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PremierOil
Australasia

T/18P

APPLICATION TO DRILL

WHITE IBIS-1

FEBRUARY 1998
REV 0

Document Control

The control status of this document is tabulated below.

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Application to Drill White Ibis-1	Operations Manager	Controlled

Document Approval

	Company	Title	Name	Signature	Date
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Approved by	Premier Oil	Team Leader Bass Strait	Mark Pogson	See over	

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APPROVALS

		SIGNATURE	DATE
APPROVED			
GENERAL MANAGER			14/4/98
BASS BASIN TEAM LEADER			14/4/98.
PREPARED BY:			
DRILLING ENGINEER	STUART HARRISON		13/4/98
OPERATIONS GEOLOGIST	DAVID EVANS		14/4/98

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1.0 GENERAL INFORMATION

Well Name	:	White Ibis-1
Block	:	T/18P Bass Basin
Surface Location	:	Latitude: 39 57 49.61S Longitude: 145 15 17.18E
Target Tolerances	:	25m radius centred on the proposed location
Block Equity Percentage	:	Premier Oil 57.6% BERL 42.4%
Type of Well	:	Vertical Exploration Well
Anticipated Spud Date	:	May 1998
Estimated Time to Drill, Plug & Abandon	:	20 days
Proposed Total Depth	:	2150m SS
Water Depth	:	60m
RT - Sea Level	:	12.5m (estimated)
Rig Drilling Contractor	:	Northern Offshore
Operator Personnel on Site	:	Drilling Supervisor Night Supervisor Geologist
Number and Type of Attendant Craft	:	2 – AHSV Boats 1 – Helicopter, plus standby
Well Objectives	:	Primary:- Intra-Eastern View Coal Measures (ECVM) sandstones of Late Cretaceous to Palaeocene age Secondary:- Uppermost sandstones of the EVCM

2.0 GEOLOGICAL INFORMATION

The White Ibis-1 exploration well is primarily designed to evaluate the hydrocarbon potential of the Intra-Eastern View Coal Measures (EVCM) sands of Late Cretaceous to Palaeocene age. A secondary objective of the well is to evaluate the uppermost sandstones of the ECVM.

2.1 GEOLOGICAL PROGNOSIS

Torquay Group; Seabed - 1428m SS
Recent to Middle Miocene
Upper carbonate section and a lower claystone section with the change occurring at around 700m. The claystone is calcareous is soft to firm and can be and highly dispersive parts.

Angahook Formation;
The Angahook Formation is not expected to be intersected in White Ibis-1.

Demons Bluff Formation; 1428 - 1582m SS
Late Eocene
Claystone with thin interbeds of sandstone and dolomitic limestone.

Eastern View Coal Measures; 1582 - 2100m SS
Late Eocene to Early Palaeocene
The contact between the EVCM and the overlying Demons Bluff Formation is gradational with shales becoming more silty and sandy.

Using Bass-3 offset data the first major sand package in the ECVM is very fine to fine grained with minor medium to very coarse grained intervals, are glauconitic with an argillaceous matrix and show very minor cementation by micrite or dolomite cements.

The next thick section of interbedded sandstones, siltstones and shales at Bass-3 coincided with the intersection of the first clean consolidated sandstone and a series of interbedded coals from 1767 to 1898 metres. The sandstone, possibly a channel sand, has coarse to granule sized, milky to clear, sub rounded to rounded quartz grains with minor associated pyrite. However the dominant sandstones within this interval are micaceous and very fine to fine grained with a white clay (kaolinite?) matrix. These sandstones are typically interbedded with brown to black carbonaceous shales. The coals tend to be black in colour with a brilliant luster, brittle and exhibiting a conchoidal fracture.

From about 1900 metres until the next major sandy interval at 2054 metres the section at Bass-3 comprises a series of coal-dominated terrestrial deposits with lesser amounts of shale and minor sands interfingering with interbedded pyritic calcareous claystones, fossiliferous shale, and glauconitic, very fine grained sandstone with a clay matrix. Between 2054 and 2158 metres, a series of well sorted medium to coarse grained sandstones and friable quartz sands interbedded with brown to grey micaceous and silty shales were intersected. The sandstones at 2054 metres, from which hydrocarbons were recovered via a FIT, exhibited a slight odour but did not fluoresce..

Between 2158 and the base of the EVCM at 2375 metres in Bass-3, the sedimentary package comprises an interbedded sequence of sandstone, siltstone and shale. Individual bed thickness is variable with no particular rock-type showing overall dominance. The sandstones are typically light grey, matrix supported and show a range in grain size from fine grained to granule sized. Weathered feldspar content is higher compared with sands higher up in the EVCM. The grains are typically sub-angular to rounded and poorly sorted. Matrix may also include minor amounts of mica and carbonaceous shale. The siltstones are generally light brown to light grey, argillaceous in part, micaceous and pyritic. The shale is light to mid-grey, occasionally silty and micaceous. Coal may be present, but usually only in trace amounts.

Basement; 2100 - 2150m SS (TD)

A metamorphic interbedded sequence of quartzite, recrystallised siltstone, fine grained sandstone and black meta shales. White Ibis is expected to penetrate up to 50m of basement.

3.0 FORMATION EVALUATION

3.1 Mudlogging / Data Engineering Services

3.1.1 Mudlogging Services

Geoservices will provide a state of the art computerised mudlogging and engineering data acquisition service comprising a data engineer and mud logger on each 12 hour tour.

Services will include:-

- A full well pressure monitoring service including continuous monitoring of drilling and geological parameters

  Gas Detection

  - FID total gas
  - FID chromatographic analysis
  - H_2S
  - CO_2

  Monitoring Drilling Parametres

  - rate of penetration
  - depth
  - weight on bit
  - rpm
  - mud pit levels
  - pump strokes
  - calculation of lag time
  - formation pressure analysis and prediction
  - rotary torque
  - standpipe pressure
  - casing shut-in pressure
  - mud density (in/out)
  - mud temperature (in/out)
  - mud conductivity (in/out)
  - mud flow (in/out)
  - mud flow (in/out)

- Calculated data analysis as required

- Daily and interval reporting

- Logs and graphs of drilling parameters vs time and/or depth

- Mudlog to be electronically transmitted in digital form on a daily basis to Premiers Perth office

Drilling parameters only will be recorded down to the $13^3/_8$" casing shoe at approximately 700m MD. Cuttings will be collected when the BOP's and marine riser are connected prior to drilling the $12^1/_4$" hole.

The mud loggers will bag, pack and distribute the samples as follows:

Sample Distribution	Hole Section	Frequency (m)	Unwashed (Sets)	Unwashed (Quantity)	Washed and Dried (Sets)	Washed and Dried (Quantity)
Premier Oil Australasia	12¼" Hole	5m to 1750m 3m to TD	1 1	300g 300g	1 1	100g 100g
Boral	12¼" Hole	as above	1 1	300g 300g	1 1	100g 100g
Mineral Resources Tasmania	12¼" Hole	-	not required	-	1 1	100g 100g
BRS	12¼" Hole	-	not required	-	1 1	100g 100g

Additionally 1 Samplex sample tray will be collected below the 340mm (13$^3/_8$") shoe.

3.2 Wireline Logging Programme

PROPOSED LOGGING RUNS

Logs will be run from TD to the 13$^3/_8$" casing shoe. The 17$^1/_2$" hole will be logged behind the 13$^3/_8$" casing when the final TD logs are run, therefore no intermediate logging suite is envisaged to be run. Should 9$^5/_8$" casing be run prior to reaching TD and before intersecting the zones of interest the Operator proposes to run a PEX-Sonic logging string for intermediate petrophysical data.

FINAL LOGGING SUITE	Indicate if Firm or Optional	Yolla-2
Run 1. PEX-CMR	Firm	Conventional logging tools will be used as backup, CMR will primarily firm up the net to gross ratio
Run 2. FMS-Array Sonic	Firm	FMS will to obtain structural & stratigraphic dip information, sedimentary analysis and depth matching/ orientation of cores. Sonic will provide porosity, shear seismic, thin-bed and sand strength information
Run 3. Modular Dynamics Formation Tester (MDT)	Firm	Objective to obtain baseline formation pressure profile in reservoir sands, to confirm hydraulic continuity and to sample zones of interest(up to 40 pressures and 3 samples)

Run 4. VSP	Firm	A maximum of 50 levels to obtain velocity information and time correlation to surface seismic open hole (could also be run in cased hole if required)
Run 5. CST (Sidewall Cores)	Optional	Contingent on core recovery, and/or hydrocarbon evaluation (contact definition) and/or age dating. Anticipate 30 shots

3.3 Logging/Measurement While Drilling (LWD/MWD)

Available but not programmed to be run.

3.4 Coring Programme

The objective of the coring programme is to provide direct evaluation of reservoir properties, wireline log calibration data, and geological modelling information.

Due to relatively poor core recoveries in Yolla-1 the Operator will utilise an antiwhirl face discharge bit in the coring BHA to minimise core damage during cutting. A disposable aluminium inner core barrel will also be used, this will act as a ready made core transportation system.

One 18 metre core will be cut in the Palaeocene to Early Eocene reservoir sequence (ideally the Z3S2973 sand equivalent in Yolla-1 if developed and hydrocarbon bearing in White Ibis-1).

Cores will be cut in the objective section if good hydrocarbon shows are encountered. A "good hydrocarbon show" is defined here as an interval of at least 2m with evidence of sufficient porosity, permeability, and hydrocarbon saturation that it would be likely to produce if tested.

Bass-3 offset data will be utilised in choosing coring point.

Once the core is cut, brought to the surface, marked up and cut into 1 metre sections, the wellsite geologist can take rock chips from each end of the core for lithological and show evaluation, after which the core will be "resinated". Non fluorescing resin is poured down the annulus of the 1 metre sections to further stabilise the core for transportation and reduce fluid evaporation.

4.0 DRILLING PROGRAMME

4.1 Introduction

This section summarizes the various steps in the drilling operation and well construction design. The White Ibis-1 well location is located in Tasmanian Waters within T/18P . Supply vessel sailing time from Geelong to location is approximately 16 hours. Flying time by helicopter from Essendon airport is approximately 60 minutes.

4.2 General Operating Procedures

The term "The Act" refers to the Petroleum (Submerged Lands) Acts Schedule Specific Requirements as to Offshore Petroleum Exploration and Production 1990 as amended. All operating procedures and engineering design within the programme are intended to be within the stated requirements of the Schedule, a copy of which will be kept on the drilling unit in the Premier Supervisor's office.

Well construction design and operational procedures will be conducted in accordance with the most recent versions of the following documents:

- Premier Oil Australasia Drilling Operations & HSE Manual
- Premier Oil Australasia Environmental Assessment for Yolla Appraisal
- Premier Oil Australasia Emergency Response Plan – Bass Basin Operations
- Premier Oil Australasia Oil Spill Contingency Plan – Bass Basin Operations
- Premier Oil Austalasia/ MODU Bridging Document
- Drilling Contractor/MODU Vessel Safety Case
- Drilling Contractor Safety Management System
- MODU Well Operations Procedures Manual

The Premier Oil Drilling Supervisor will be responsible for ensuring that the well is drilled in such a manner to fulfill the well construction design as specified in the programme and that operations and related procedures are implemented in a safe manner to the standard specified in this programme and other relevant documents.

Safety meetings will be conducted to ensure all personnel are aware of the operating guidelines and environmental sensitivities of the location.

Premier Oil personnel will check that all associated materials and equipment are complete and properly assembled for the operations specified herein.

4.3 Drilling Programme Summary

The White Ibis-1 well has been designed to evaluate the potential hydrocarbon bearing interval of the sands within the lower Eastern View Coal Measures . Water depth at the White Ibis-1 location is 60m. Offset wells that were reviewed in the preparation of the drilling programme include Yolla-1, Bass-3, Tilana-1, and King-1.

4.3.1 Sequence Of Operations

- Move Rig, Position On Location, Moor Rig
- Drill 914mm (36") hole from seafloor 72m – 132 mRT
- Make up PGB and 762mm (30") casing
- Run & Cement 762mm (30") Conductor
- Drill 445mm (17-1/2") hole from 132 to 700 mRT
- Run & Cement 340mm (13-3/8") Surface Casing
- Run BOP, LMRP and riser. Test BOP
- Test packoffs and BOP Stack
- Drill 311mm (12-1/4") hole from 700 to 2150 mRT
- Log 311mm (12-14") hole
- Run & Cement 244mm (9-5/8") Casing
- Test packoffs and BOP Stack
- Evaluate objective with wireline logs
- Plug & Abandon or Test

4.3.2 Potential Drilling Problems

440mm Hole - Potential Hazards	Solution / Comment
Drag / Bridging	Hole should be slugged with 10 - 20 bbls of viscous mud prior to making connections. Increase slug size if problem not resolved. Wiper Trip at section TD / ream if necessary
311mm Hole - Potential Hazards	**Solution / Comment**
Drag / Bridging	Increase mud weight to a maximum of 1.2s.g. Wiper trip / ream if necessary
CO_2 Contamination	KCl/Polymer/PHPA drilling fluid system will not be affected by this form of contamination
Losses	Self healing losses have been encountered in the upper half on the Angahook formation on previous wells of up to 300bbls.
Washout/Sloughing	Maintain low end rheology of drilling fluid with temperature stable polymers, prevent turbulent flow.

4.4 Operational Hazard Identification

General

Refer to the Premier Oil Australasia Emergency Response Manual (Bass Basin Operations) for details regarding personnel, installation and field hazard identification and response. The Hazard Identification and Major Accident Scenario Report of the MODU Vessel Safety Case also provides reference to hazards related to the MODU.

Rig Move

MODU movements will be in accordance with the MODU contractor. Weather forecasts will be obtained for the proposed route and duration of the rig move. The deck loading will be maintained within the design criteria as specified in the Drilling Contractors MODU Operations Manual. Progress will be monitored with reports to AMSA and SAR.

Anchor Handling

No pipelines, wellheads or other hazardous obstacles exist in the vicinity of the White Ibis-1 location that would increase the level of risk otherwise associated with mooring and normal anchor handling procedures. Running of anchors will be in accordance with operational procedures as outlined in the AHSV contractors operations manual, Drilling Contractor MODU Operations Manual, the Premier Oil operations manual and with hazard identification as outlined in the MODU vessel safety case.

Pressure Control/Blowout Prevention

Premier Oil policy regarding blowout prevention is to ensure that supervisory personnel and rig crews have received accredited certification and training with respect to kick recognition, shut-in procedures and well control methods. On-site training includes regular pit drills to ensure crews react in a timely and correct manner. Procedures detailing Well Control and Blowout Prevention procedures can be found in the Drilling Contractors Well Control Manual and the Premier Oil Australasia Drilling Operations Manual.

Well Testing

In the event that hydrocarbons are discovered and the well is to be tested an application will be made which will detail equipment layout and operating procedures to be followed during the test. The MODU vessel safety case provides the formal safety assessment with respect to testing operations.

Shallow Gas

There have been no reports of shallow gas being encountered on offset well. Shallow gas procedures as outlined in Drilling Contractors Operations Manual will be in effect during the 440mm (17 ½") hole section.

Abnormal Pressure

Abnormal pressures are not anticipated and have not been encountered in any of the control wells.

4.5 Casing and Cementing Programme

4.5.1 Casing Setting Depths

762mm (30") Structural

Three intermediate joints of conductor pipe set below the mudline has been found adequate in this area.

340mm (13-3/8"') Surface Casing

The 340mm (13-3/8") casing is programmed to be set at 700m. The 445mm (17-1/2") hole section will be drilled with seawater with hi vis mud sweeps, offset wells have had no major problems drilling this section in the past.

244mm (9-5/8") Production Casing

This 244mm (9 5/8") casing is programmed to be run only in the success case i.e. if the well is to be tested.

4.5.2 Casing Design Considerations

Casing	Burst Design	Collapse Design	Tension Design
762mm (30")	Not Applicable	Not Applicable	1) While running/pulling
340mm (13-3/8")	Gas gradient from TD to surface.	Fresh water gradient as backup to surface	1) While running/pulling + 200 kips overpull
244mm (9-5/8")	Gas gradient from TD to surface.	Fresh water gradient as backup to surface	1) While running/pulling + 200 kips overpull

* Indicates Load Condition as used to calculate design safety factors.

4.5.3 Casing Design Summary

HOLE PARAMETRES				
Hole Size (mm)	**Hole Depth (m)**	**Pore Pressure (SG)**	**Mud Weight (SG)**	**Fracture Pressure at Shoe (SG)**
914	132	1.00	1.04	N/A
444	700	1.04	1.1	>1.6
311	2150	1.04	1.2	>1.6

Casing Size OD (mm)	762	340	244
Hole Size (mm)	914	444	311
Shoe Depth (m RKB)	132	700	2150
Casing Grade	GR B	L80	L-80
Casing Weight (kg/m)	462	101	79.6
Casing Connection	ST-2	New VAM	New VAM / VAM ACE
Casing Size ID (mm)	711	315	216.8
Casing Drift (mm)		311.4	212.8
Minimum Internal Yield (kPa)		33987	54669
Collapse Resistance (kPa)		15649	45638
Tensile Strength (1000 kg)		3431	2743
Burst Design Factor		2.08	1.75
Collapse Design Factor		2.12	2.37
Tension Design Factor		7.16	2.56
Pressure Test (kPa)		5500	21500
Comments	Conductor	Surface	Production

Note: All casing design calculated in accordance with the Petroleum (Submerged Lands) Acts, Clause 503, Well Casing.

4.5.4 Cementing Programme

The 762mm (30") structural casing is to be cemented back to the seafloor.

The 340mm (13-3/8") surface casing is to be cemented back to the seafloor with tail slurry 150m above the shoe and the top of the lead slurry at the seafloor.

The 244mm (9-5/8") cement job is designed such that the top of the tail slurry is 100m above any zone of interest and the top of the lead slurry is 100m above the 340mm (13 3/8") casing shoe.

Slurry design will be based on bottom hole circulating temperatures (BHCT) when available from MWD otherwise bottom hole static temperatures (BHST) are based on a

seafloor temperature of 14C with a temperature gradient of 3.16°C/100m. These gradients were derived from offset well temperature data.

Required thickening times were calculated assuming a slurry mix rate of 0.80m /min (5 bbls/min), a displacement rate of 1.59m3/min (10 bbls/min) and a 90 minute safety margin. These times will be adjusted if cement volumes are altered.

The pumping times tests for the 762mm (30") job should be conducted at a surface temperature of 30°C. Other tests should be conducted as per API cementing schedules.

Casing Size (mm)	Slurry Density (SG)	Cement Interval (mRT)	Open Hole Excess	Dry Additive	Mix Water Type
762mm					
Tail	1.90	72-132	150%	2% CaCl (BWOC)	SW
340mm					
Lead	1.44	72-550	100%		SW
Tail	1.90	550-700	100%		SW
244mm					
Lead	1.58	600-1600	Caliper + 10%		DW
Tail	1.90	2150-1600	Caliper + 10%		DW

4.6 Drilling Fluids

The 914mm (36"), 444mm (17 ½") hole sections will be drilled with returns to the seabed using seawater and high viscosity Guar Gum & pre-hydrated bentonite sweeps as required.

The 311mm (12-1/4") hole will utilize a 5% KCL/PHPA polymer mud system to control the hydratable clays/shales within the section. Density will be maintained at a minimum of 1.06 SG and will be increased as required. Mud weights up to 1.2sg have typically been used in offset wells.

Hole Size (mm)	Depth (mRT)	Section Length (m)	Drilling Fluid	Minimum Density (SG)	Pore Pressure (SG)
914	132	60	SW w/ PHB sweeps	alap	1.04
444	700	568	SW w/ PHB sweeps	alap	1.04
311	2150	1450	5%KCL/PHPA/Polymer	1.06 - 1.02	1.04

Sufficient bulk barite will be carried onboard at all times to enable the entire active mud system density to be increased by at least 0.12 SG, plus build $80m^3$ (500 bbls) of equal density mud. Enough LCM material will be carried to combat any expected losses.

4.7 Pressure Control

Refer to Drilling Contractors Well Operations Procedures Manual and the Premier Oil Operations Manual for procedures detailing Well Control and Blowout Prevention. The primary means of control of formation fluids will be the hydrostatic pressure exerted by the column of drilling fluid. Premier Oil policy will be to maintain a minimum overbalance of 0.06 SG over the anticipated formation gradient.

4.7.1 Pressure Prediction and Well Monitoring

Gas Detection

Gas detection monitoring will commence below the base of the 340mm (13 3/8") casing shoe, and will continue while drilling to total depth. A hot wire or flame ionization type gas detector will be used to monitor background, connection, and trip gas levels. A gas chromatograph will be used to determine gas composition.

Kick Detection

An electronic PVT system with $0.8m^3$ (5 bbl) sensitivity, will be used for primary kick detection below the 508mm (20") casing. A graduated 'flow show' metre will also be used to provide instantaneous readings. In addition, indirect indicators such as rate of penetration, drilling torque, pump pressure, pump rate, and hook load will be used to provide supportive data. A trip tank will be used on all trips to maximize accuracy in monitoring hole fill-up volumes.

4.7.2 Pressure Control Equipment

Diverter

There has been no indication of shallow gas in any of the offset wells. The 444mm (17 ½") hole will be drilled without a riser/diverter in place. The BOP and riser will not be run until 340mm (13 3/8") casing has been set. This negates the need for a diverter system as such, and the existing diverter system on the rig will not be pressure tested, however, will be function tested.

BOP Stack

A 476mm (18-3/4") BOP stack will be run after setting the 444mm (13 3/8") casing. The BOP stack will have three pipe rams, a blind/shear ram and one annular preventer, arranged as described in the MODU Well Operations Procedures Manual. The BOP stack pressure rating is 68,950 kPa (10,000 psi) and in compliance with the Petroleum (Submerged Lands) Acts, Clause 505. Pressure testing of primary well control equipment will include a stump test prior to running, function and pressure testing when landed and subsequent pressure testing in accordance with the MODU Safety Case.

Choke Manifold

The choke manifold will be equipped with at least two hydraulic remote chokes and one manual choke. The manifold will be arranged such that wellbore fluids can be routed through either of the chokes while permitting another choke to be isolated for repair. The choke manifold's pressure rating is 68,950 kPa (10,000 psi) and the general choke system layout is in accordance with the Petroleum (Submerged Lands) Acts, Clause 505.

Degassing Equipment

A vacuum degasser and an atmospheric mud gas separator will be available for use on this well.

4.7.3 Directional Control and Monitoring

Wellbore Trajectory

The well is to be drilled vertically, and the relevant good oilfield practices will be utilized to keep the well as vertical as practicable.

Survey Frequency

Surveying will be conducted to ensure that the wellpath is known to an acceptable level of accuracy. Surveying will be performed according to the following:

Hole Size	Survey Programme
914mm	Anderdrift ,Totco Single Shot
445mm	Anderdrift and Electronic Multi-shot at TD
311mm	Anderdrift and Electronic Multi-shot at TD

4.8 Offset Well Data

The closest offset wells to White Ibis-1 are Bass-3, Yolla-1, Tilana-1, and King-1. These wells provide the most useful information on anticipated hole problems. In addition information from Yolla-2 (currently being drilled) will provide modern information.

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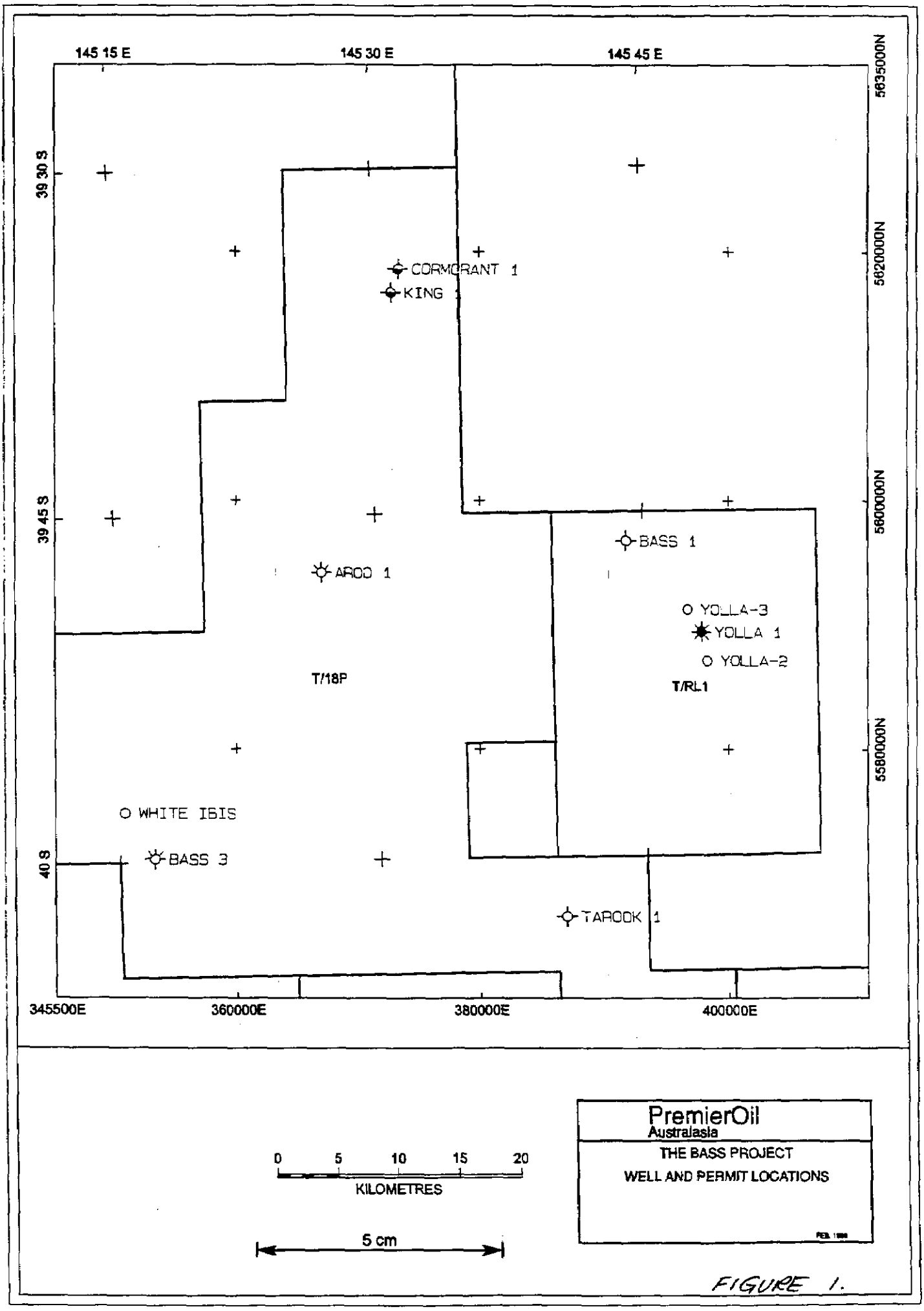

FIGURE 1.