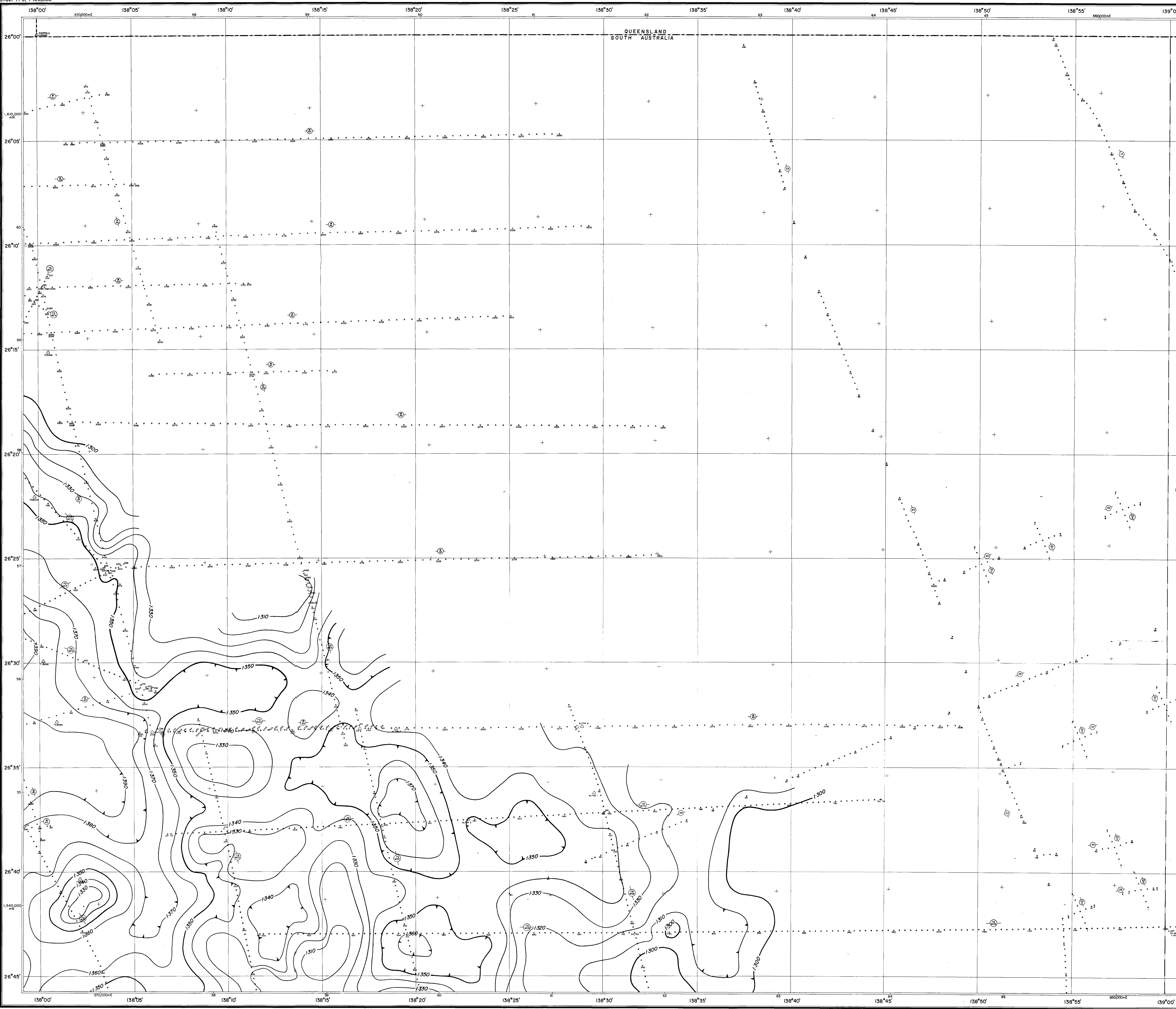
26°45'

SCALE 1:100,000

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

MILES 0 1 2 3 4 5

Down 92.50-0.220 Drifted 45.41 M.S. 1.5 File 9-2.0



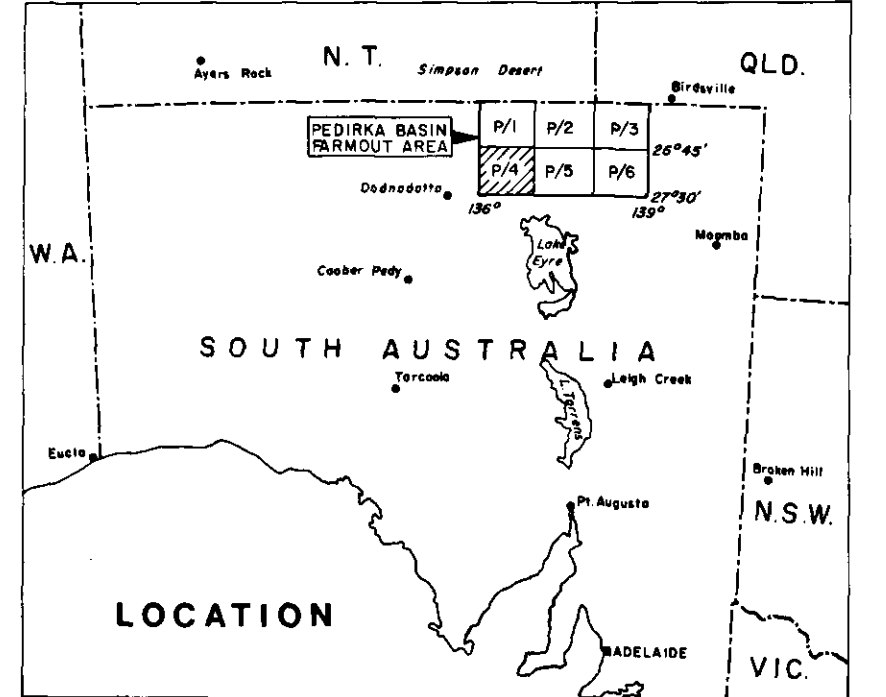
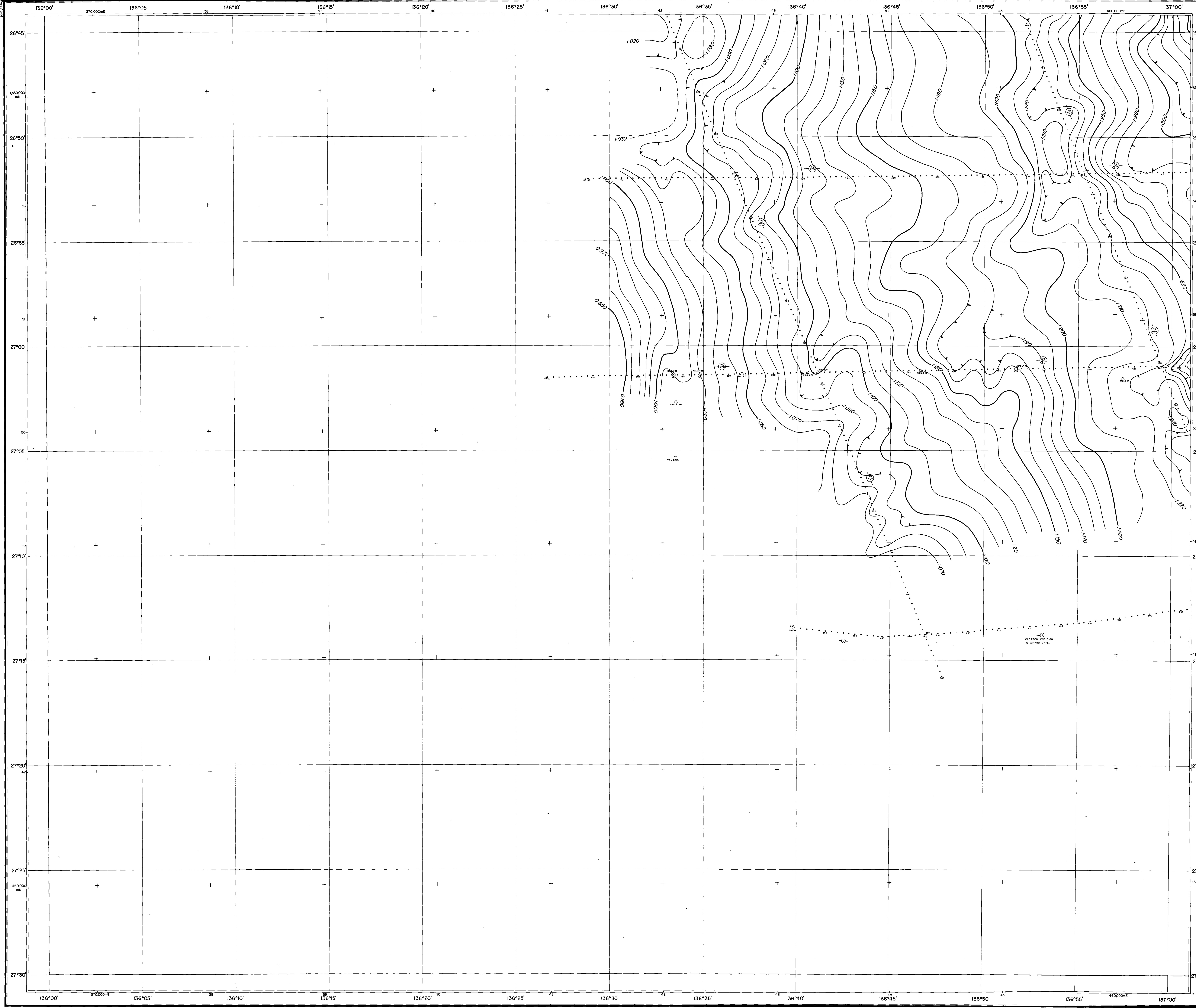
4311-13

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010 sec. DATUM: MAY, 1981
INTERPRETATION: E. TADIAR

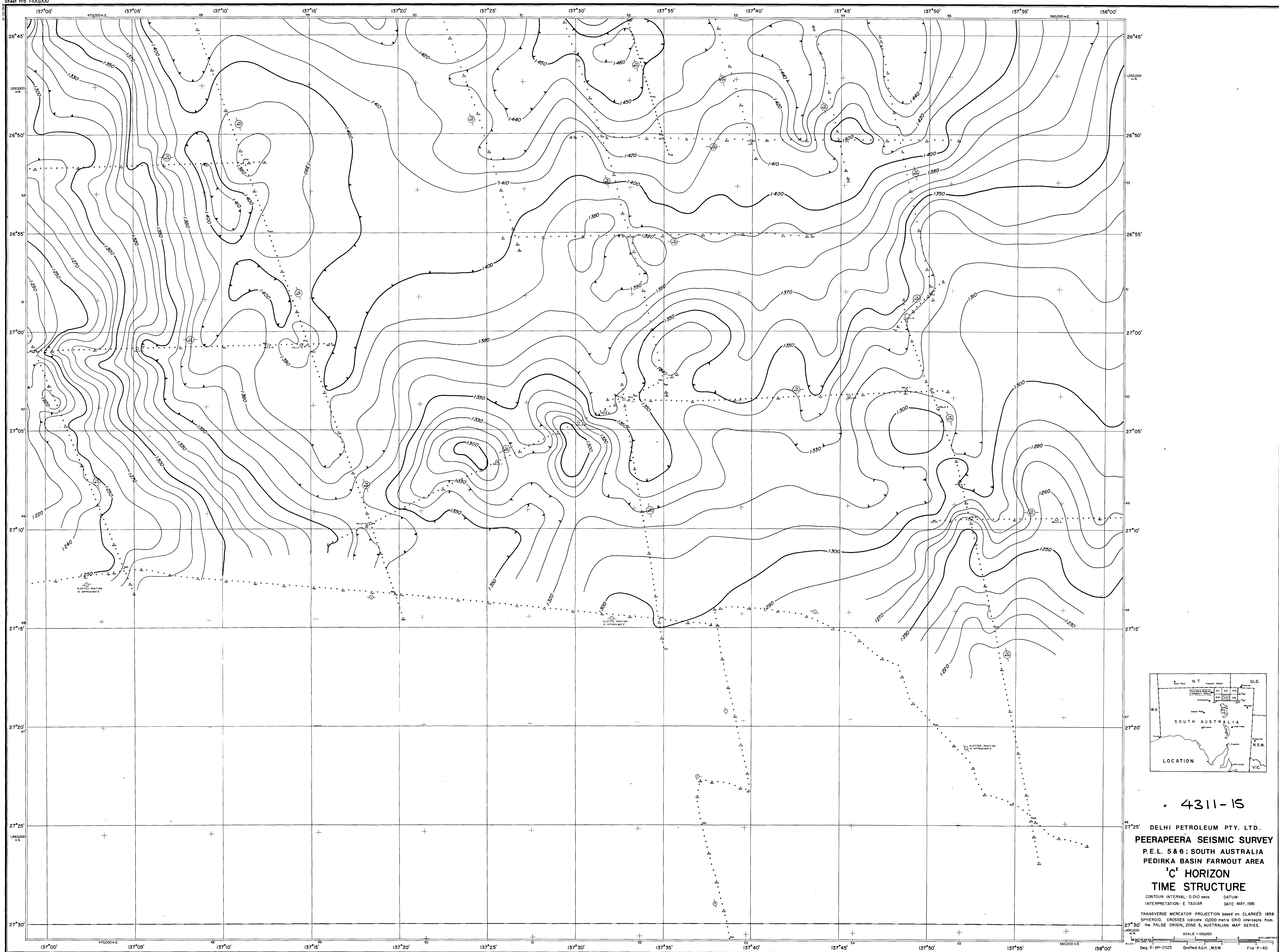
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000

Dwg: 81XP-0523 Drafted: AGH, MSM. File: P-40



4311-14

DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C' HORIZON
TIME STRUCTURE
CONTOUR INTERVAL: 0.010 secs. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 1981
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg 81XP-0524 Drafted DRD, M.S.M. File P-40
ENCLOSURE 4 Sheet P/4, 1:100,000



• 4311-15

0°25' DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010 secs. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 198

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858 SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from 0°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

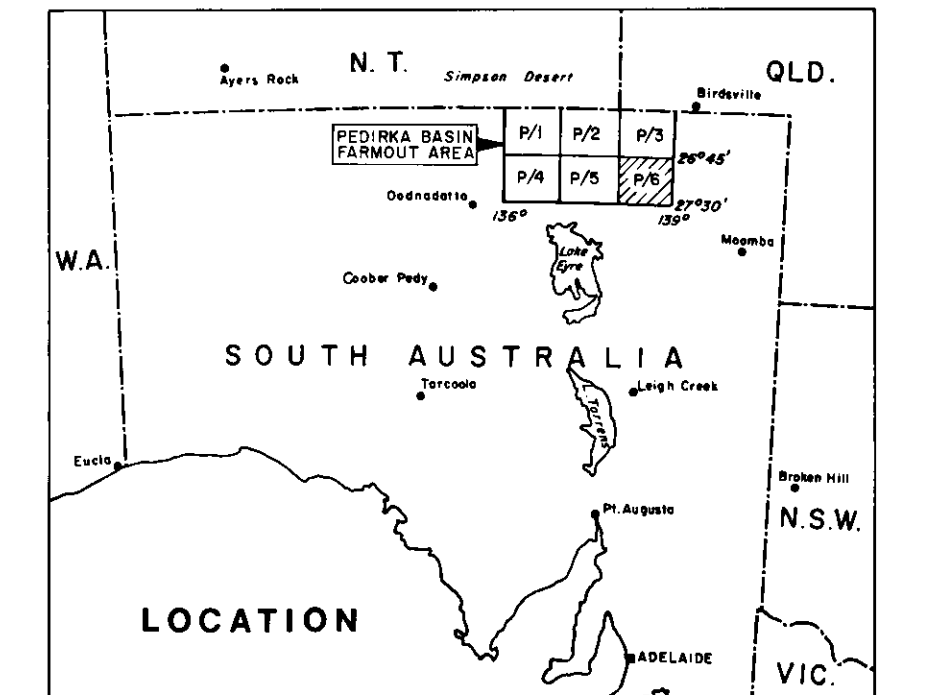
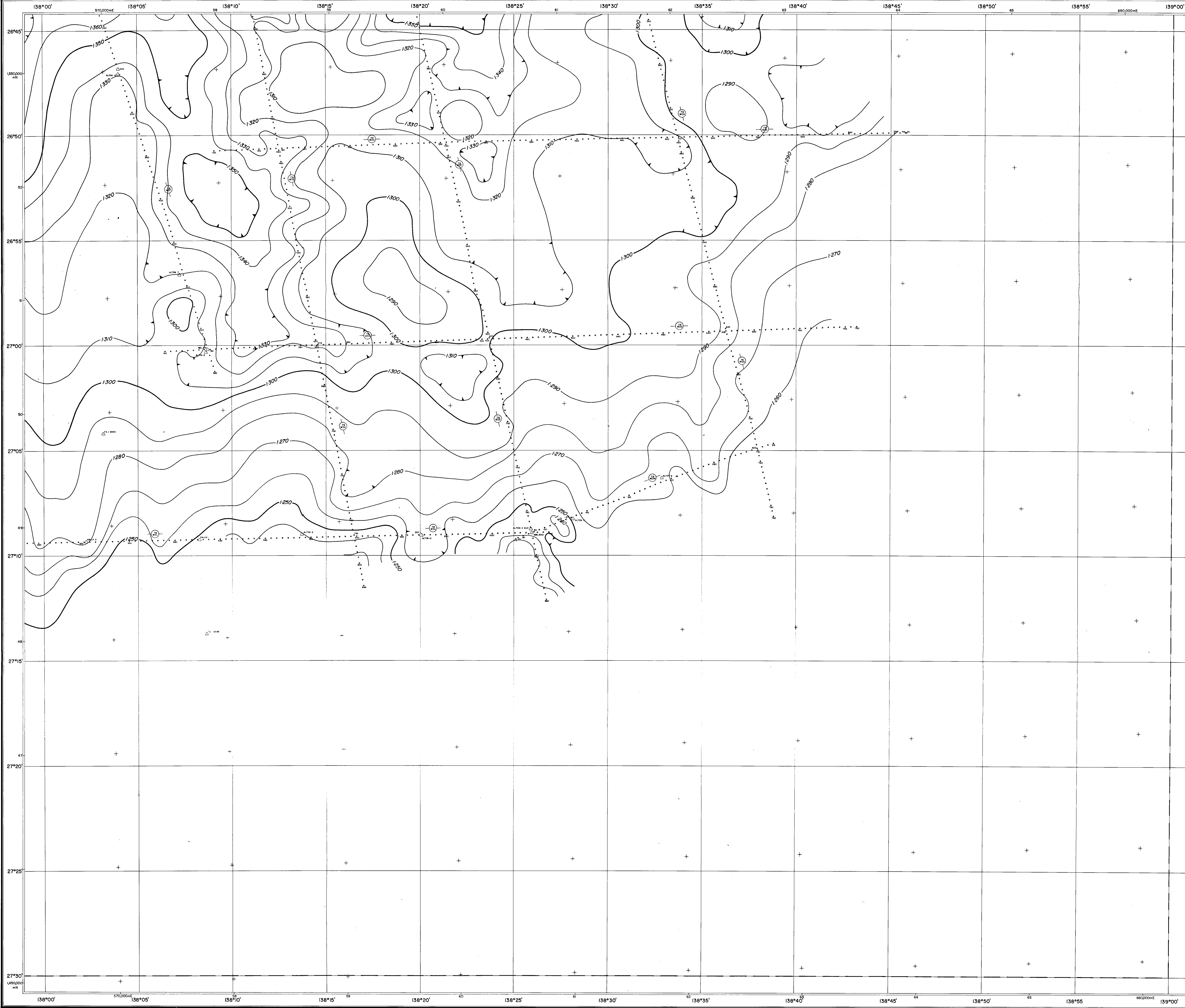
10,000
m. N.

SCALE 1:100,000

2 0 2 4 6 8 10 KILOMETERS

Dwg. 81XP-0525 Drafted AGH, MSM. File: P-40

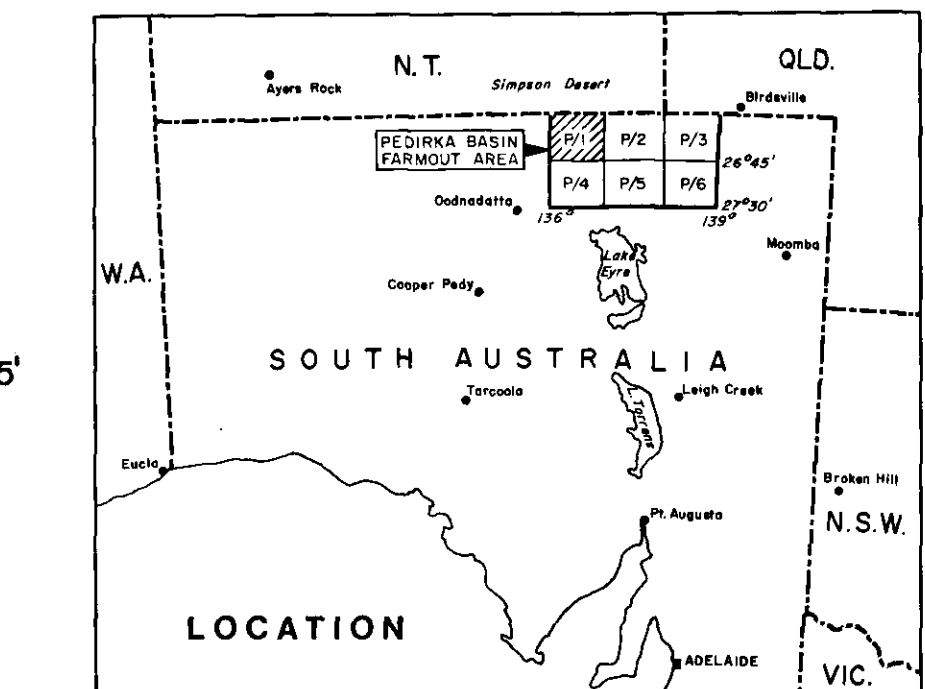
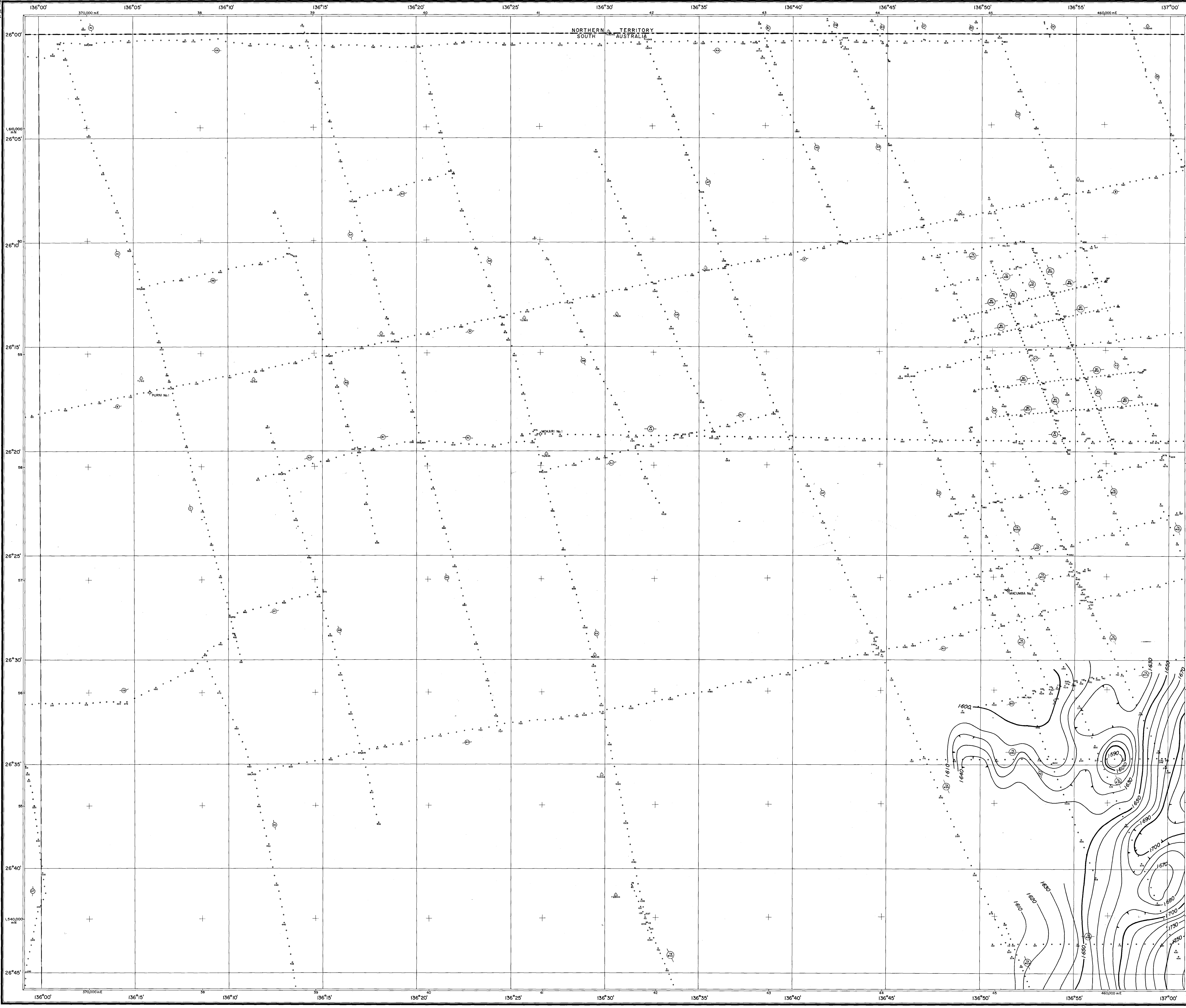
ENCLOSURE 5 Sheet P/5 1:100,0



4311-16

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010
INTERPRETATION: E. TADIAR
DATE: MAY, 1981.
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg 61 XP-0526 Drafted DRG, M.S.M. File 1 P-40



4311-17

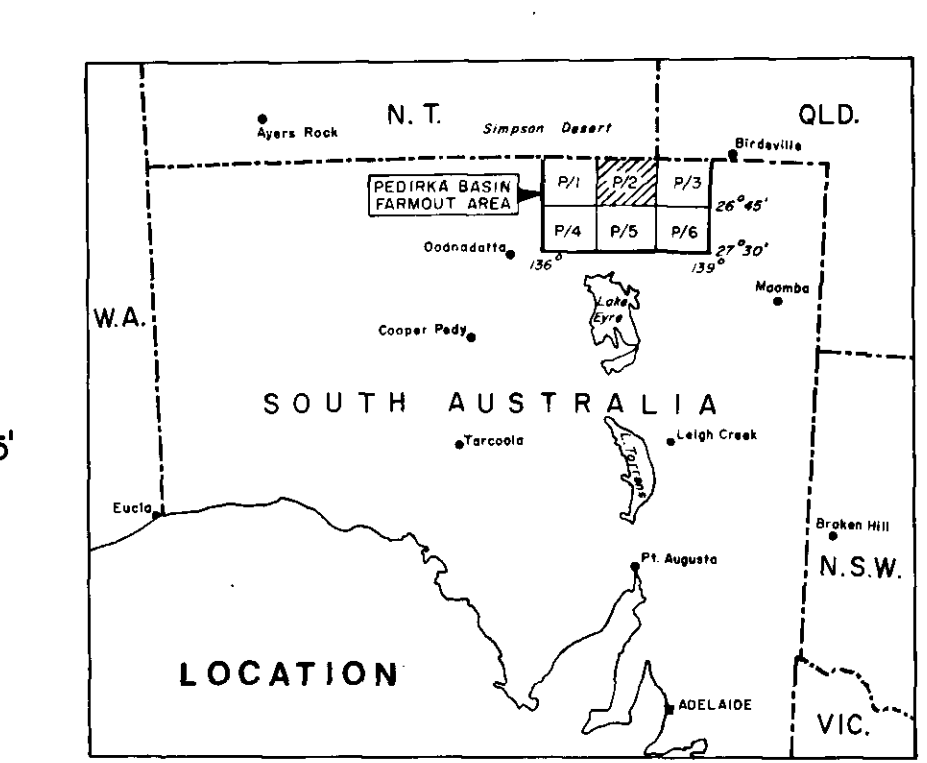
DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'JL' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010 secs. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 1981

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

SCALE 1:100,000

Dwg. 81/XP-0527 Drafted AGH, M.S.M. File: Q-40



26°40' DELHI PETROLEUM PTY. LTD.
PEERAPEREA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA

'J' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010secs. DATUM:
INTERPRETATION: E. TADJAR DATE: MAY, 1981

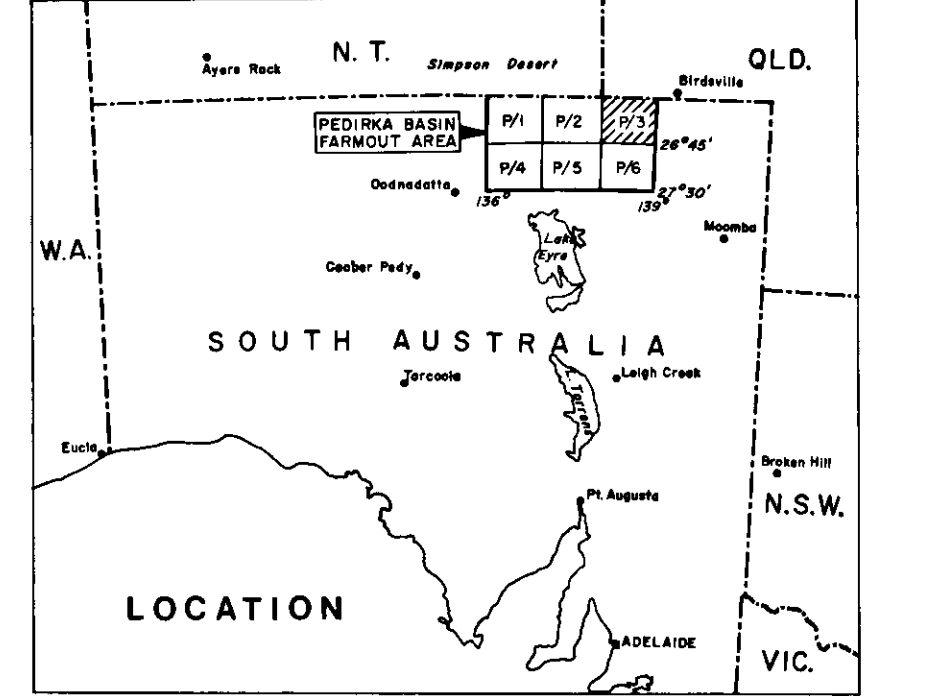
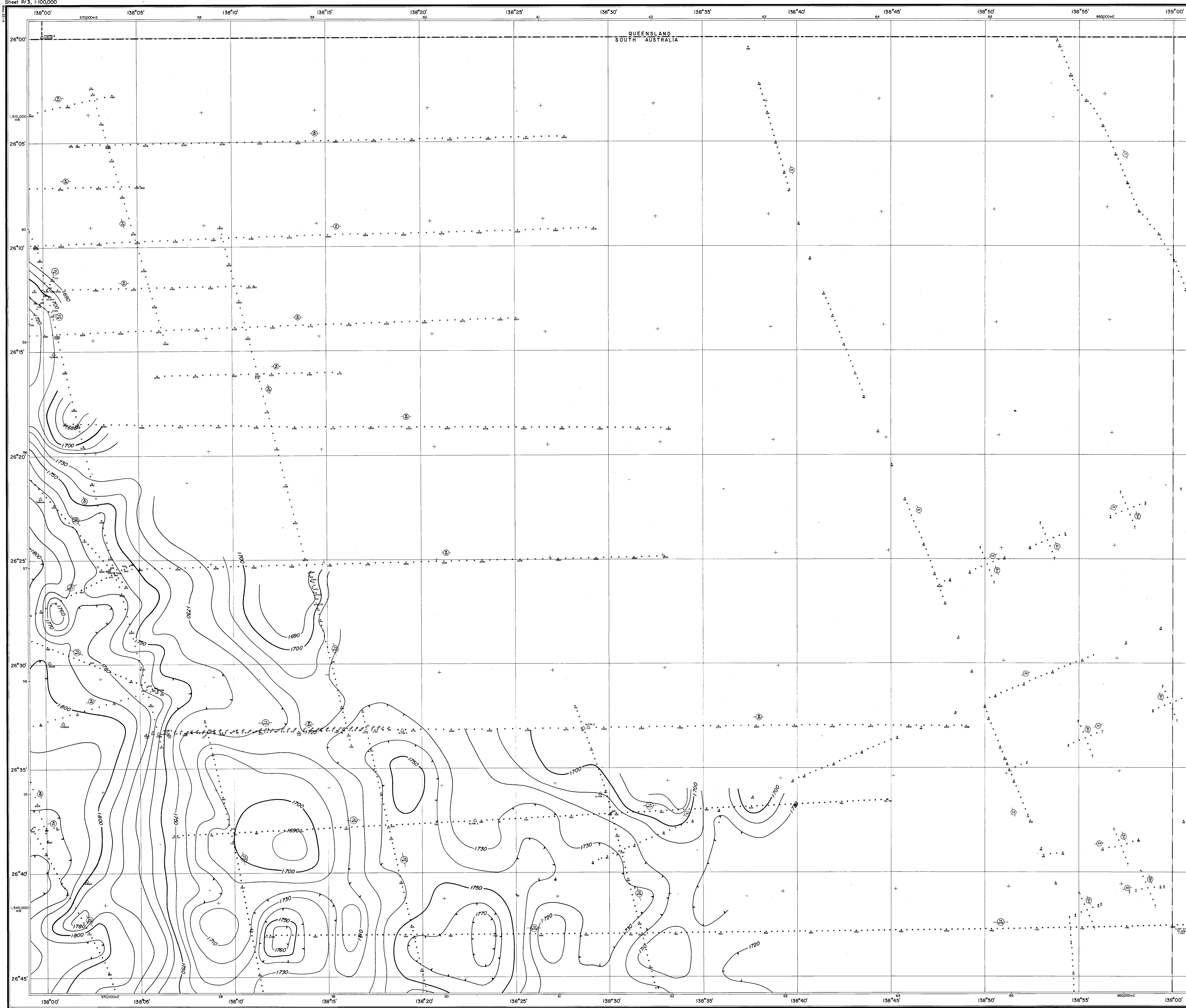
TRANSVERSE MERCATOR PROJECTION BASED ON CLARKE'S 1856
SPHEROID. Grids indicate 10,000 metre GRID INTERSECTS FROM
THE FALSE GRID, ZONE 5, AUSTRALIAN MAP SERIES.

26°45' 150,000
m

SCALE 1:100,000

MILES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
KILOMETRES

Dwg. BPX-052B Drafted AGH, M.S.M. File Q-40



4311-19

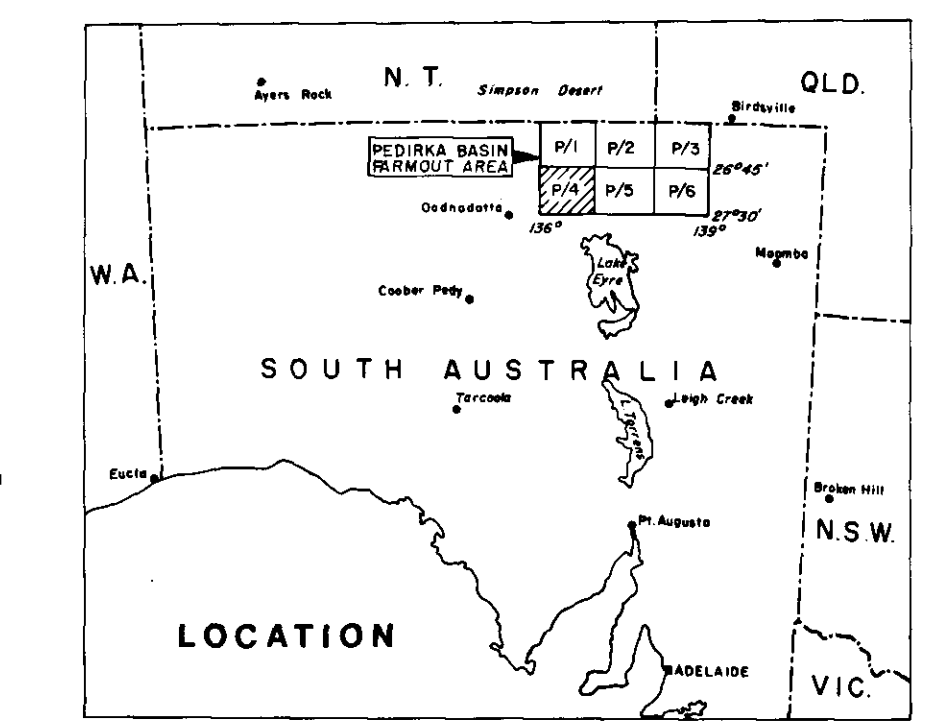
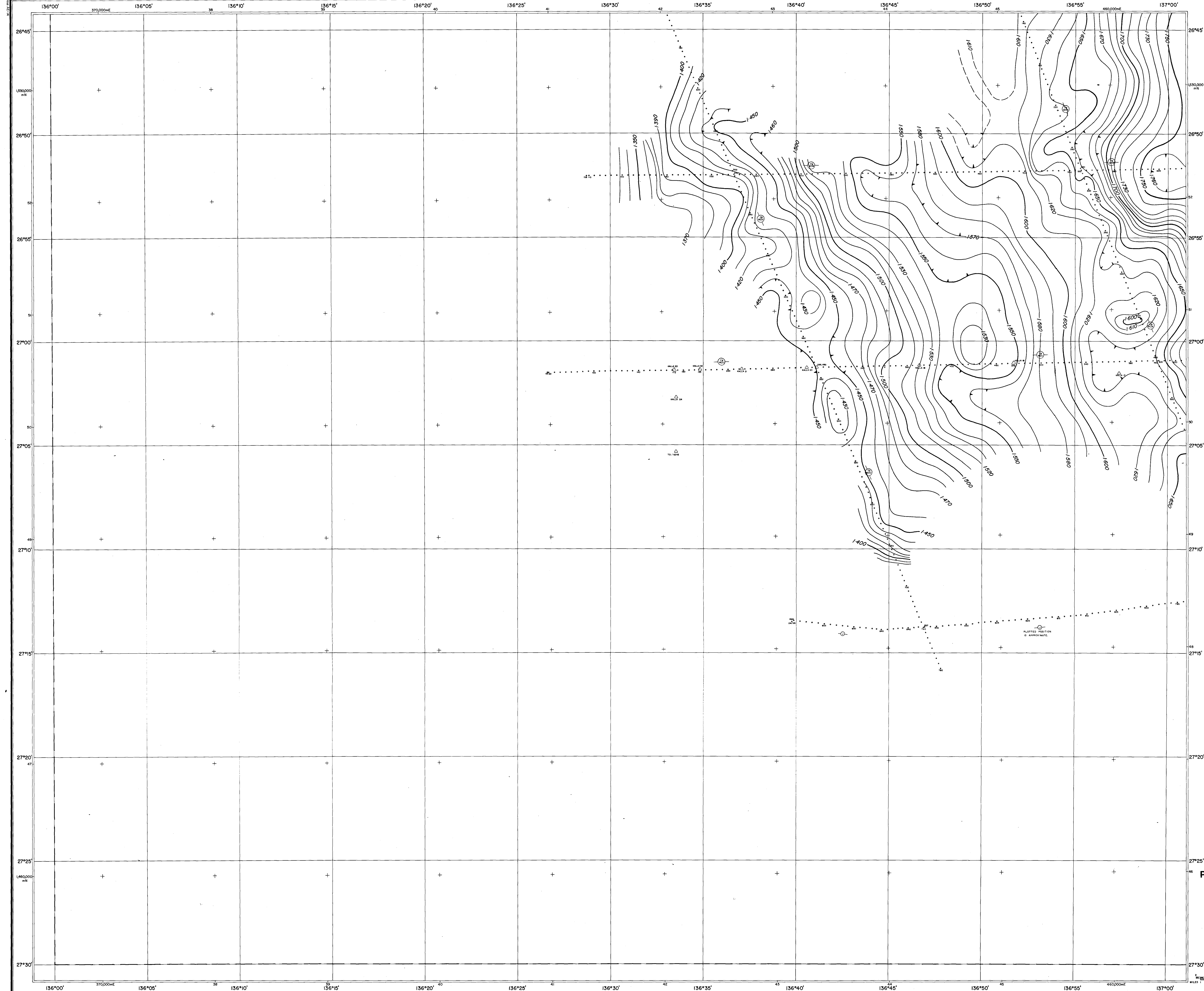
DELHI PETROLEUM PTY. LTD.
PEERAPIERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
**'JL' HORIZON
TIME STRUCTURE**

CONTOUR INTERVAL: 0.010 sec. DATUM: MAY, 1981
INTERPRETATION: E. TADIAI

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

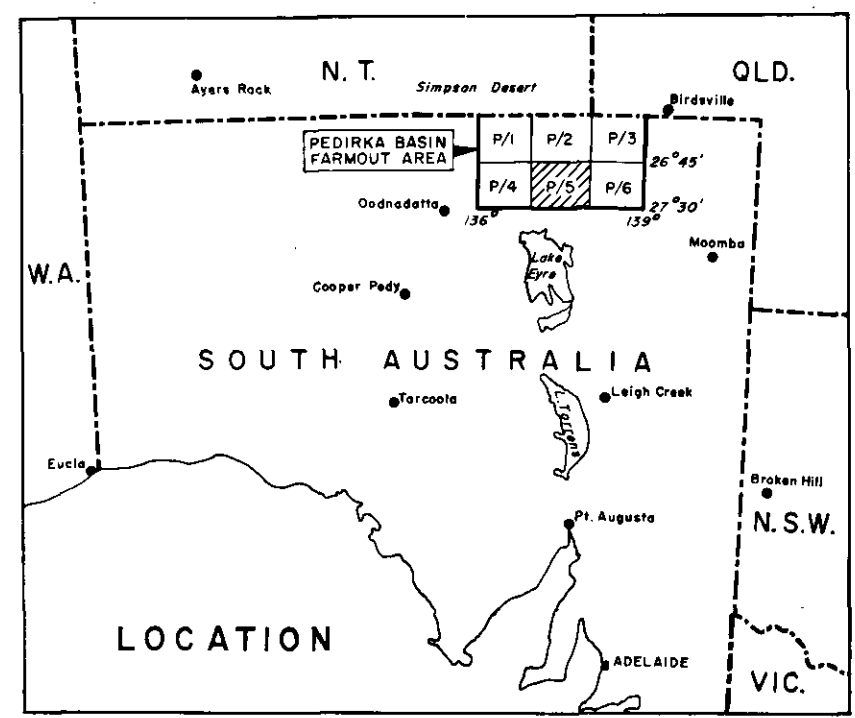
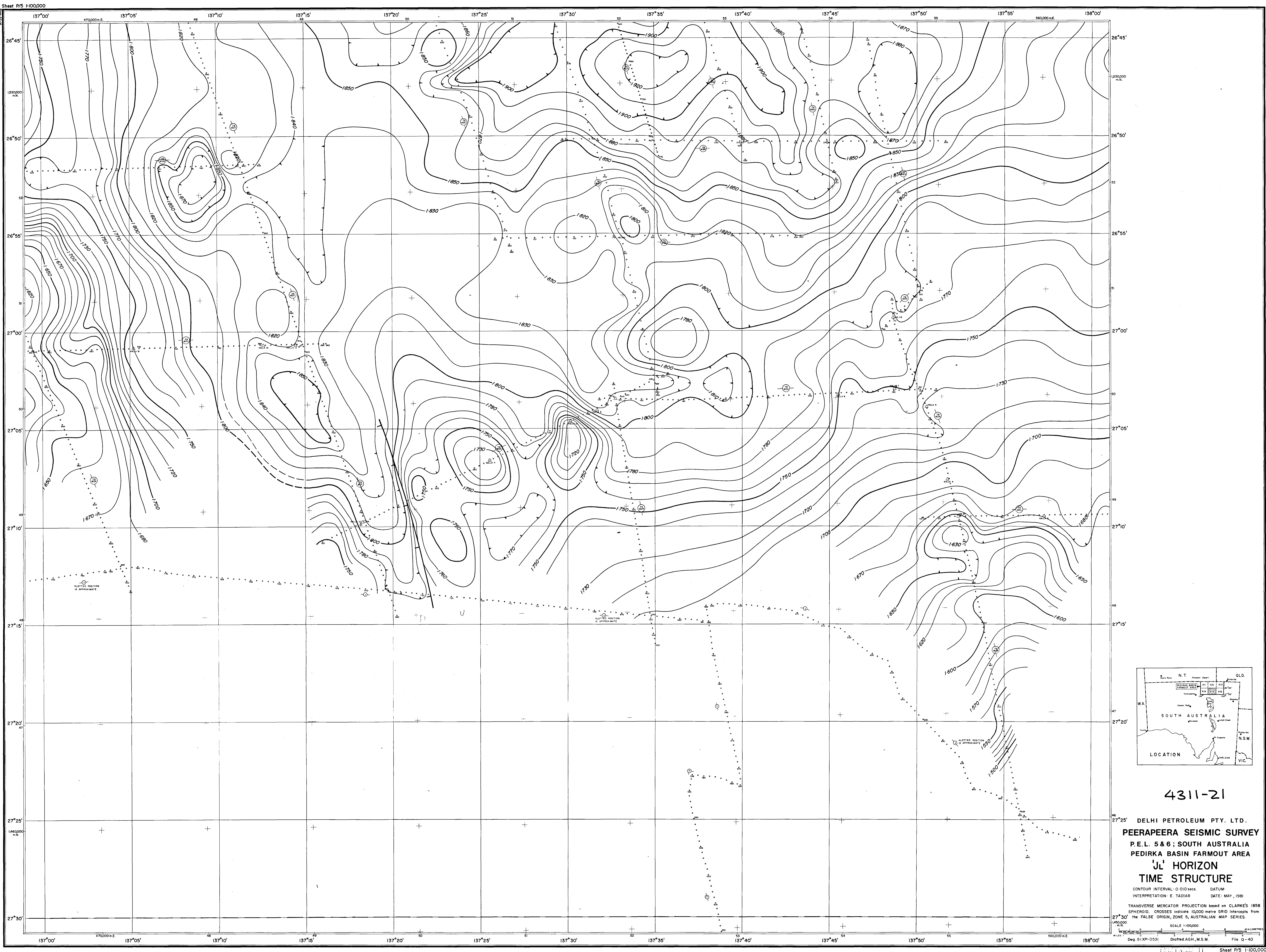
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4311-20

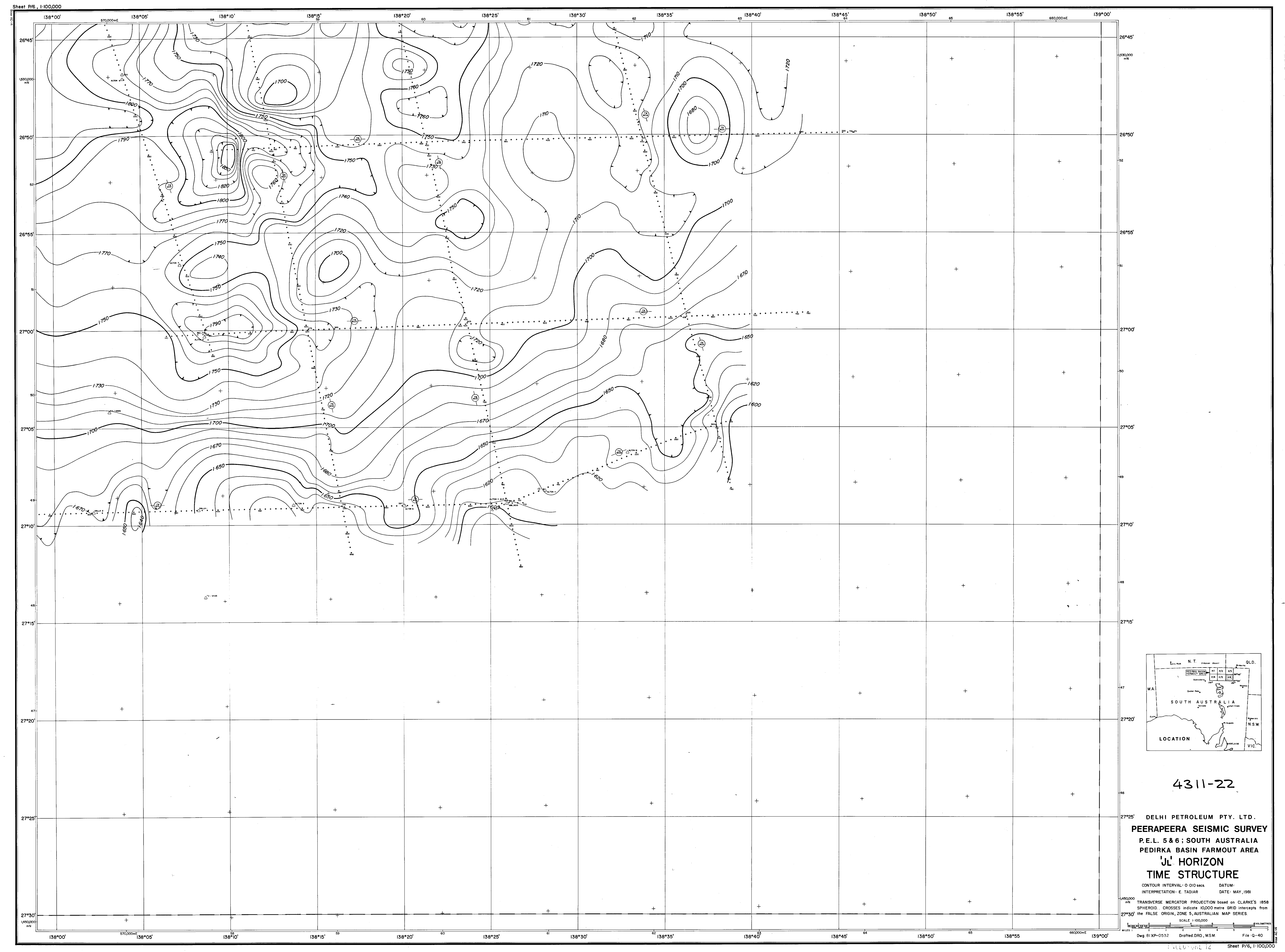
DELHI PETROLEUM PTY. LTD.
PÉERAPEERA SEISMIC SURVEY
 P.E.L. 5 & 6; SOUTH AUSTRALIA
 PEDIRKA BASIN FARMOUT AREA
JL' HORIZON
TIME STRUCTURE
 CONTOUR INTERVAL: 0.010 secs. DATUM:
 INTERPRETATION: E. TADIAR DATE: MAY, 1981.
 TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
 SPHEROID. CROSSES indicate 10000 metre GRID intercepts from
 27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
 SCALE 1:100,000
 Dwg. 61 XP-0530 Drafted DRO, M.S.M. File Q-40

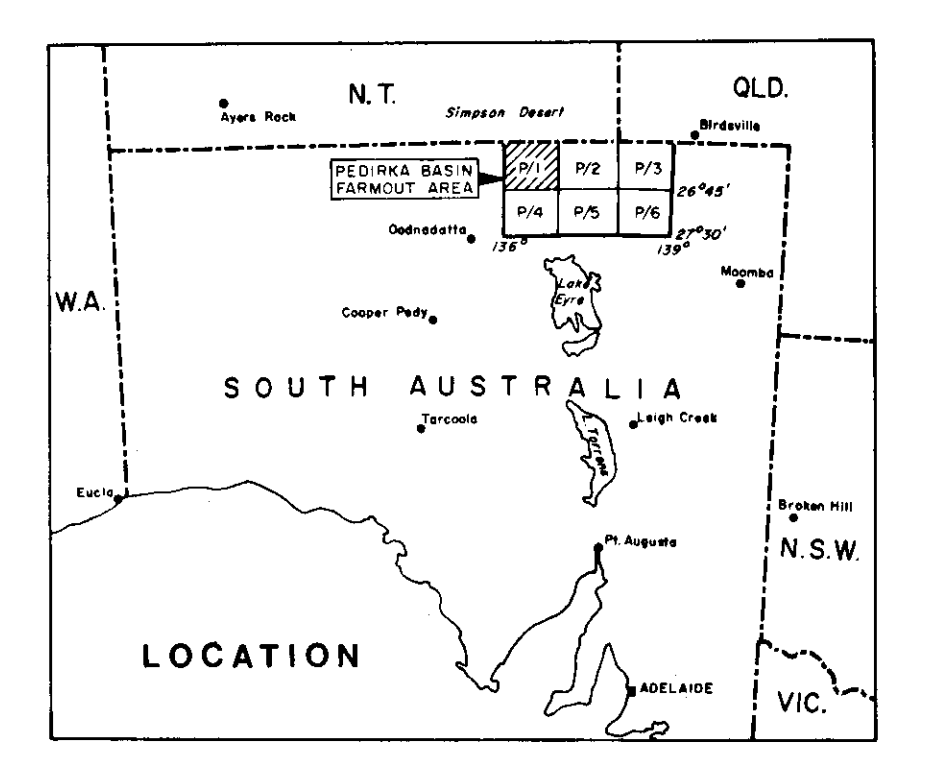
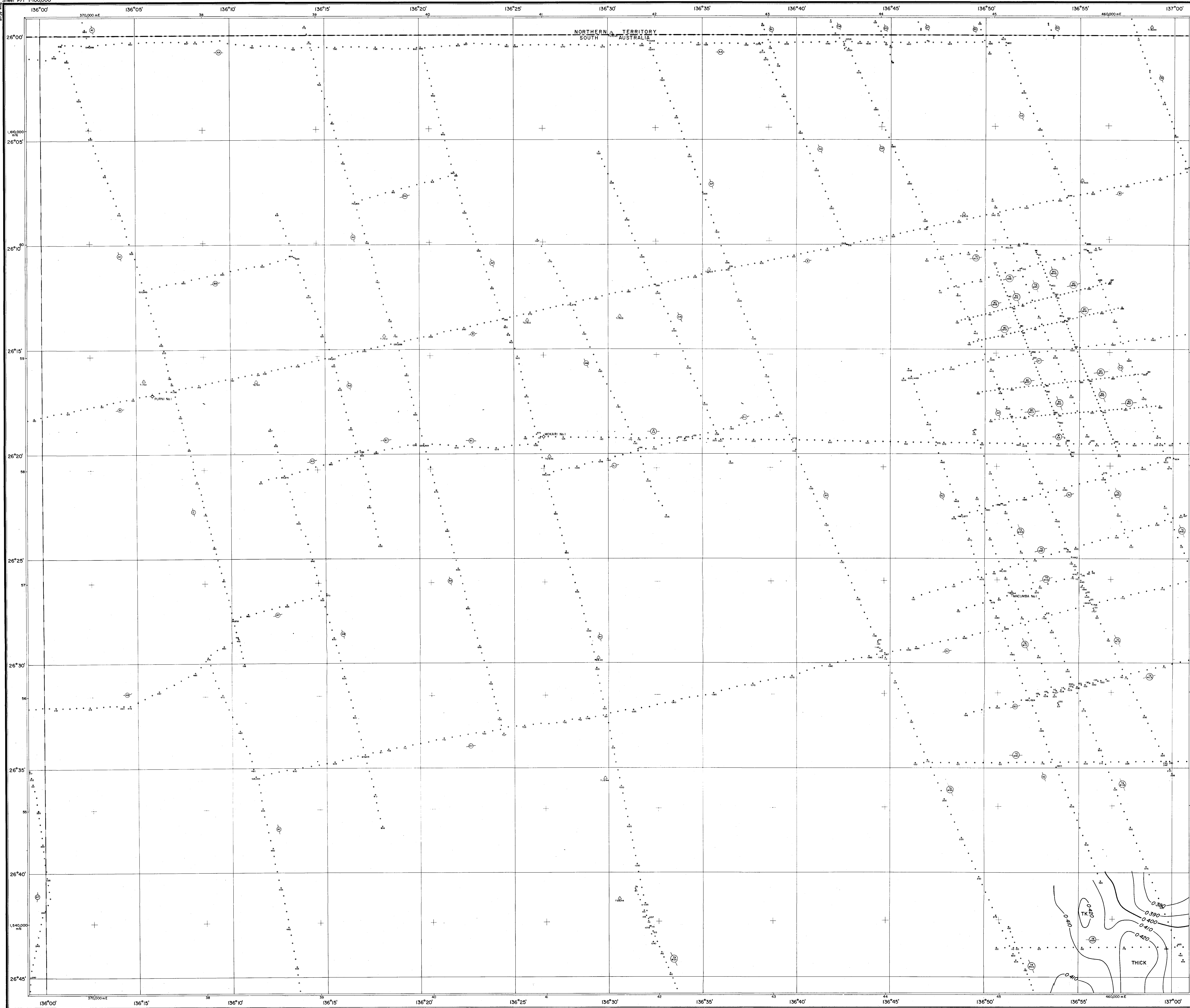


4311-21

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'JL' HORIZON
TIME STRUCTURE

CONTOUR INTERVAL: 0.010 SECS. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 1981
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID INTERSECTS from
THE FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg. 81XP-0551. Drafted AGH, M.S.M. File Q-40

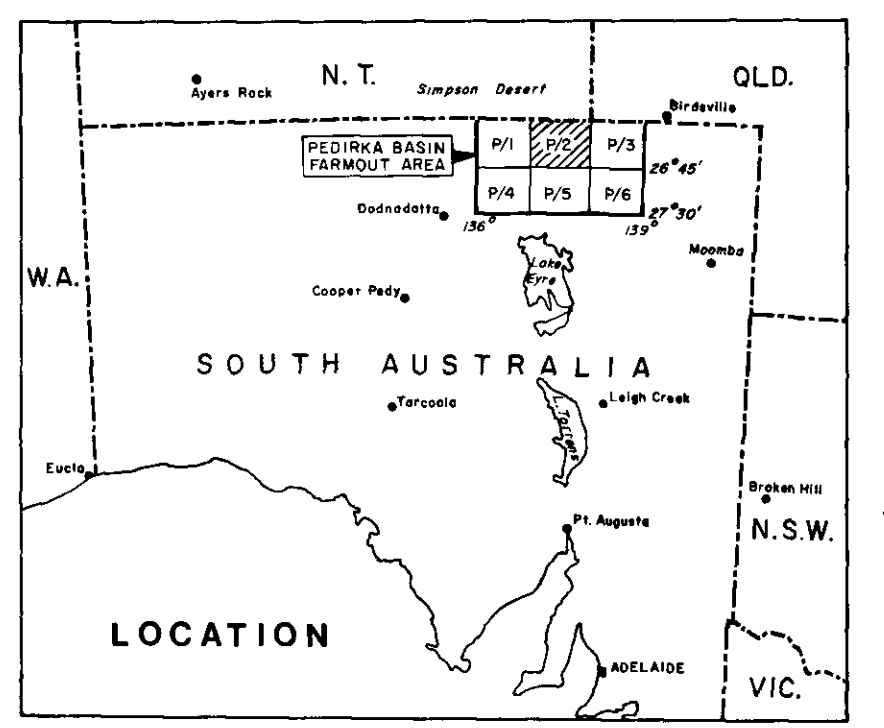
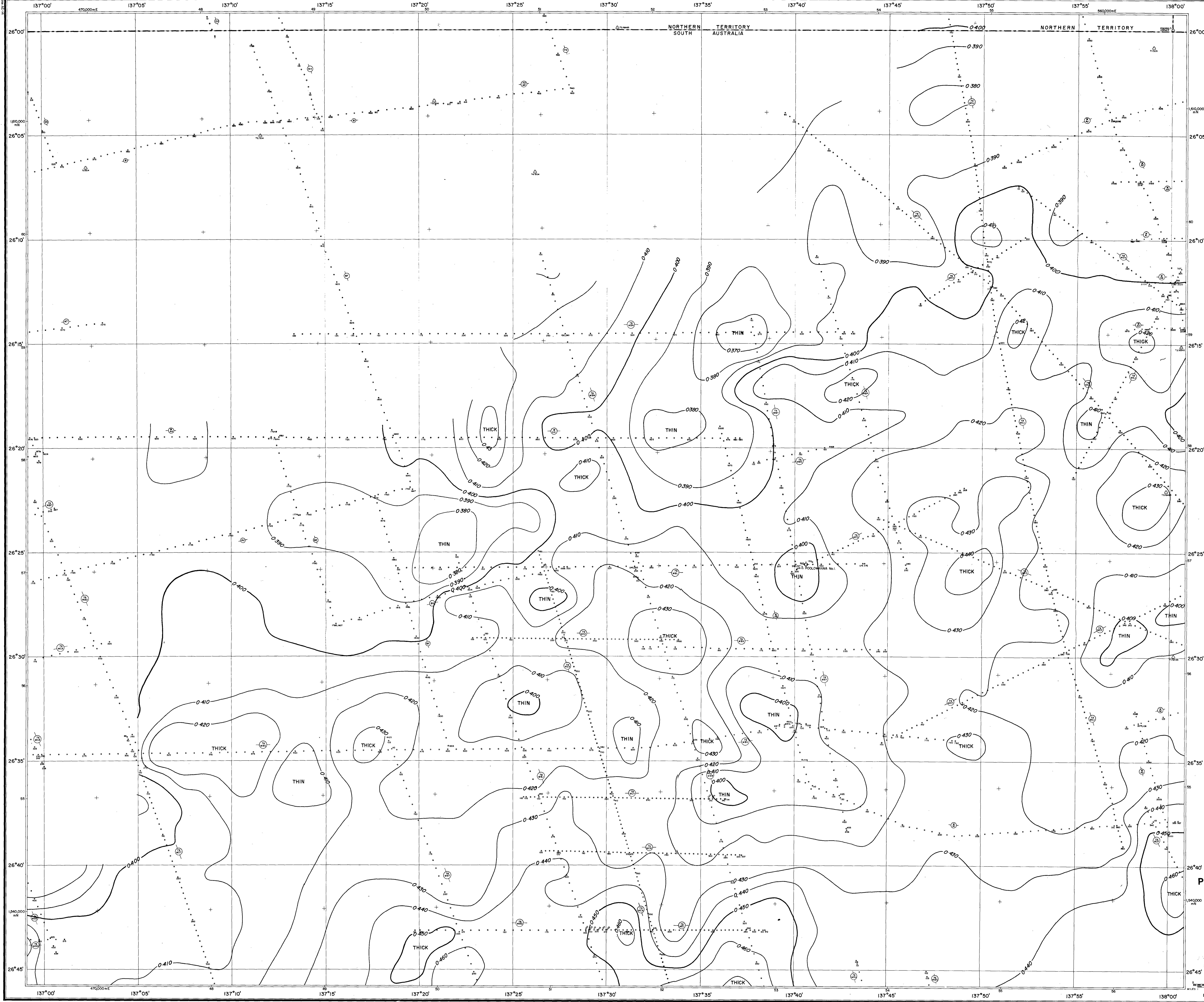




4311-23

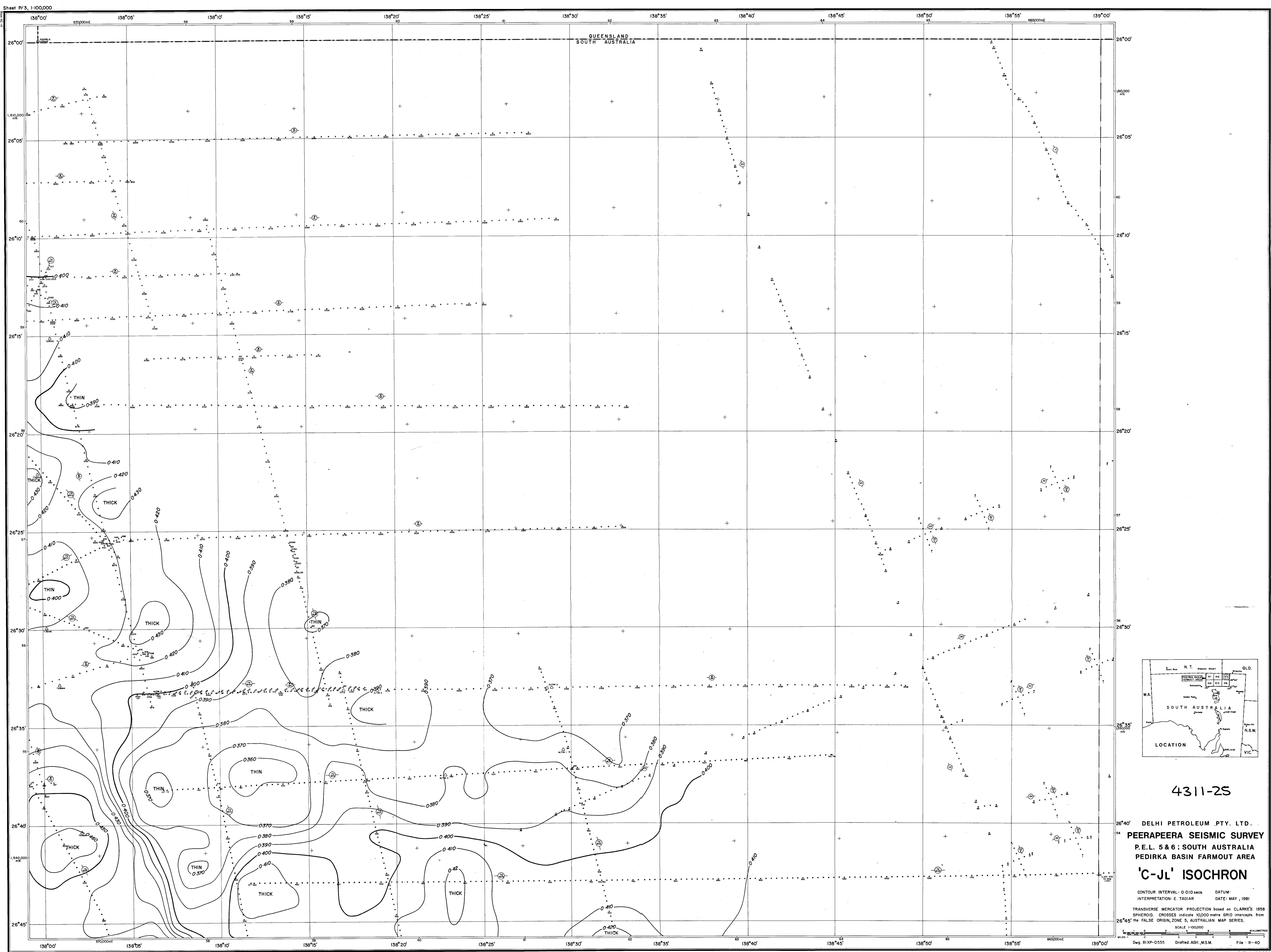
DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C-JL' ISOCHRON

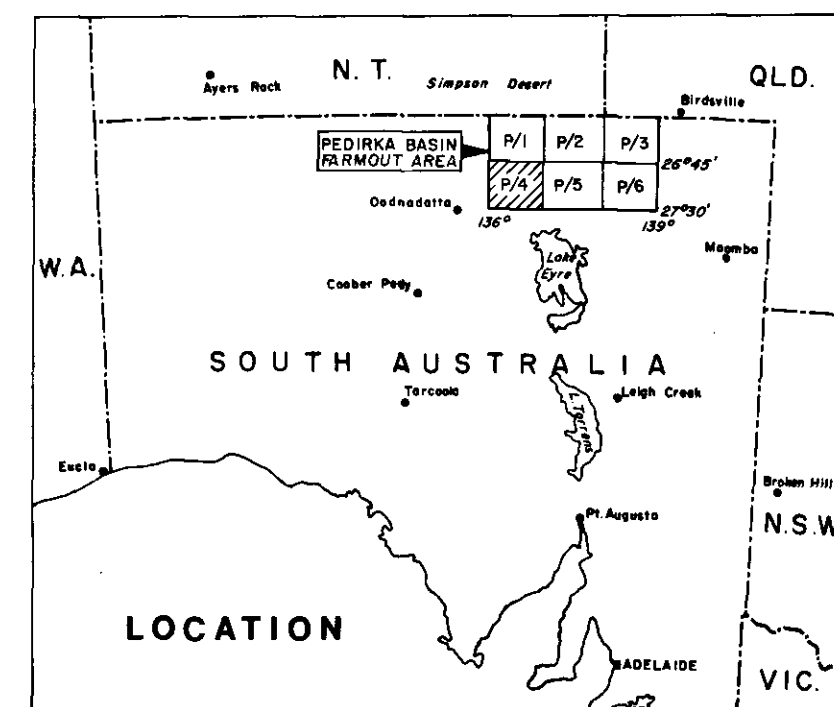
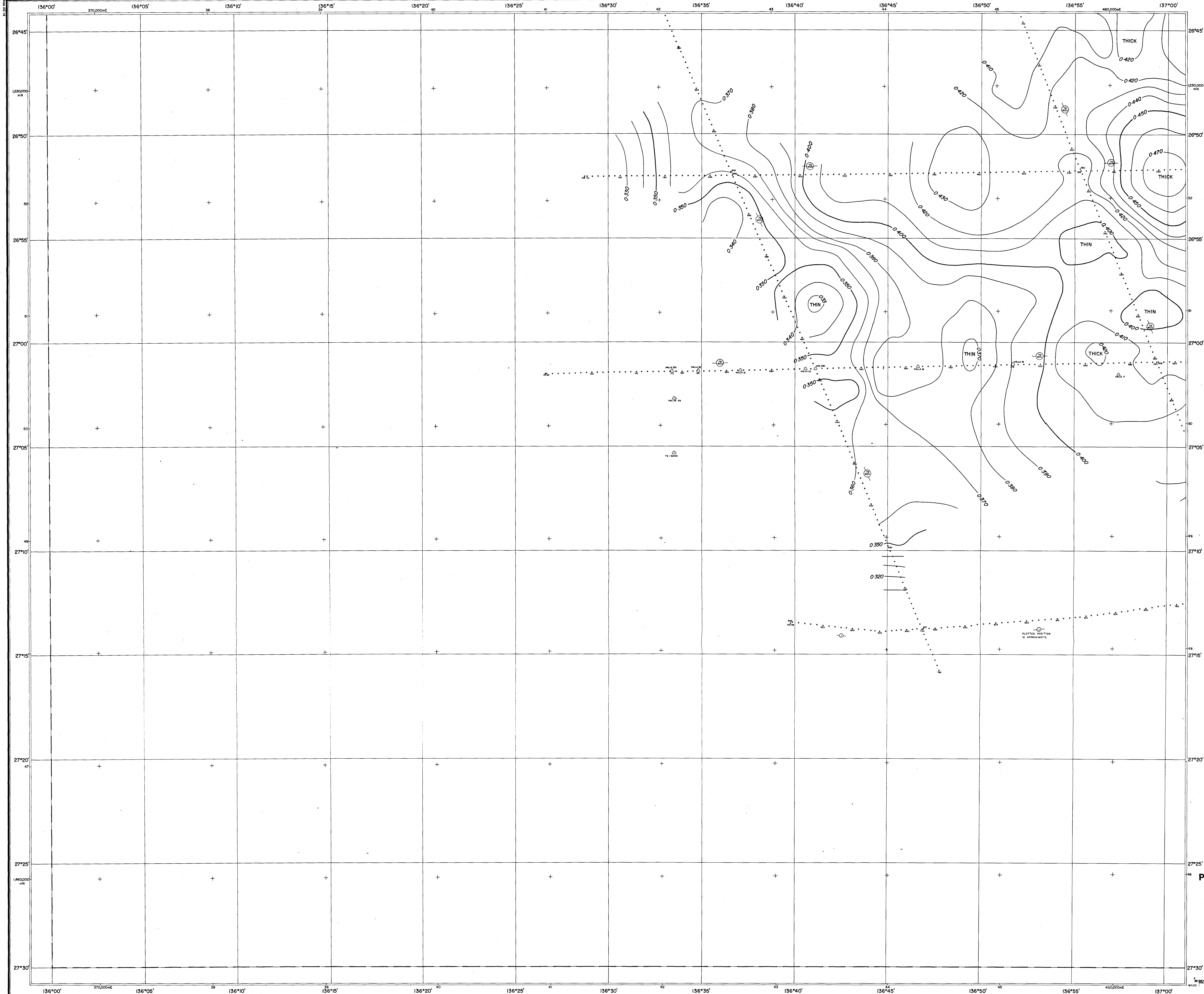
CONTOUR INTERVAL: 0.010 SECS. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 1981
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN ZONE 5, AUSTRALIAN MAP SERIES
SCALE 1:100,000
Dwg. 81XP-0533 Drafted AGH, M.S.M. File 1 R-40



4311-24

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C-JL' ISOCHRON
CONTOUR INTERVAL: 0.010 secs. DATUM: SPHEROID. INTERPRETATION: E. TADIAR DATE: MAY, 1981
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg. B1XP-0534 Drafted AGH, M.S.M. File: R-40
Sheet P/2 1:100,000





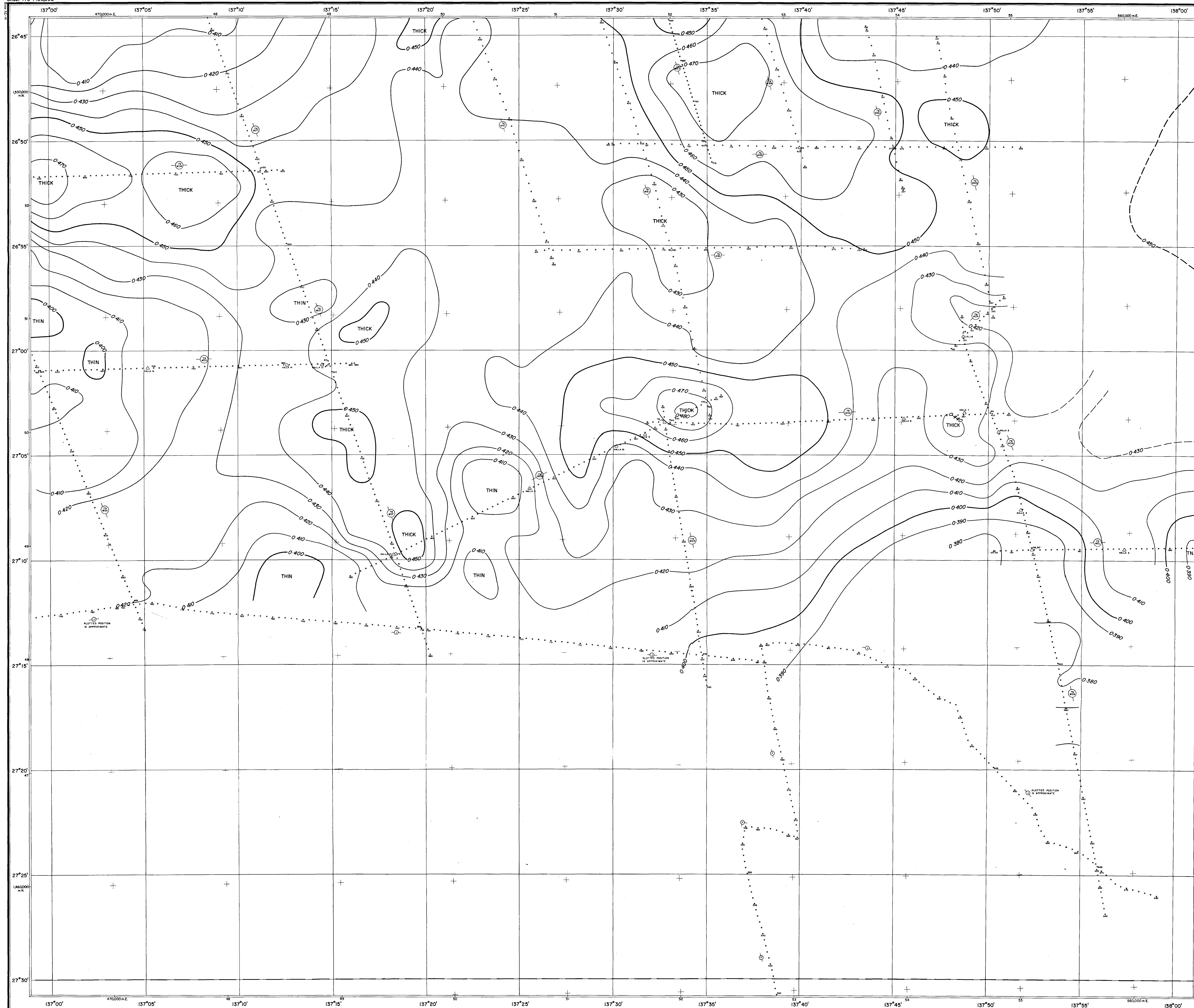
4311-26

DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C-JL' ISOCHRON

CONTOUR INTERVAL: 0.010 SECS. DATUM:
 INTERPRETATION: E. TADIAR DATE: MAY, 1981

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
 SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
 27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

SCALE 1:100,000
 Dwg. 81XP-0536 Drafted DRO, M.S.M. File: R-40



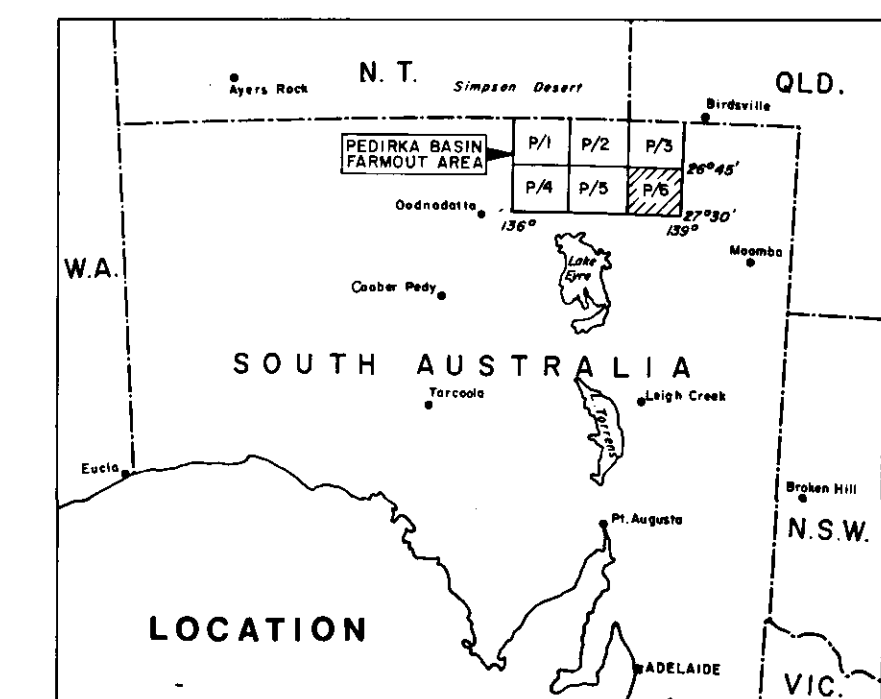
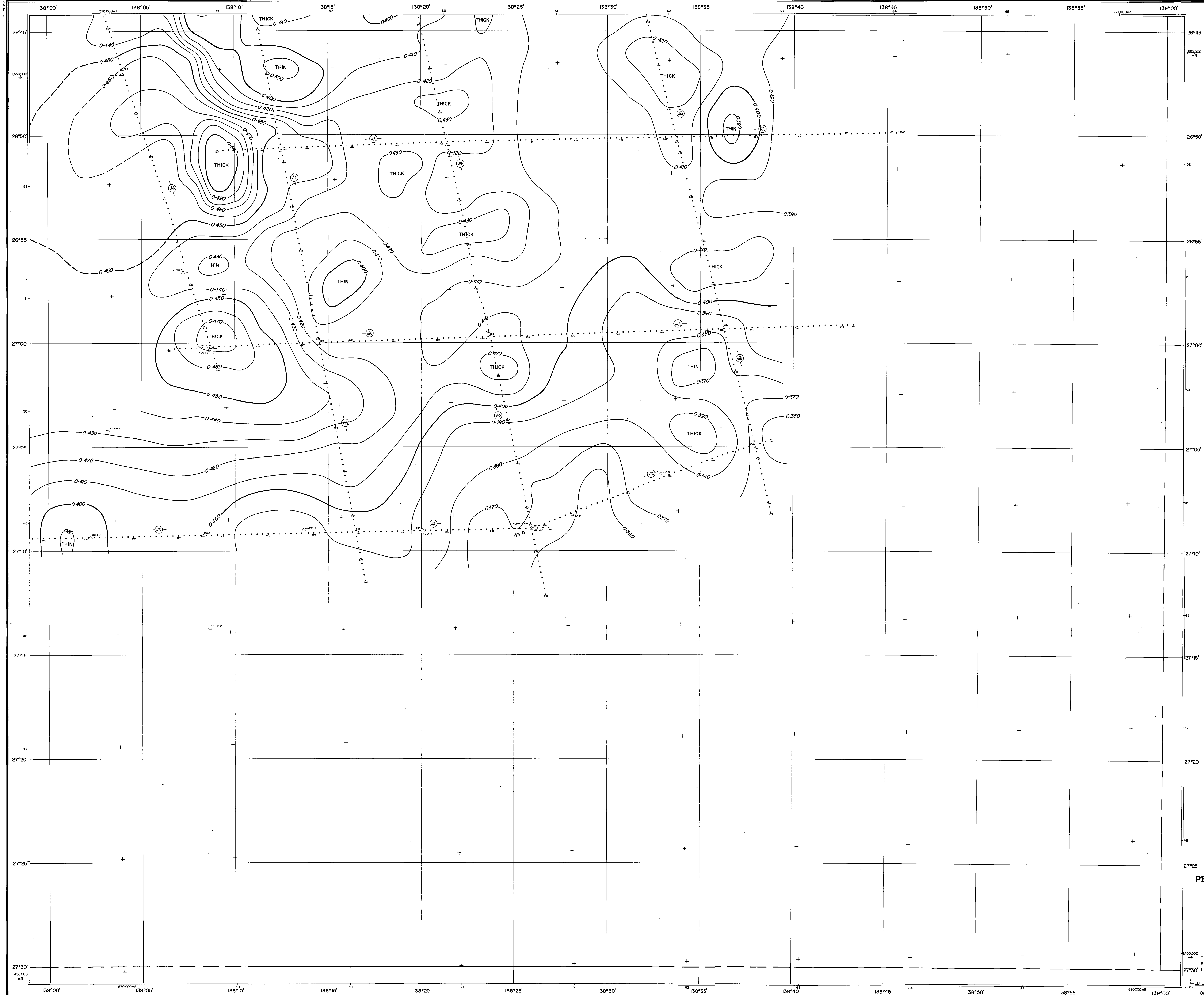
4311-27

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C-JL' ISOCHRON

CONTOUR INTERVAL: 0.010 sec. DATUM:
INTERPRETATION: E. TADIAR DATE: MAY, 1981

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intervals from
27°30' the FALSE ORIGIN, ZONE S, AUSTRALIAN MAP SERIES.

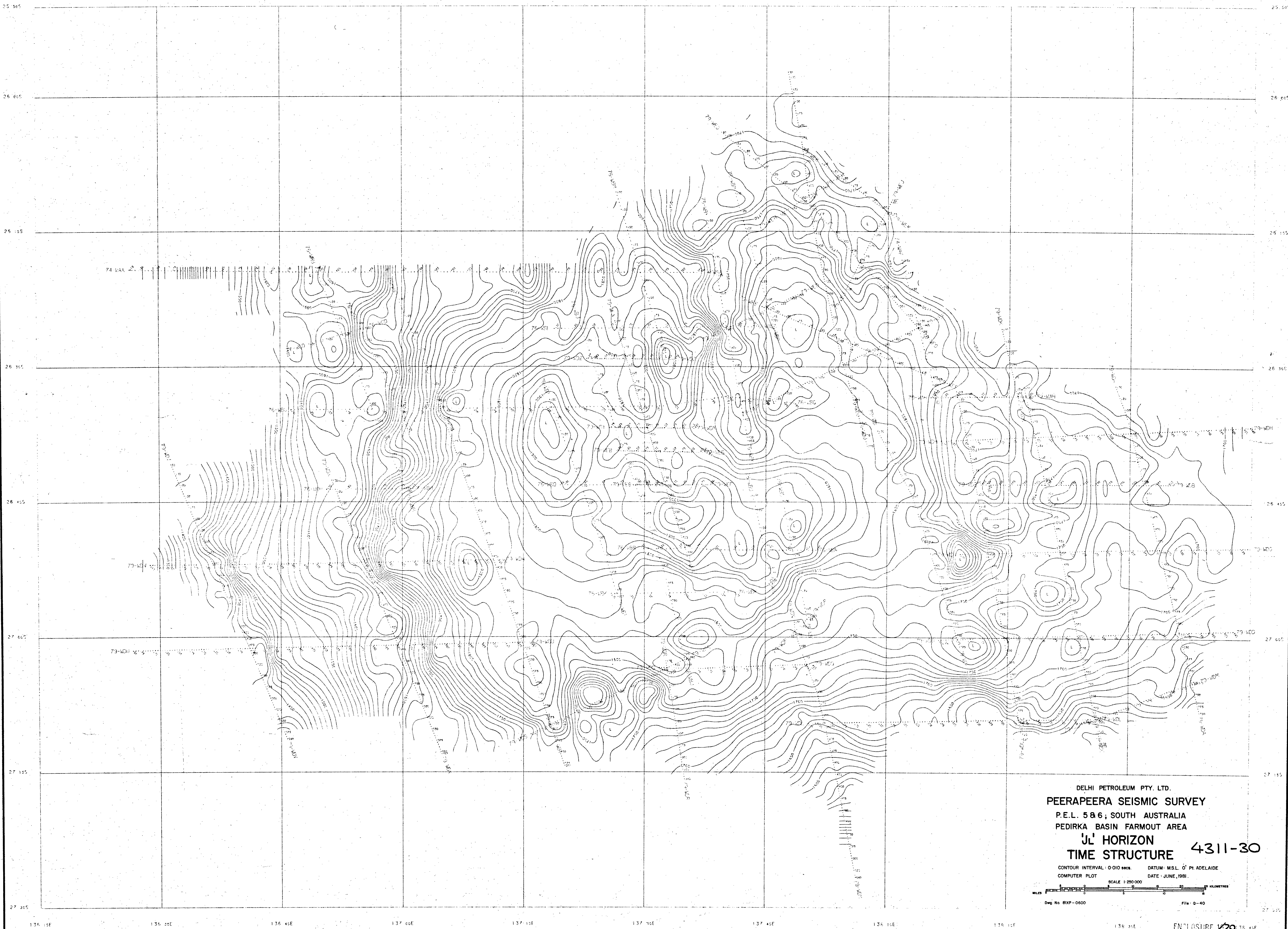
SCALE 1:100,000
Dwg. 81XP-0537 Dated AGH, M.S.M. File R-40



4311-28

DELHI PETROLEUM PTY. LTD.
PEERAPPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'C-JL' ISOCHRON

CONTOUR INTERVAL: 0.010secs
INTERPRETATION: E. TADIAR
DATE: MAY, 1981
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg. 81 XP-0538 Drafted DRD, M.S.M. File 1 R-40



DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6, SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
'JL' HORIZON
TIME STRUCTURE 4311-30
CONTOUR INTERVAL: 0.010 sec. DATUM: M.S.L. 0' PI ADELAIDE
COMPUTER PLOT DATE: JUNE, 1981.
SCALE 1:250,000
Dwg. No. 81XP-0600 File: Q-40

POOLOWANNA NO. 1

ENCLOSURE 21

Synthetic Seismogram

Delhi Petroleum

Pty Ltd

Interval Velocity (ft/s)

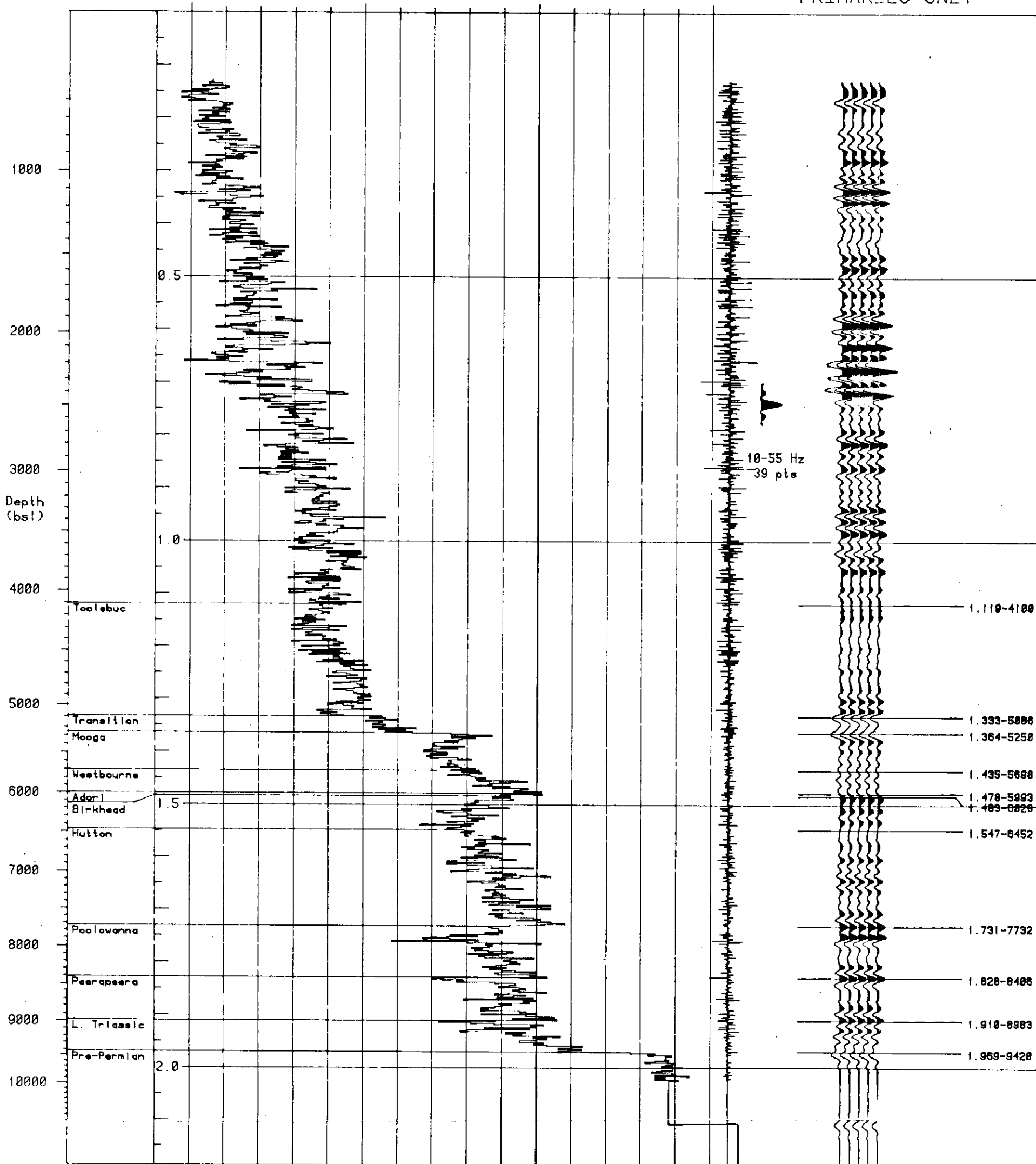
5000

10000

15000

20000

PRIMARIES ONLY



Horizon	Time	Depth	Vav	Vint
Toolebuc	1.119	4100	7326	9214
Transition	1.333	5086	7630	10580
Mooga	1.364	5250	7696	12619
Westbourne	1.435	5698	7948	13720
Adoni	1.478	5993	8100	14000
Birkhead	1.483	6028	8126	13249
Hutton	1.547	6452	8340	13913
Poolowanna	1.731	7732	8932	13896
Peerapeera	1.828	8406	9196	14073
L. Triassic	1.918	8983	9406	14813
Pre-Permian	1.969	9420	9568	

MACUMBA NO. 1

ENCLOSURE 22

Synthetic Seismogram

Delhi Petroleum
Pty Ltd

Interval Velocity (ft/s)

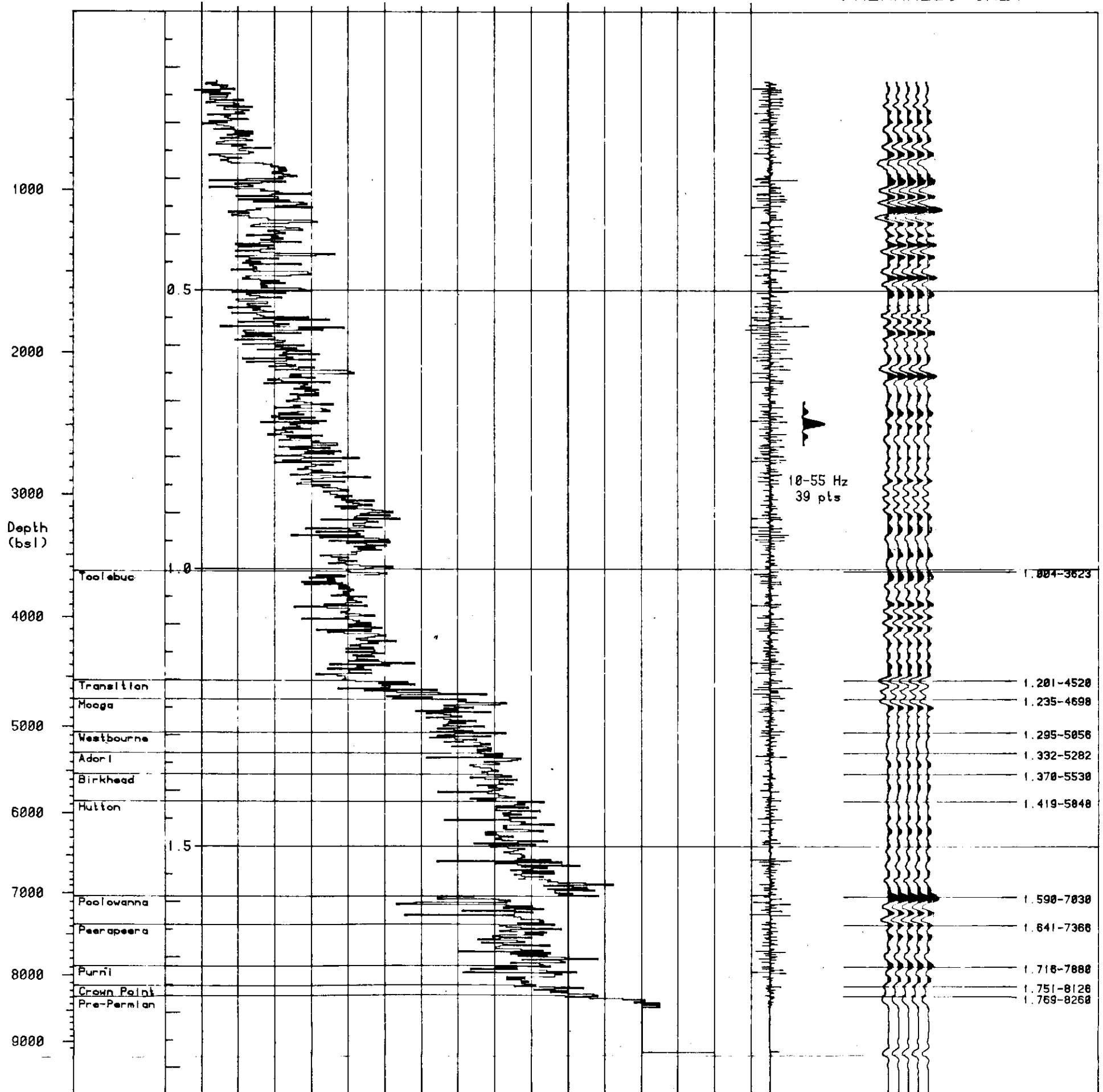
5000

10000

15000

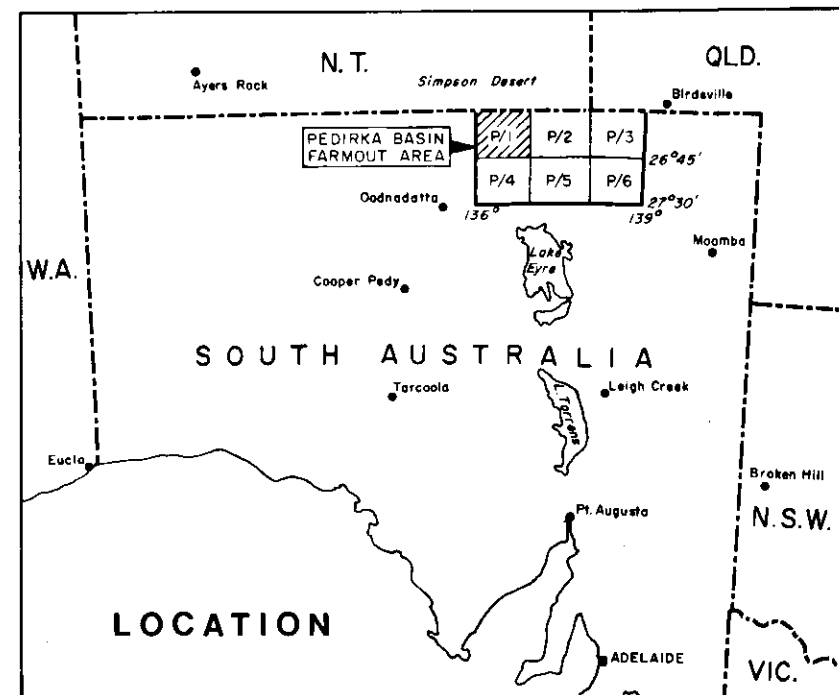
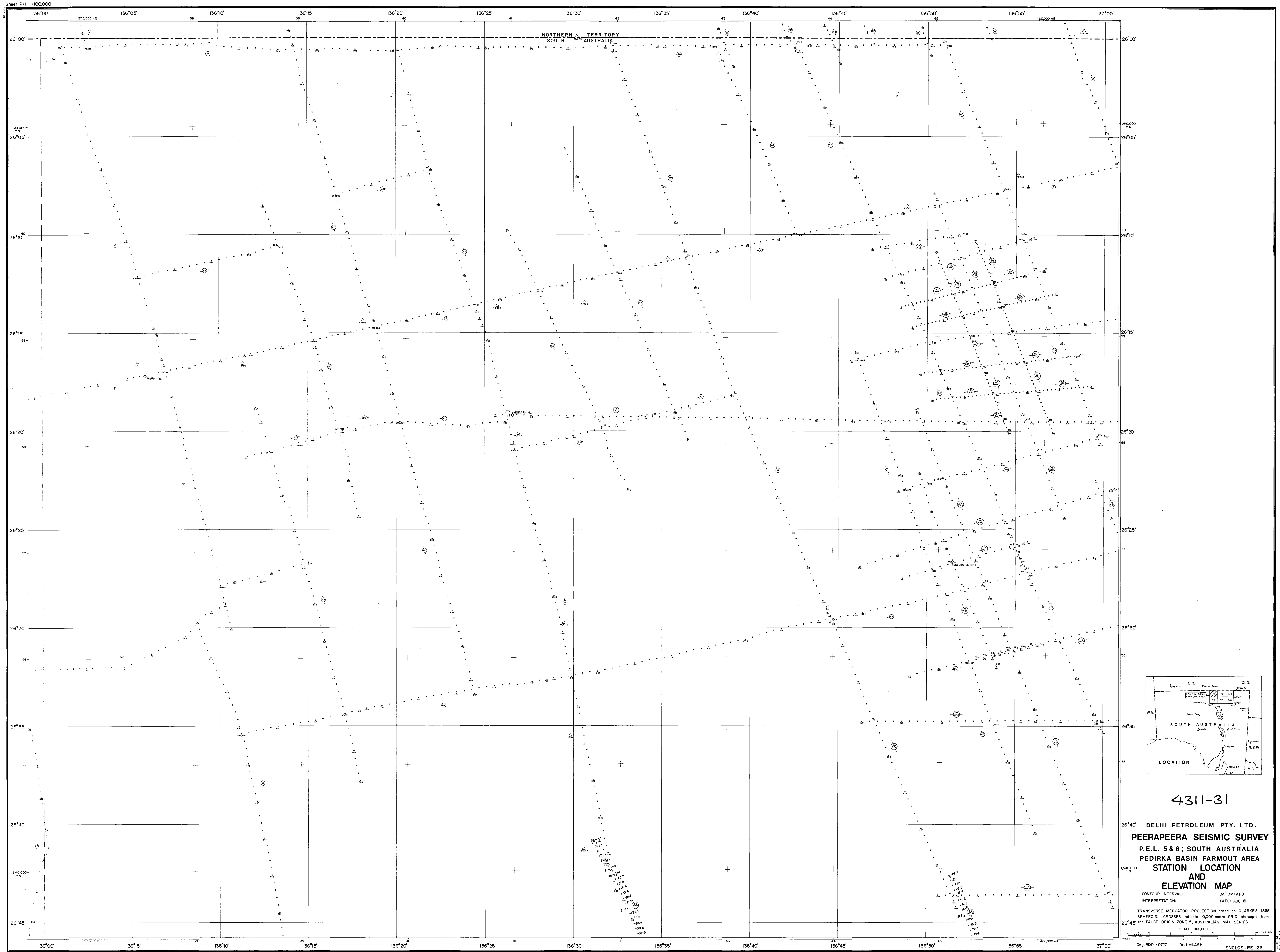
20000

PRIMARIES ONLY



Horizon	Time	Depth	Vav.	VInt.
Toolebuc	1.004	3623	7216	9106
Transition	1.201	4520	7526	10470
Mooga	1.235	4698	7600	14003
Westbourne	1.295	5056	7800	12216
Adoni	1.332	5282	7930	13052
Birkhead	1.370	5530	8072	12070
Hutton	1.419	5848	8242	13024
Poolowanna	1.590	7030	8842	13176
Peerapeera	1.641	7366	8978	13706
Purni	1.716	7880	9184	14057
Crown Point	1.751	8126	9290	14888
Pre-Permian	1.769	8260	9330	

Disc 4304 MACUMBA/N1
28-MAY-80 Delhi SYN/C12

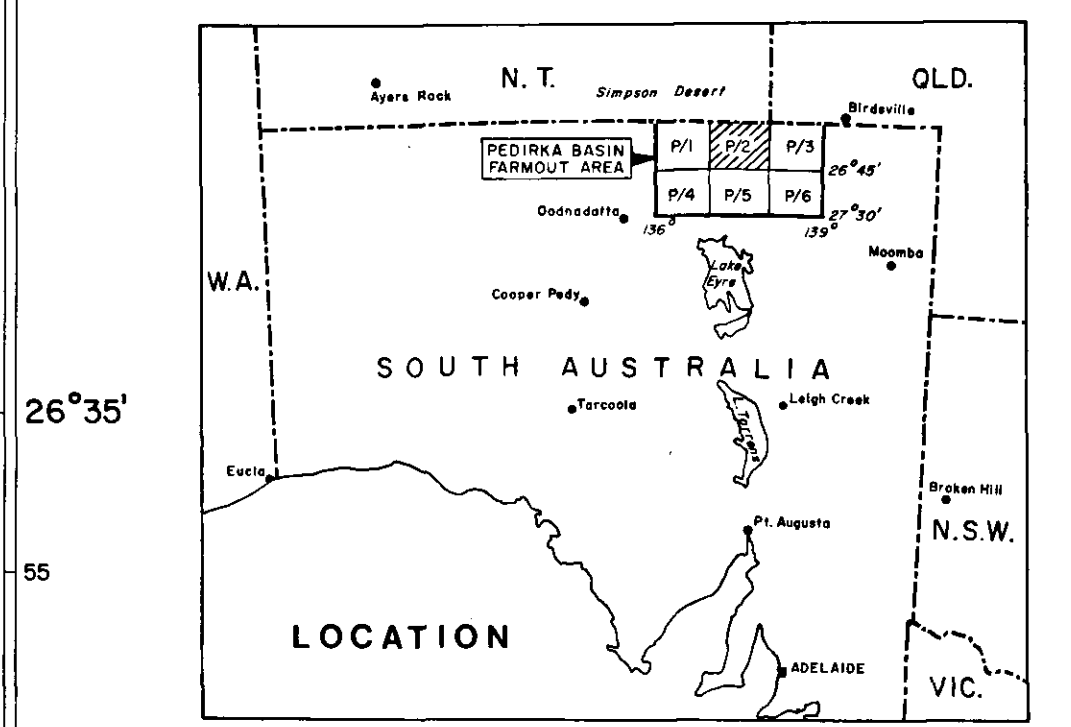
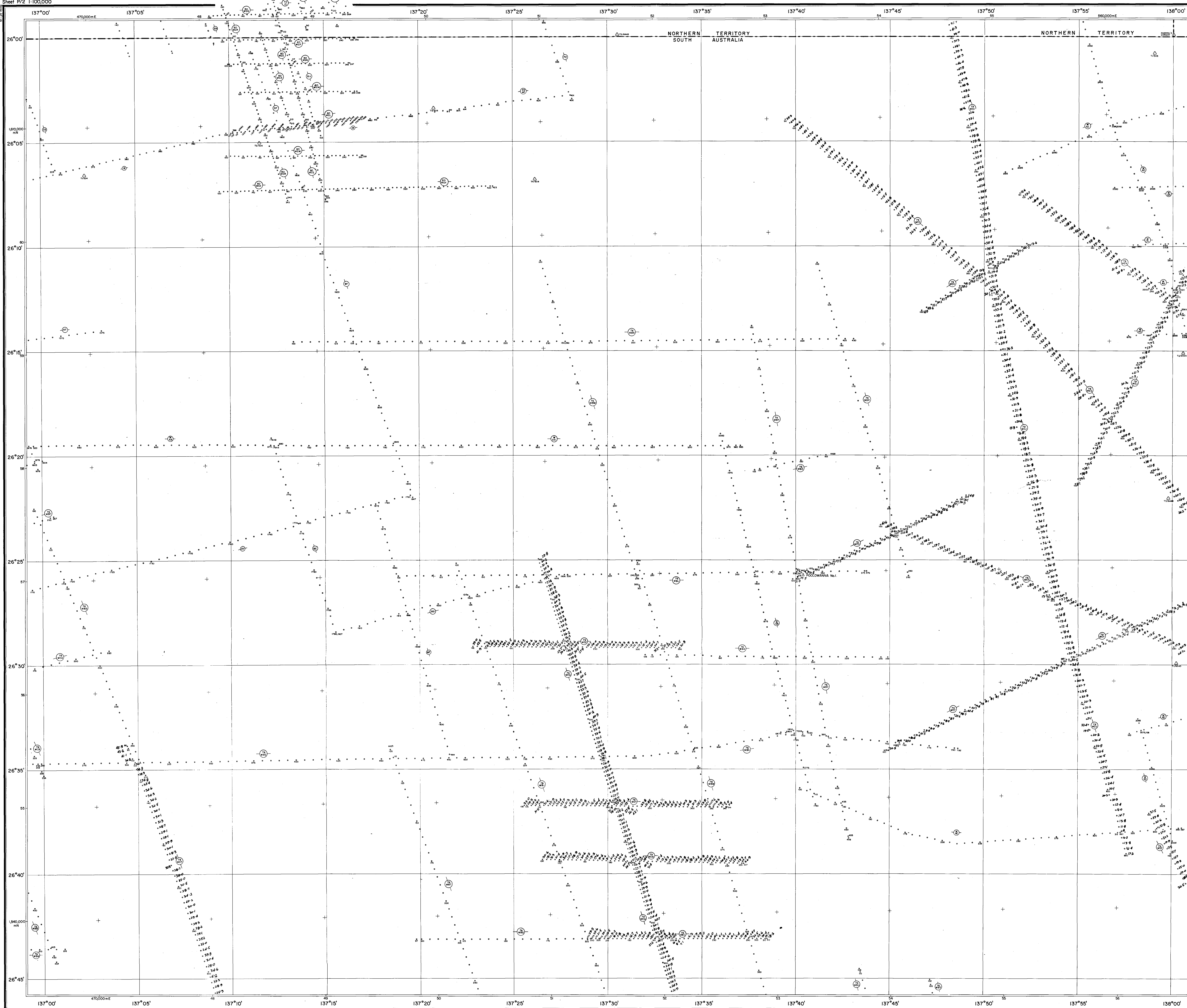


4311-31

DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
STATION LOCATION
AND
ELEVATION MAP

CONTOUR INTERVAL: 10 METRES
INTERPRETATION: DATE: AUG 81
DATUM: AHD
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

SCALE 1:100,000
Dwg. 8XP - 0727 Drafted AGH. ENCLOSURE 23
Sheet P/1 1:100,000



4311-32

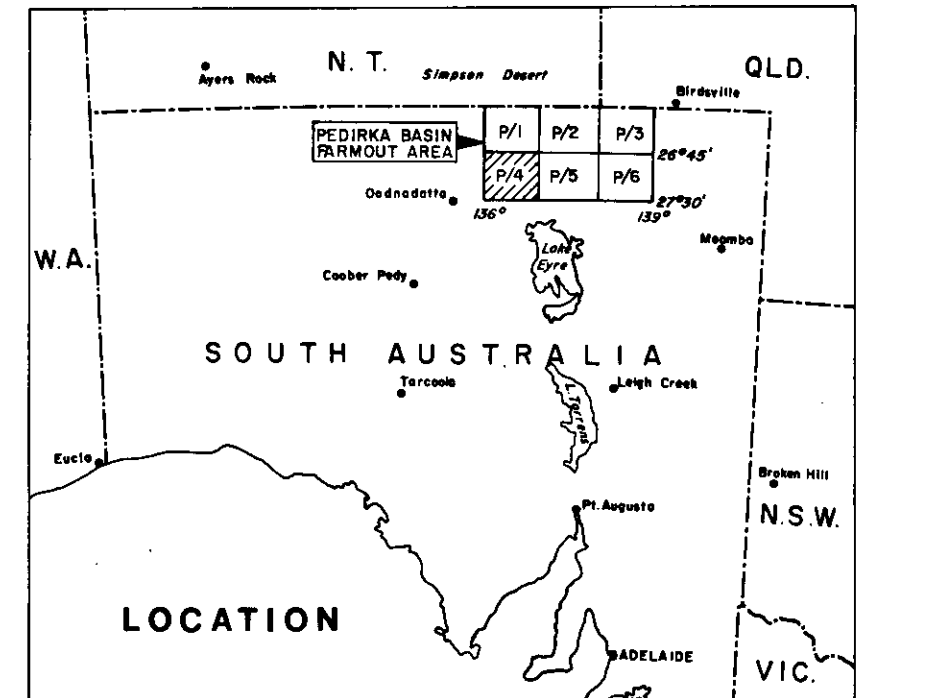
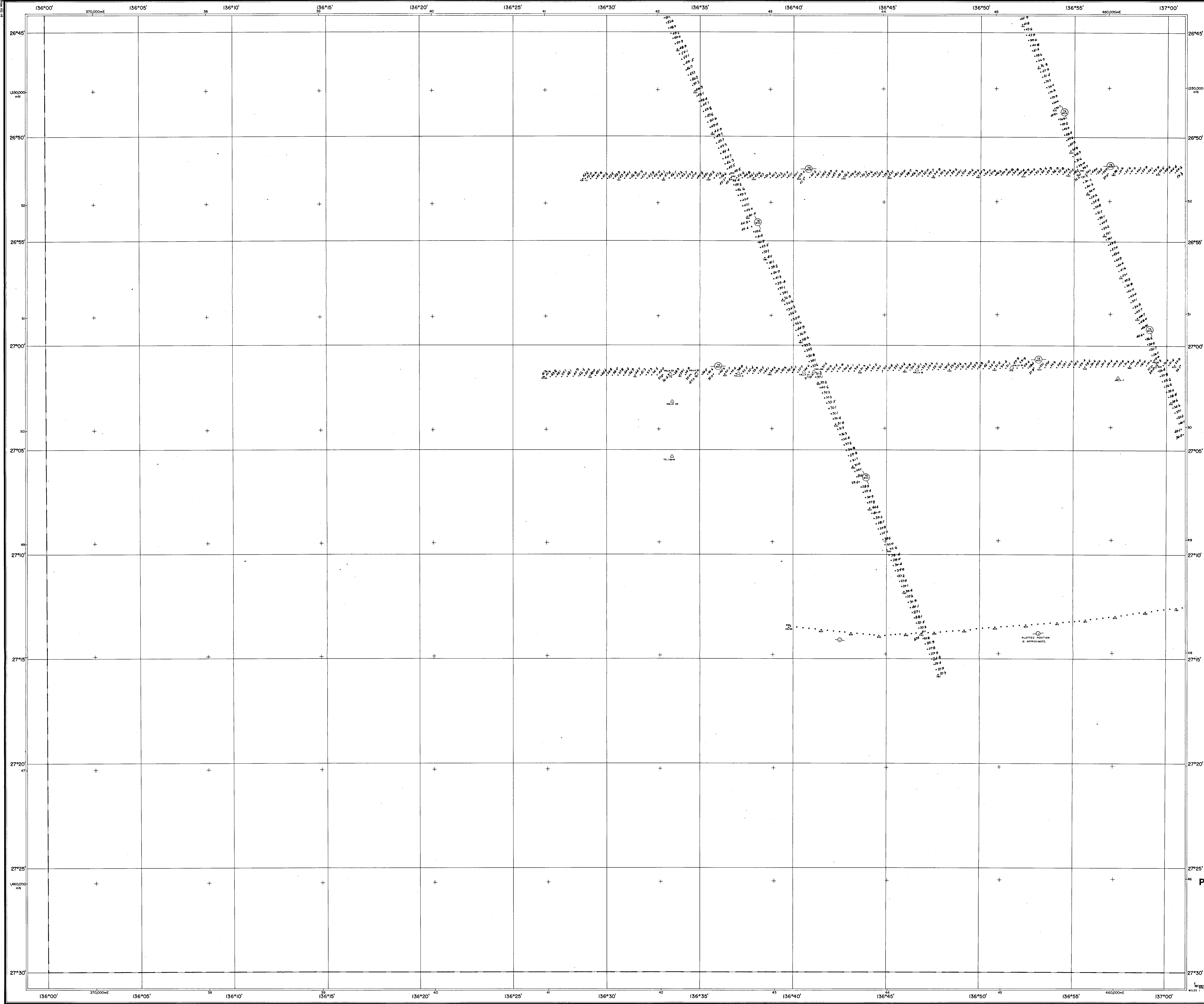
DELHI PETROLEUM PTY. LTD.
PEERAPERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
STATION LOCATION
AND
ELEVATION MAP

CONTOUR INTERVAL: 1000 METRES
INTERPRETATION: DATE: AUG 81

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10000 metre GRID intercepts from
26°45' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.

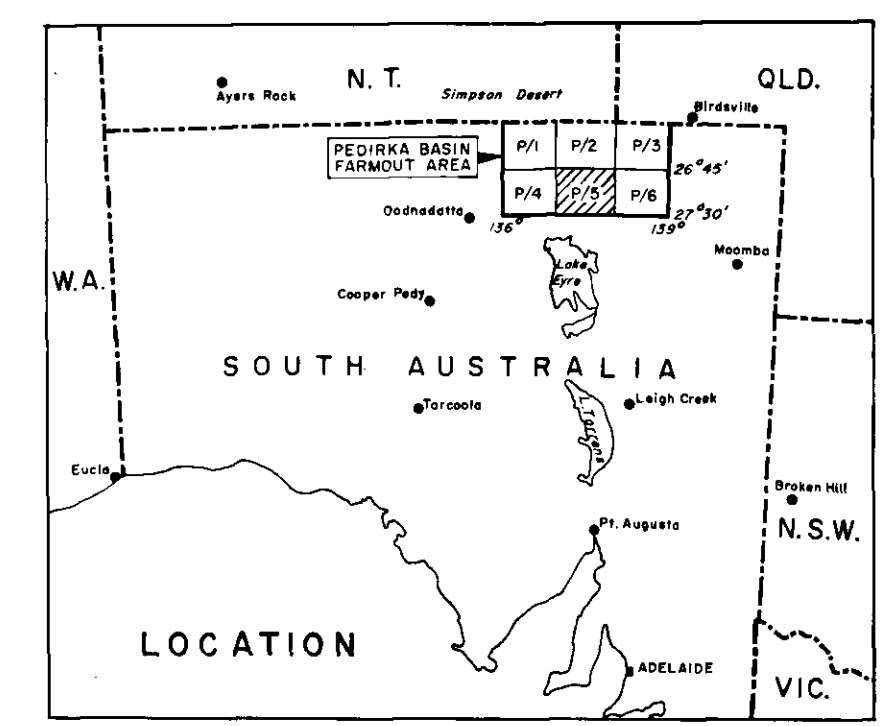
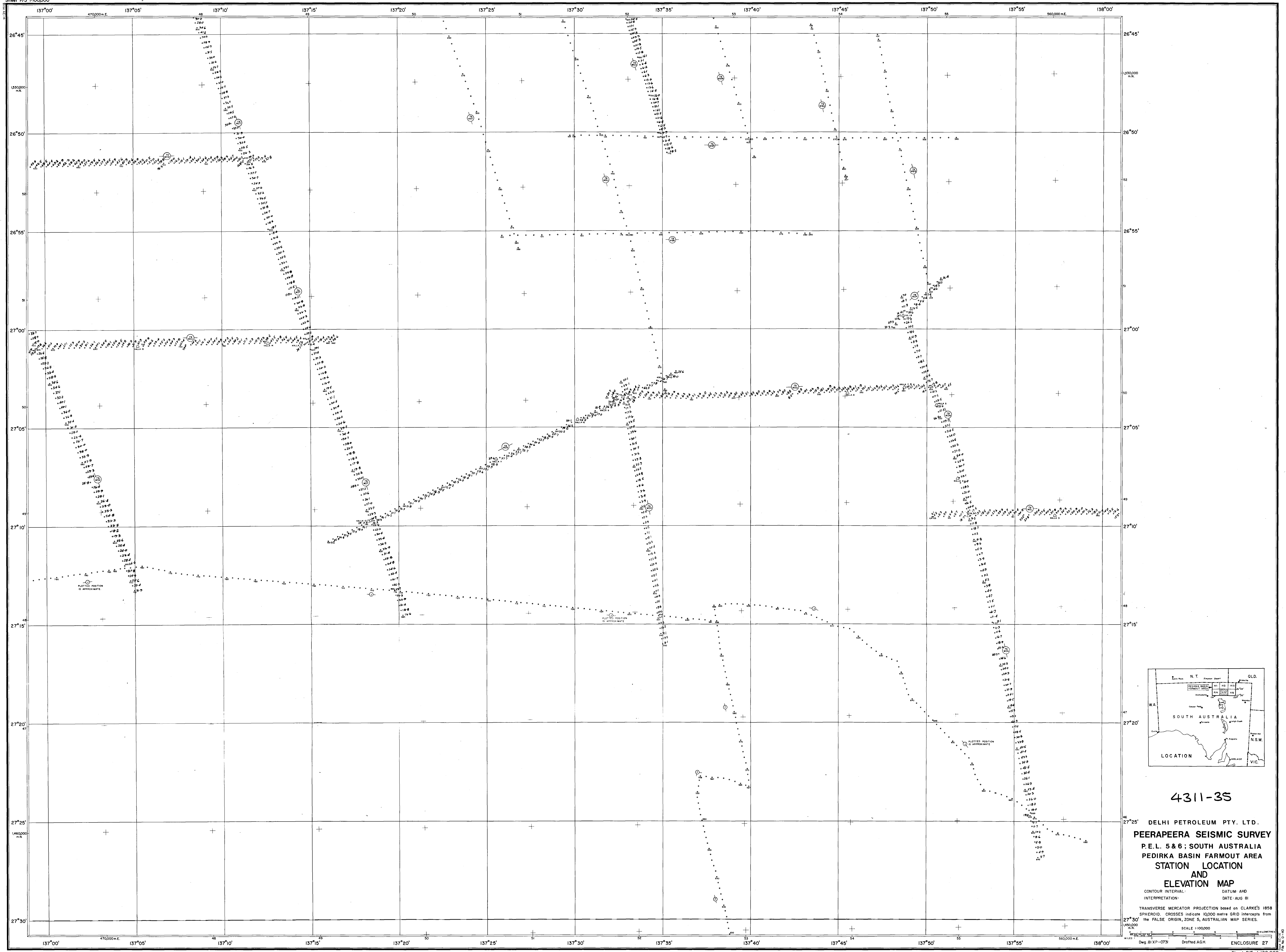
SCALE 1:100,000

Dwg 81 XP-0728 Drafted AGH ENCLOSURE 24



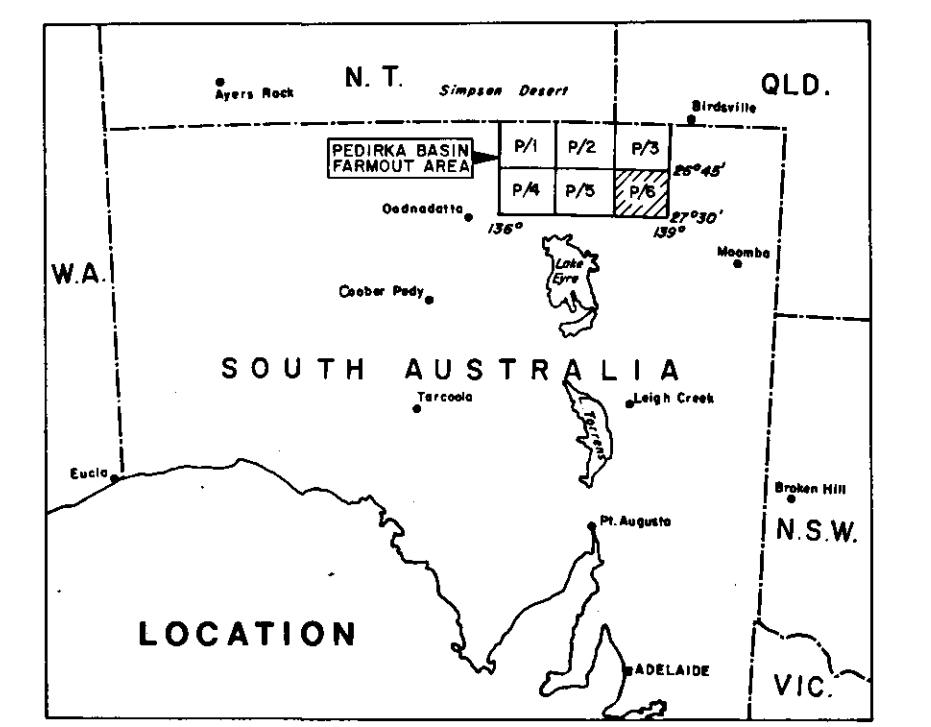
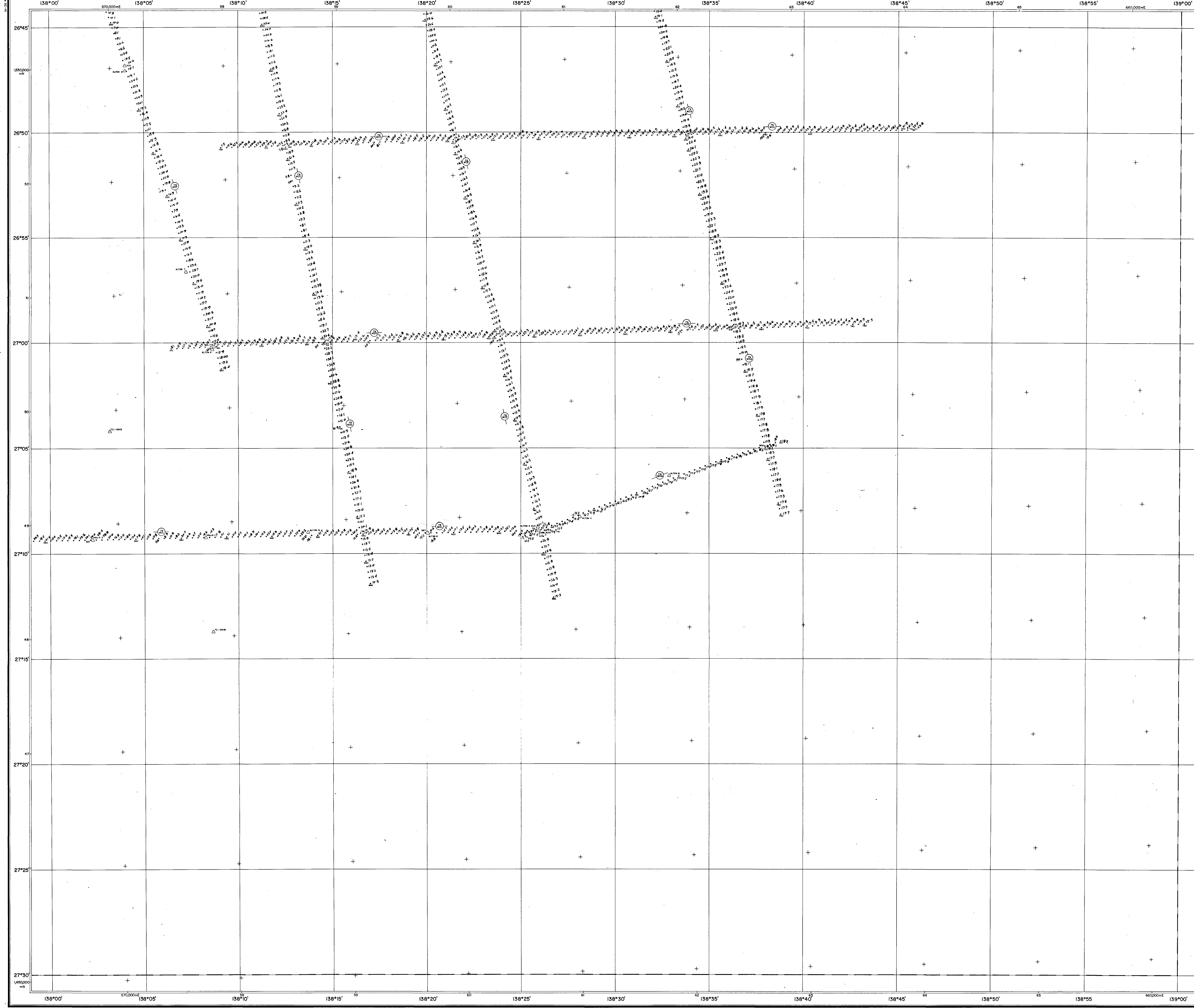
4311-34

DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
STATION LOCATION
AND
ELEVATION MAP
CONTOUR INTERVAL: DATUM: AHD
INTERPRETATION: DATE: AUG 81
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg. B/XP-0730 Drafted D.R.G. ENCLOSURE 26



4311-35

DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
STATION LOCATION
AND
ELEVATION MAP
CONTOUR INTERVAL: DATUM: AHD
INTERPRETATION: DATE: AUG 81
TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES.
SCALE 1:100,000
Dwg. 81 XP-0731 Drafted AGH ENCLOSURE 27



4311-36

DELHI PETROLEUM PTY. LTD.
PEERAPEERA SEISMIC SURVEY
P.E.L. 5 & 6; SOUTH AUSTRALIA
PEDIRKA BASIN FARMOUT AREA
STATION LOCATION
AND
ELEVATION MAP

CONTOUR INTERVAL: DATUM: AHD
INTERPRETATION: DATE: AUG 81

TRANSVERSE MERCATOR PROJECTION based on CLARKE'S 1858
SPHEROID. CROSSES indicate 10,000 metre GRID intercepts from
27°30' the FALSE ORIGIN, ZONE 5, AUSTRALIAN MAP SERIES

SCALE 1:100,000

Dwg 81.XP-0732 Drafted DRO ENCLOSURE 28