ARROWIE BLOCK

ACREAGE ASSESSMENT

SA1 Group
Delhi Petroleum Pty Ltd
March 1986
DFL/333/7

CONTENTS

00871

SUMMARY

PART I

TECHNICAL ANALYSIS

CONTENTS

00874

PART 1 - TECHNICAL ANALYSIS

PAGE

FIGURES

00875

1.0 BASIC FACTORS

1.1 Regional Setting and Exploration Status

The Arrowie Block is situated in the northeast of South Australia in the southernmost part of PEL's 5&6. The block contains the Early Cambrian-Late Cambrian Arrowie Basin, underlain by Proterozoic sediments and overlain by a thin veneer of Mesozoic Eromanga Basin sediments. The location of the block is shown on Figure 1.

The Arrowie Basin sediments have no surface expression in the block. Minor exposures are preserved in outcrop in the Flinders Ranges to the west.

Exploration of the block is still in the frontier stage. There has been only one deep test of the Cambrian sequence, Moorowie 1 drilled in 1983. A total of 2781 km of seismic have been recorded between the 1960 and the end of 1985 (Fig. 2).

1.2 Physiography and Climate

The dominant morphological feature of the Arrowie Block is the dry salina Lake Frome. The eastern shoreline consist of mound springs and gypsum lunettes up to 30 metres high, while further east most of the area is covered by the Strzelecki Desert. To the west of the lake lies the Lake Frome Plains, a complex of coalescing alluvial fans rising from lake level to the Paralana High Plain about 100 to 150 metres above sea level. At the western boundary of the block lies the Flinders Ranges, about 600 metres above sea level.

A narrow channel connects Lake Frome to Lake Callabonna in the north of the block. The latter is a Fossil Reserve designed to protect Diprotodon remains. Only a narrow strip around the current block boundary is located within the Fossil Reserve.

The Arrowie Block is in the rain shadow of the Flinders Ranges. The climate is arid and hot in summer and cold-mild in winter. Winds are dominantly from the southern quarter with a strong westerly phase during May-August and north winds in summer. Rainfall is low and erratic (100-125 mm/year) falling mostly in brief storms with heavier rains of 360-625 mm at 10-20 year intervals. Falls occur mainly during December-March and May-June, with April being the driest month. The area east of Lake Frome receives the lowest rainfall, while the highest occurs near the Flinders Ranges.

The lake is subject to flooding after heavy rainfall, in the Flinders Ranges. Numerous creeks (eg Big John Creek, Wilpena Creek) flow into the lake after deluges in the nearby catchment area. Water on the lake rarely exceeds 1-2 ft in depth and normally dries within a week. The area of the lake is 2000 km^2 or 14% of the total retained acreage.

Vegetation is sparse except for stands of Eucalyptus adjacent to the Flinders Ranges. Elsewhere, cane grass and spinifex are the

1.2 Physiography and Climate (Cont.)

dominant, permanent plant forms. A number of ephemerals flower after heavy rainfall.

1.3 Acreage and Terms

Location:	PELs 5&6 South Australia Arrowie Basin	
Area:	13,781 km^2	
Interest Holders:	Santos Ltd	50%
	Delhi Petroleum Pty Ltd	30%
	Vamgas Ltd	10%
	SA Oil & Gas Corp. Pty Ltd	10%
	Santos have an overriding royalty of 5.56% on Delhi's share of production ie. 5.56% x 30% = 1.66% of total block production.	
Voting Rights:	Exploration Approvals	63%
	Exploration Vetoes	37.5%
	Change of Operator	63% and 2 partners
Terms:	Arrowie Block is part of the Arrowie Sector which was originally acquired as part of OEL 20/31 in 1954 by Santos, to which Delhi took a 50% interest when it entered as Operator 5/5/58. Delhi farmed out 20% of its interest to Vamgas 5/12/68. The OELs were converted to PEL 5 (Delhi) and PEL 6 (Santos) covering identical areas and making Santos and Delhi the joint licence holders. Farmout to SAOGC involving 25% of Delhi's remaining share occurred in 1975.	
	In February 1984, 25% of the sector was relinquished. In February 1986 a further 25% (or 50% of retained area) was relinquishment. A further 25% (or 66.6% of the current area) is due for relinquishment in 1989.	
	Minimum financial obligation is \$62/km^2/annum, or a total of \$0.86 MM p.a. for the block. Over a period remaining to February 1989, the total commitment is \$2.57 MM.	
	The remaining work commitment to Feburary 1989 is 494 km seismic and one well (\$2.63 MM).	
	Delhi Petroleum Pty Ltd is operator of the block.	

00878

2.0 GEOLOGICAL CONSIDERATIONS

2.1 Data Base

2.1.1 Gravity and Aeromagnetics

The Arrowie Block is covered in part or Total by several gravity and magnetic surveys conducted by various government instrumentalities and private companies.

1946 B.M.R. Gravity Survey; extended by Frome-Broken Hill Pty Ltd with ground magnetics.

1963 Lake Frome Gravity Survey by G.S.I. Geophysics for Delhi-Santos.

1965 Lake Gregory Gravity Survey by Wongela Geophysics for Delhi-Santos.

1965 Strzelecki-Cooper Seismic and Gravity Survey by United Geophysical.

1966 Eromanga-Frome Seismic and Gravity Survey by U.G.C. for Delhi-Santos.

1970 Frome Downs Seismic and Gravity Survey by Austral-United Geophysical for Crusader Oil N.L. (see Fig. 3).

2.1.2 Seismic

The seismic coverage of the block totals 2139 km (.15 km per km^2) and is detailed below:

Yr	Survey Dates	Survey Name	Km	Actual $	1986 $
60	03/60 - 10/60	Geoseis-ARR	63	25,000	133,905
64	02/64 - 11/66	Blinman-Wirrealpa-ARR	318	48,000	245,046
66	02/66 - 12/66	Eromanga Frome-ARR	175	42,000	199,390
70	01/70 - 12/70	Frome Downs-ARR	543	214,646	913,611
75	12/75 - 12/75	Billy Creek-ARR	40	44,600	124,629
76	03/76 - 10/76	Frome Downs-ARR	10	8,000	19,924
81	09/81 - 10/81	Wertaloona-ARR	184	628,130	963,406
* 82	02/82 - 10/82	Christmas Creek-ARR	200	390,000	541,323
* 84	07/84 - 10/84	Hogarth-ARR	383	1,270,616	1,473,812
* 85	11/85 - 12/85	Morphett-ARR	223	820,000	885,600
TOTAL			2139	3,491,000	5,500,650

* Operated by the CSR Oil and Gas Division.

2.1 Data Base (Cont.)

2.1.3 Wells

The location of Arrowie Block wells is shown in Figure 2. These are tabulated below:

Yr Spud-Finish	Well Name	Class'n	Result	TD (ft)	Actual $	1986 $
68 06/68-07/68	Lake Frome 3	NFW	P&A	2562	46,362	207,484
68 07/68-08/68	Lake Frome 2	NFW	P&A	2532	46,362	207,484
68 08/68-08/68	Lake Frome 1	NFW	P&A	2565	46,362	207,484
* 83 07/83-09/83	Moorowie 1	NFW	P&A	10650	2,053,000	2,551,103
TOTAL				18309	2,192,086	3,173,557

* Operated by the CSR Oil and Gas Division.

2.2 Exploration Costs

The cost of seismic acquisition and exploration drilling based on 1986 costs are:

Seismic Acquisition and processing	$3,300/km (1986)*
Exploration Drilling	$1MM (completed cost)*

* Generalized estimate only.

2.3 Tectonic/Structural Framework

The Arrowie Block contains elements of three successive phases of basin development. They are the Proterozoic of the Adelaide Geosyncline, Cambrian strata of the Arrowie Basin and Late Jurassic-Cretaceous of the Eromanga Basin.

Movement along major lineament systems (?triple junctions) led to the separation of the Willyama, Wonaminta, Mount Painter from the Gawler Block resulting in the development of the Adelaide Geosyncline. These blocks contributed dominantly detrital material to the Adelaidean units of the Adelaide Geosyncline and also to the Stuart and Curnamona Shelves (see Fig. 4) but at greatly reduced thicknesses. The Arrowie Block is located over the Curnamona Shelf.

Fold movements towards the end of the Pre-Cambrian terminated deposition in the Northern Adelaide Geosyncline, adjacent to the Musgrave and Denison Blocks. This is reflected by a major regression and the development of low angle unconformities or erosional disconformities at the Pre-Cambrian-Cambrian boundary.

2.3 Tectonic/Structural Framework (Cont.)

Cambrian sedimentation of the Arrowie Basin was most prominent in the unfolded southern areas of the Adelaide Geosyncline. This transgression extended well onto the Gawler Block and Stuart Shelf and the Curnamona Shelf.

The basal transgressive clastic sequence was followed by basin-wide carbonate sedimentation with varying water depths and subsidence rates largely determining the types and thicknesses of the resulting carbonates. By the end of the Early Cambrian terrigeneous deposits were accumulating in the central Adelaide Trough. Due to erosion or non-deposition on the Curnamona Shelf, these later deposits have only been identified in the Flinders Ranges.

A regional regression (Early-Middle Cambrian) resulted in deposition of a red-bed sequence (the Billy Creek Formation).

During the early Middle Cambrian, the sea again entered the Arrowie Basin depositing the shallow water Wirrealpa Limestone. As with the earlier transgression, evidence suggests that the sea entered the basin from the south and is believed to have coincided with the establishment of the Warburton Basin, to the north. Subsidence continued with the deposition of up to 3000m of non-marine and marginal marine sediments (Lake Frome Group). The formations are of generally uniform thickness, showing that the shelf-trough difference was not pronounced during deposition.

During Late Cambrian to Early Ordovician, the Proterozoic and Cambrian rocks of the Adelaide Geosyncline (including the central Arrowie Basin) were folded, faulted, and intruded by granites as a result of the Delamerian Orogeny. East and west on the more stable basement shelves, Delamerian folding and faulting is less severe.

During the Early Ordovician-Mesozoic hiatus, much of the Middle and Late Cambrian sediments were eroded from the Arrowie Block.

Mesozoic

Development of the intracratonic Eromanga Basin (Early Jurassic) initiated substantial Jurassic-Cretaceous sedimentation over much of central Australia. The Frome Embayment of this basin partly overlies the eastern Arrowie Basin and sedimentation did not reach the Frome Embayment until the Late Jurassic and was restricted to the northernmost area of the block.

The overlying Cretaceous sediments blanket the block and thin to the south with Early Cretaceous sediments restricted to the northern area of the block.

Renewed uplift in the Early Palaeocene, initiated erosion of the regressive Late Cretaceous sediments to the north.

The Mesozoic and Cainozoic strata are virtually flat-lying (1-2^{o} dip west and north of Lake Frome) and Mesozoic structural elements mirror the Cambrian.

2.3 Tectonic/Structural Framework (Cont.)

Mesozoic (Cont.)

Lines of mound springs on the eastern side of Lake Frome suggest some reactivation of the faults due to regional compression in the Tertiary.

The main structural elements in the Arrowie Block are shown on Figure 5. The Wertaloona Fault is a major high angle reverse fault that marks the present day eastern limit of the Flinders Ranges. The eastern margin of the syncline is marked by the Poontana Fracture Zone which consists of two north-south oriented anticlinal trends controlled by major fault systems. Cambrian sediments thin eastwards and pinch out onto the Benagerie Ridge which consists of Proterozoic volcanics. The Moorowie Syncline is subdivided into northern and southern sectors by a major northwest-southeast trending fault. Figures 6-10 show the main structural features of the Arrowie Basin in the Arrowie Block as currently interpreted from the seismic. Figure 11 is an east-west seismic line that shows the Poontana Fracture Zone to the south of Lake Frome.

2.4 Stratigraphy

General

The stratigraphy of the Arrowie Block, and the Arrowie Basin in particular, is complex due to the presence of several unconformities and intraformational facies changes. Limited sub-surface data restricts a detailed discussion of formations and their areal extent. Figure 12 summarizes the stratigraphy of the basin.

Pre-Cambrian

The Pre-Cambrian sediments of the Adelaide Geosyncline underlie the Arrowie Block and consist of interbedded units of shales, siltstones, dolomites, and limestones with some sandstone units. Extensive dolomitization has occurred within the calcareous units. The environment of deposition varies from terrigenous to inter-tidal and shallow marine. Hydrocarbon potential is interpreted to be low due to post-depositional tectonism and diagenesis.

Cambrian

The Uratanna Formation is the oldest recognised unit in the Arrowie Basin. It typically consists of fossiliferous, green micaceous shales, minor purple shale, crossbedded sandstones, and limestone nodules and may have been a hydrocarbon source rock. The formation experienced significant erosion and its areal extent in the block is limited and poorly defined.

The Parachilna Formation unconformably overlies the Uratanna Formation and represents the basal Cambrian unit over much of the western and central basin. It consists of fine to coarse grained, current bedded sandstones, often feldspathic, with intercalations of thinly interbedded siltstones and shales, often with thin carbonate bands towards the top. This formation represents a transgressive facies deposited under marginal marine and shallow water conditions. It attains thicknesses up to 60m.

In its typical development, the overlying Wilkawillina Limestone consists of thinly bedded dolomitic limestones, often oolitic, with interbedded shale and sandstone grading to an upper unit of dark, massive or thickly bedded biostromal limestone with abundant archaeocyatha and phosphatic brachiopods. The formation is thought to have formed along the hinge zone between the subsiding central basin and the eastern sub-stable shelf. This hinge zone is roughly coincident with the present eastern margin of the Flinders Ranges. The Wilkawillinia Limestone is commonly very sandy and bituminous with both source rock and reservoir potential. Total thicknesses up to 250m occur along the eastern margin of the Flinders Ranges.

The Parara Limestone consists of dark grey, microcrystalline carbonate nodules embedded in black calcareous shales with occasional bands of dark calcareous, micro-micaceous shale and represents the dominant facies in the deeper, central basin. The Parara Limestone reaches up to 600m in thickness. Shelfward it may grade laterally into the Bunkers Sandstone or Wilkawillina Limestone.

2.4 Stratigraphy (Cont.)

Cambrian (Cont.)

T.O.C. analyses indicate that suitable source material existed in the Parara Limestone (<0.34%) and thus is the richest Cambrian source rock encountered in the block.

The Bunkers Sandstone is restricted to the western of the margin of the Arrowie Block and consists of white, medium grained, generally well sorted quartz sandstone, reaching a thickness of 200m. The sandstone is generally cemented by a siliceous matrix, but intermittent intervals show fair to good porosity and it is believed that this unit has reservoir potential. The environment of deposition is interpreted as shallow marine. The unit may intertongue with both the Parara Limestone and Oraparinna Shale.

The Oraparinna Shale is a dark and generally thinly bedded shale containing carbonate nodules and fossils. Westwards towards the centre of the basin it changes into a Parara-type facies. Colour indicates that it was probably deposited in a reducing environment. High T.O.C. values have been obtained for the Oraparinna Shale (<0.35% T.O.C.) indicating good source rock potential. The formation is also a potential seal for the underlying Wilkawillina Limestone.

The Moorowie Formation is present along the western margin of the block and is extremely variable in facies. It consists of archaeocyathid limestones, stromatolitic and "birds-eye" limestones and dolomite, coarse-grained sandstones associated with slumped carbonate megabreccias, and micaceous siltstones and shales, and correlates with the Bunkers Sandstone and Oraparinna Shale. The slumped carbonate megabreccias are possible evidence for a hinge line separating basin and shelf sedimentation in this area. The formation may have some source rock potential.

The Billy Creek Formation unconformably overlies the Moorowie Formation and comprises a redbed sequence of shale, siltstone, and sandstone with minor limestone, dolomite, and tuff up to 1000m thick. The facies indicate an oxidizing shallow water paralic environment. The formation has moderate seal potential as sandstone porosity is considered very poor due to diagenesis and dolomitization.

The Wirrealpa Limestone (Aroona Creek Limestone equivalent) comprises up to 130m of oolitic and pisolitic marly limestone deposited in a broad, shallow (<20m) platform environment and contains a rich trilobite fauna of Middle Cambrian age. Other fossil remains are stromatolites, brachiopods, hyolithids, and sponge spicules. T.O.C. analyses, although generally low, indicate that the limestone has some source rock potential. Well data indicate the limestone is tight with poor reservoir potential.

The Moodlatana Formation consists of buff and brown sandstones with large scale cross bedding, red micaceous shales, siltstones, and minor basal dolomite and chert. Mudcrack casts indicate a periodic emergence and a minor widespread transgression resulted in a

2.4 Stratigraphy (Cont.)

Cambrian (Cont.)

fossiliferous dark foetic limestone which was also detected in Lake Frome 1 and 2 and Moorowie 1. The formation has moderate source and seal potential with possible reservoir potential.

The Balcoracana Formation consists of a cyclic sequence of red, fine-grained sandstones and siltstones with thin beds of pale green dolomite and black chert. The formation represents a shallow marginal marine-terrigenous sequence deposited under transgressive-regressive cycles. Well data indicate zones of good secondary porosity and permeability apparently increasing with depth with potential seals in shale-prone zones.

The Pantapinna Sandstone (up to 1400m) consists of red and white argillaceous and feldspathic sandstones with large scale cross-bedding and slump structures. These sandstones have been interpreted as having been deposited in a deltaic environment. Well data (Lake Frome 3) indicate the formation has good to excellent reservoir potential.

The overlying Grindstone Range Sandstone is a strongly cross-bedded, ripple-marked sequence of white quartzites and minor red sandstones and quartzite conglomerate. A marine deltaic environment similar to the Pantapinna Sandstone is implied and the beds may range into the Ordovician. Surface exposures and well data (Moorowie 1) indicate good reservoir characteristics. The Grindstone Range Sandstone is the uppermost observed sequence in the Arrowie Basin and is unconformably overlain by Eromanga Basin sediments.

The only other Palaeozoic rocks in this area are small pockets of Permian age rocks in the Flinders Ranges and thick Early Ordovician sediments at Mt Arrowsmith, N.S.W.

No rocks of Ordovician-Triassic age have yet been intersected in the sursurface of the Arrowie Basin, probably due to pre-Jurassic erosion. Figures 13 and 14 outline the stratigraphy and facies relationships of the Arrowie Basin.

Figure 15 is an east-west cross-section through the Arrowie Basin.

2.5 Failure (Dryhole Analysis)

One deep well, Moorowie 1, was drilled in 1983 by Delhi Petroleum Pty Ltd. The well reached a T.D. of 10,660 ft in the Pre-Cambrian Balcanoona Formation and was plugged and abandoned after failing to intersect hydrocarbon accumulations. The stratigraphic sequence encountered in the well is presented below:

2.5 Failure (Dryhole Analysis) (Cont.)

Formation	Depth (Subsea ft)
Grindstone Range Ss	- 624
Pantapinna Ss	- 847
Balcoracana	-4447
Moodlatana	-4705
Wirrealpa Limestone	-5544
Billy Creek	-5929
Hawker Group	-7019
Brachina	-7156
Nuccaleena	-9009
Elatina	-9042
Etina Lst Mbr	-9544
Balcanoona	-9827

Three stratigraphic wells, Lake Frome 1, 2, and 3, were drilled in 1968 by the SADME. These wells were drilled to depths of 2500 ft and were designed to enhance geologic knowledge of the Cambrian sediments.

Current seismic mapping indicates Moorowie 1 was a valid test of a four-way dip closed anticline in the Late Cambrian section. Seismic resolution of the Pre-Cambrian was poor and the well may not have been a valid structural test of that sequence.

The Middle-Late Cambrian section exhibited very poor to moderate porosity with occasional zones of moderate-good porosity (>10%) probably through diagenetically and tectonic induced fracturing. Permeabilities were generally very poor, however, the Wirrealpa Formation produced a recovery of slightly gas cut muddy water indicating some reservoir potential of the Balcoracana Formation.

Moorowie 1 encountered excellent formational and intraformational seals throughout the Cambrian section.

Potential source rocks occur in the region of Moorowie 1. The absence of hydrocarbons may therefore relate to the relative timing of hydrocarbon generation and trap formation.

Hence the failure of Moorowie 1, although poorly understood is believed due to either the absence of source rock, or to timing of hydrocarbon migration.

2.6 Hydrocarbon Potential

In the Arrowie Block approximately 30 structural leads are currently mapped. They range in size from 1000 acres to 8000 acres. Only the Lake View, Poverty Lake and Bendieuta structures are at prospect or near-prospect status.

2.6 Hydrocarbon Potential (Cont.)

2.6.1 Structural Traps

The Lake View structure exists as a four-way dip closure along the Poontana Fracture Zone (refer type seismic section, Figure 11) under Lake Frome. The larger Poverty Lake structure occurs on the eastern axial of this same trend and is updip of Lakeview. These features appear on the 1:100,000 Z5 Time Structure Map (Fig. 9).

The Bendieuta structure is located over a thick Hawker Group channel inferred from seismic. This feature appears on the 1:100,000 Z7 Time Structure Map (Fig. 10).

Other leads are mapped covering the same play types as described above, but they are either smaller or seismically less mature (Fig. 16).

Structural/Stratigraphic Traps

Potential fault plays occur along the Wertaloona Fault bounding the eastern Flinders Ranges. Chambers is the best example of this play type, which rely on fault sealing and fault-drag induced dip closure.

2.6.2 Stratigraphic Traps

No stratigraphic leads are currently mapped in the Arrowie Block due to the seismic and well coverage. However, stratigraphic traps associated with facies changes and post-depositional alteration and diagenesis are anticipated over large areas of the block.

Early Stratigraphic Traps

Simple updip stratigraphic pinchout traps may have formed in a fluvial or carbonate setting during Cambrian onlap onto the Curnamona Shelf. Combined unconformity/structural traps may exist at the Pre-Cambrian/Cambrian unconformity. However, this requires migration from Cambrian source rocks across shelf boundary faults into a subcrop trap beneath Cambrian sediments and is not likely to occur frequently.

Potential updip stratigraphic pinchout traps within the Cambrian are provided by the Hawker Group and the Wirrealpa Limestone over the western portion of the Curnamona Shelf. This type of trap was observed in the Moorowie 1 well, however, both formations were wet. In excess of 3000 km^2 of the block is considered prospective for this type of play.

In the subsurface to the west of Moorowie 1 and extending along the margins of the Flinders Ranges, other stratigraphic traps may exist within:

2.6 Hydrocarbon Potential (Cont.) 00887

2.6.2 Stratigraphic Traps (Cont.)

Early Stratigraphic Traps (Cont.)

i) porous oolite shoals of the Wirrealpa Limestone (upper member).

ii) primary or secondary porosity within shoals or bioherms of the Wilkawillina Limestone shelf margin facies, or

iii) within updip stratigraphic pinchouts of the Bunkers Sandstone.

Disruption of this broad facies zone on the Curnamona Shelf edge by late tectonics may reduce its prospectivity, but no assessment of the potential of these plays is possible at this stage.

Late Stratigraphic Traps

Stratigraphic updip pinchout traps and porosity traps caused by late diagenesis may exist on either side of the Benagerie Ridge and updip from the Adelaide Geosyncline but are likely to be too late for hydrocarbon entrapment.

The area of subcrop of the Cambrian Pantapinna and Grindstone Range Sandstone aquifers beneath the post-Cambrian (base of Tertiary) unconformity is extensive and in those areas where a post-unconformity seal is present structural highs on the unconformity may provide traps. The potential of this trap type is downgraded by the presence of fresh water (6500 ppm) below the unconformity surface in Moorowie 1, indicating that these formations may be flushed or that the trap post-dated hydrocarbon migration.

Mesozoic Stratigraphic Traps

The Mesozoic (Eromanga Basin) edge offers potential for stratigraphic pinchout traps in the northern area of the block. At present, this edge is ill-defined due to a lack of well and seismic data.

2.6.3 Reservoirs

Principal potential reservoirs in the block include the Bunkers Sandstone and Wirrealpa Limestone.

The Bunkers Sandstone of the Hawker Group consists of well sorted quality sandstone, which from outcrop studies, is cemented by siliceous matrix. Intermittent intervals shows fair to good porosity.

The Wirrealpa Formation is predominantly composed of a lower oolitic limestone with the upper section grading into silty limestones. The upper silty section has very poor reservoir potential and is a potential seal in some areas. The lower oolitic section is regarded to have fair to good reservoir characteristics due to secondary and fracture porosity. Assessment of remnant primary porosity is difficult due to limited data.

2.6 Hydrocarbon Potential (Cont.)

2.6.2 Reservoirs (Cont.)

Secondary objectives include the Mid-Cambrian Moodlatana Formation and Late Cambrian Grindstone Range Sandstone. The Moodlatana Formation contains minor reservoir potential within sandstones and dolomites. Core analysis indicate good porosity (10%) but poor permeability (0.1 mD). The Grindstone Range Sandstone has moderate reservoir potential with good porosity. The formation is considered to be a regional aquifer. Stratigraphic porosity traps may have been created within this unit by diagenetic alteration.

2.6.4 Source

Data indicate that source rocks are present and have been exposed to sufficient thermal levels to initiate the generation of oil, and that a sufficient period of time has elapsed to expel hydrocarbons. However, the studies indicate that some doubt exists as to whether sufficient quantities of source rock material was available to generate significant quantities of hydrocarbons. The principal source rocks are Wirrealpa Limestone, Moodlatana Formation, and Parara Limestone (if present in the block).

2.6.5 Seal

The Hawker Group sediments will be sealed by the overlying Billy Creek Formation which consist of a red bed sequence composed of silts and shales.

The Wirrealpa Limestone has intraformational seals consisting of calcareous silts and limestones.

The overlying Lake Frome Group (Moodlatana, Balcoracana, Pantapinna, and Grindstone Range Sandstone) have intraformational porosity seals comprised of interbedded shales and siltstones.

2.7 Regional Play Concepts

General

The complex stratigraphy and structuring of the Arrowie Basin has produced a wide variety of structural and stratigraphic targets. However, the block is underexplored necessitating evaluation of structural targets and the principal stratigraphic pinchout plays with a lower reliance upon exotic stratigraphic traps (diagenetic etc), in the short to medium term (1-3 years).

Cambrian

The stratigraphic section penetrated in Moorowie 1 (and stratigraphic wells) demonstrates the sequence is mature for oil generation and contains seal and reservoir rocks.

2.7 Regional Play Concepts (Cont.)

Cambrian (Cont.)

The block predominantly covers the eastern shelf area of the Arrowie Basin where source rocks are generally poorly developed with a low T.O.C., with timing of oil expulsion and migration relative to structuring and diagenesis unknown.

Exploration should therefore address plays along the western margin of the block. Plays in this area have nearest access to the best developed source rocks (Parara Limestone etc) in the Adelaide Trough. Similarly, structures in the northern Moorowie Syncline should be sought where the presence of Parara Limestone is inferred from seismic.

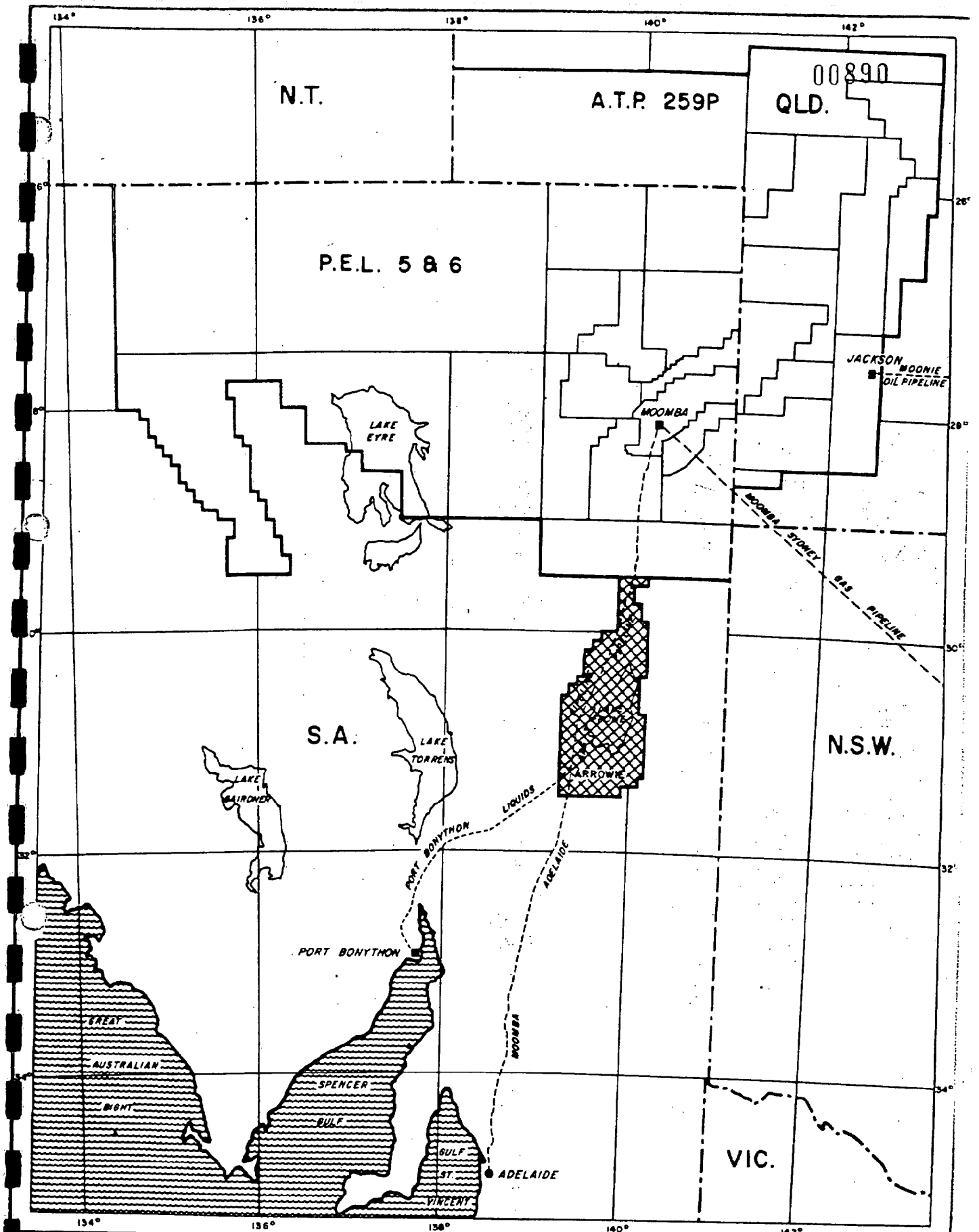
Should new data indicate early expulsion and late structuring and diagenesis target options should be expanded accordingly.

Mesozoic

Exploration directed toward Mesozoic targets should be directed towards plays in the northern areas of the block where the Jurassic section is best developed. Mesozoic targets despite excellent seal and reservoir potential are poorly rated due to lack of source rock and immaturity. Should the existence of long distance migration (>100 km) be established in the Eromanga Basin the Mesozoic should be re-evaluated.

3.0 ENGINEERING CONSIDERATIONS

To be supplied by DPPL.



DELHI PETROLEUM PTY. LTD.

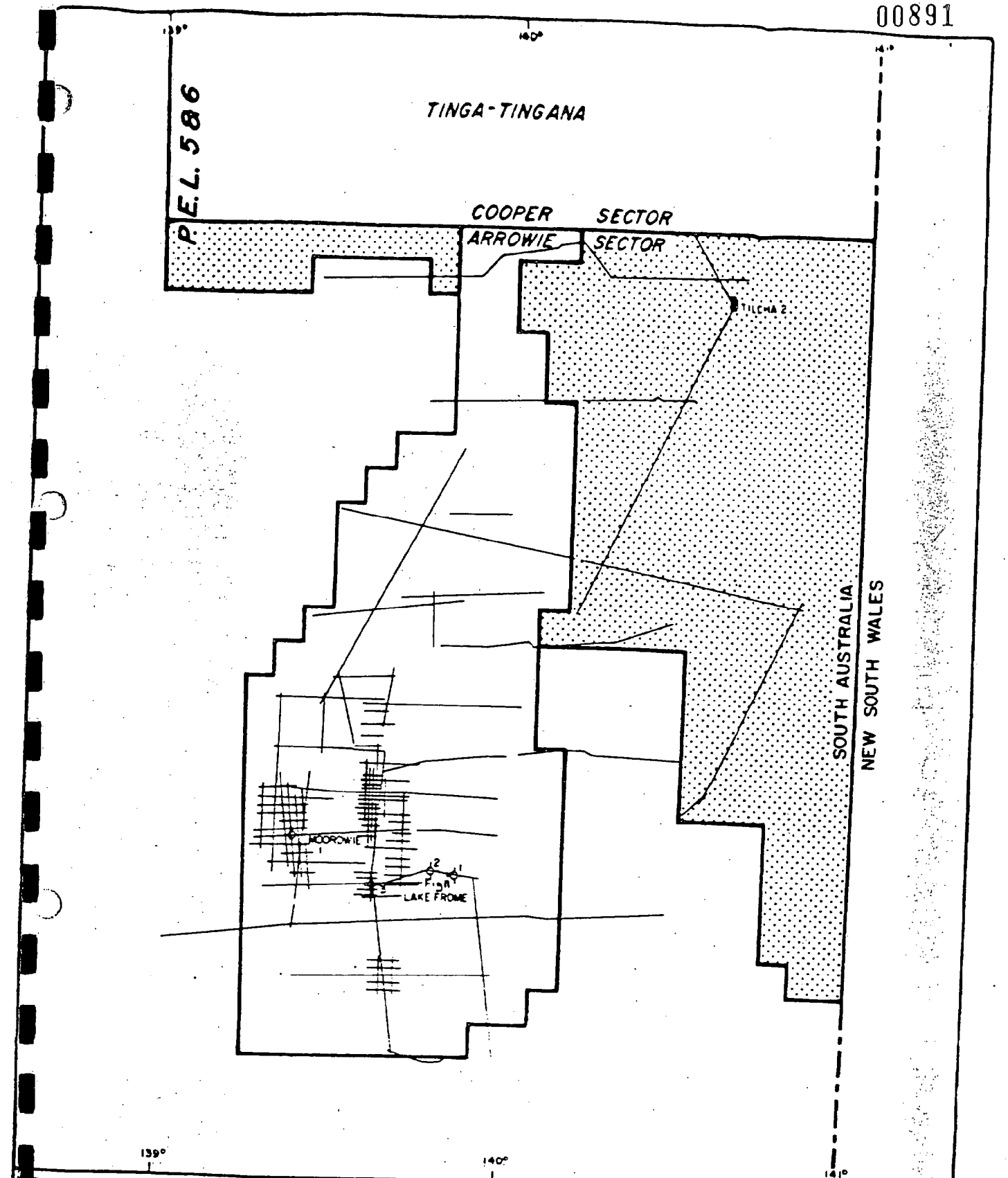
LOCATION MAP

PEL 5&6 SOUTH AUSTRALIA, ATP 259P QUEENSLAND

ARROWIE BLOCK

0 200 Km

Figure 1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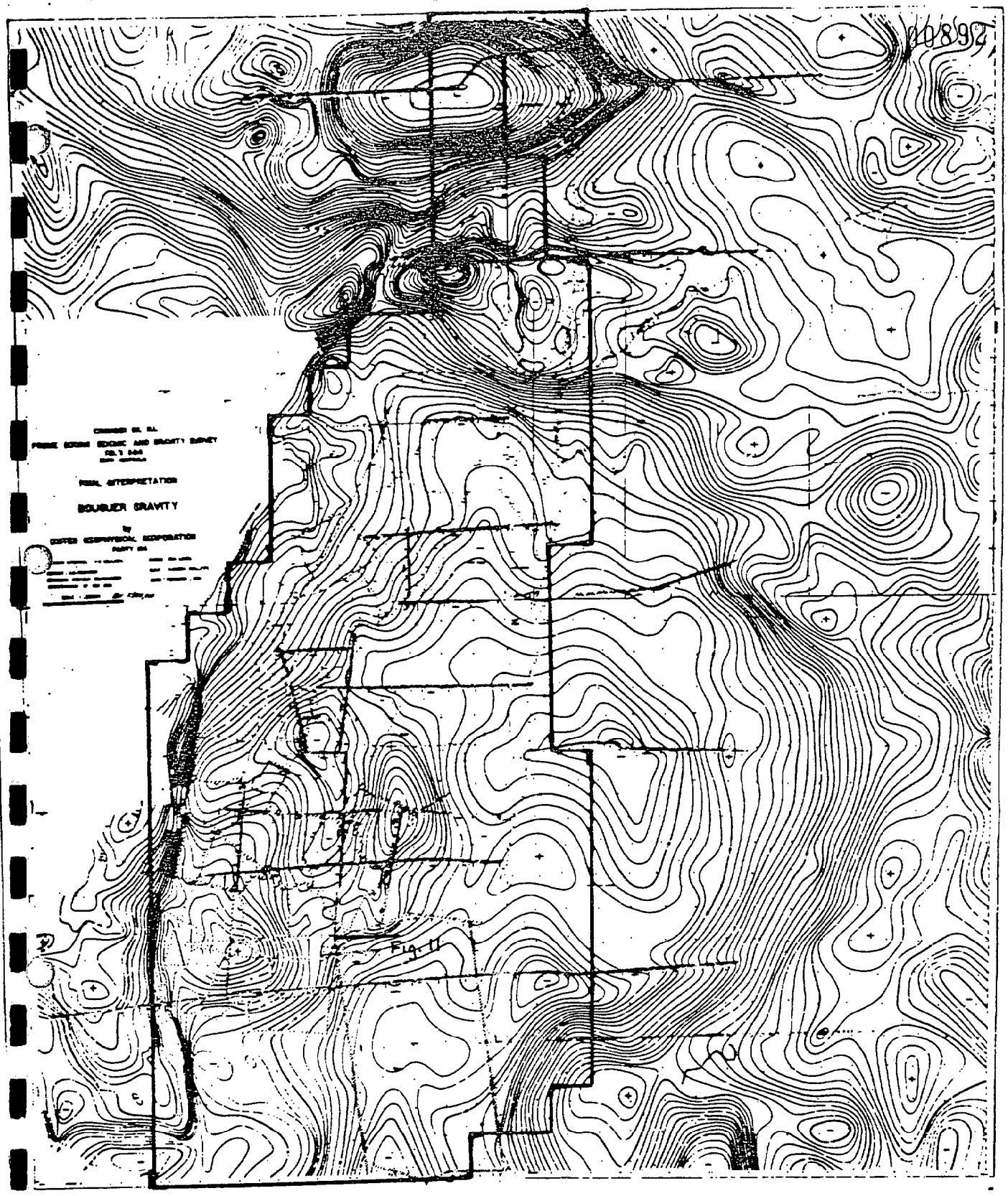
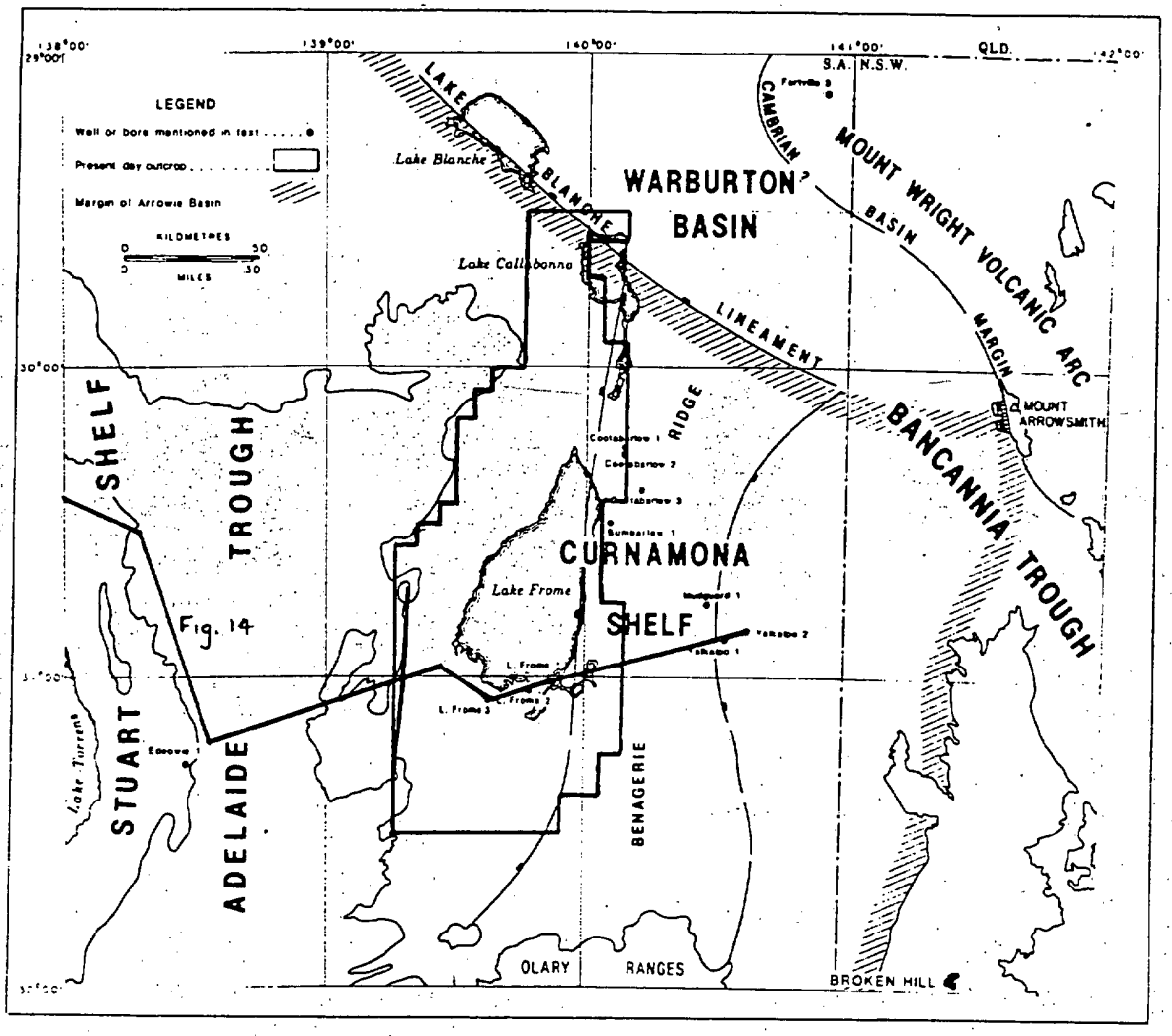


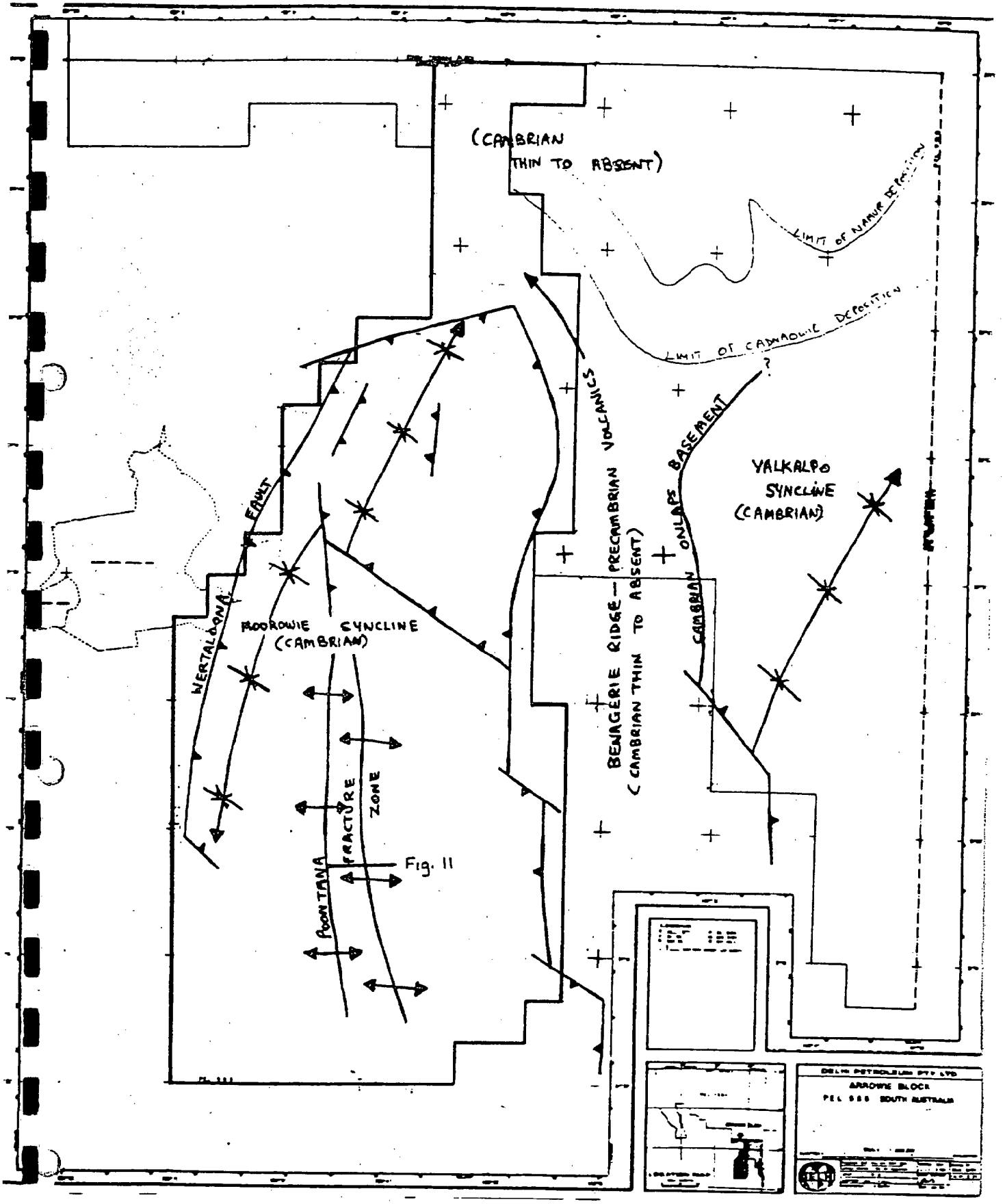
Figure 3



TECTONIC ELEMENTS – ARROWIE BASIN

Figure 4

00894



STRUCTURAL ELEMENTS - ARROWIE BASIN

Figure 5

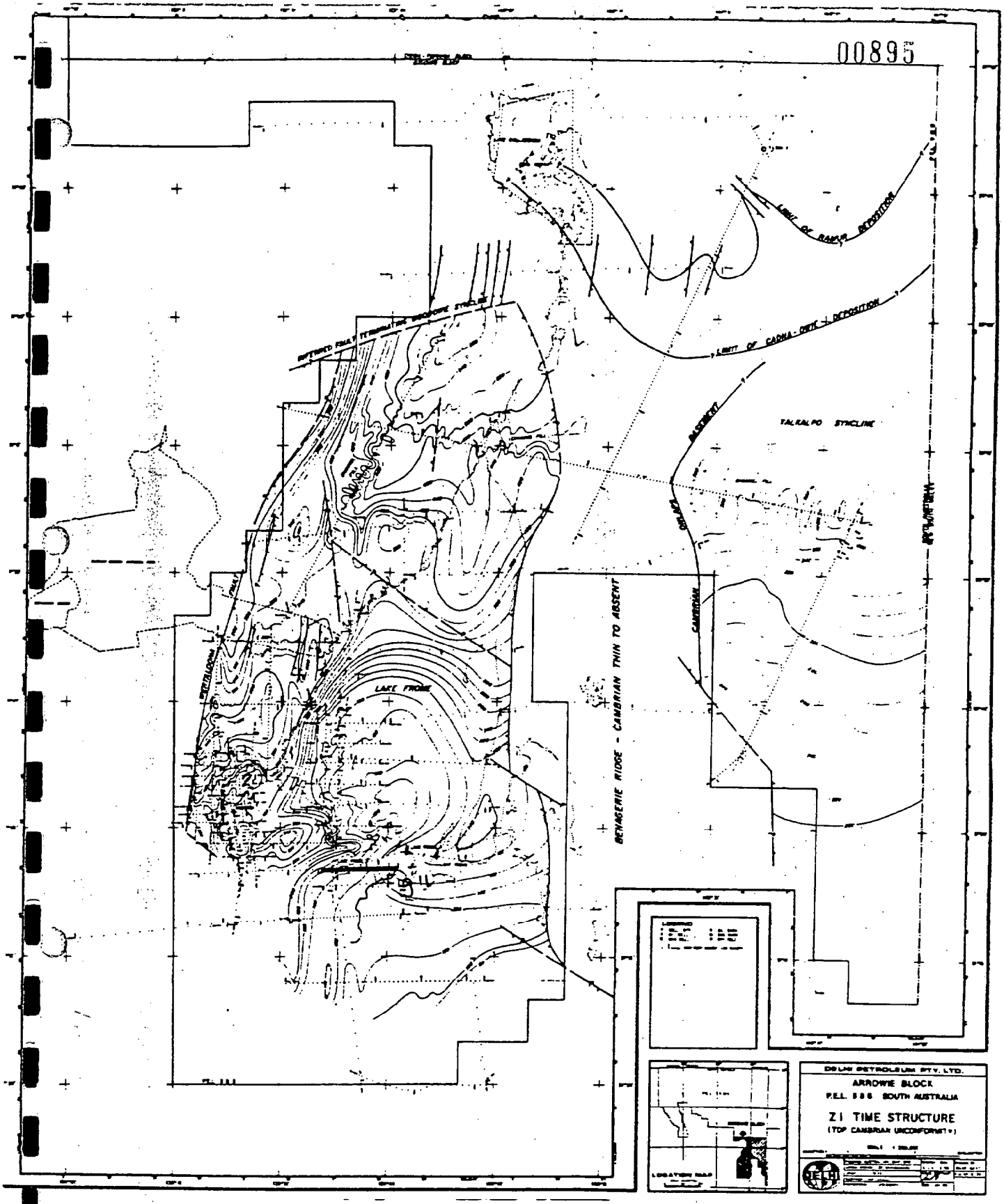

LIMIT OF RANGE DEPOSITION
LIMIT OF CADNA-OWIE DEPOSITION
TALKALPO SYNCLINE
BENAGERIE RIDGE - CAMBRIAN THIN TO ABSENT
LAKE FROME
DELHI PETROLEUM PTY. LTD.
ARROWIE BLOCK
P.E.L. 5 & 6 SOUTH AUSTRALIA
Z1 TIME STRUCTURE
(TOP CAMBRIAN UNCONFORMITY)

Figure 6

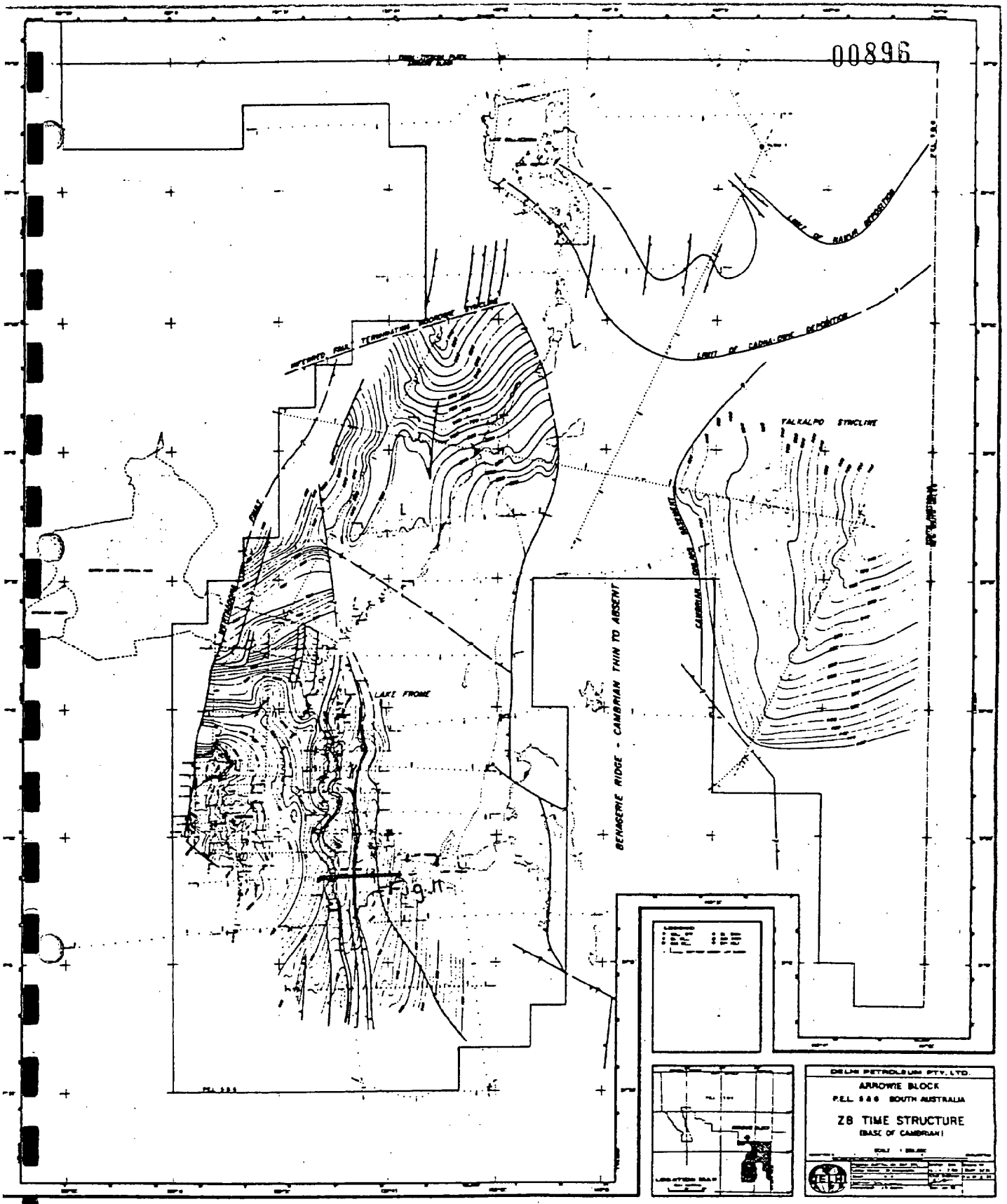

LIMIT OF CAMBRIAN DEPOSITION
FALKALPO SYNCLINE
BENAGERIE RIDGE - CAMBRIAN THIN TO ABSENT
LAKE FROME
Fig 11
DELHI PETROLEUM PTY. LTD.
ARROWIE BLOCK
P.E.L. 5 & 6 SOUTH AUSTRALIA
Z8 TIME STRUCTURE
(BASE OF CAMBRIAN)

Figure 7

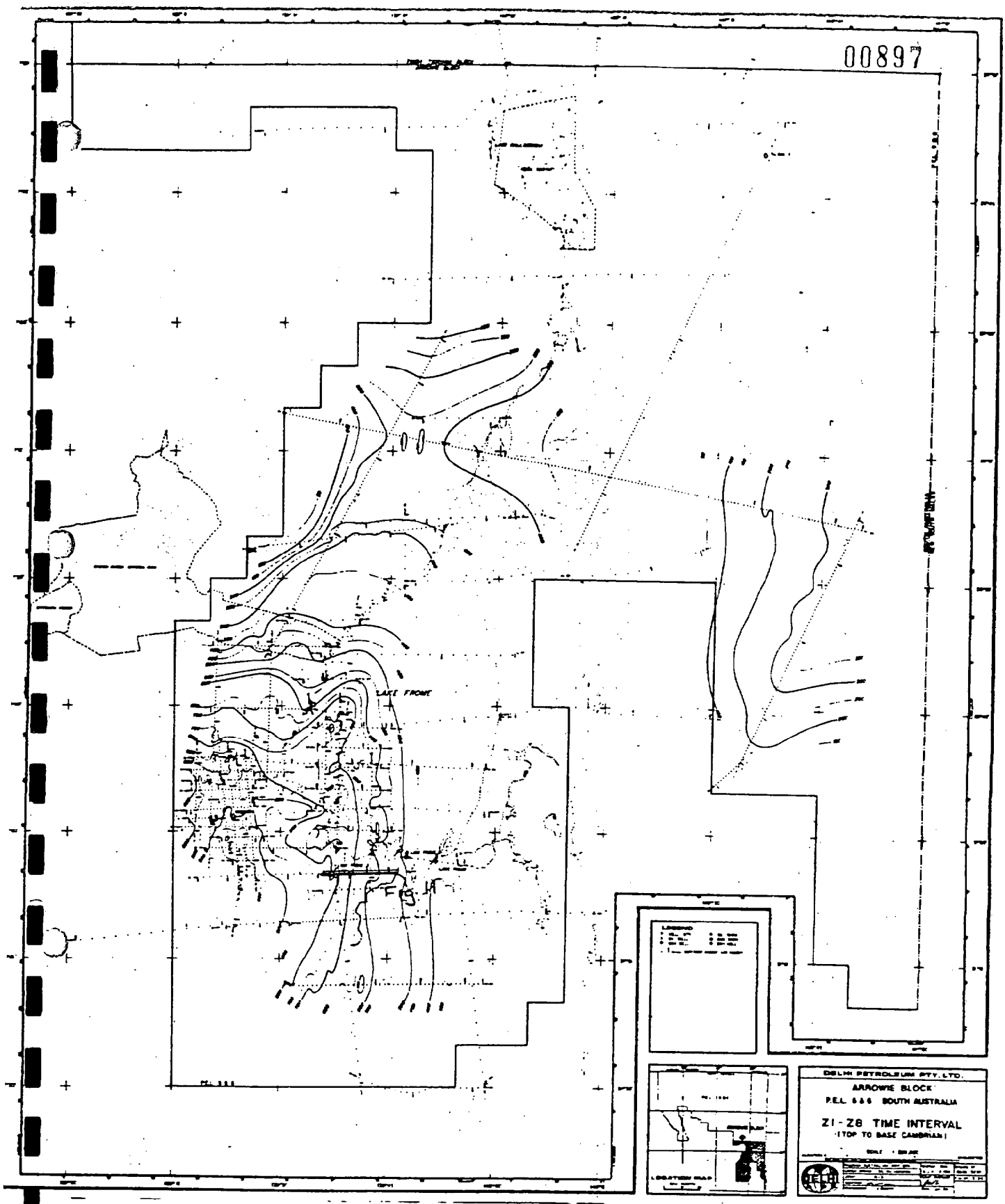

LAKE FRONT
FIG. 11
DELHI PETROLEUM PTY. LTD.
ARROWIE BLOCK
P.E.L. 5 & 6 SOUTH AUSTRALIA
Z1 - Z8 TIME INTERVAL
(TOP TO BASE CAMBRIAN)

Figure 8

00898

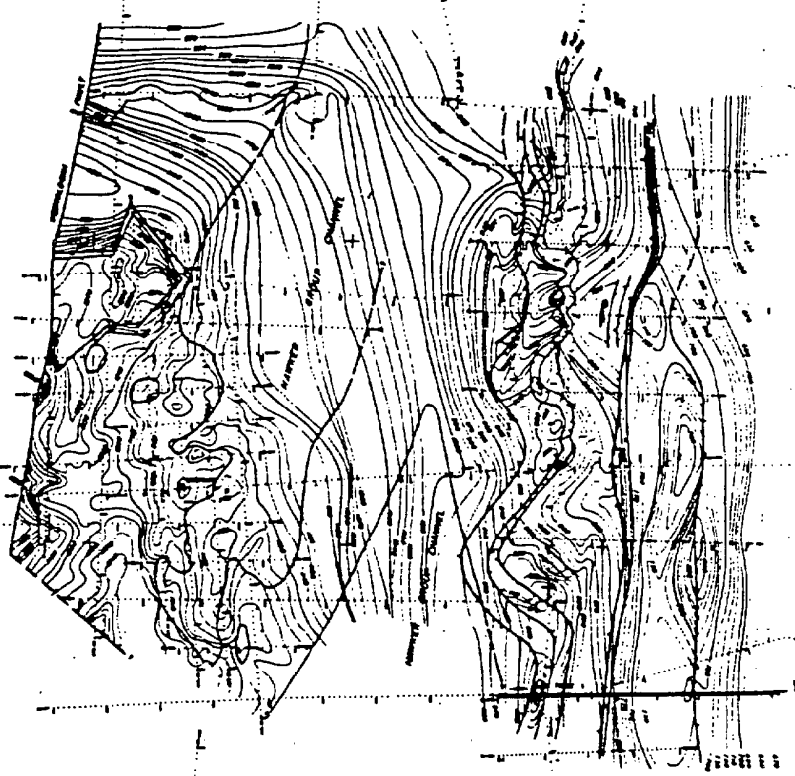
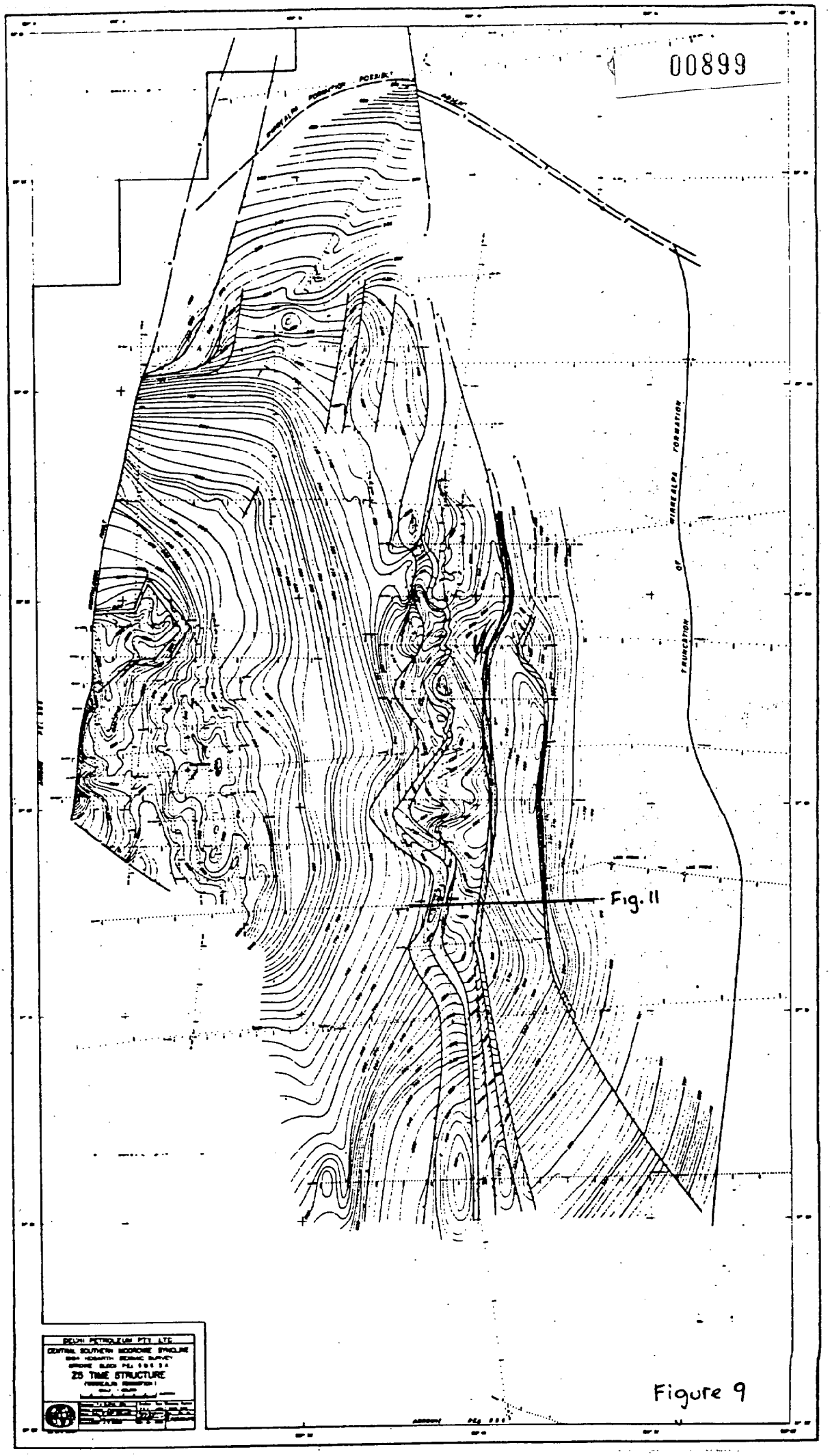
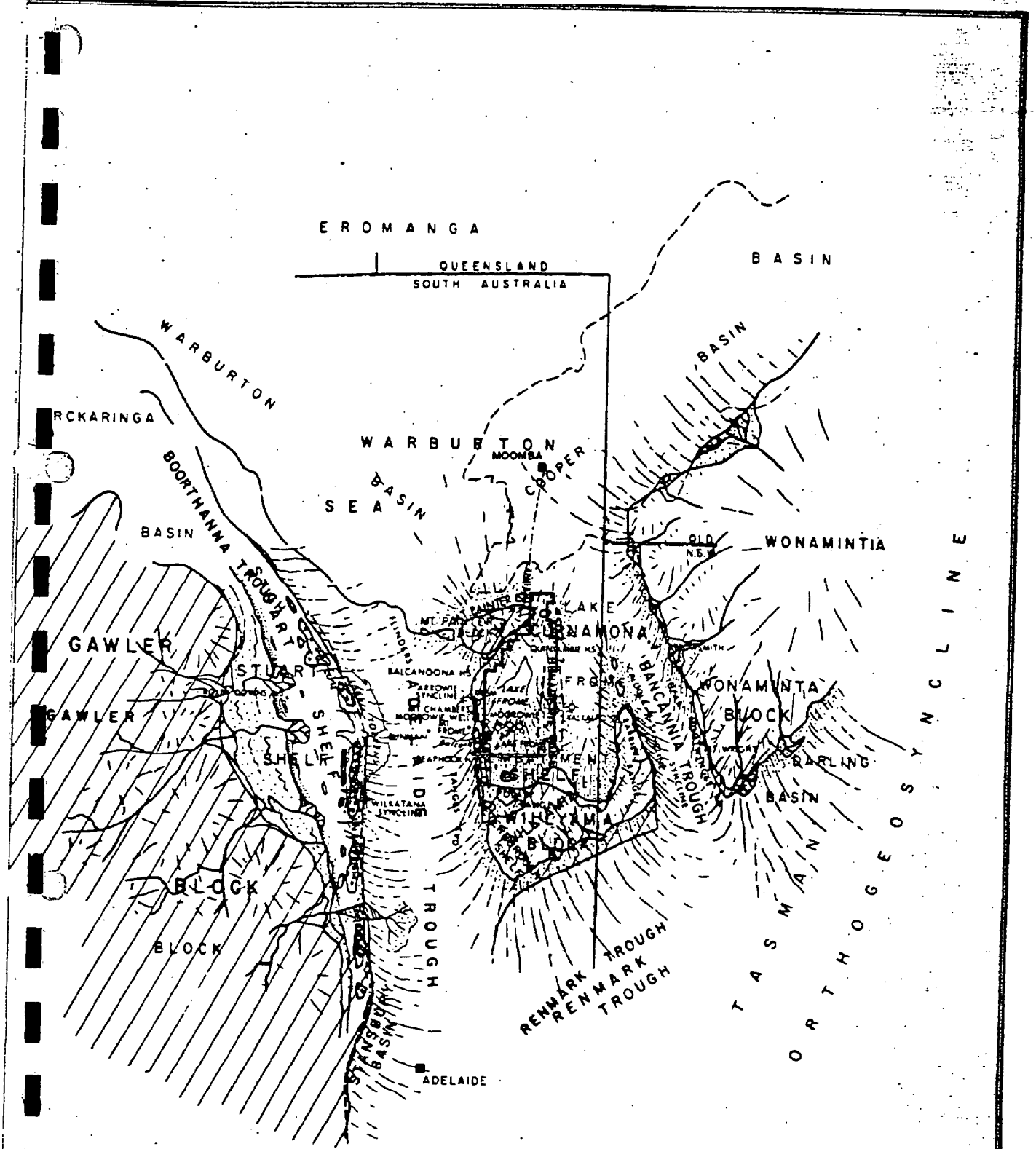


Fig. 11

Z7 TIME STRUCTURE

Figure 10


00899
TRUNCATION OF WINDALIA FORMATION
Fig. 11
25 TIME STRUCTURE
Figure 9



DELHI PETROLEUM PTY. LTD.

ARROWIE BASIN
LOCALITY MAP

KILOMETRES 50 0 50 100 150 MILES
0 50 100 150 200 250

T. J. MOUNT

FEBRUARY 1985

Dwg: 79XG-0020

DELHI PETROLEUM PTY. LTD.

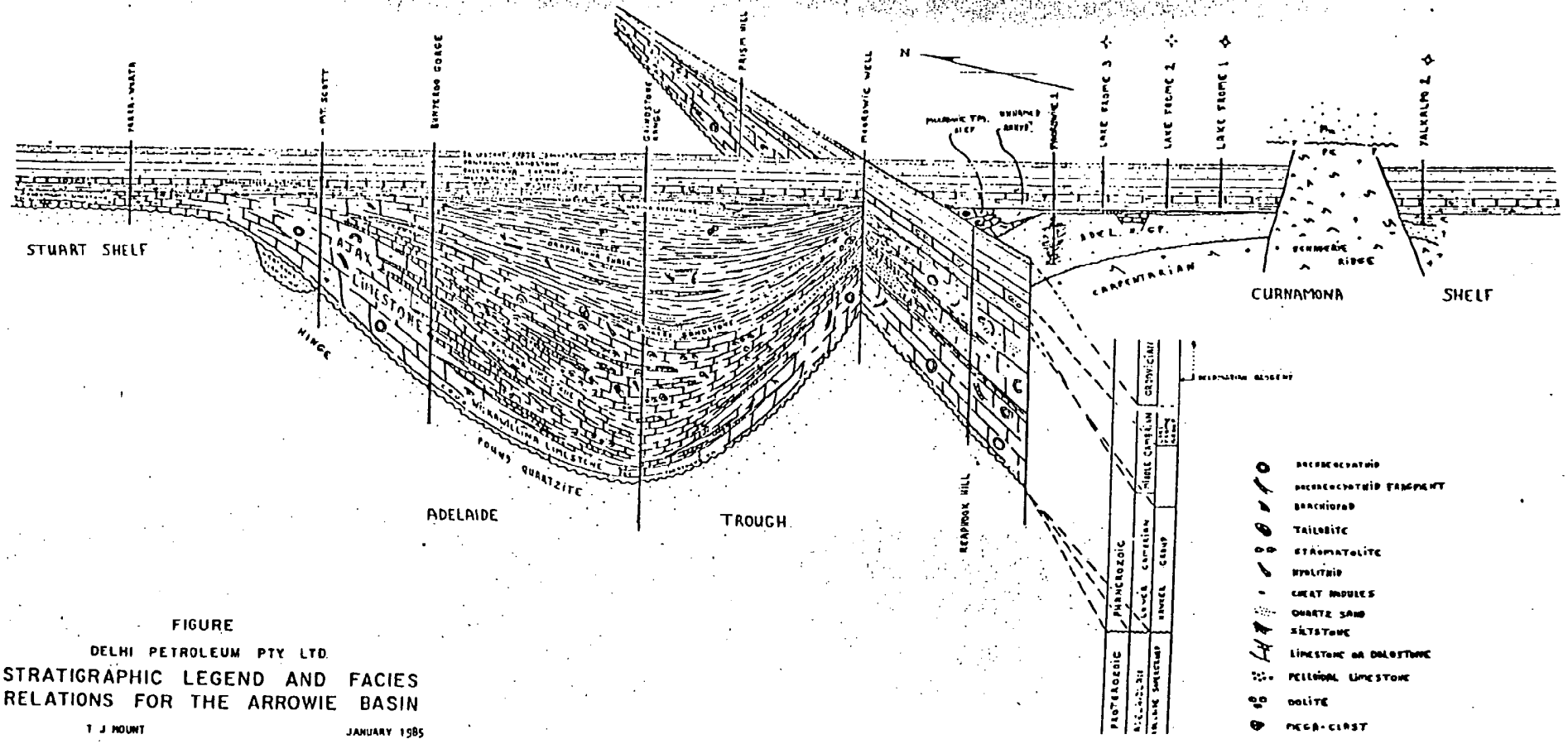
EARLY CAMBRIAN
PALAEOGEOGRAPHY
ARROWIE BASIN

T. J. MOUNT

FEBRUARY 1985

Figure 13

File RP-32



FIGURE

DELHI PETROLEUM PTY LTD.

STRATIGRAPHIC LEGEND AND FACIES RELATIONS FOR THE ARROWIE BASIN

T J MOUNT JANUARY 1985

10601

DELHI PETROLEUM PTY. LTD.

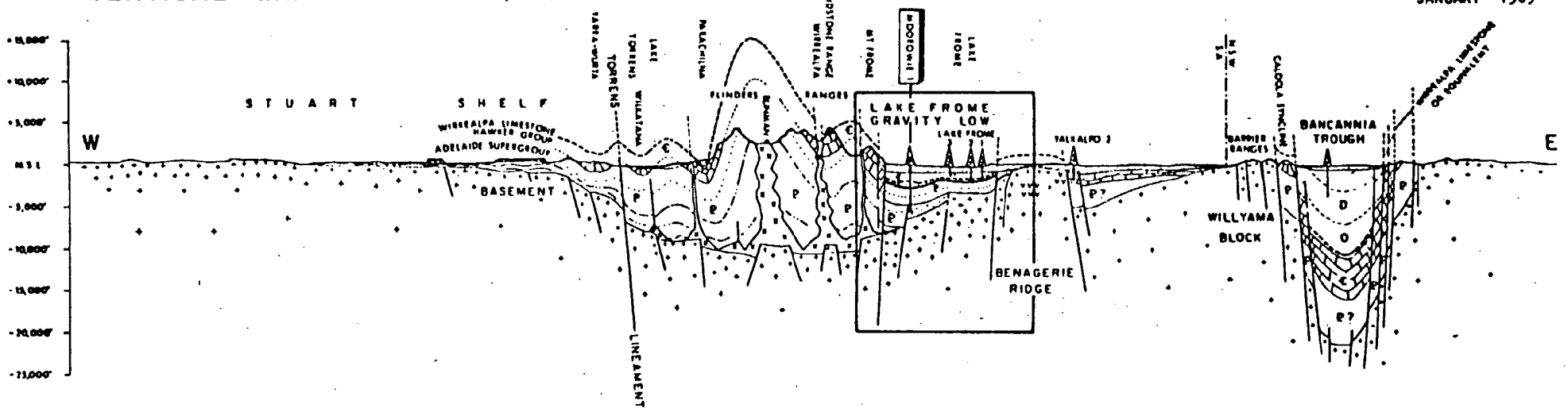
INTERPRETIVE CROSS SECTIONS OF THE ARROWIE BASIN

HORIZONTAL SCALE
0 25 50 75 100
MILES

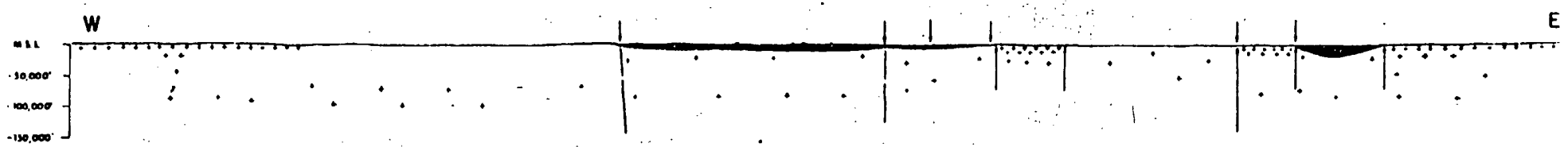
T J MOUNT

JANUARY 1985

VERTICAL EXAGGERATION (V:H x13)



G A W L E R B L O C K ADELAIDE TROUGH CURNAMONA SHELF WONAMINTA BLOCK



NATURAL SCALE

PROTEROZOIC - PHANEROZOIC SEDIMENTARY COVER IN BLACK

00902

Figure 15

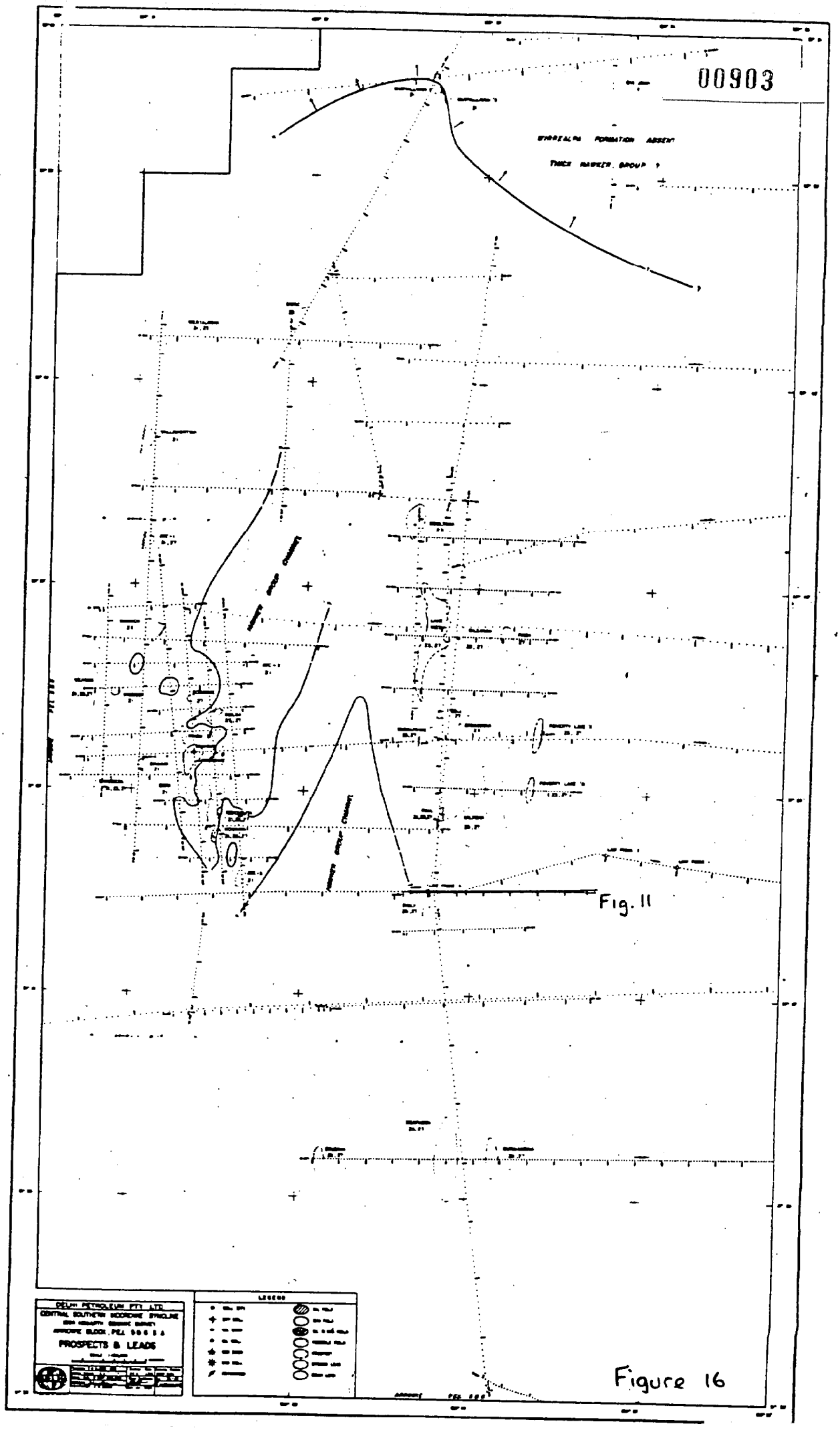


Fig. 11

Figure 16

PART II

STRATEGIC ANALYSIS FOR FUTURE EXPLORATION

SA1 Group
Delhi Petroleum Pty Ltd
Feruary 1986
LB/222/4

CONTENTS

FIGURES

TABLES

TABLE 1

ARROWIE BLOCK - TECHNICAL ASSESSMENT

SUMMARY SHEET

1.	Unrisked Mean field size	: 2.9 MMSTB
2.	Mean field area	: 2375 acres
2a.	Mean pool area	: 1354 acres
3.	Mean field dimensions	: 6 x 2 km
4.	Regional seismic grid size for 50% chance detection mean field size or larger	: 15 km
5.	Regional seismic required	: 1700 km
6.	Regional seismic existing	: 200 km
7.	Actual Regional seismic required	: 1500 km
8.	Geological Probability of success	: 14%
9.	Conditional Probability of success	: 38%
10.	Probability discovering 2.9 MMBL or larger field	: 5%
11.	Number of wells required for 50% chance of success	: 14
12.	Number of leads to be predetailed	: 21
13.	Seismic required to predetail 45 leads at 45 km per lead	: 945 km
14.	Seismic required to detail 30 leads at 30 km per lead	: 420 km
15.	Total predetail/detail seismic required	: 1365 km
16.	Existing predetail/detail seismic	: 500 km
17.	Actual predetail/Detail seismic required	: 865 km
18.	Risked Mean recoverable reserves	: 0.038 MMSTB
19.	Regional seismic cost	: $4,950,000
20.	Detail seismic cost	: $2,854,500

PGM 11.2.86
LB/111/13

TABLE 1 - SUMMARY SHEET (Cont.)

21. Total seismic cost	:	$7,804,500
22. Well drilling costs	:	$10,500,000
23. Additional costs	:	$250,000
24. Total Exploration Expenditure	:	$18,554,500

BLOCK : ARROWIE
STATUS : PROSPECT

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC OIL MMBBL	MEAN RE BBL/AF	Pg	Pc	Ps	Pi	Pd	Po	MEAN RISK OIL MMBBL
BENDIEUTA	HAWKER	2/86	475	2.2	0.113	0.70	0.750	0.27	0.13	123	0.080	0.420	0.034	0.500	0.500	0.008	0.00
BENDIEUTA-WOOKA	WIRREALPA	2/86	977	2.9	0.113	0.70	0.750	0.27	0.35	123	0.140	0.410	0.057	0.500	0.500	0.014	0.01
MEAN ARROWIE	WIRREALPA	2/86	1354	15.9	0.113	0.70	0.750	0.27	2.90	123	0.140	0.380	0.053	0.500	0.500	0.013	0.04
MOOROWIE	WIRREALPA	2/86	685	2.6	0.113	0.70	0.750	0.27	0.22	123	0.140	0.430	0.060	0.500	0.500	0.015	0.00
									3.60								0.05

PROSPECTS AND LEADS INVENTORY

TABLE 2B

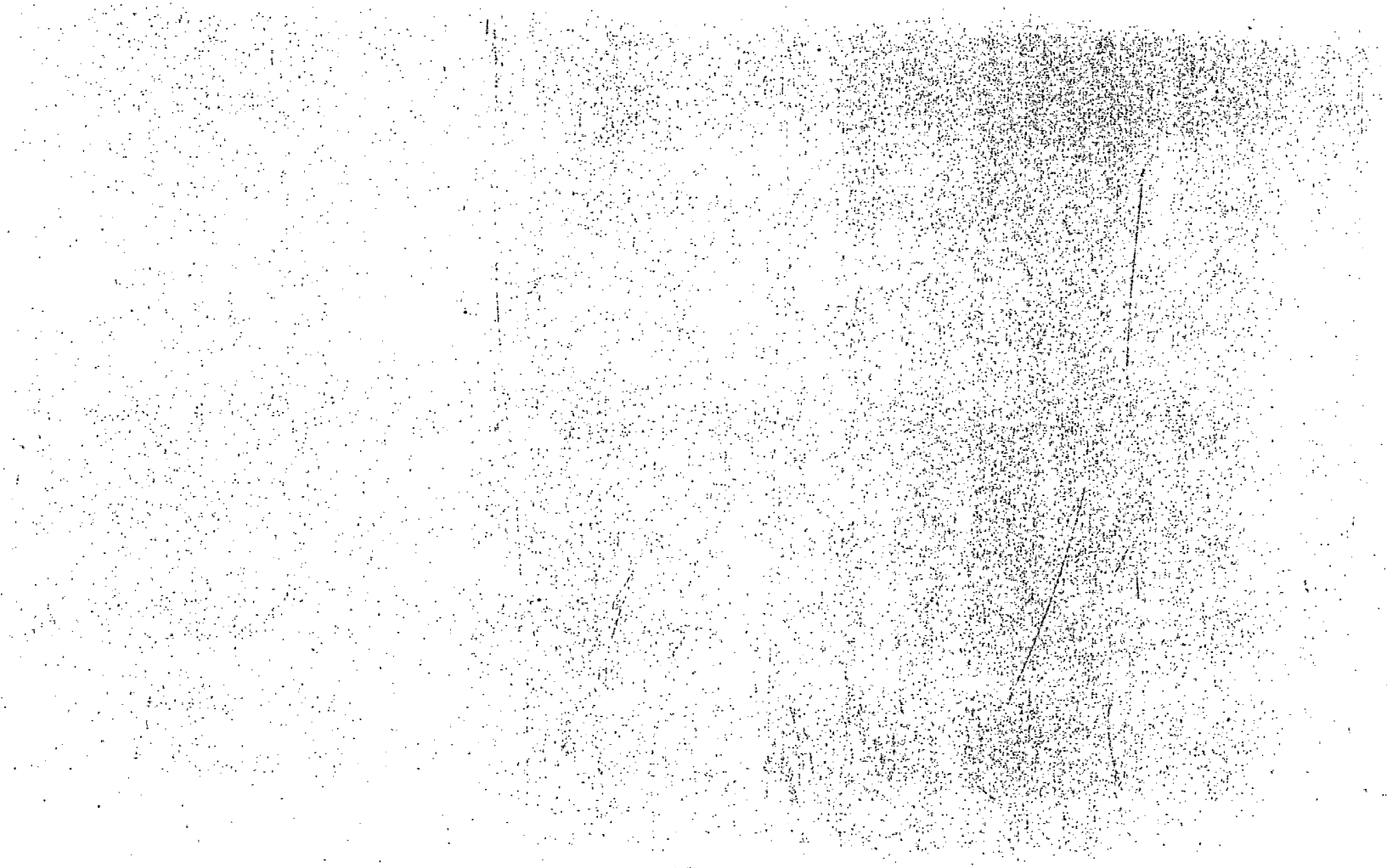
[redacted] OIL [redacted]

**********STRICTLY CONFIDENTIAL**********

**********FOR CSR USE ONLY**********

BLOCK : ARROWIE
STATUS : STRONG LEAD

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC OIL MMBBL	MEAN RE BBL/AF	Pg	Pc	Ps	Pi	Pd	Po	MEAN RISK OIL MMBBL
CHAMBERS	WIRREALPA	2/86	1005	38.5	0.113	0.70	0.750	0.27	4.91	123	0.080	0.380	0.030	0.500	0.500	0.008	0.04
LAKE VIEW	WIRREALPA	2/86	2167	24.6	0.113	0.70	0.750	0.27	6.62	123	0.080	0.410	0.033	0.500	0.500	0.008	0.05
									11.53								0.09



00909

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION

1.0 PRIME EXPLORATION AREAS

Based on the foregoing technical analysis, it is concluded that the existing acreage is regarded as prospective for the purpose of this analysis.

2.0 POTENTIAL RESERVES SIZE DISTRIBUTION

A Monte Carlo simulation was run on all known leads and prospects (refer to Appendix 1). A separate Monte Carlo simulation was run for the Mean reserves distribution using the minimum minimum, maximum maximum, and mean of the most likely, variables determined from the prospects and leads, as listed in Figure 1. The cumulative probability distribution for this reserves distribution is shown in Figure 2. The straight line lognormal plot of the cumulative frequency distribution is shown in Figure 3. The Mean reserves distribution is 2.90 MMSTB Recoverable Oil.

3.0 GEOLOGICAL PROBABILITY OF SUCCESS (P_G)

The four elements considered are:

Probability of Structure	P_{str}
Probability of Reservoir	P_{res}
Probability of Seal	P_{seal}
Probability of Source	P_{srce}

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.) 00911

3.0 GEOLOGICAL PROBABILITY OF SUCCESS (P_G) (Cont.)

In the Arrowie Block, the following probabilities have been determined by discussion with the explorationists involved.

P_{str} 1.0

P_{res} 0.8

P_{seal} 0.9

P_{srce} 0.2

$P_G = P_{str} \times P_{res} \times P_{seal} \times P_{srce}$

$= 0.14$

ie. There is a 14% chance of finding any hydrocarbons within the defined reserves distribution.

4.0 CONDITIONAL PROBABILITY OF SUCCESS (P_C)

The conditional probability of finding at least the Mean reserves (2.90 MMSTB) provided that hydrocarbons are discovered within the defined reserves distribution is 38% (refer Fig. 3).

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.) 00912

5.0 OVERALL PROBABILITY OF SUCCESS (P_S)

The overall probability of success (P_S) is defined by:

$$P_S = P_G \times P_C$$
$$= 0.14 \times 0.38$$
$$= 0.05$$

Thus the overall chance of finding a Mean size or larger field in the Arrowie Block is approximately 5%.

6.0 REQUIRED REGIONAL SEISMIC GRID

The areal closure of a Mean sized field is approximately 2375 acres.

Known structures and leads in the area suggest that the prospects will have an elongate structural configuration. Hence an areal closure of 2375 acres (9.5 sq. km) will have dimensions of the order of 6 x 2 km (Reference Bendieuta-Wookata).

Elementary search theory indicates that, for a 50% chance of finding a target in a given area, a search grid of 2.5 times the longest dimension of the target is required. Hence, a seismic grid of approximately 15 km square (totalling 1700 km) is required in the

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.)

6.0 REQUIRED REGIONAL SEISMIC GRID (Cont.)

prospective area of the Arrowie Block in order to have a 50% confidence level of detecting all Mean sized or larger fields with at least one intersection.

There already exists some 200 km of usable regional seismic in the area. Thus to cover the prospective area, an additional 1500 km of regional seismic data is required.

7.0 REQUIRED WELLS AND DETAILED SEISMIC

Wells

In the absence of factual or analog data, it is assumed that the number of targets (of all sizes) in the Arrowie Block significantly exceeds the number that will be drilled in the exploration programme. This allows application of the binomial probability theorem which describes the probability of a given number of outcomes in a specified number of trials.

In the frontier petroleum exploration context, the relationship can be used to compute the probabilities of a desired number of discoveries in a multiple well drilling programme. Figure 4, for example, graphically describes the 50% and 80% probabilities of at least one discovery in a multiple well drilling programme of "n" wells, given a probability of success (Ps) on any one well.

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.) 00914

7.0 REQUIRED WELLS AND DETAILED SEISMIC (Cont.)

Wells (Cont.)

Alternatively stated, Figure 4 shows, for a given probability of success on any one well, the number of wells required in order to have a 50% and 80% level of confidence of having at least one discovery.

Using the cumulative reserves distribution plot of Figure 3 and the cumulative binomial distribution plot of Figure 4, the following table can be constructed to compare the number of wells required to discover various reserve sizes at confidence levels of 50% and 80%.

P_G Geological Probability of Discovery	Reserve Size (MMSTB)	P_C Conditional Probability of this size of reserve or greater	P_S Overall Probability of this size of reserve or greater	"n" Required Number of exploration wells at 50% Confidence	80% Confidence
0.14	1.0	0.85	0.11	6	15
0.14	2.0	0.58	0.08	8	20
0.14	3.0	0.36	0.05	14	32
0.14	4.0	0.22	0.03	24	VL

vl = very large

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.)

7.0 REQUIRED WELLS AND DETAIL SEISMIC (Cont.)

Thus to be at least 50% confident of finding the Mean Reserves of 2.90 MMSTB, a total of 14 wildcat wells will be required.

Detail Seismic

It is estimated that two out of every three leads will mature into drillable prospects following predetail and detail coverage. Thus predetail seismic will be required over a total of 21 resulting in an extra 945 km of additional seismic (approximately 45 km per lead). Detailed seismic will be required over the resulting 14 leads resulting in an additional 420 km of additional seismic (approximately 30 km per lead). The total predetail/detail seismic required is 1365 km of which 500 km has been previously recorded. Thus the total predetail and detail seismic required is 865 km as a follow up to the 1500 km of regional seismic.

8. RISKED MEAN RECOVERABLE RESERVES

The unrisked Mean recoverable reserve size for the Arrowie Block is 2.9 MMSTB. The probability of seismically detecting this sized or larger field (P_I) is 50%; the probability of drilling this sized or larger field with the 14 well drilling programme (P_D) is 50%, provided it existed in the first place. The probability that there are any hydrocarbons present at all (P_G) is 14%, and if so, the probability that the field is equal or greater than 2.90 MMSTB (P_C) is 38%. Therefore the overall probability of project success (P_0) is 1.3% ($P = P_I \times P_D \times P_G \times P_C$), and the risked Mean recoverable reserve is 0.038 MMSTB (2.90 MMSTB x 1.3%).

II. STRATEGIC ANALYSIS FOR FUTURE EXPLORATION (Cont.)

9.0 ANALOG COMPARISON OF MEAN RECOVERABLE RESERVES

No data.

10.0 EXPLORATION COSTS

Seismic	
Regional seismic (1500 km @ $3300/km)	$ 4,950,000
Predetail/Detail (865 km @ 3300/km)	$ 2,854,500
Total Seismic Cost	$ 7,804,000
Wells	
Dryhole well costs (14 wells @ $750,000)	$10,500,000
Additional	
G & G	$250,000
Total Expenditure Required	$18,554,500

GEOLOGIC ASSESSMENT (OIL)

00917

PROSPECT NAME : MEAN ARROWIE
STATUS : PROSPECT
BLOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 12/2/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	629	1822	4675
CLOSURE HEIGHT (ft)	68	268	680
RESERVOIR THICKNESS (ft)	350	400	450
TRAP GEOMETRY CORRECTION	0.34	0.45	0.60
BULK RESERVOIR VOLUME (acre-ft)	14542	219733	1262250
HYDROCARBON FILL	0.20	0.40	1.00
POOL AREA (acres)	215	989	4675
RESERVOIR NET/GROSS RATIO	0.05	0.15	0.30
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 1.00 P(RESERVOIR) = 0.80 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.140

RESERVES

MEAN RECOVERABLE RESERVES ARE 2.90 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 2.27 MMBBL
MODAL RECOVERABLE VALUE IS 1.62 MMBBL

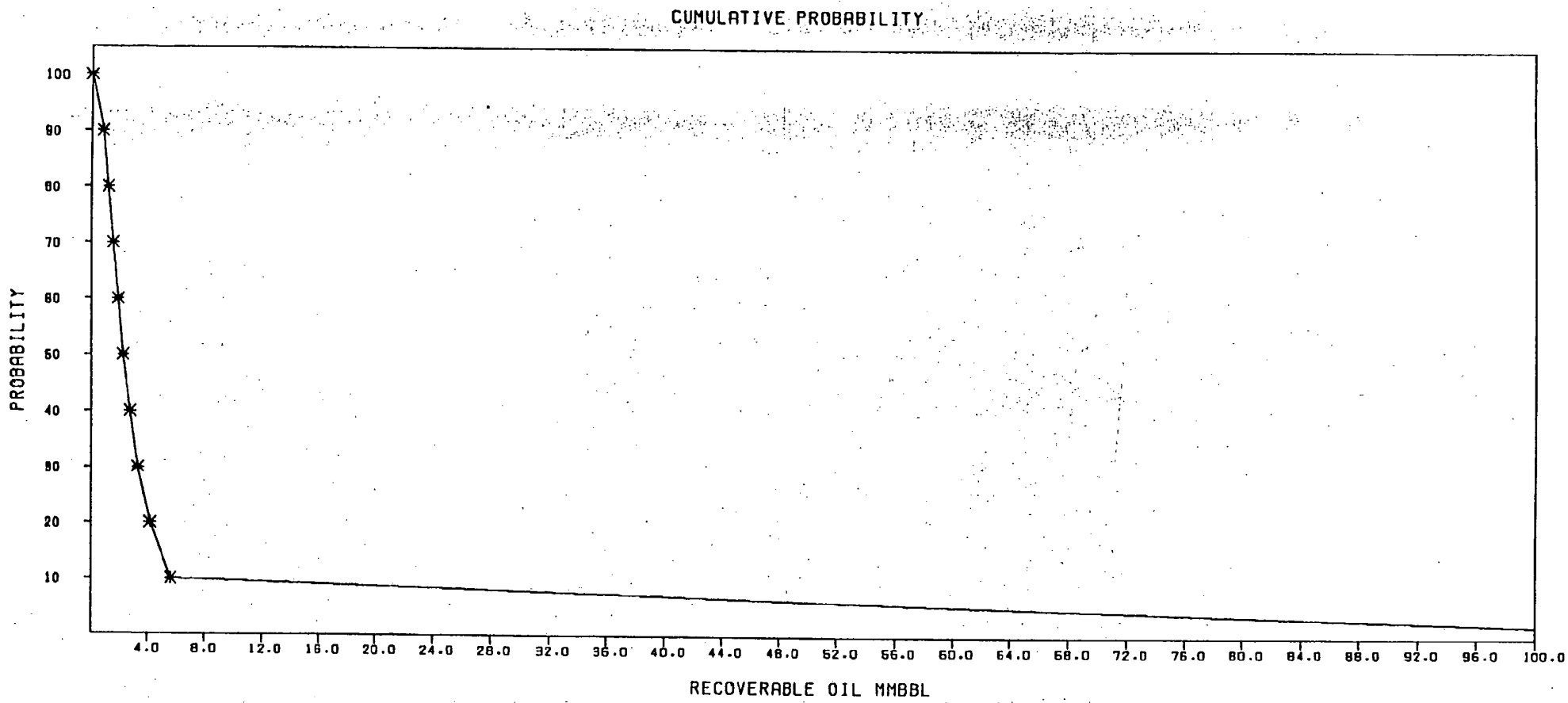
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.81	1.21	1.53	1.91	2.27	2.78	3.31	4.20	5.68	126.29

Figure 1

RISK ANALYSIS



AREA : PELS 5 & 6

BLOCK : ARROWIE

STATUS : PROSPECT

PROSPECT : MEAN ARROWIE

RESERVOIR : WIRREALPA

Figure 2

00918

RISK ANALYSIS OIL

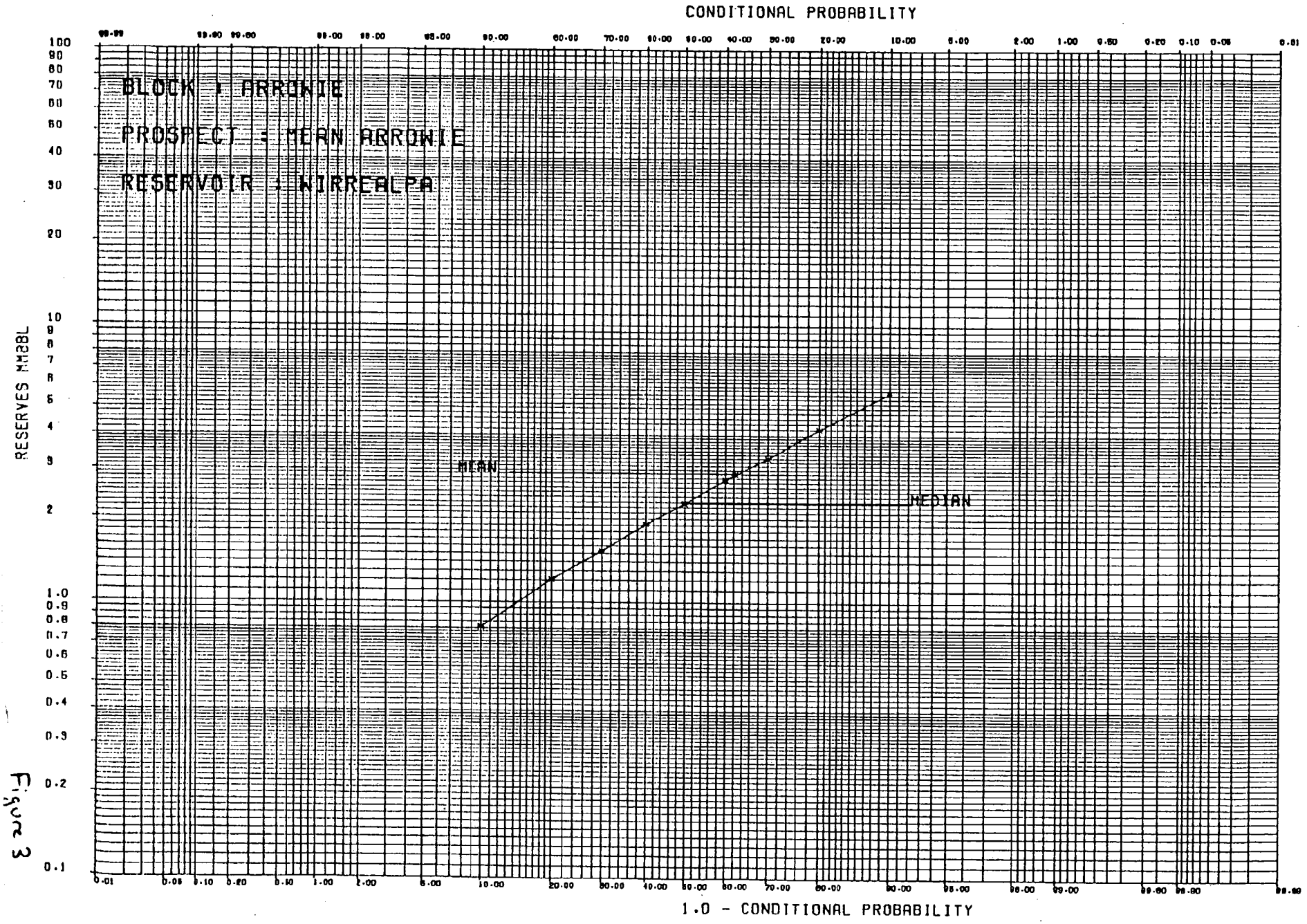
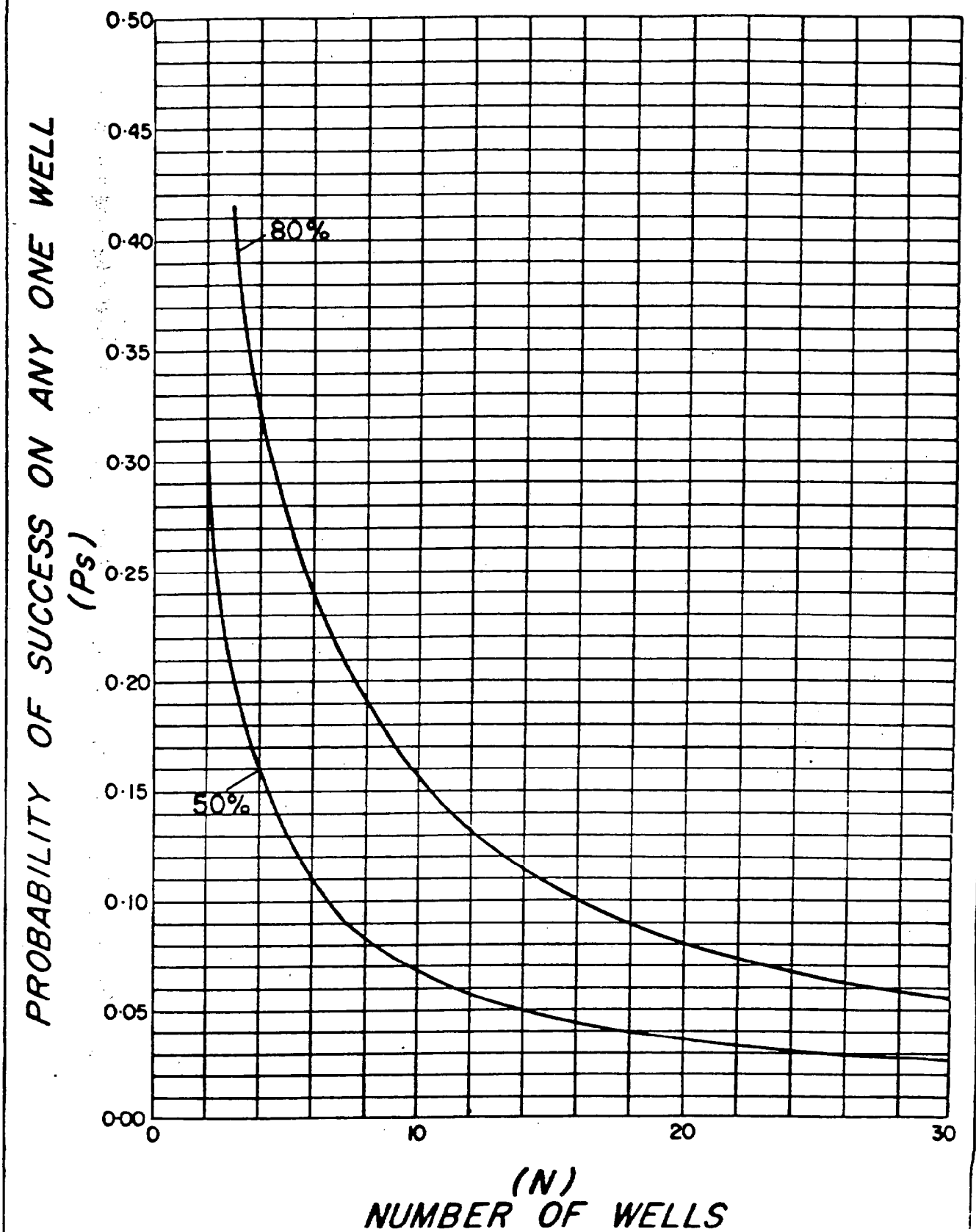


Figure 3

DELHI PETROLEUM PTY LTD

00920

BINOMIAL PROBABILITIES (50%, 80%) OF AT LEAST 1 SUCCESS IN N WELLS, GIVEN Ps ON ANY ONE WELL.



Dwg No: 86XG-6708 File: Misc Exp File

FIGURE 4

APPENDIX I - CONTENTS

TABLE 1 TECHNICAL ASSESSMENT SUMMARY - OIL LEADS

PROSPECTS AND LE[redacted] INVENTORY
OIL (Imp[redacted]ial)
**********STRICTLY CONFIDENTIAL**********
**********FOR CSR USE ONLY**********

BLOCK : ARROWIE
STATUS : PROSPECT

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC OIL MMBBL	MEAN RE BBL/AF
BENDIEUTA	PARACHILNA	11/6	549	9.6	0.113	0.70	0.750	0.27	0.71	123
BENDIEUTA	WILKAWILLI	11/6	549	17.1	0.113	0.70	0.750	0.27	1.27	123
BENDIEUTA-WOOKA	WIRREALPA	11/6	1762	21.8	0.113	0.70	0.750	0.27	4.64	123
DAILY	WIRREALPA	11/6	803	23.1	0.113	0.70	0.750	0.27	2.27	123
DAILY	PARACHILNA	11/6	803	19.2	0.113	0.70	0.750	0.27	1.86	123
DAILY	WILKAWILLI	11/6	803	23.1	0.113	0.70	0.750	0.27	2.25	123
LAKE VIEW	WIRREALPA	11/6	134	15.5	0.113	0.70	0.750	0.27	0.26	123
									13.26	

00923

PROSPECTS AND LEADS INVENTORY
OIL (Imperial)
**********STRICTLY CONFIDENTIAL**********
**********FOR CSR USE ONLY**********

BLOCK : ARROWIE
STATUS : STRONG LEAD

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC OIL MMBBL	MEAN RE BBL/AF
CHAMBERS	WIRREALPA	11/6	3160	27.3	0.113	0.70	0.750	0.27	10.38	123
CURNAMONA	WIRREALPA	11/6	318	20.9	0.113	0.70	0.750	0.27	0.82	123
POVERTY LAKE A	WIRREALPA	11/6	8596	23.7	0.113	0.70	0.750	0.27	24.79	123
									35.99	

00924

BLOCK : [redacted]WIE

PROSPECTS AND LE[redacted]S INVENTORY
OIL (Imp[redacted]al)

28-([redacted]-1986
Page[redacted]

PROSPECT	STATUS	RESERVOIR	DATE	SEISMIC HORIZON	AVG PAY DEPTH	LCC (MS)	CLOS AREA	CLOS HGT	GEOM CORR	AVG NET PAY	POR	H-C SAT	FVF 1/Bo	OOIP (MMSTB)	REC FACT	REC OIL (MMSTB)	OVERALL CHANCE	RISK REC OIL (MMSTB)
BENDIEUTA	PROSPECT	PARACHILNA	11/6			699	76	0.56	13		0.12	0.70	0.75	2.6	0.25	0.7	0.097	0.06
BENDIEUTA	PROSPECT	WILKAWILLINA	11/6			699	76	0.66	20		0.12	0.70	0.75	4.1	0.25	1.0	0.130	0.13
BENDIEUTA-WOOK	PROSPECT	WIRREALPA	11/6			2562	124	0.78	23		0.12	0.70	0.75	17.6	0.25	4.4	0.065	0.28
DAILY	PROSPECT	WIRREALPA	11/6			1168	158	0.83	25		0.12	0.70	0.75	8.6	0.25	2.1	0.065	0.14
DAILY	PROSPECT	PARACHILNA	11/6			1168	158	0.78	23		0.12	0.70	0.75	8.0	0.25	2.0	0.097	0.19
DAILY	PROSPECT	WILKAWILLINA	11/6			1168	158	0.83	25		0.12	0.70	0.75	8.5	0.25	2.1	0.130	0.28
LAKE VIEW	PROSPECT	WIRREALPA	11/6			195	56	0.56	17		0.12	0.70	0.75	1.0	0.25	0.2	0.065	0.02
CHAMBERS	STRONG L	WIRREALPA	11/6			4664	909	0.97	29		0.12	0.70	0.75	39.7	0.25	9.9	0.043	0.43
CURNAMONA	STRONG L	WIRREALPA	11/6			462	106	0.75	23		0.12	0.70	0.75	3.1	0.25	0.8	0.043	0.03
POVERTY LAKE A	STRONG L	WIRREALPA	11/6			****	178	0.85	26		0.12	0.70	0.75	95.3	0.25	23.8	0.058	1.37
BILLEROO	WEAK LEA	WIRREALPA	11/6			4019	390	0.93	28		0.12	0.70	0.75	32.9	0.25	8.2	0.020	0.16
ERRAGOONA	WEAK LEA	WIRREALPA	11/6			367	152	0.83	25		0.12	0.70	0.75	2.7	0.25	0.7	0.020	0.01
ERUDINA	WEAK LEA	WIRREALPA	11/6			935	173	0.83	25		0.12	0.70	0.75	6.8	0.25	1.7	0.020	0.03
MORO	WEAK LEA	WIRREALPA	11/6			1000	143	0.82	25		0.12	0.70	0.75	7.2	0.25	1.8	0.029	0.05
MULGA	WEAK LEA	PARACHILNA	25/6			215	86	0.62	16		0.12	0.70	0.75	1.0	0.25	0.3	0.043	0.01
MULGA	WEAK LEA	WILKAWILLINA	25/6			215	86	0.70	21		0.12	0.70	0.75	1.3	0.25	0.3	0.043	0.01
WEARING	WEAK LEA	WIRREALPA	11/6			262	475	0.95	29		0.12	0.70	0.75	2.2	0.25	0.5	0.029	0.02
WILPENA	WEAK LEA	WIRREALPA	11/6			7016	494	0.95	29		0.12	0.70	0.75	58.6	0.25	14.7	0.029	0.42
WIRRAPOWIE	WEAK LEA	WIRREALPA	11/6			367	48	0.52	16		0.12	0.70	0.75	1.7	0.25	0.4	0.029	0.01
WOOKATA	WEAK LEA	PARACHILNA	25/6			247	66	0.52	10		0.12	0.70	0.75	0.7	0.25	0.2	0.043	0.01
WOOKATA	WEAK LEA	WILKAWILLINA	25/6			247	66	0.62	19		0.12	0.70	0.75	1.3	0.25	0.3	0.043	0.01
WOOLTANA	WEAK LEA	WIRREALPA	11/6			1281	152	0.83	25		0.12	0.70	0.75	9.4	0.25	2.3	0.029	0.07

00925

TABLE 2 TECHNICAL ASSESSMENT SUMMARY — GAS

PROSPECTS AND LEAD INVENTORY
GAS (Imperial)
********** ****STRICTLY CONFIDENTIAL**************
******** *******FOR CSR USE ONLY***************

BLOCK : ARROWIE
STATUS : PROSPECT

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC GAS BCF	MEAN RE MCF/AF
BENDIEUTA	PARACHILNA	4/7	665	41.1	0.113	0.70	148.0	0.00	10.70	0
BENDIEUTA	WILKAWILLI	4/7	665	18.9	0.113	0.70	148.0	0.00	5.12	0
BENDIEUTA-WOOKA	WIRREALPA	3/7	2134	24.0	0.113	0.70	148.0	0.00	18.28	0
DAILY	WIRREALPA	3/7	973	25.5	0.113	0.70	148.0	0.00	8.86	0
DAILY	PARACHILNA	4/7	973	74.2	0.113	0.70	148.0	0.00	25.95	0
DAILY	WILKAWILLI	4/7	973	25.4	0.113	0.70	148.0	0.00	9.02	0
LAKE VIEW	WIRREALPA	3/7	163	16.9	0.113	0.70	147.0	0.00	1.01	0
									78.94	

PROSPECTS AND LE[illegible] INVENTORY
GAS (Imperial)
********** ****STRICTLY CONFIDENTIAL**********
**********FOR CSR USE ONLY**********

BLOCK : ARROWIE
STATUS : STRONG LEAD

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC GAS BCF	MEAN RE MCF/AF
CHAMBERS	WIRREALPA	3/7	3828	29.7	0.113	0.70	148.0	0.00	40.62	0
CURNAMONA	WIRREALPA	3/7	385	22.9	0.113	0.70	148.0	0.00	3.20	0
POVERTY LAKE A	WIRREALPA	3/7	10413	26.1	0.113	0.70	148.0	0.00	97.75	0
									141.57	

00928

PROSPECTS AND LE[illegible] INVENTORY
GAS (Imperial)
********** ****STRICTLY CONFIDENTIAL**********
********** ********FOR CSR USE ONLY**********

BLOCK : ARROWIE
STATUS : WEAK LEAD

PROSPECT	RESERVOIR	DATE	MEAN POOL	MEAN POOL AVG NET PAY	MEAN POR	MEAN SAT	MEAN FVF	MEAN REC FACT	MEAN REC GAS BCF	MEAN RE MCF/AF
BILLEROO	WIRREALPA	3/7	3348	28.8	0.113	0.70	148.0	0.00	34.09	0
ERRAGOONA	WIRREALPA	3/7	306	25.1	0.113	0.70	148.0	0.00	2.78	0
ERUDINA	WIRREALPA	3/7	779	25.9	0.113	0.70	148.0	0.00	7.20	0
MORO	WIRREALPA	3/7	833	25.0	0.113	0.70	147.3	0.00	7.43	0
MULGA	PARACHILNA	4/7	186	41.8	0.113	0.70	148.0	0.00	2.98	0
MULGA	WILKAWILLI	4/7	186	19.1	0.113	0.70	148.0	0.00	1.41	0
REAPHOOK	WIRREALPA	17/11	2193	35.6	0.113	0.70	148.0	0.00	17.42	0
WEARING	WIRREALPA	3/7	218	29.1	0.113	0.70	148.0	0.00	2.24	0
WILPENA	WIRREALPA	3/7	5845	29.1	0.113	0.70	148.0	0.00	60.02	0
WIRRAPOWIE	WIRREALPA	3/7	306	14.2	0.113	0.70	148.0	0.00	1.72	0
WOOKATA	PARACHILNA	4/7	213	38.6	0.113	0.70	148.0	0.00	2.98	0
WOOKATA	WILKAWILLI	4/7	213	19.3	0.113	0.70	148.0	0.00	1.51	0
WOOLTANA	WIRREALPA	3/7	1067	25.3	0.113	0.70	148.0	0.00	9.74	0
									151.52	

00929

BLOCK : ARROWIE

PROSPECT	ST	RESERVOIR	DATE	HOR	LCC (MS)	CLOS AREA	CLOS HGT	GEOM CORR	AVG NET PAY	POR	H-C SAT	FVF 1/Bg	OGIP (BCF)	RAW GAS FACT	REC RAW GAS (BCF)	SALES GAS FACT	SALES GAS (BCF)	C2 BBLS /MMCF	LPG BBLS /MMCF	COND C5+ BBLS /MMCF	OV/ALL CHANCE	RISK SALES GAS (BCF)
BENDIEUTA	PR	PARACHILNA	4/7			699	76	0.66	50	0.12	0.70	148	15.2	0.00	0.0	0.00	0.0	0	0	0	0.10	0.0
BENDIEUTA	PR	WILKAWILL	4/7			699	76	0.67	20	0.12	0.70	148	6.1	0.00	0.0	0.00	0.0	0	0	0	0.13	0.0
BENDIEUTA-WOO	PR	WIRREALPA	3/7			2562	124	0.78	23	0.12	0.70	148	26.0	0.00	0.0	0.00	0.0	0	0	0	0.06	0.0
DAILY	PR	WIRREALPA	3/7			1168	158	0.83	25	0.12	0.70	148	12.6	0.00	0.0	0.00	0.0	0	0	0	0.06	0.0
DAILY	PR	PARACHILNA	4/7			1168	158	0.82	82	0.12	0.70	148	41.5	0.00	0.0	0.00	0.0	0	0	0	0.10	0.0
DAILY	PR	WILKAWILL	4/7			1168	158	0.82	25	0.12	0.70	148	12.4	0.00	0.0	0.00	0.0	0	0	0	0.13	0.0
LAKE VIEW	PR	WIRREALPA	3/7			195	56	0.56	17	0.12	0.70	147	1.4	0.00	0.0	0.00	0.0	0	0	0	0.07	0.0
CHAMBERS	SL	WIRREALPA	3/7			4664	909	0.96	29	0.12	0.70	148	58.2	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
CURNAMONA	SL	WIRREALPA	3/7			462	106	0.75	23	0.12	0.70	148	4.5	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
POVERTY LAKE	SL	WIRREALPA	3/7			****	178	0.85	26	0.12	0.70	148	138.1	0.00	0.0	0.00	0.0	0	0	0	0.06	0.0
BILLEROO	WL	WIRREALPA	3/7			4019	390	0.93	28	0.12	0.70	148	48.6	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
ERRAGOONA	WL	WIRREALPA	3/7			367	152	0.82	25	0.12	0.70	148	3.9	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
ERUDINA	WL	WIRREALPA	3/7			935	173	0.84	25	0.12	0.70	148	10.2	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
MORO	WL	WIRREALPA	3/7			1000	143	0.82	25	0.12	0.70	148	10.7	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
MULGA	WL	PARACHILNA	4/7			215	86	0.70	60	0.12	0.70	148	5.6	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
MULGA	WL	WILKAWILL	4/7			215	86	0.70	21	0.12	0.70	148	2.0	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
REAPHOOK	WL	WIRREALPA	17/11			3237	171	0.92	46	0.12	0.70	148	32.3	0.00	0.0	0.00	0.0	0	0	0	0.06	0.0
WEARING	WL	WIRREALPA	3/7			262	475	0.94	28	0.12	0.70	148	3.2	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
WILPENA	WL	WIRREALPA	3/7			7016	494	0.94	28	0.12	0.70	148	85.7	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
WIRRAPOWIE	WL	WIRREALPA	3/7			367	48	0.52	16	0.12	0.70	148	2.5	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
WOOKATA	WL	PARACHILNA	4/7			247	66	0.62	41	0.12	0.70	148	4.4	0.00	0.0	0.00	0.0	0	0	0	0.03	0.0
WOOKATA	WL	WILKAWILL	4/7			247	66	0.62	19	0.12	0.70	148	2.0	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
WOOLTANA	WL	WIRREALPA	3/7			1281	152	0.82	25	0.12	0.70	148	13.7	0.00	0.0	0.00	0.0	0	0	0	0.04	0.0
																					0.03	0.0

00931

PROSPECTS

PROSPECT DATA SHEETS

PROSPECT MAPS

GEOLOGICAL ASSESSMENT SUMMARIES

CONDITIONAL PROBABILITY PLOTS

00932

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin
PELs 5&6

PROSPECT/WELL NAME: BENDIEUTA-WOOKATA

PRIMARY OBJ./DEPTH:
Wirrealpa Limestone; 5500 ft
Wilkawillina Fm; 7020 ft
Parachilna Fm; 7700 ft

BLOCK: Arrowie

OPERATOR: CSR Limited

CSR W.I.: 30%

P.T.D.: 8000 ft

WELL DESIGNATION: New Field Wildcat

SUMMARY:

The Bendieuta-Wookata structure is an elongate dome with a secondary north and south culmination. The structure is located in the Moorowie Syncline and on the western edge of the Curnamona Shelf. Based on Rv from Moorowie 1 the structure occurs in an area of thermally mature sediments which may have sourced the structure. At the Wirrealpa level the dome has a closure area of 2562 acres and a closure height of 124 ft.

WELL LOCATION DETAILS:

SEISMIC: 82-QNP

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 290 km by road to Port Bonython, 2 km to Moomba-Port Bonython gas/liquids pipelines

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TECHNICAL:	Wirrealpa	Wilkawillina	Parachilna	
STRUCTURE:	(1.0)	(0.9)	(0.9)	Presence of structure confirmed by seismic.
RESERVOIR:	(0.8)	(0.4)	(0.4)	Reservoir quality is expected to be adequate at the Wirrealpa level, but unknown for the Hawker Group.
SEAL:	(0.9)	(0.9)	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	(0.4)	(0.3)	At Wirrealpa levels source quality is expected to be good but source quantity is expected to be poor. At Hawker levels source quality and quantity is expected to be adequate.

Imperial GEOLOGIC ASSESSMENT (OIL) 00933

PROSPECT NAME : BENDIEUTA-WOOKATA
STATUS : PROSPECT
CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	2050	2562	2818
CLOSURE HEIGHT (feet)	99	124	136
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.73	0.78	0.82
BULK RESERVOIR VOLUME (acre-ft)	14965	59950	138645
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	701	1822	2818
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.065

RESERVES

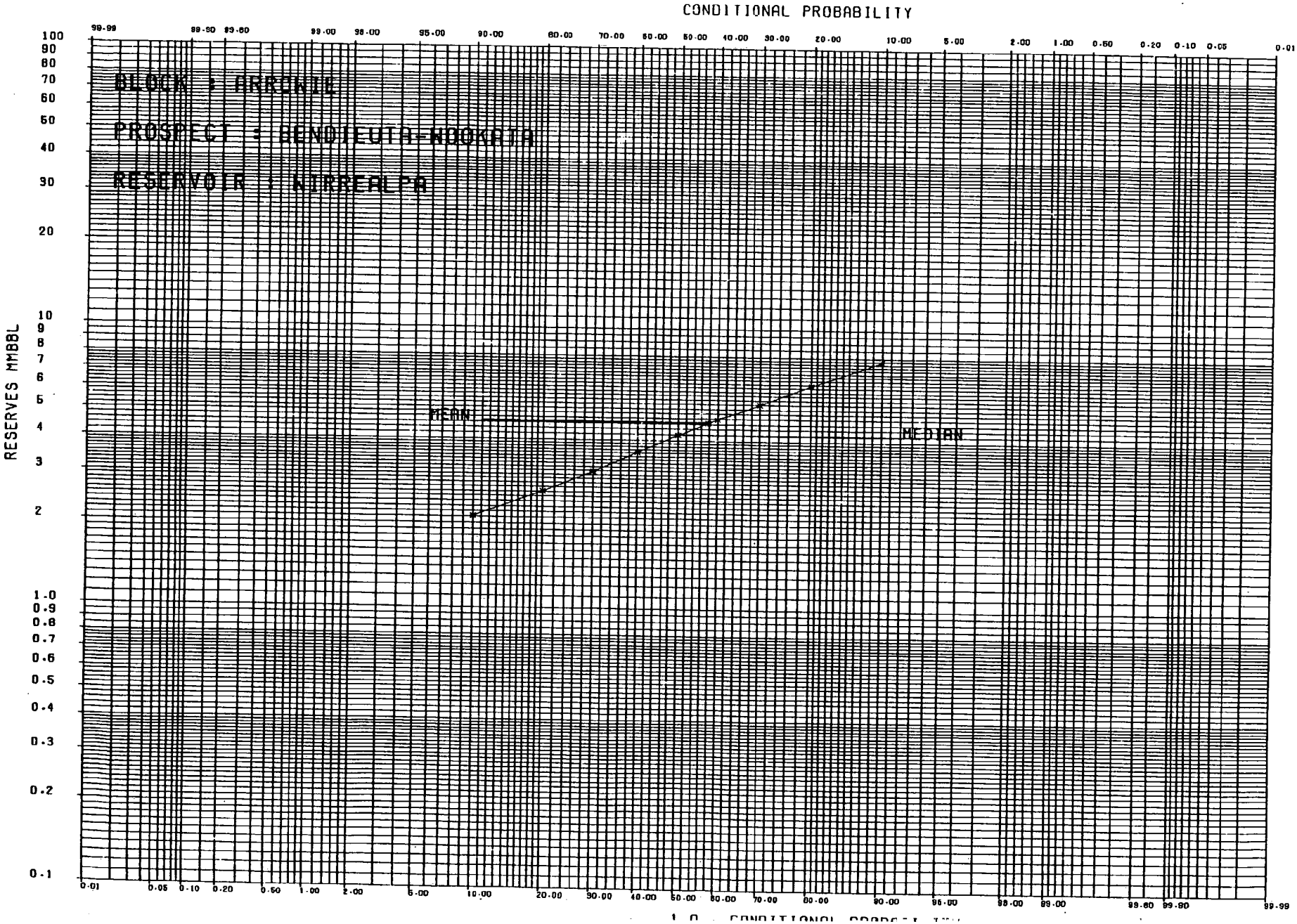
MEAN RECOVERABLE RESERVES ARE 4.64 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 4.19 MMBBL
MODAL RECOVERABLE VALUE IS 4.32 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.08	2.11	2.61	3.07	3.62	4.19	4.77	5.40	6.33	7.73	46.05

RISK ANALYSIS OIL ('PERIAL)



009324

Imperial GEOLOGIC ASSESSMENT (GAS) 00935

PROSPECT NAME : BENDIEUTA-WOOKATA
STATUS : PROSPECT
F CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	2050	2562	2818
CLOSURE HEIGHT (feet)	99	124	136
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.73	0.78	0.82
BULK RESERVOIR VOLUME (acre-ft)	14965	59950	138645
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	1458	2207	2818
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.065

RESERVES

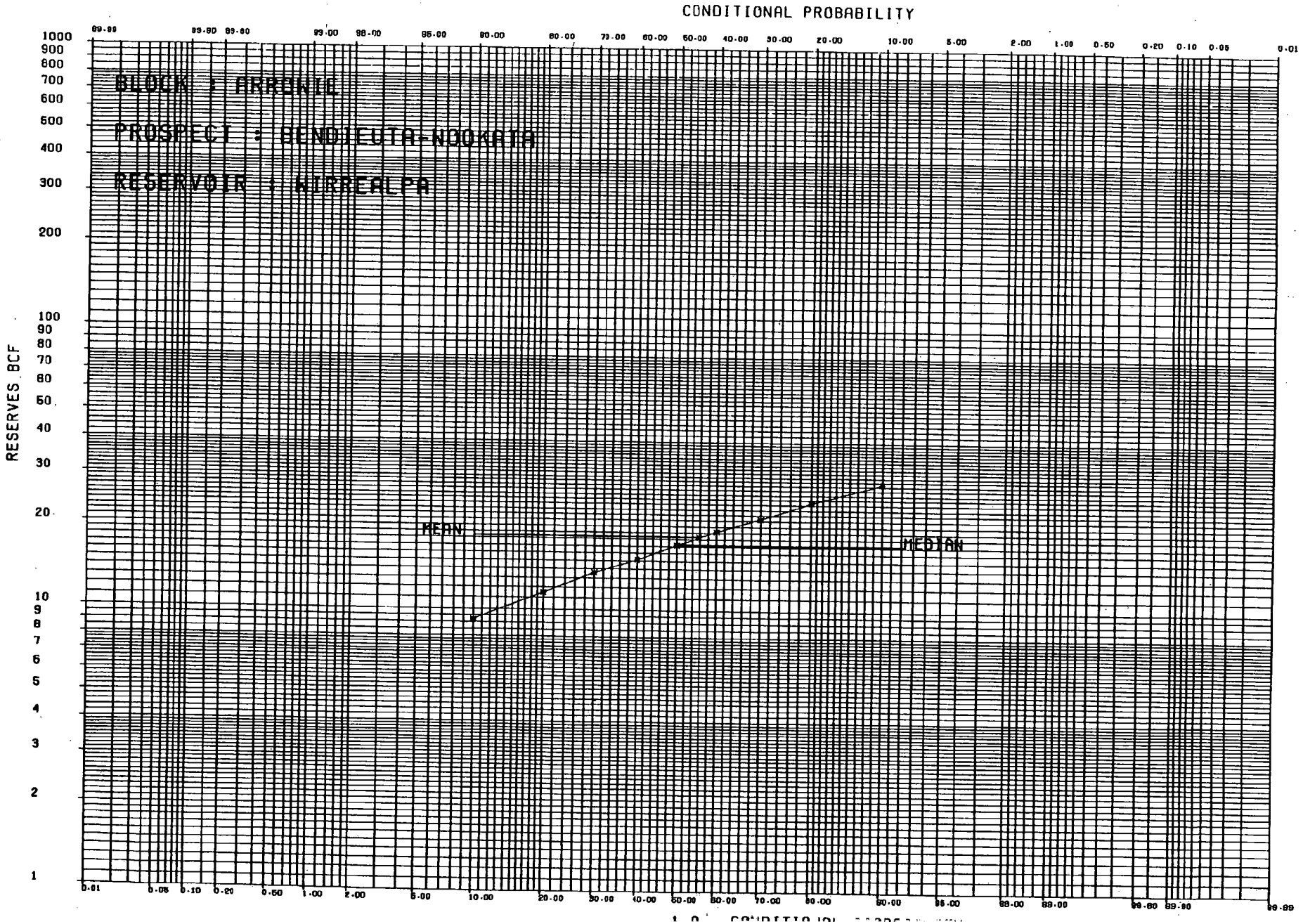
MEAN RECOVERABLE RESERVES ARE 18.28 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 17.12 BCF
ODAL RECOVERABLE VALUE IS 17.87 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.91	9.19	11.48	13.63	15.17	17.12	19.16	21.41	24.43	28.51	103.60

RISK ANAL[illegible]S GAS (IMPERIAL)



00936

Imperial GEOLOGIC ASSESSMENT (OIL) 00937

PROSPECT NAME : BENDIEUTA
STATUS : PROSPECT
)CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 11/6/86
AREA : PELS 5&6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	483	699	1240
CLOSURE HEIGHT (feet)	38	76	105
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.66	0.74
BULK RESERVOIR VOLUME (acre-ft)	2028	13840	55056
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	165	497	1240
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.40
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.130

RESERVES

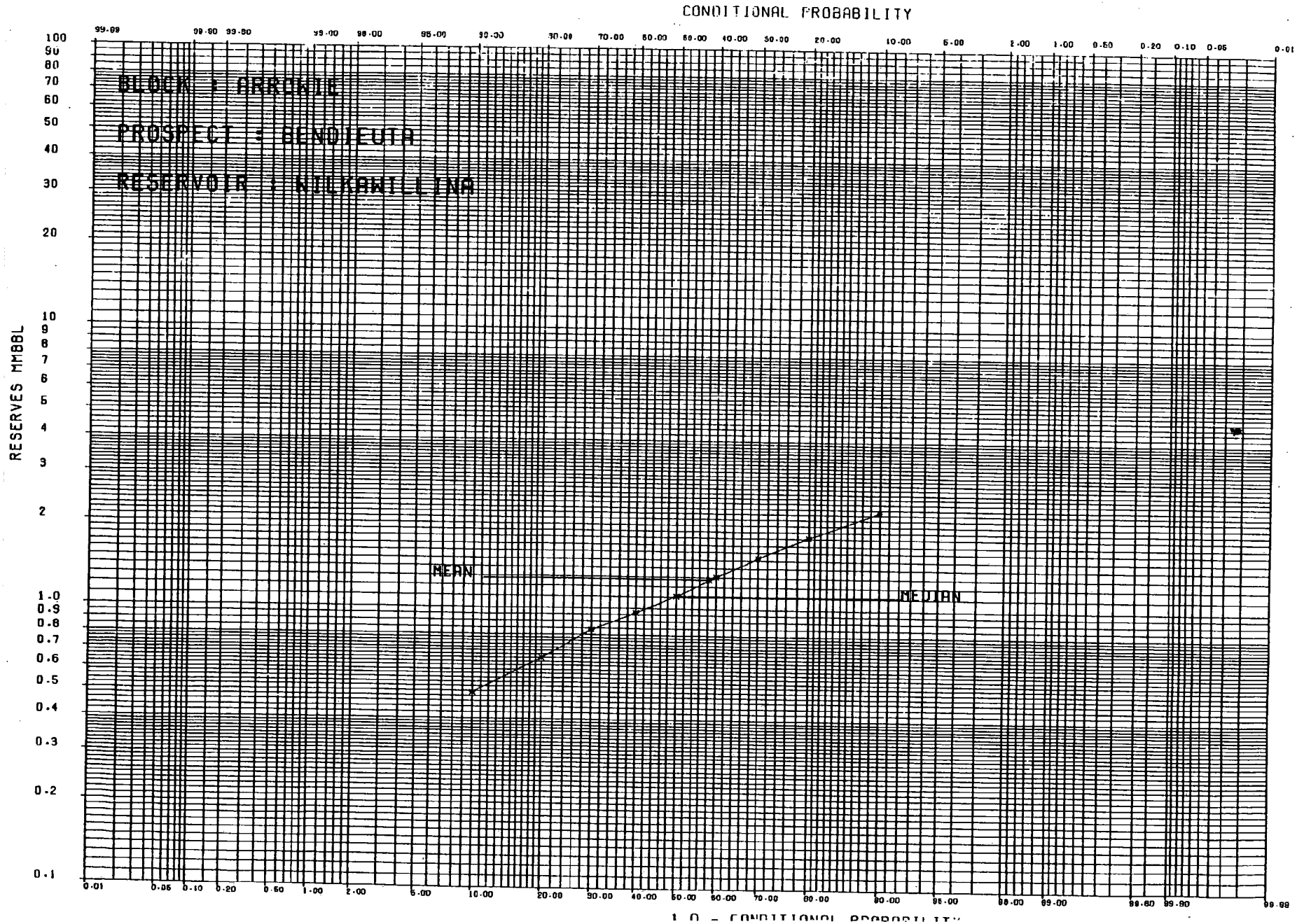
MEAN RECOVERABLE RESERVES ARE 1.27 MMBBL
EDIAN RECOVERABLE VALUE P(0.5) IS 1.11 MMBBL
MODAL RECOVERABLE VALUE IS 1.02 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.01	0.49	0.66	0.83	0.96	1.11	1.30	1.53	1.82	2.25	18.20

RISK ANALYSIS OIL (IMPERIAL)



00938

PROSPECT NAME : BENDIEUTA
STATUS : PROSPECT
BLOCK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	483	699	1240
CLOSURE HEIGHT (feet)	38	76	105
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.67	0.74
BULK RESERVOIR VOLUME (acre-ft)	2028	14049	55056
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	343	602	1240
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.40
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.130

RESERVES

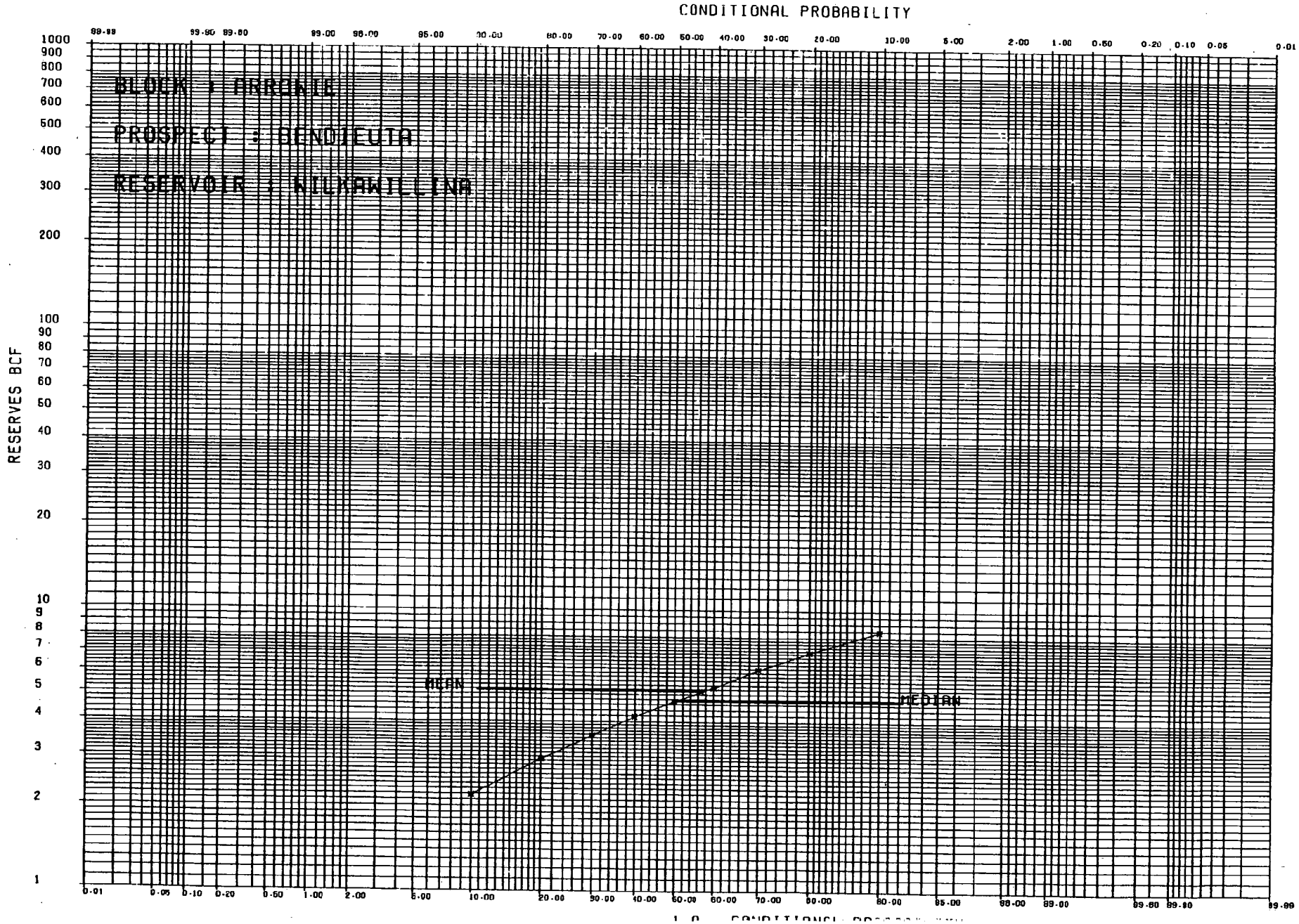
MEAN RECOVERABLE RESERVES ARE 5.12 BCF
MEDIAN RECOVERABLE VALUE P(0.5) IS 4.72 BCF
MODAL RECOVERABLE VALUE IS 4.32 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.15	2.18	2.93	3.57	4.16	4.72	5.30	6.15	7.08	8.46	36.54

RISK ANAL S GAS IMPERIAL)



009440

Imperial GEOLOGIC ASSESSMENT (OIL) 00941

PROSPECT NAME : BENDIEUTA
STATUS : PROSPECT
`CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 11/6/86
AREA : PELS 5&6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	483	699	1240
CLOSURE HEIGHT (feet)	38	76	105
RESERVOIR THICKNESS (feet)	98	120	126
TRAP GEOMETRY CORRECTION	0.33	0.56	0.67
BULK RESERVOIR VOLUME (acre-ft)	6056	29749	87234
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	165	497	1240
RESERVOIR NET/GROSS RATIO	0.10	0.30	0.50
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

`OLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.097

RESERVES

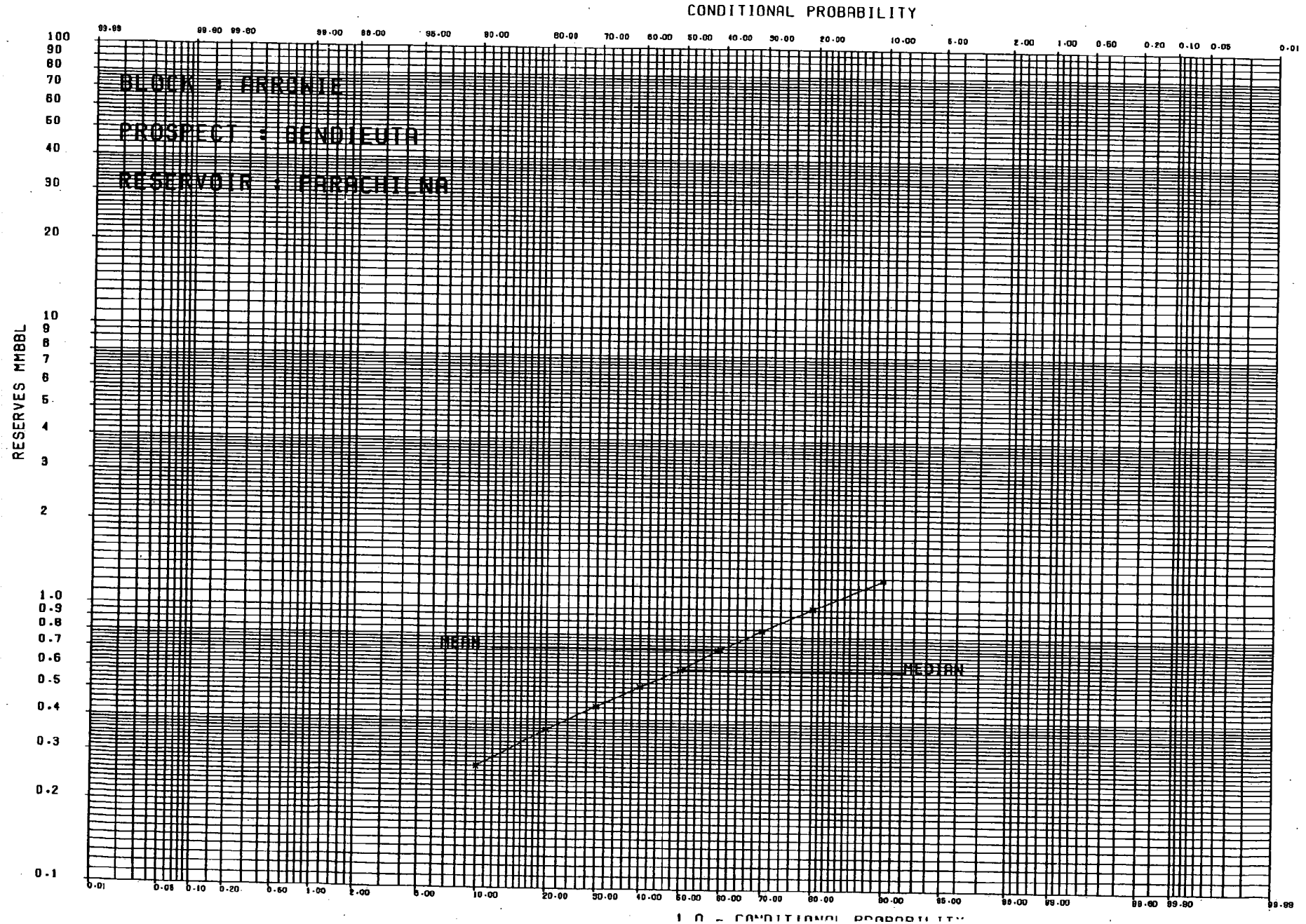
MEAN RECOVERABLE RESERVES ARE 0.71 MMBBL
EDIAN RECOVERABLE VALUE P(0.5) IS 0.60 MMBBL
MODAL RECOVERABLE VALUE IS 0.66 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.27	0.37	0.44	0.52	0.60	0.72	0.84	1.01	1.28	14.47

RISK ANALYSIS OIL (IMPERIAL)



00942

Imperial GEOLOGIC ASSESSMENT (GAS) 00943

PROSPECT NAME : BENDIEUTA
STATUS : PROSPECT
)CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	483	699	1240
CLOSURE HEIGHT (feet)	38	76	105
RESERVOIR THICKNESS (feet)	98	120	126
TRAP GEOMETRY CORRECTION	0.42	0.66	0.74
BULK RESERVOIR VOLUME (acre-ft)	7708	35061	96348
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	343	602	1240
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.097

RESERVES

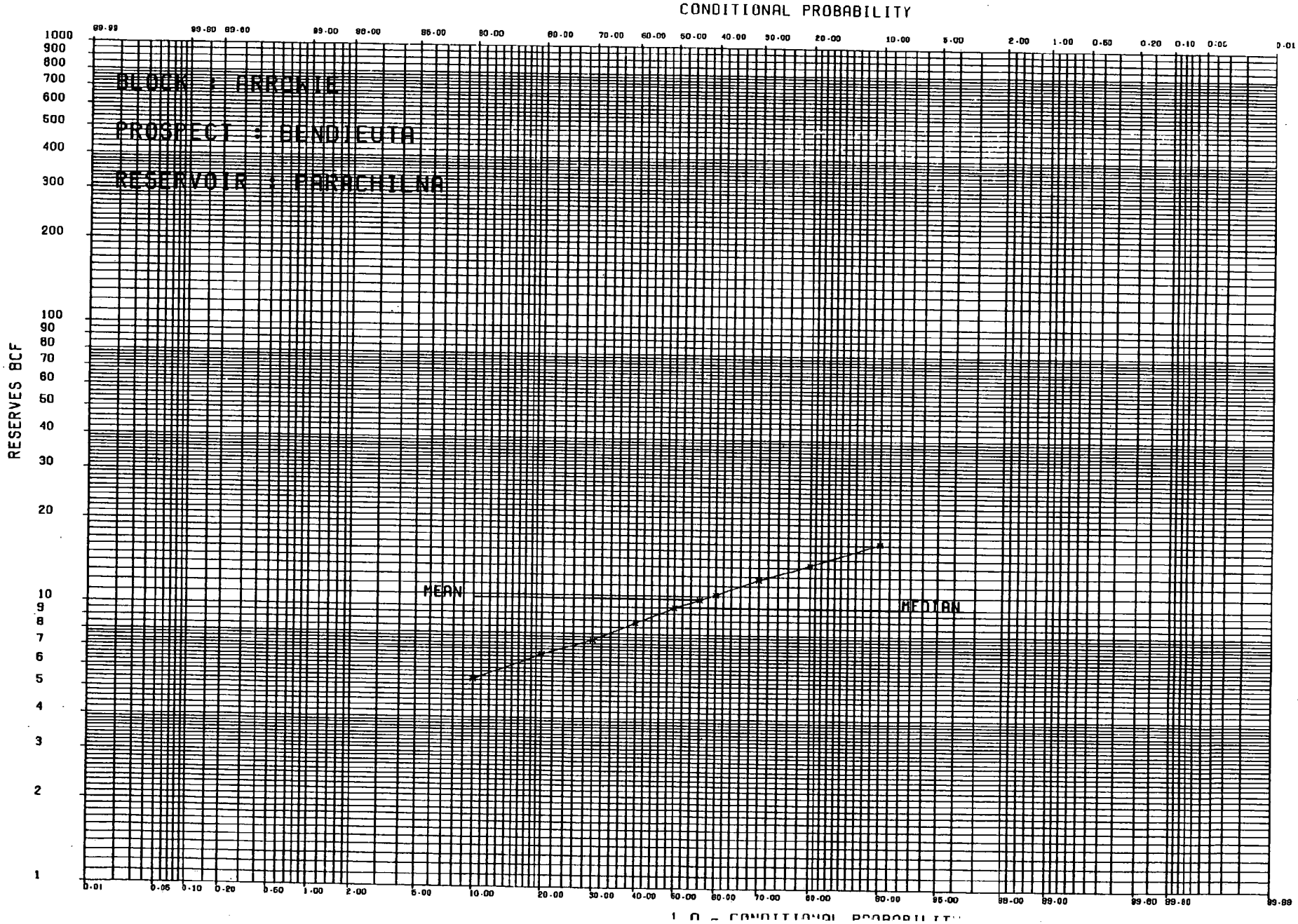
MEAN RECOVERABLE RESERVES ARE 10.70 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 10.01 BCF
MODAL RECOVERABLE VALUE IS 10.81 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

:.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.58	5.45	6.75	7.60	8.80	10.01	11.16	12.65	14.32	17.17	64.77

RISK ANALY [illegible] GAS IMPERIAL)



009474

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin
PELs 5&6

PROSPECT/WELL NAME: DAILY

PRIMARY OBJ./DEPTH: Wirrealpa; 3500 ft
Wilkawillina; 5700 ft
Parachilna; 6130 ft

BLOCK: Arrowie

OPERATOR: CSR Ltd

CSR W.I.: 30%

P.T.D.: 6270 ft

WELL DESIGNATION: New Field Wildcat

SUMMARY:

The Daily structure is an elongate, N-S trending dome at the southern end of the Poontana Fracture Zone on the Curnamona Shelf. A dual Wirrealpa-Hawker oil objective is postulated for the structure. The structure at the Wirrealpa level has a closure area of 1168 acres and a closure height of 158 feet.

WELL LOCATION DETAILS:

SEISMIC: 85-ZDH SP 320

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 22 km to Moomba - Port Bonython gas/liquids pipeline.

TECHNICAL:	Wirrealpa	Wilkawillina	Parachilna	
STRUCTURE:	(0.9)	(0.9)	(0.9)	Presence of structure confirmed by seismic.
RESERVOIR:	(0.4)	(0.4)	(0.4)	Reservoir quality is unknown.
SEAL:	(0.9)	(0.9)	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	(0.4)	(0.3)	At Wirrealpa levels source quality is expected to be good but source quantity is expected to be poor. At Hawker levels source quality and quantity is expected to be adequate.

Imperial GEOLOGIC ASSESSMENT (OIL)

00946

PROSPECT NAME : DAILY
STATUS : PROSPECT
BLOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.78	0.83	0.85
BULK RESERVOIR VOLUME (acre-ft)	7285	29083	65484
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	319	830	1284
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.065

RESERVES

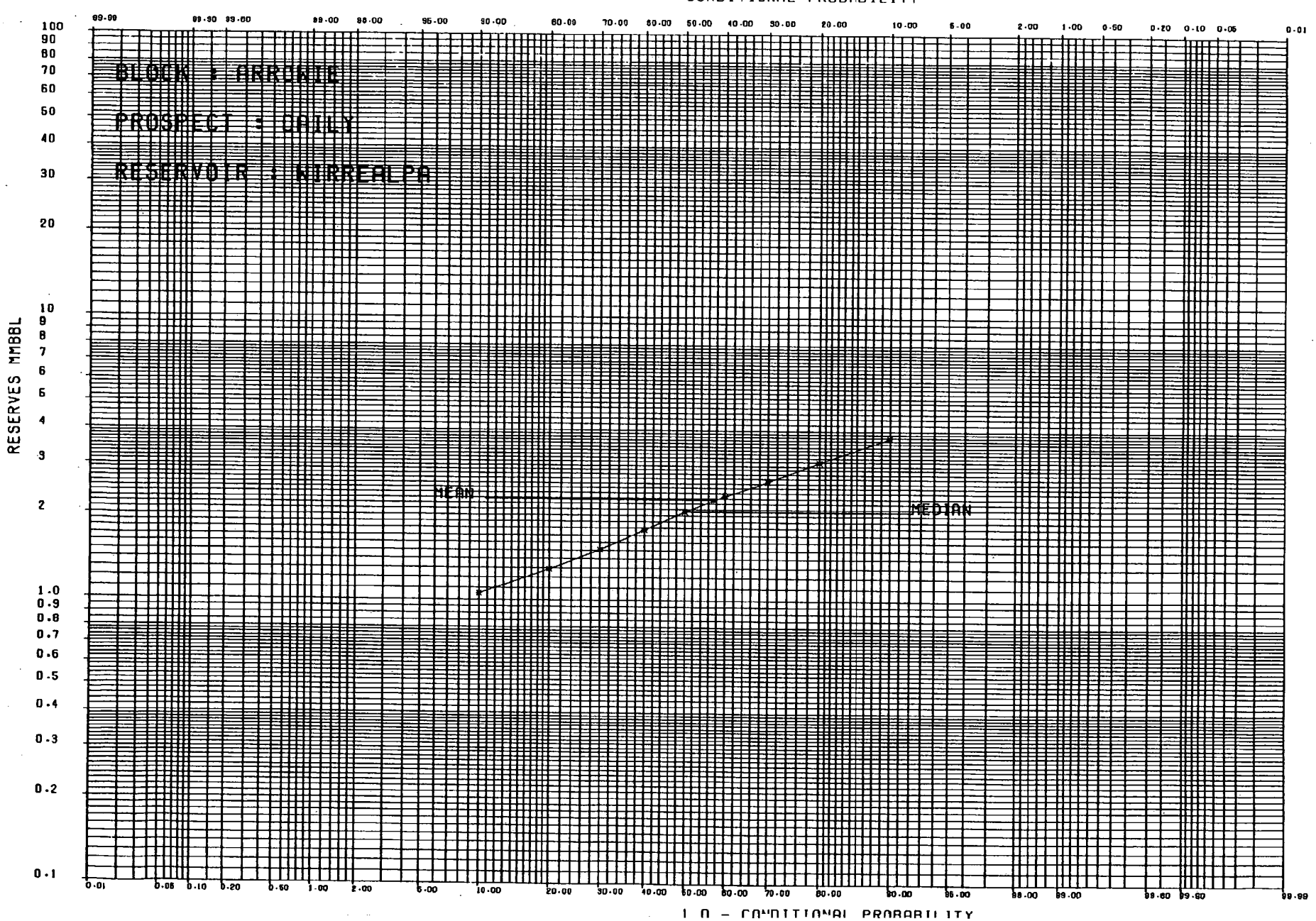
MEAN RECOVERABLE RESERVES ARE 2.27 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 2.06 MMBBL
MODAL RECOVERABLE VALUE IS 2.14 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.04	1.05	1.28	1.51	1.77	2.06	2.34	2.63	3.09	3.77	21.84

RISK ANALYSIS OIL (IMPERIAL)



009477

Imperial GEOLOGIC ASSESSMENT (GAS) 00948

PROSPECT NAME : DAILY
STATUS : PROSPECT
CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.80	0.83	0.84
BULK RESERVOIR VOLUME (acre-ft)	7472	29083	64713
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	664	1006	1284
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.065

RESERVES

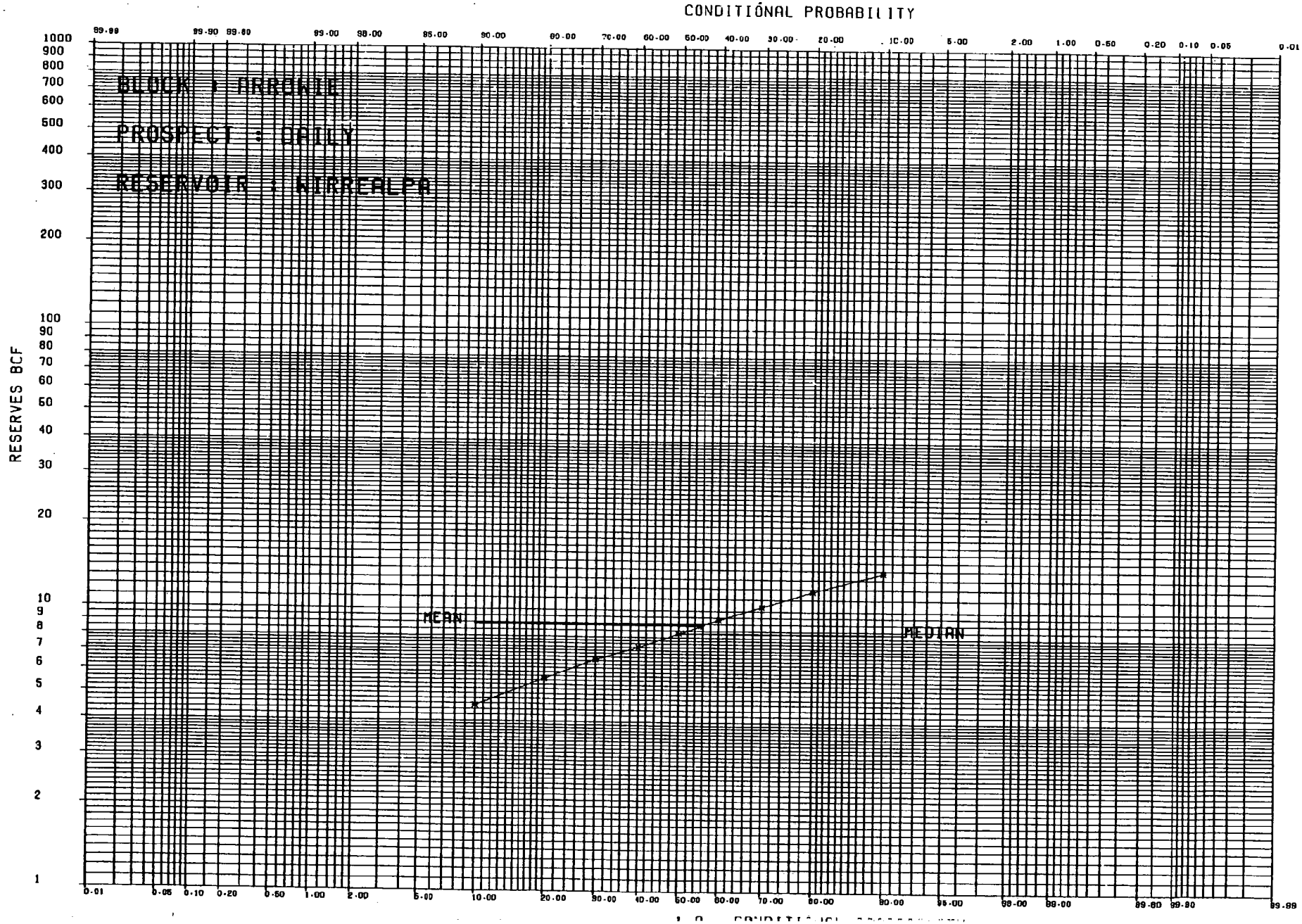
MEAN RECOVERABLE RESERVES ARE 8.86 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 8.29 BCF
MODAL RECOVERABLE VALUE IS 8.86 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.47	4.53	5.66	6.68	7.40	8.29	9.31	10.35	11.76	13.72	48.17

RISK ANALYSIS GAS (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (OIL) 00950

PROSPECT NAME : DAILY
STATUS : PROSPECT
ROCK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 11/6/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.80	0.83	0.84
BULK RESERVOIR VOLUME (acre-ft)	7472	29083	64713
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	319	830	1284
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.40
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.130

RESERVES

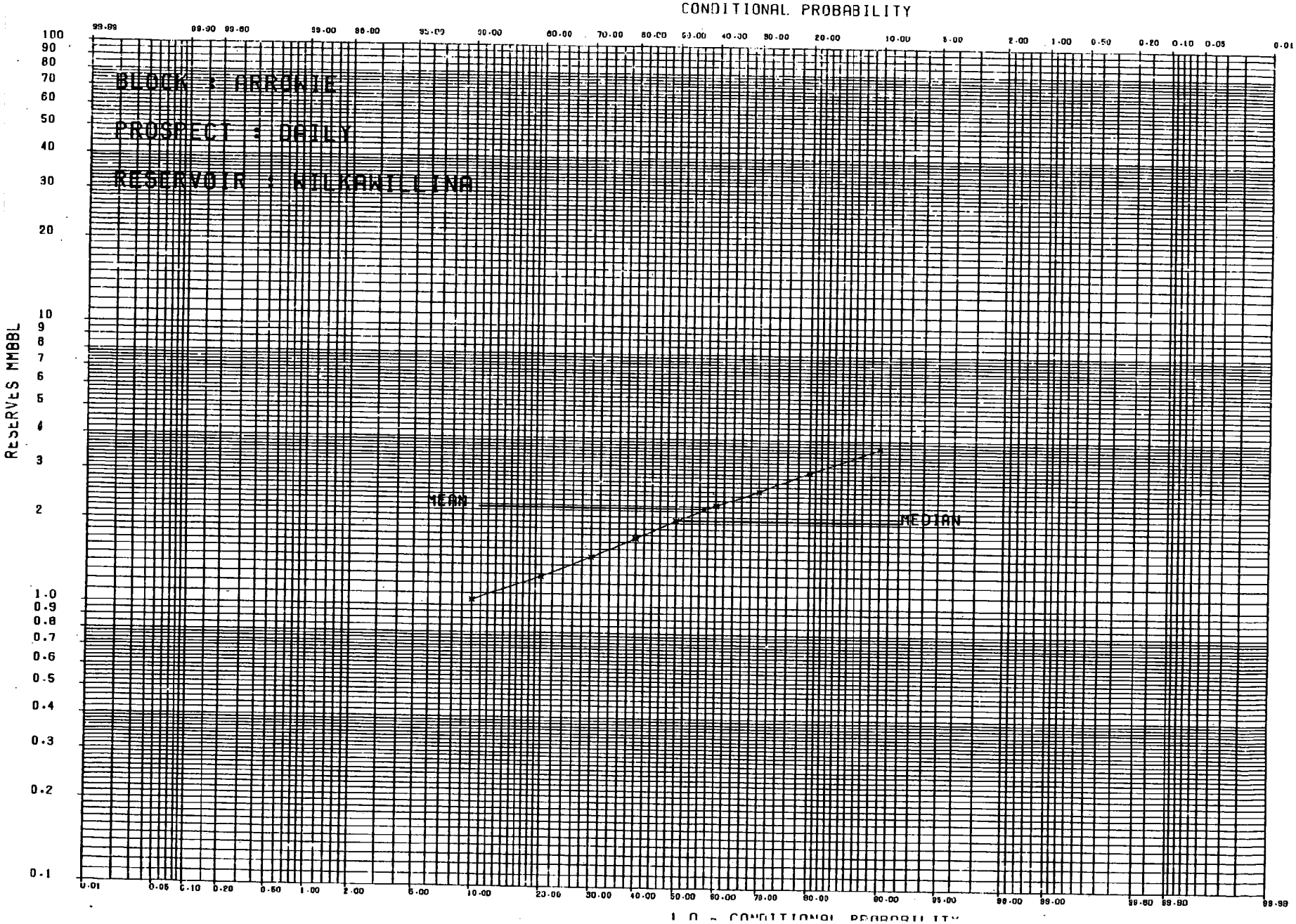
MEAN RECOVERABLE RESERVES ARE 2.25 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 2.04 MMBBL
MODAL RECOVERABLE VALUE IS 2.14 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.04	1.05	1.27	1.50	1.76	2.04	2.32	2.61	3.06	3.74	21.41

RISK ANALYSIS OIL (IMPERIAL)



00951

Imperial GEOLOGIC ASSESSMENT (GAS) 00952

PROSPECT NAME : DAILY
STATUS : PROSPECT
)CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.80	0.82	0.84
BULK RESERVOIR VOLUME (acre-ft)	7472	28732	64713
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	664	1006	1284
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.40
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.130

RESERVES

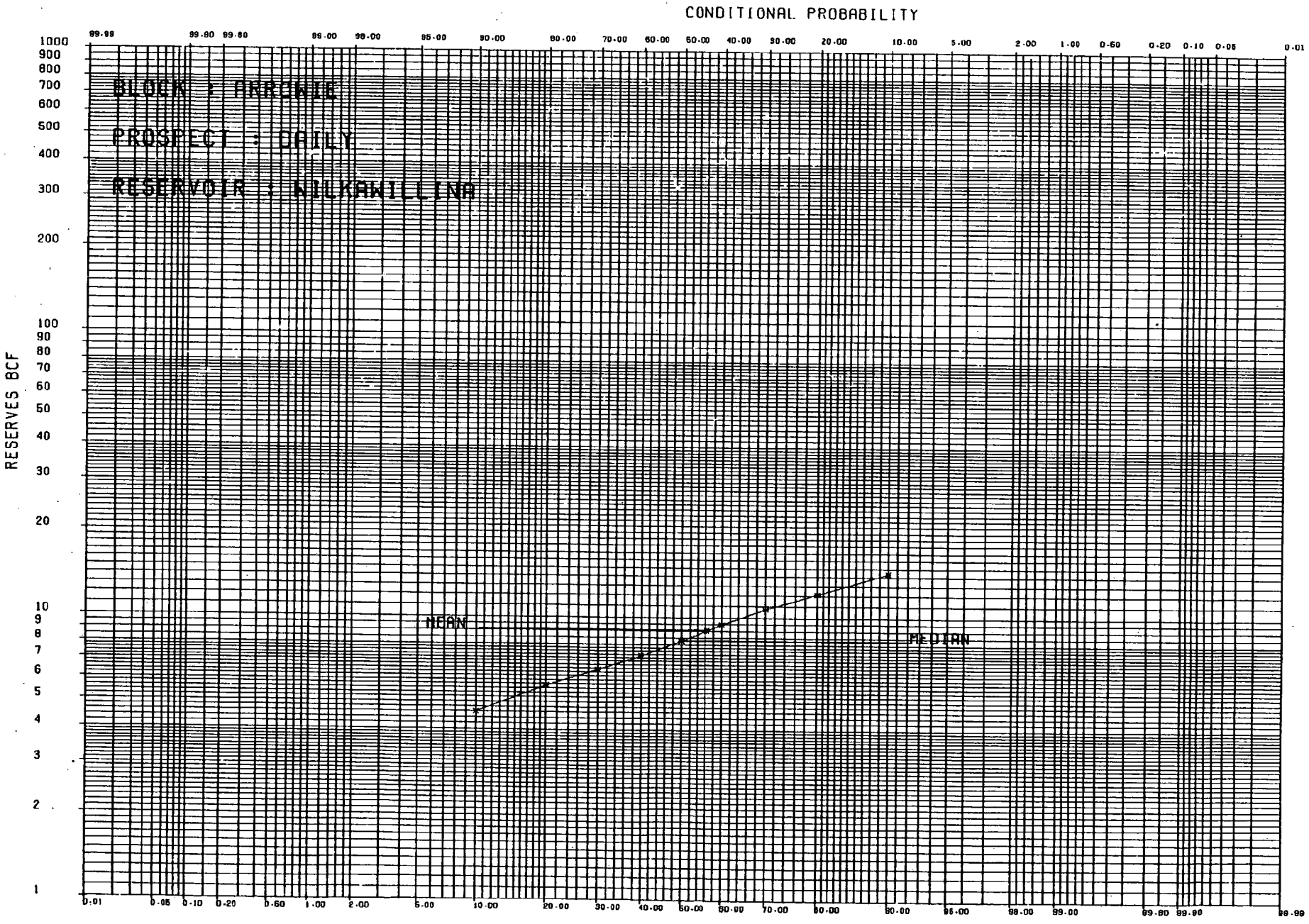
MEAN RECOVERABLE RESERVES ARE 9.02 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 8.28 BCF
MODAL RECOVERABLE VALUE IS 9.03 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.56	4.60	5.73	6.52	7.32	8.28	9.45	10.77	12.15	14.42	42.99

RISK ANALY S GAS IMPERIAL)



00953

Imperial GEOLOGIC ASSESSMENT (OIL)

00954

PROSPECT NAME : DAILY
STATUS : PROSPECT
[illegible]CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 11/6/86
AREA : PELS 5&6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	90	100	105
TRAP GEOMETRY CORRECTION	0.73	0.78	0.81
BULK RESERVOIR VOLUME (acre-ft)	61363	91103	109204
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	319	830	1284
RESERVOIR NET/GROSS RATIO	0.10	0.30	0.50
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

[illegible]LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.097

RESERVES

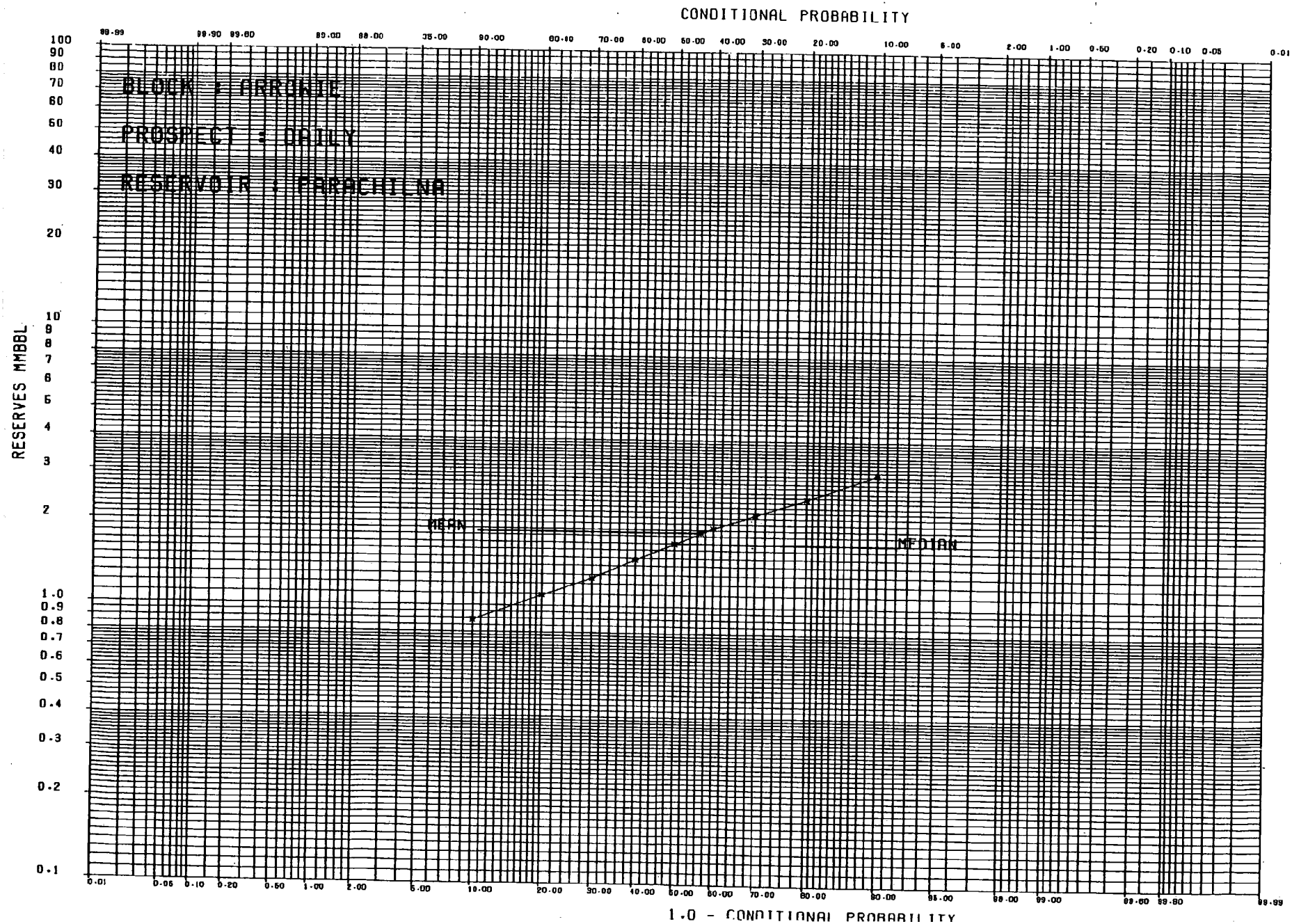
MEAN RECOVERABLE RESERVES ARE 1.86 MMBBL
[illegible]DIAN RECOVERABLE VALUE P(0.5) IS 1.69 MMBBL
MODAL RECOVERABLE VALUE IS 2.00 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

[illegible].0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.03	0.89	1.09	1.26	1.47	1.69	1.93	2.16	2.47	3.04	18.20

RISK ANALYSIS OIL (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (GAS) 00956

PROSPECT NAME : DAILY
STATUS : PROSPECT
)CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	934	1168	1284
CLOSURE HEIGHT (feet)	126	158	174
RESERVOIR THICKNESS (feet)	90	100	105
TRAP GEOMETRY CORRECTION	0.78	0.82	0.84
BULK RESERVOIR VOLUME (acre-ft)	65566	95775	113248
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	664	1006	1284
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.90 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.097

RESERVES

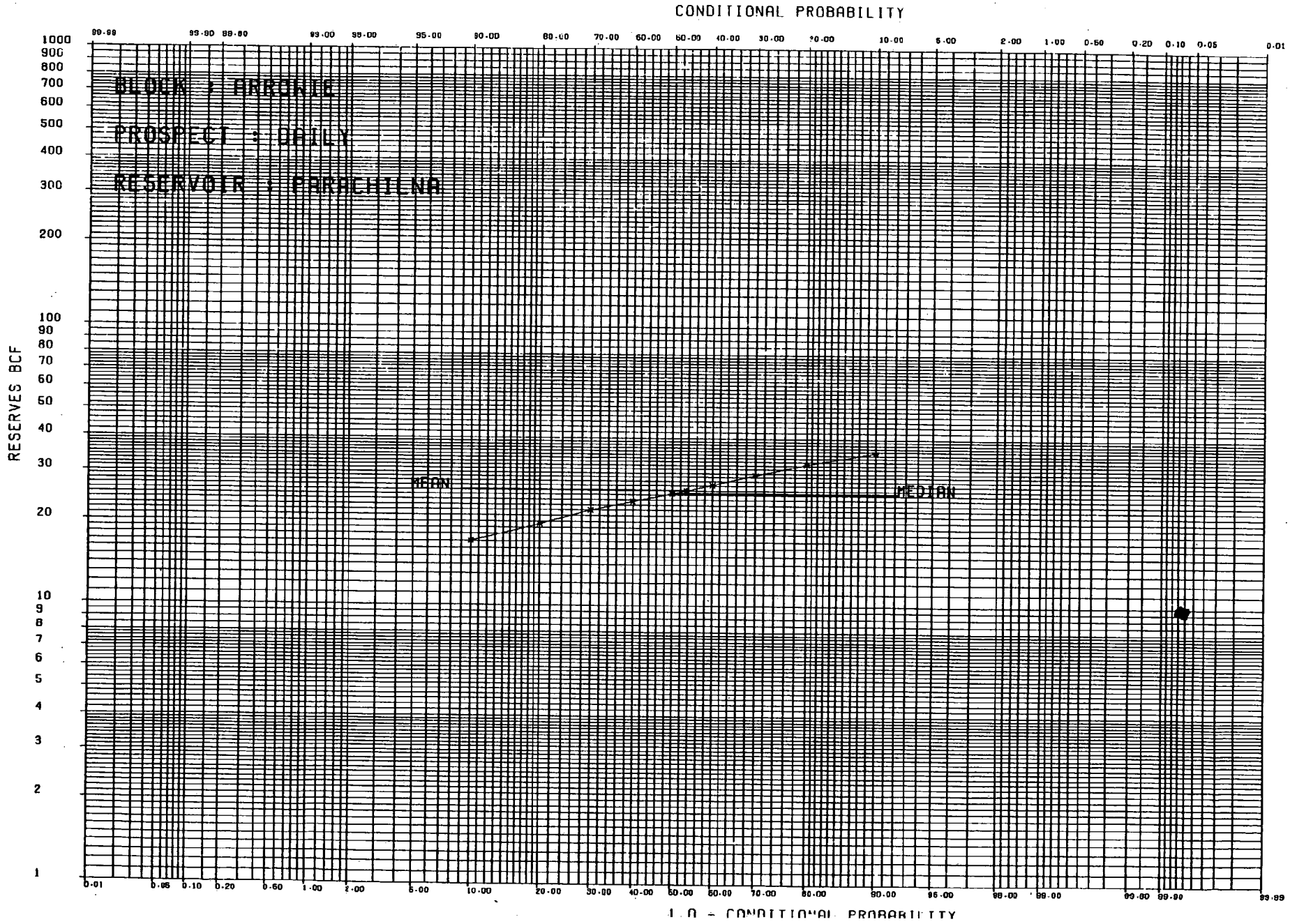
MEAN RECOVERABLE RESERVES ARE 25.95 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 25.34 BCF
MODAL RECOVERABLE VALUE IS 29.63 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

!.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
4.93	16.94	19.56	22.03	23.72	25.34	27.13	29.58	32.30	35.60	75.66

RISK ANALYSE GAS IMPERIAL)



009527

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin PELs 5&6

BLOCK: Arrowie

OPERATOR: CSR Limited

CSR W.I.: 30%

PROSPECT/WELL NAME: LAKEVIEW

PRIMARY OBJ./DEPTH: Wirrealpa Lm, 3250 ft

P.T.D.: 6200 ft

WELL DESIGNATION: New Field Wildcat

SUMMARY:

The Lakeview structure is a sigmoidally, elongate, N-S trending dome located on the west axial high of the Poontana Fracture Zone. At the Wirrealpa level the structure has a closure area of 4250 acres and a closure height of 466 ft. Little is known about source maturity in the area, however, the structure is proximal to thermally mature source rocks on the western edge of the Kurnamona Shelf.

WELL LOCATION DETAILS:

SEISMIC: 84-SPP 360

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 300 km by road to Port Bonython, 12 km to Moomba-Port Bonython gas/liquids pipelines

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TECHNICAL:	Wirrealpa	
STRUCTURE:	(1.0)	Presence of structure is probable based on seismic cover.
RESERVOIR:	(0.4)	Reservoir quality is expected to be adequate.
SEAL:	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	Source quality and quantity is expected to be marginal.

Imperial GEOLOGIC ASSESSMENT (OIL)

00959

PROSPECT NAME : LAKE VIEW
STATUS : PROSPECT
BLOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	156	195	215
CLOSURE HEIGHT (feet)	45	56	62
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.49	0.56	0.60
BULK RESERVOIR VOLUME (acre-ft)	764	3276	7740
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	53	138	215
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 1.00 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.072

RESERVES

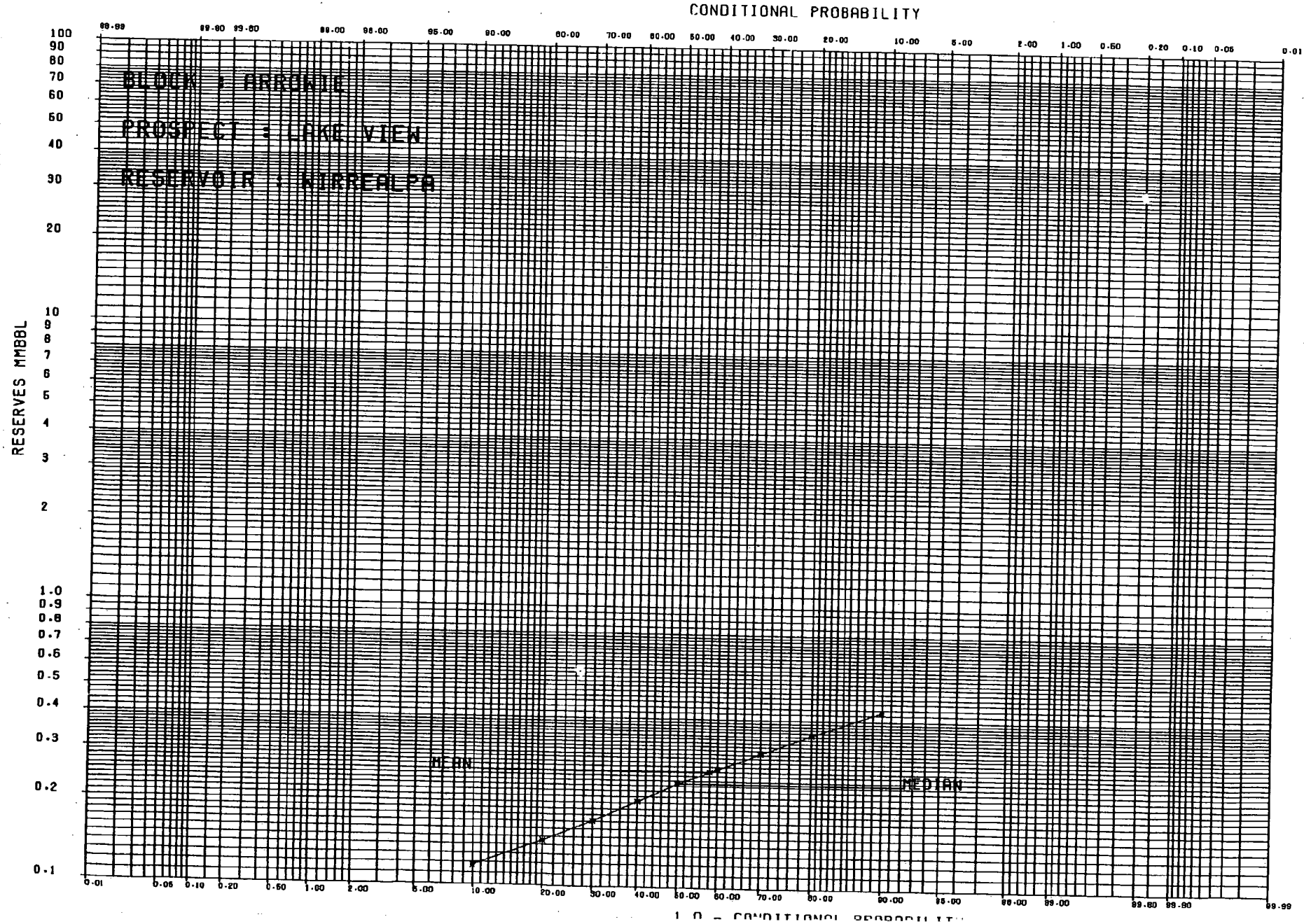
MEAN RECOVERABLE RESERVES ARE 0.26 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.23 MMBBL
MODAL RECOVERABLE VALUE IS 0.24 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.12	0.14	0.17	0.20	0.23	0.26	0.30	0.35	0.43	2.58

RISK ANALYSIS OIL (IMPERIAL)



09600

Imperial GEOLOGIC ASSESSMENT (GAS) 00961

PROSPECT NAME : LAKE VIEW
STATUS : PROSPECT
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	156	195	215
CLOSURE HEIGHT (feet)	45	56	62
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.48	0.56	0.60
BULK RESERVOIR VOLUME (acre-ft)	748	3276	7740
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	110	168	215
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	146	147	148
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 1.00 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.072

RESERVES

MEAN RECOVERABLE RESERVES ARE 1.01 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 0.95 BCF
ODAL RECOVERABLE VALUE IS 1.00 BCF

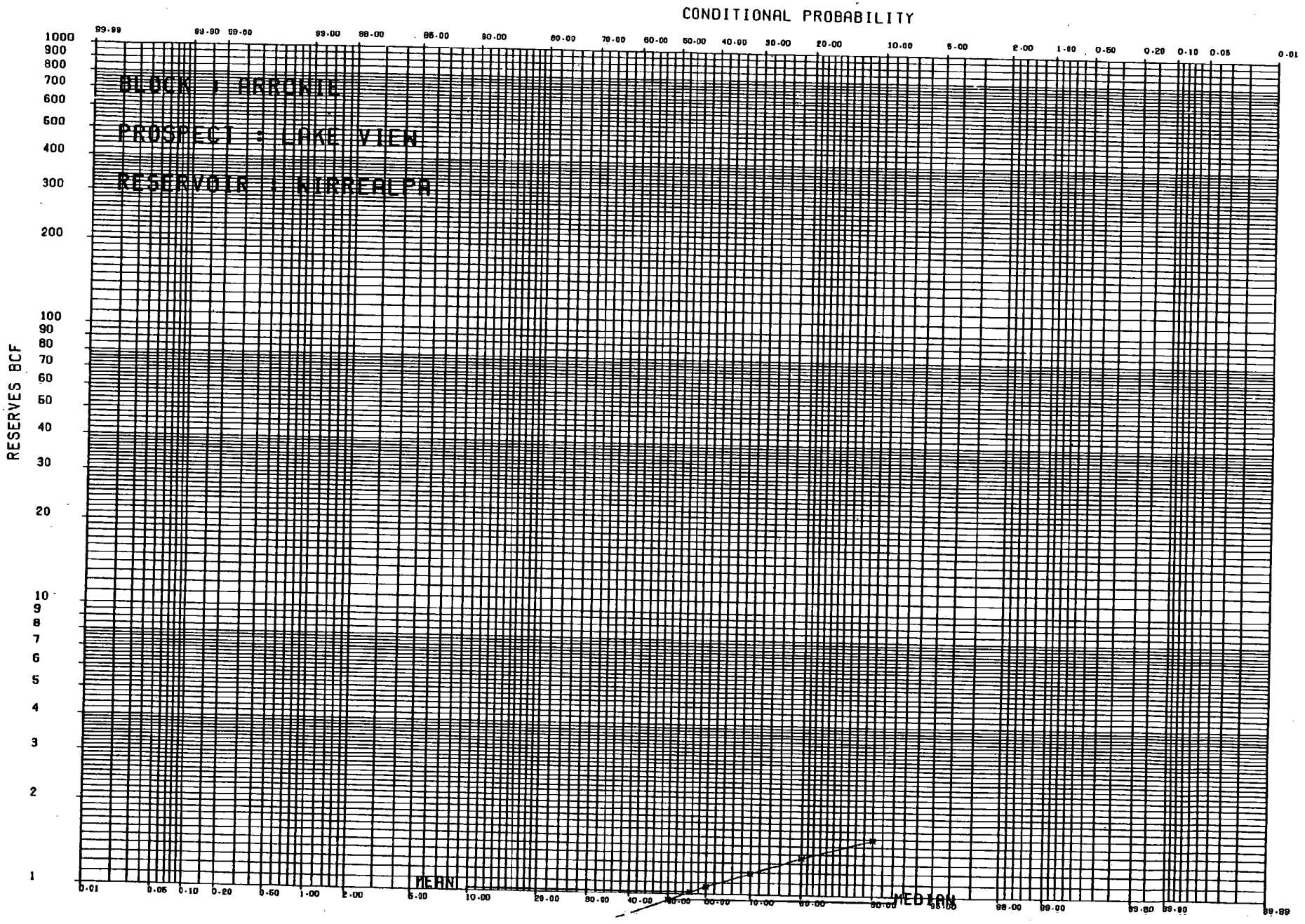
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.05	0.51	0.64	0.75	0.84	0.95	1.06	1.19	1.36	1.58	5.77

RISK ANALYSIS

GAS (IMPERIAL)



29600

L STRONG LEADS

PROSPECT DATA SHEETS

PROSPECT MAPS

GEOLOGICAL ASSESSMENT SUMMARIES

CONDITIONAL PROBABILITY PLOTS

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin

PROSPECT/WELL NAME: CHAMBERS

PRIMARY OBJ./DEPTH: Wirrealpa, 4670 ft

BLOCK: Arrowie

OPERATOR: CSR Limited

P.T.D.: 5560 ft

CSR W.I.: 30%

WELL DESIGNATION: New field Wildcat

SUMMARY: The Chambers Prospect which trends N-S is defined by structural closure against the Wertaloona Fault. The Wertaloona Fault is the axis between the Adelaide Geosyncline and the Kurnamona Shelf. The prospect is located on the deepest part of the shelf in an area considered to be thermally mature for oil or gas. At the Wirrealpa level the structure has a closure area of 1089 acres and a closure height of 618 ft.

WELL LOCATION DETAILS:

SEISMIC: 82-QRN 120

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 300 km by road to Port Bonython, 12 km to Moomba-Port Bonython gas/liquids pipelines

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TECHNICAL:	Wirrealpa	
STRUCTURE:	(0.6)	Presence of structure is probable based on seismic cover.
RESERVOIR:	(0.8)	Reservoir quality is expected to be adequate.
SEAL:	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	Source quality and quantity is expected to be marginal.

Imperial GEOLOGIC ASSESSMENT (OIL) 00965

PROSPECT NAME : CHAMBERS
STATUS : STRONG LEAD
[illegible]CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	3531	4664	5130
CLOSURE HEIGHT (feet)	727	909	999
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.96	0.97	0.98
BULK RESERVOIR VOLUME (acre-ft)	33897	135722	301644
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	1207	3317	5130
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.60 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

[illegible]EAN RECOVERABLE RESERVES ARE 10.38 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 9.45 MMBBL
MODAL RECOVERABLE VALUE IS 9.92 MMBBL

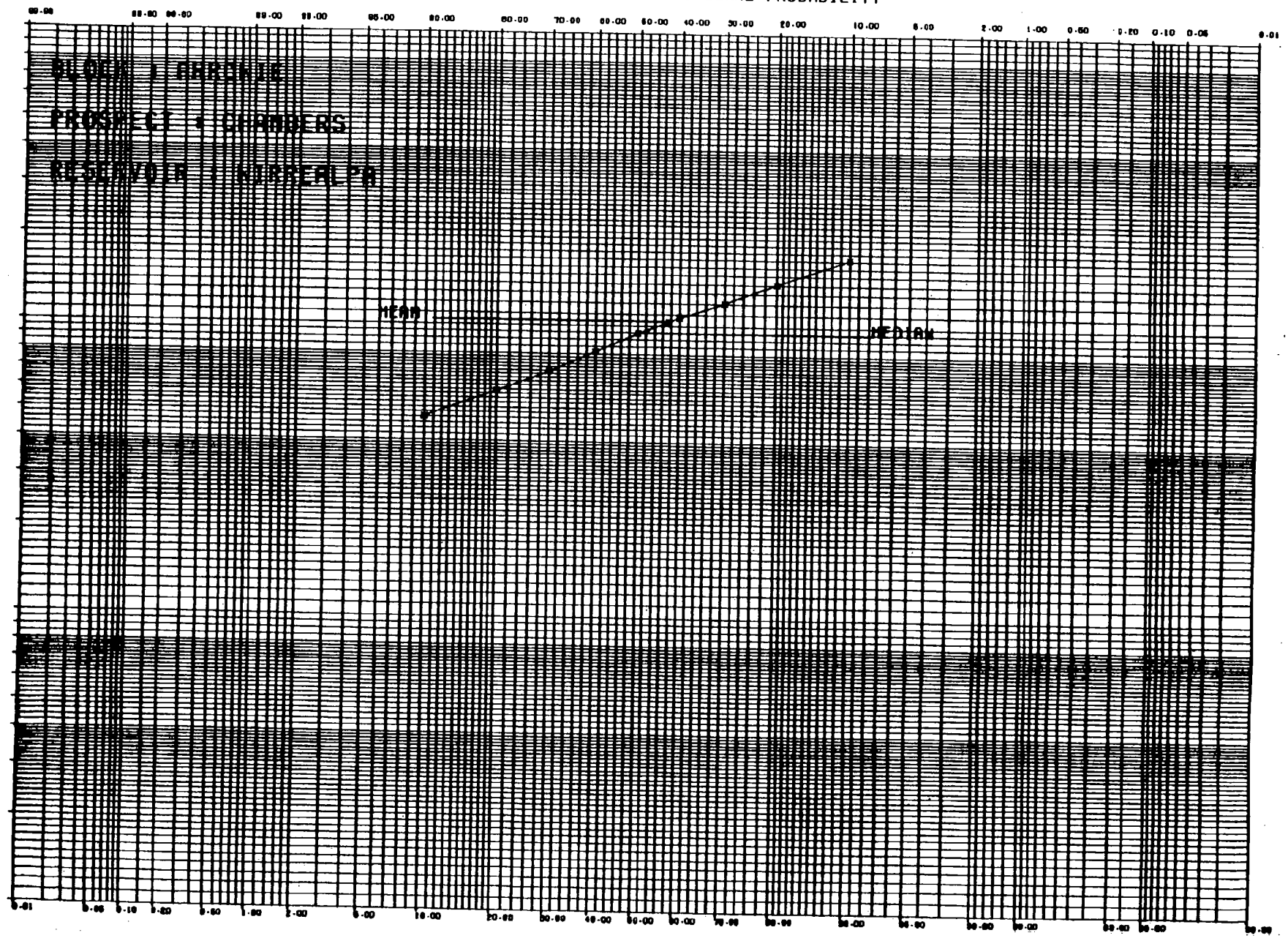
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.20	4.84	5.92	6.97	8.16	9.45	10.71	12.03	14.02	17.18	100.94

RISK ANALYSIS OIL MPERIAL)

CONDITIONAL PROBABILITY



00966

Imperial GEOLOGIC ASSESSMENT (GAS) 00967

PROSPECT NAME : CHAMBERS
STATUS : STRONG LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	3531	4664	5130
CLOSURE HEIGHT (feet)	727	909	999
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.95	0.96	0.97
BULK RESERVOIR VOLUME (acre-ft)	33544	134323	298566
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	2511	4019	5130
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.60 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

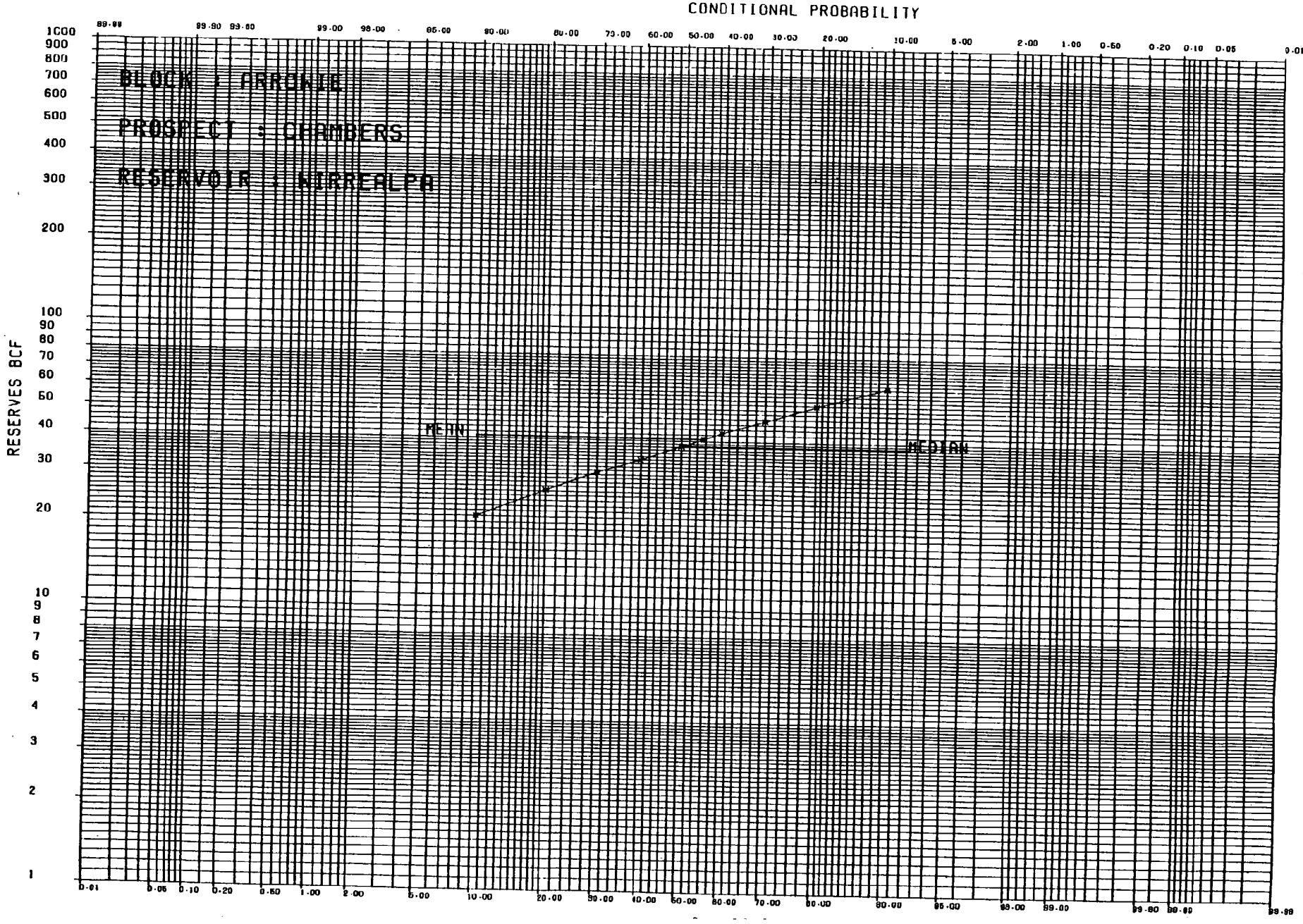
EAN RECOVERABLE RESERVES ARE 40.62 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 38.10 BCF
MODAL RECOVERABLE VALUE IS 41.02 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
2.24	21.00	26.20	30.60	34.00	38.10	42.70	47.30	53.70	62.80	223.24

RISK ANAL IS GAS (IMPERIAL)



00968

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin, PELs 5&6

PROSPECT/WELL NAME: CURNAMONA

PRIMARY OBJ./DEPTH: Wirrealpa; 2226 ft

BLOCK: Arrowie

OPERATOR: CSR Ltd

P.T.D.: 2332 ft

CSR W.I.: 30%

WELL DESIGNATION: New Field Wildcat

SUMMARY:

The Curnamona structure is a small elongate dome at the southern end of the Poontana Fracture Zone. The structure is located on the eastern flank of the Moorowie Syncline on the Curnamona Shelf. The structure at the Wirrealpa level has a closure area of 462 acres and a closure height of 106 feet.

WELL LOCATION DETAILS:

SEISMIC: 84-SPY SP 870

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 29 km to Moomba - Port Bonython gas/liquids pipeline.

TECHNICAL: Wirrealpa

STRUCTURE:	(0.6)	Presence of structure not confirmed by seismic.
RESERVOIR:	(0.4)	Reservoir quality is unknown.
SEAL:	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	Source quality is expected to be good but source quantity is expected to be poor.

Imperial GEOLOGIC ASSESSMENT (OIL) 00970

PROSPECT NAME : CURNAMONA
STATUS : STRONG LEAD
CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	369	462	508
CLOSURE HEIGHT (feet)	85	106	117
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.70	0.75	0.78
BULK RESERVOIR VOLUME (acre-ft)	2582	10395	23774
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	126	328	508
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.60 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

EAN RECOVERABLE RESERVES ARE 0.82 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.75 MMBBL
MODAL RECOVERABLE VALUE IS 0.78 MMBBL

CONDITIONAL PROBABILITY

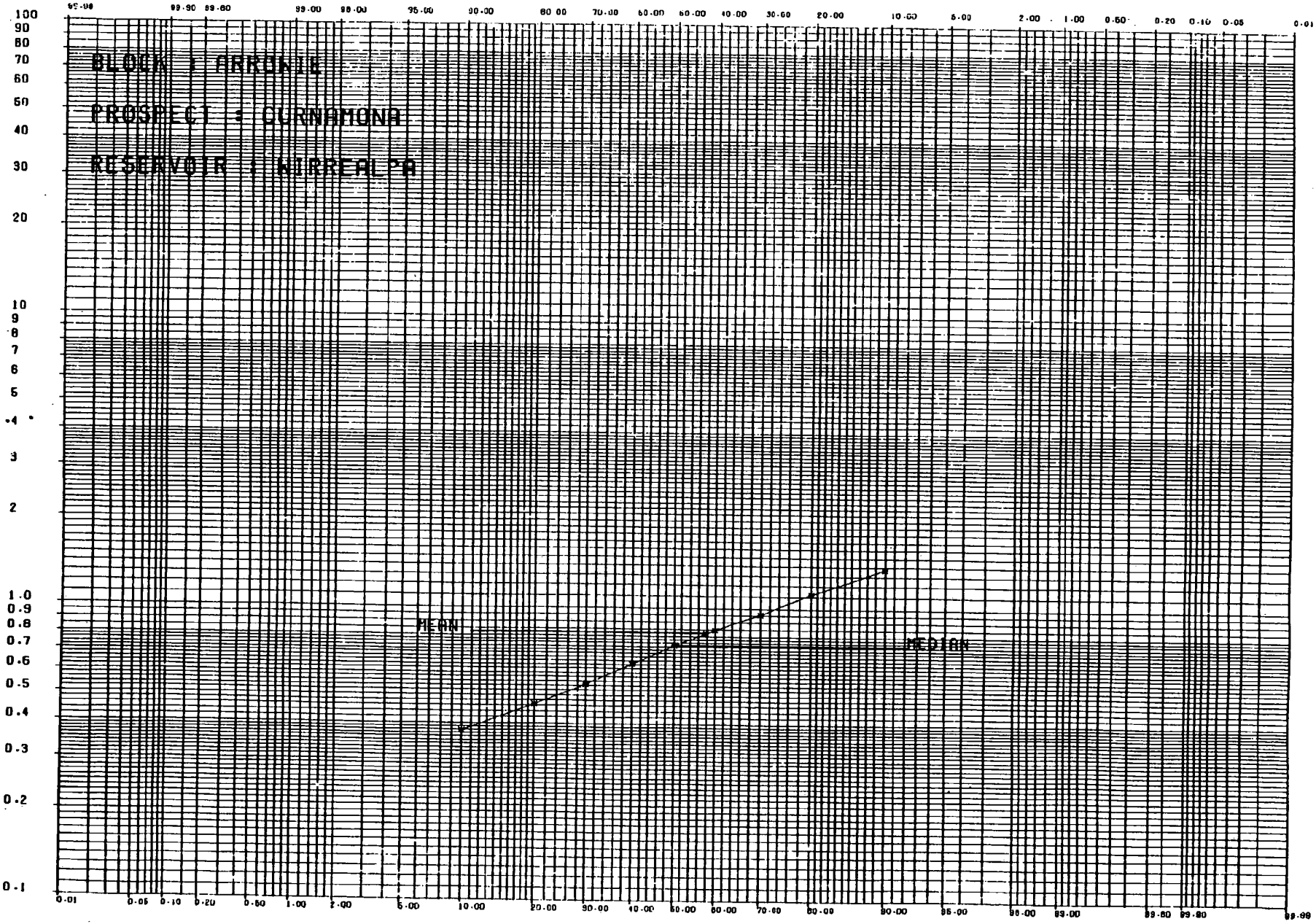
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.01	0.38	0.47	0.55	0.64	0.75	0.85	0.95	1.13	1.37	7.96

RISK ANALYSIS

OIL (IMPERIAL)

CONDITIONAL PROBABILITY



00971

Imperial GEOLOGIC ASSESSMENT (GAS) 00972

PROSPECT NAME : CURNAMONA
STATUS : STRONG LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	369	462	508
CLOSURE HEIGHT (feet)	85	106	117
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.70	0.75	0.77
BULK RESERVOIR VOLUME (acre-ft)	2582	10395	23469
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	262	398	508
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.60 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

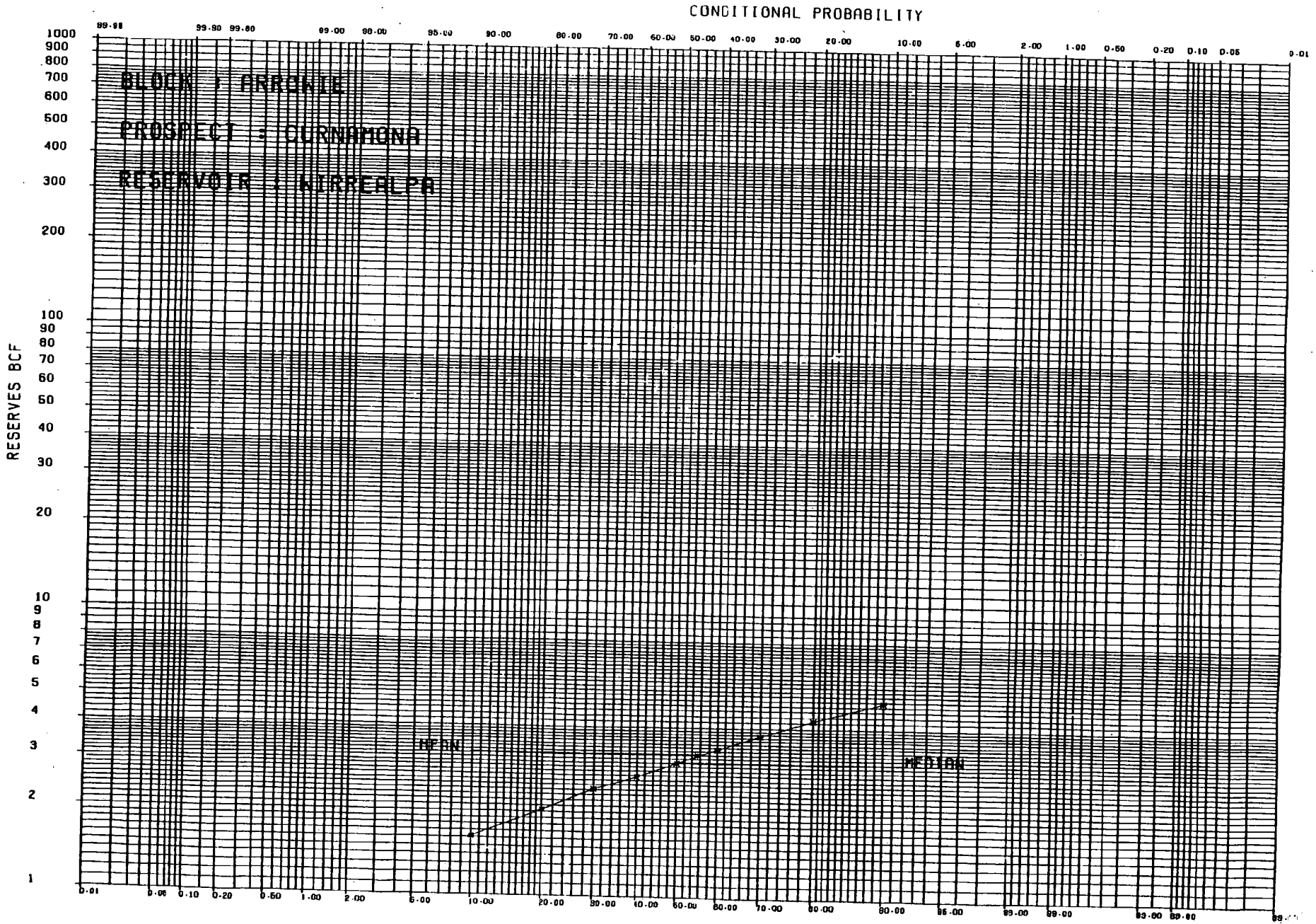
EAN RECOVERABLE RESERVES ARE 3.20 BCF
MEDIAN RECOVERABLE VALUE P(0.5) IS 3.00 BCF
MODAL RECOVERABLE VALUE IS 3.22 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.16	1.62	2.03	2.41	2.67	3.00	3.36	3.75	4.26	4.96	17.53

RISK ANALY .S GAS IMPERIAL)



009723

00974

PROSPECT DATA SHEET

PLAY AREA/PERMIT: Arrowie Basin PELs 5&6

PROSPECT/WELL NAME: POVERTY LAKE A+B

PRIMARY OBJ./DEPTH: Wirrealpa; 2538 ft

BLOCK: Arrowie

OPERATOR: CSR Ltd

P.T.D.: 4750 ft

CSR W.I.: 30%

WELL DESIGNATION: New Field Wildcat

SUMMARY:

The Poverty Lake structure is a large, elongate, N-S trending dome on the eastern flank of the Poontana Fracture Zone. The structure straddles Lake Frome, with the southern third being located off the Lake. The structure is bounded to the east and west by two N-S trending normal faults. At the Wirrealpa level the structure has a closure area of 12,500 acres and a closure height of 178 feet.

WELL LOCATION DETAILS:

SEISMIC: 84-SPS SP 630

LAT. & LONG.:

K.B./G.L.:

DISTANCE TO FACILITIES: 30 km to Moomba - Port Bonython gas/liquids pipeline

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TECHNICAL: Wirrealpa

STRUCTURE:	(0.8)	Presence of structure confirmed by seismic.
RESERVOIR:	(0.4)	Reservoir quality is unknown.
SEAL:	(0.9)	Sufficient seal is assumed across the area.
SOURCE:	(0.2)	Source quality is expected to be good but source quantity is expected to be poor.

Imperial GEOLOGIC ASSESSMENT (OIL)

00975

PROSPECT NAME : POVERTY LAKE A & B
STATUS : STRONG LEAD
[illegible]CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	10000	12500	13750
CLOSURE HEIGHT (feet)	142	178	196
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.82	0.85	0.86
BULK RESERVOIR VOLUME (acre-ft)	81999	318750	709500
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	3419	8892	13750
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

[illegible]OLOGICAL PROBABILITY

P(STRUCTURE) = 0.80 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.058

RESERVES

[illegible]EAN RECOVERABLE RESERVES ARE 24.79 MMBBL
[illegible]EDIAN RECOVERABLE VALUE P(0.5) IS 22.20 MMBBL
MODAL RECOVERABLE VALUE IS 23.83 MMBBL

CONDITIONAL PROBABILITY

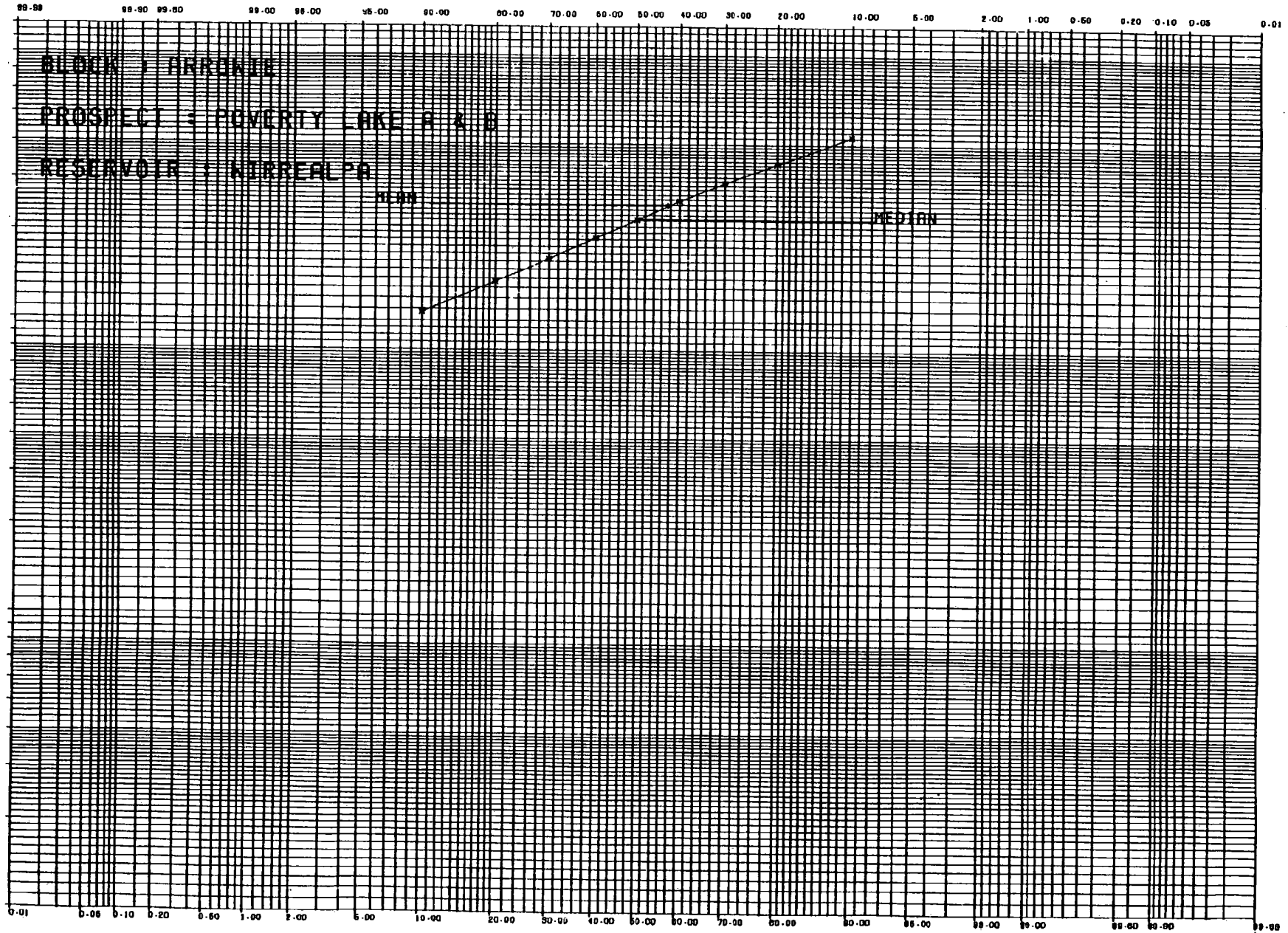
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.44	10.70	13.60	16.30	19.20	22.20	25.70	29.50	34.30	42.60	238.46

RISK ANALYSIS

OIL (1PERIAL)

CONDITIONAL PROBABILITY



Imperial GEOLOGIC ASSESSMENT (GAS) 00977

PROSPECT NAME : POVERTY LAKE A & B
STATUS : STRONG LEAD
`CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	10000	12500	13750
CLOSURE HEIGHT (feet)	142	178	196
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.82	0.85	0.86
BULK RESERVOIR VOLUME (acre-ft)	81999	318750	709500
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	7113	10772	13750
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.80 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.058

RESERVES

MEAN RECOVERABLE RESERVES ARE 97.75 BCF
MEDIAN RECOVERABLE VALUE P(0.5) IS 91.60 BCF
MODAL RECOVERABLE VALUE IS 98.56 BCF

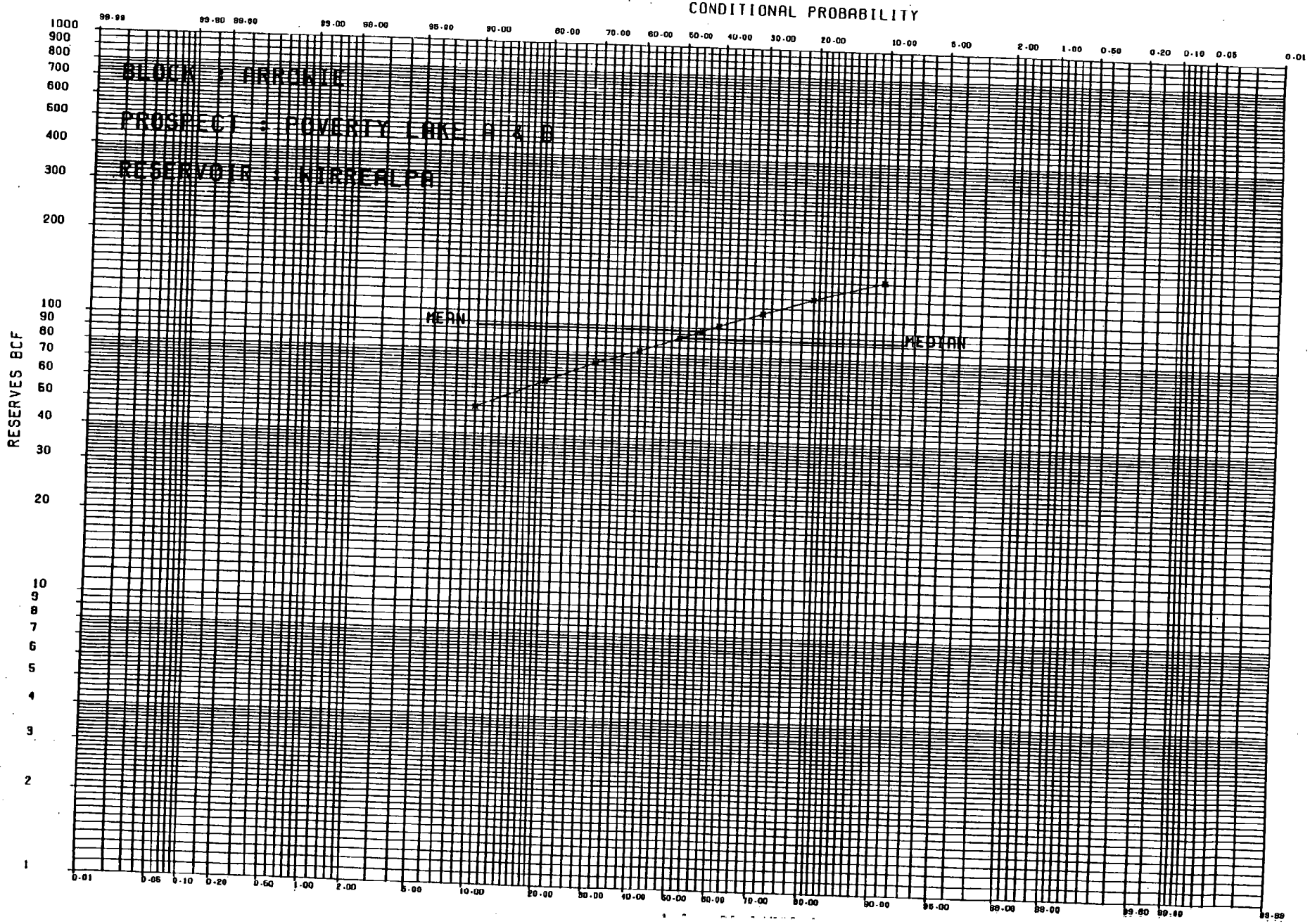
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
5.07	49.80	62.30	73.60	81.80	91.60	102.80	114.40	130.10	151.40	536.46

RISK ANAL IS

GAS (IMPERIAL)



009778

WEAK LEADS

PROSPECT DATA SHEETS

PROSPECT MAPS

GEOLOGICAL ASSESSMENT SUMMARIES

CONDITIONAL PROBABILITY PLOTS

Imperial GEOLOGIC ASSESSMENT (OIL) 00980

PROSPECT NAME : BILLEROO
STATUS : WEAK LEAD
K : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	3215	4019	4421
CLOSURE HEIGHT (feet)	312	390	429
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.92	0.93	0.94
BULK RESERVOIR VOLUME (acre-ft)	29578	112130	249344
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	1099	2859	4421
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

OGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.020

RESERVES

EAN RECOVERABLE RESERVES ARE 8.65 MMBBL
DIAN RECOVERABLE VALUE P(0.5) IS 7.88 MMBBL
MODAL RECOVERABLE VALUE IS 8.25 MMBBL

CONDITIONAL PROBABILITY

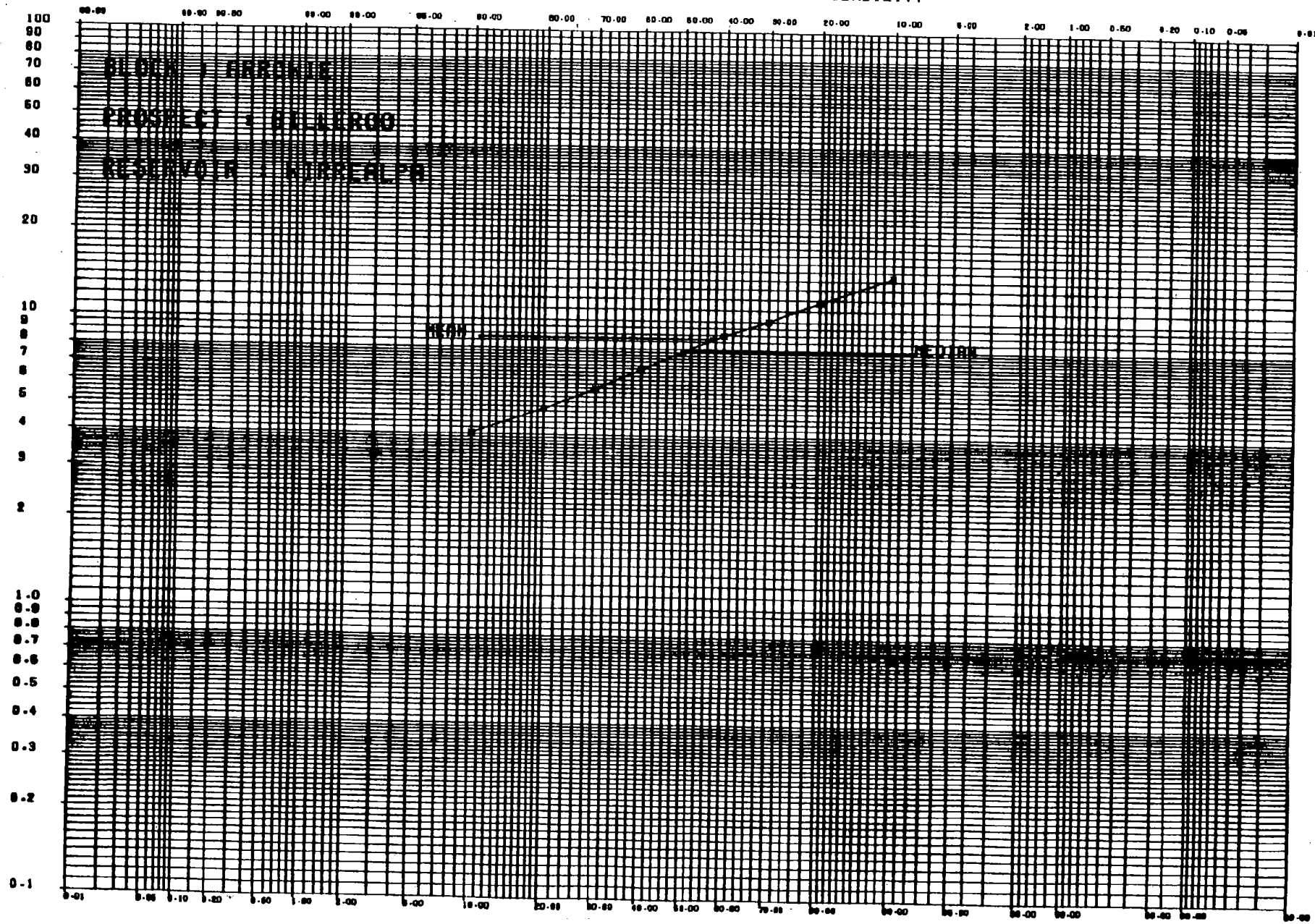
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.16	4.03	4.91	5.79	6.78	7.88	8.95	10.04	11.74	14.39	82.57

RISK ANALYSIS

OIL (IMPERIAL)

CONDITIONAL PROBABILITY



Imperial GEOLOGIC ASSESSMENT (GAS) 00982

PROSPECT NAME : BILLEROO
STATUS : WEAK LEAD
ICK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	3215	4019	4421
CLOSURE HEIGHT (feet)	312	390	429
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.92	0.93	0.94
BULK RESERVOIR VOLUME (acre-ft)	29578	112130	249344
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	2287	3463	4421
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

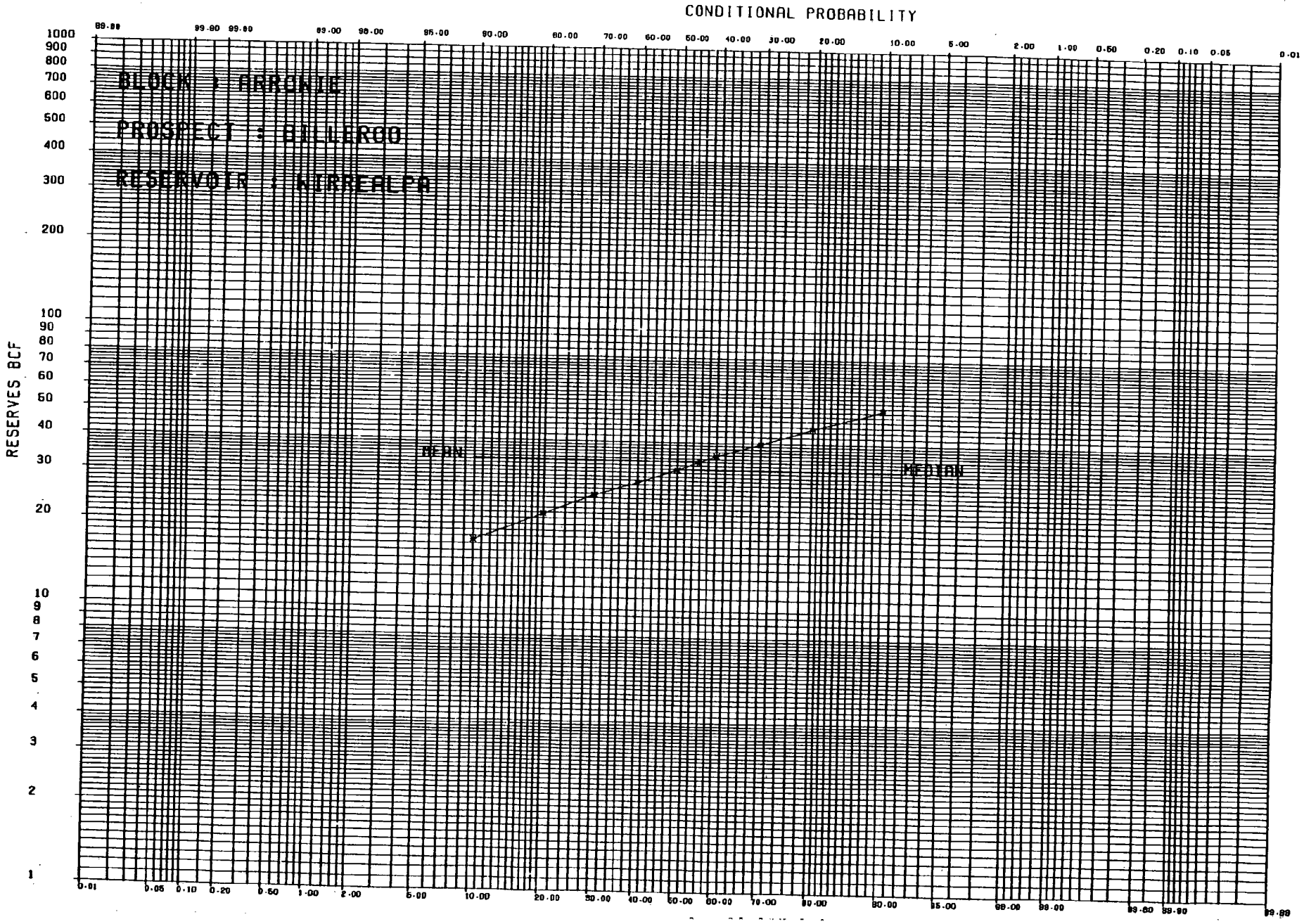
MEAN RECOVERABLE RESERVES ARE 34.09 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 31.90 BCF
MODAL RECOVERABLE VALUE IS 34.13 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
1.83	17.50	21.80	25.70	28.50	31.90	35.80	39.80	45.30	52.80	185.76

RISK ANALY S GAS IMPERIAL)



00983

Imperial GEOLOGIC ASSESSMENT (OIL) 00984

PROSPECT NAME : ERRAGOONA
STATUS : WEAK LEAD
CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	294	367	404
CLOSURE HEIGHT (feet)	122	152	167
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.78	0.83	0.84
BULK RESERVOIR VOLUME (acre-ft)	2293	9138	20361
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	100	261	404
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.020

RESERVES

MEAN RECOVERABLE RESERVES ARE 0.70 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.63 MMBBL
MODAL RECOVERABLE VALUE IS 0.67 MMBBL

CONDITIONAL PROBABILITY

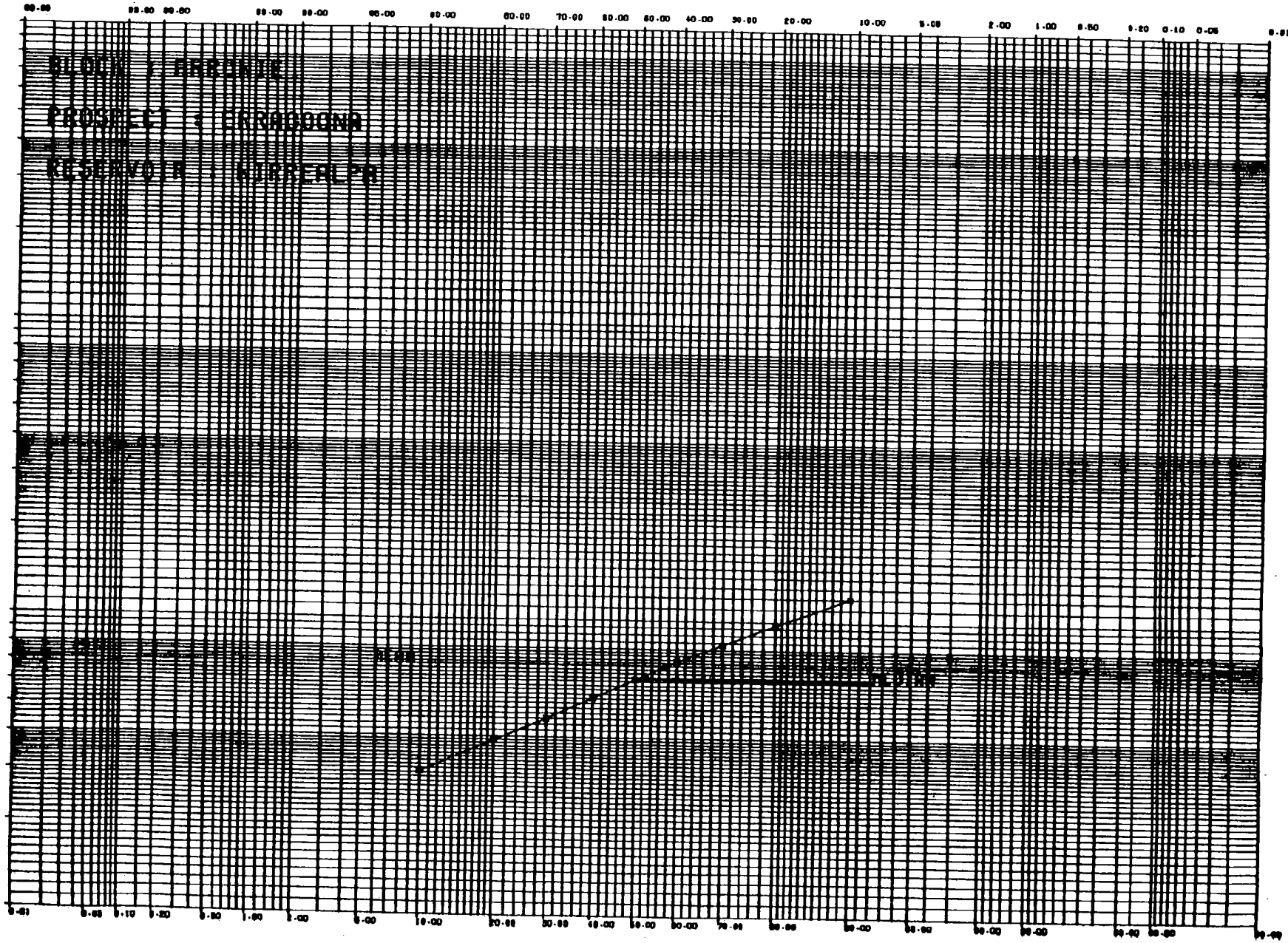
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.01	0.30	0.39	0.46	0.54	0.63	0.73	0.84	0.97	1.21	6.74

RISK ANALYSIS

OIL ('PERIAL)

CONDITIONAL PROBABILITY



Imperial GEOLOGIC ASSESSMENT (GAS) 00986

PROSPECT NAME : ERRAGOONA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	294	367	404
CLOSURE HEIGHT (feet)	122	152	167
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.78	0.82	0.83
BULK RESERVOIR VOLUME (acre-ft)	2293	9028	20119
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	209	316	404
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

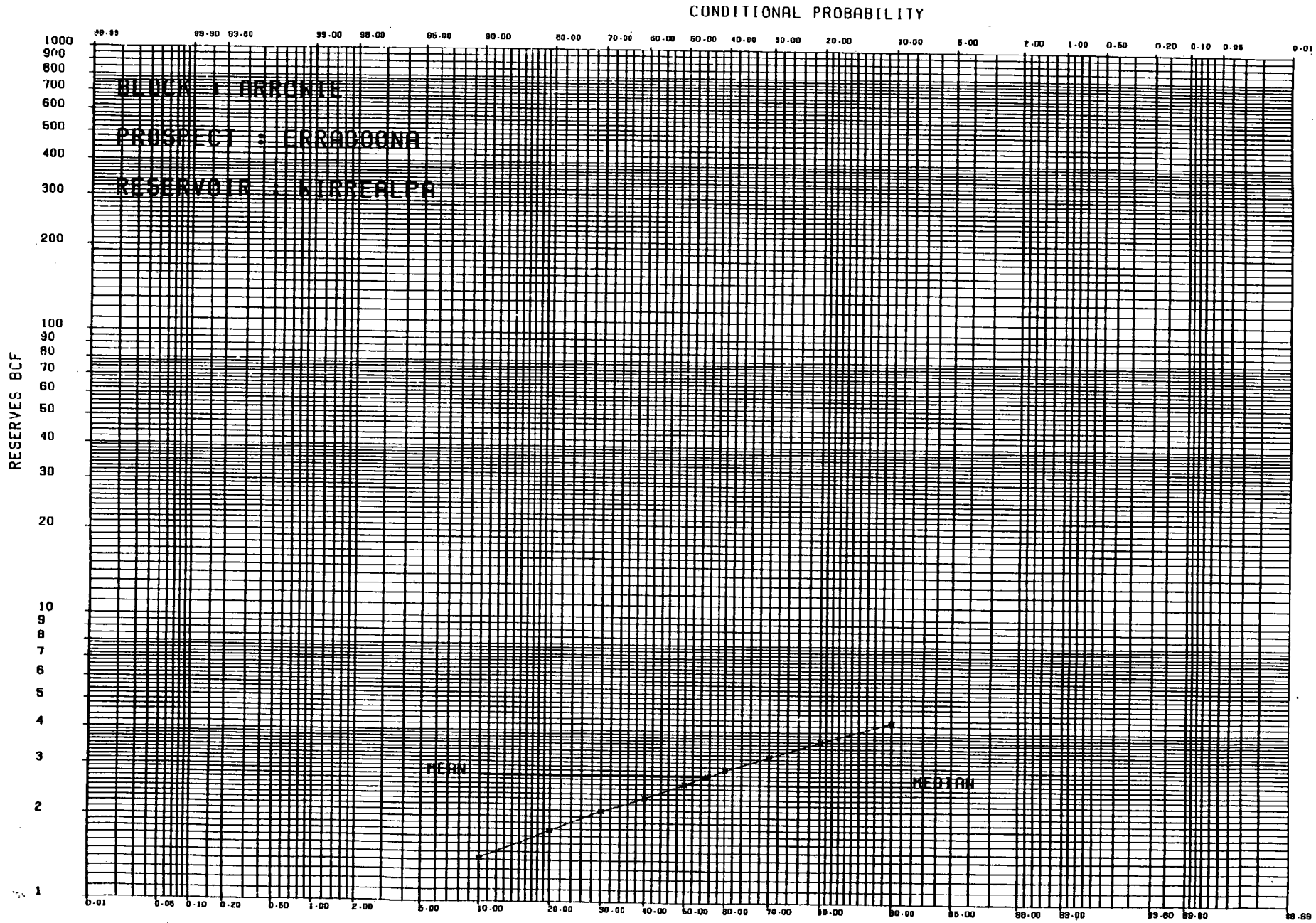
MEAN RECOVERABLE RESERVES ARE 2.78 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 2.60 BCF
MODAL RECOVERABLE VALUE IS 2.78 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.15	1.42	1.78	2.09	2.32	2.60	2.92	3.25	3.69	4.30	15.16

RISK ANALY S GAS IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (OIL) 00988

PROSPECT NAME : ERUDINA
STATUS : WEAK LEAD
[illegible]CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	748	935	1029
CLOSURE HEIGHT (feet)	138	173	190
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.81	0.83	0.86
BULK RESERVOIR VOLUME (acre-ft)	6058	23281	53096
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	255	665	1029
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

[illegible]LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.020

RESERVES

MEAN RECOVERABLE RESERVES ARE 1.82 MMBBL
[illegible]EDIAN RECOVERABLE VALUE P(0.5) IS 1.65 MMBBL
MODAL RECOVERABLE VALUE IS 1.71 MMBBL

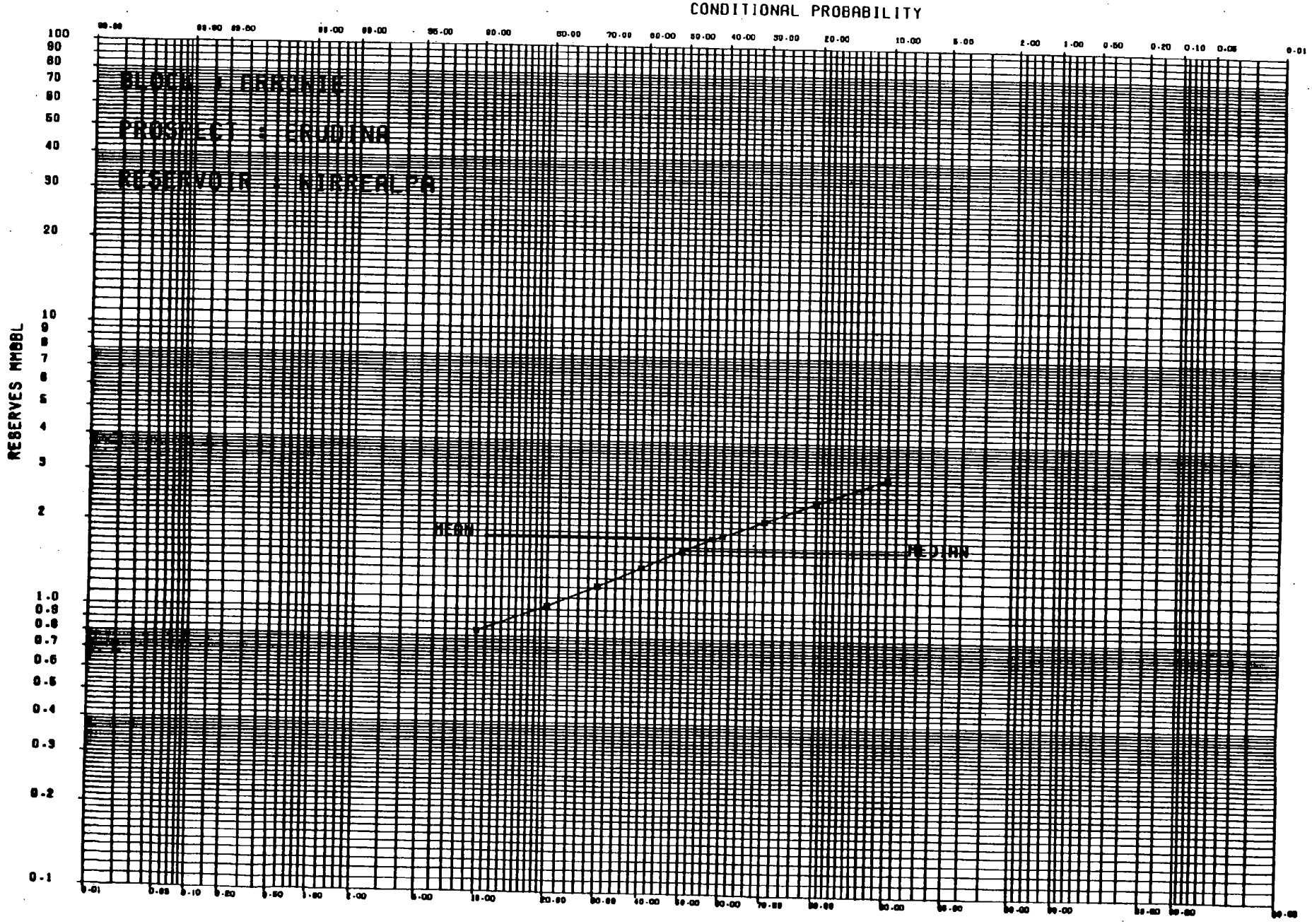
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

[illegible].0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.03	0.84	1.03	1.21	1.43	1.65	1.87	2.11	2.46	3.02	17.85

RISK ANALYSIS

OIL (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (GAS) 00990

PROSPECT NAME : ERUDINA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	748	935	1029
CLOSURE HEIGHT (feet)	138	173	190
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.81	0.84	0.86
BULK RESERVOIR VOLUME (acre-ft)	6058	23561	53096
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	532	805	1029
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

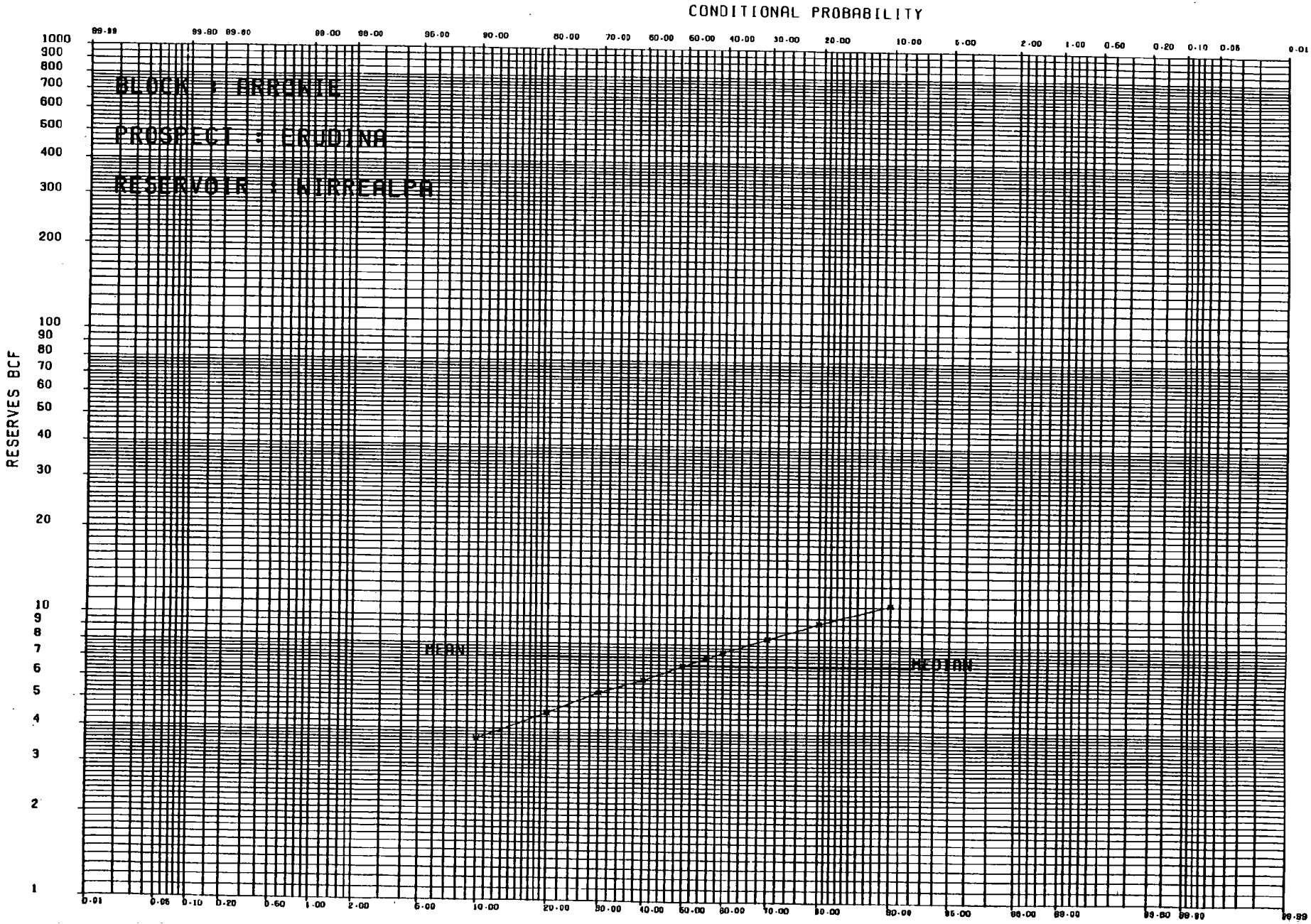
MEAN RECOVERABLE RESERVES ARE 7.20 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 6.74 BCF
MODAL RECOVERABLE VALUE IS 7.09 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.38	3.67	4.57	5.39	6.00	6.74	7.55	8.44	9.59	11.16	40.15

RISK ANALYSIS GAS (IMPERIAL)



00991

Imperial GEOLOGIC ASSESSMENT (OIL) 00992

PROSPECT NAME : MORO
STATUS : WEAK LEAD
...K : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	800	1000	1100
CLOSURE HEIGHT (feet)	114	143	157
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.77	0.82	0.83
BULK RESERVOIR VOLUME (acre-ft)	6159	24599	54779
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	273	711	1100
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

...LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

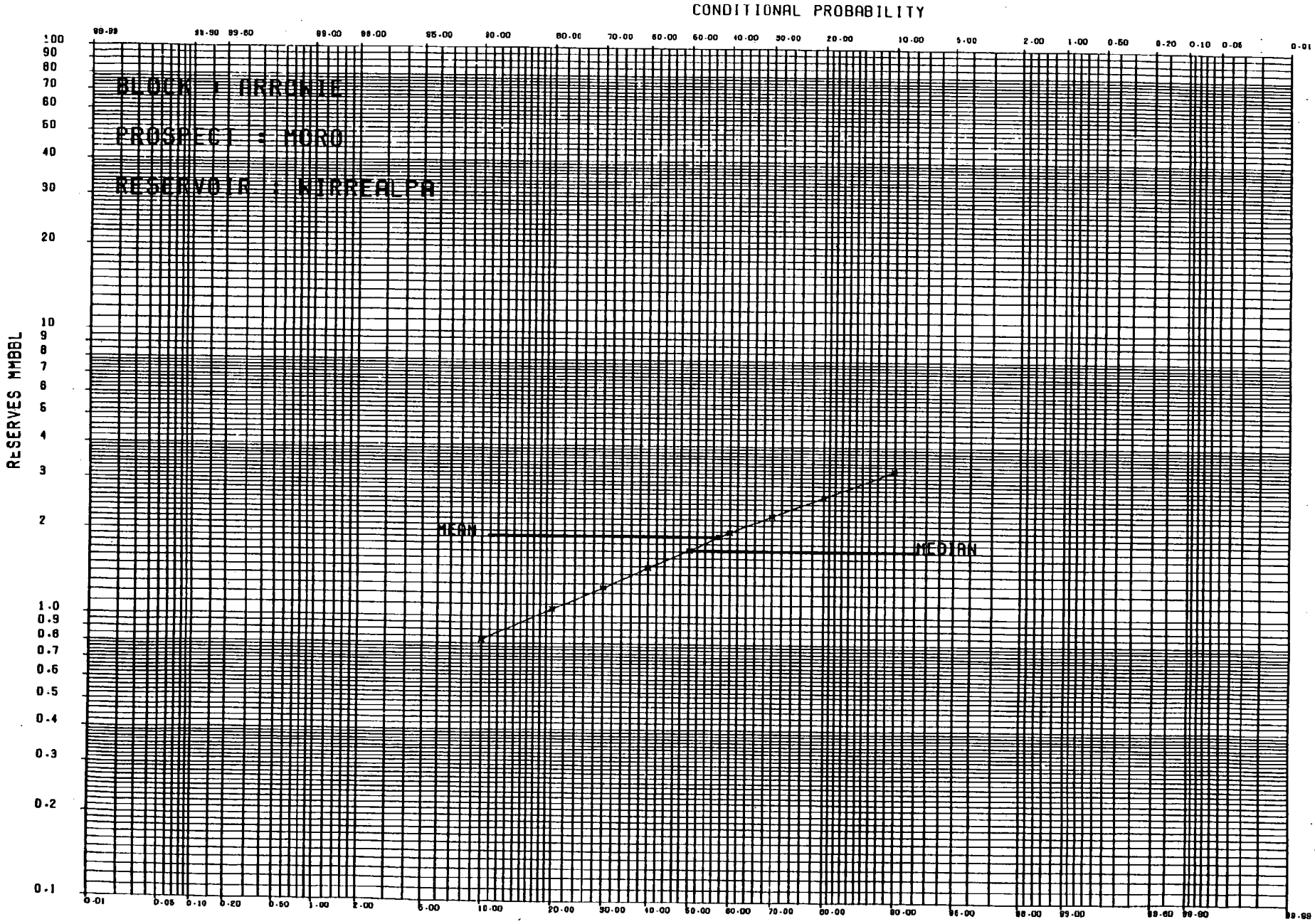
...EAN RECOVERABLE RESERVES ARE 1.91 MMBBL
...EDIAN RECOVERABLE VALUE P(0.5) IS 1.71 MMBBL
MODAL RECOVERABLE VALUE IS 1.83 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.04	0.83	1.06	1.26	1.48	1.71	1.98	2.28	2.65	3.28	18.34

RISK ANALYSIS — OIL (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (GAS) 00994

PROSPECT NAME : MORO
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	800	1000	1100
CLOSURE HEIGHT (feet)	114	143	157
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.77	0.82	0.83
BULK RESERVOIR VOLUME (acre-ft)	6159	24599	54779
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	569	861	1100
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	145	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

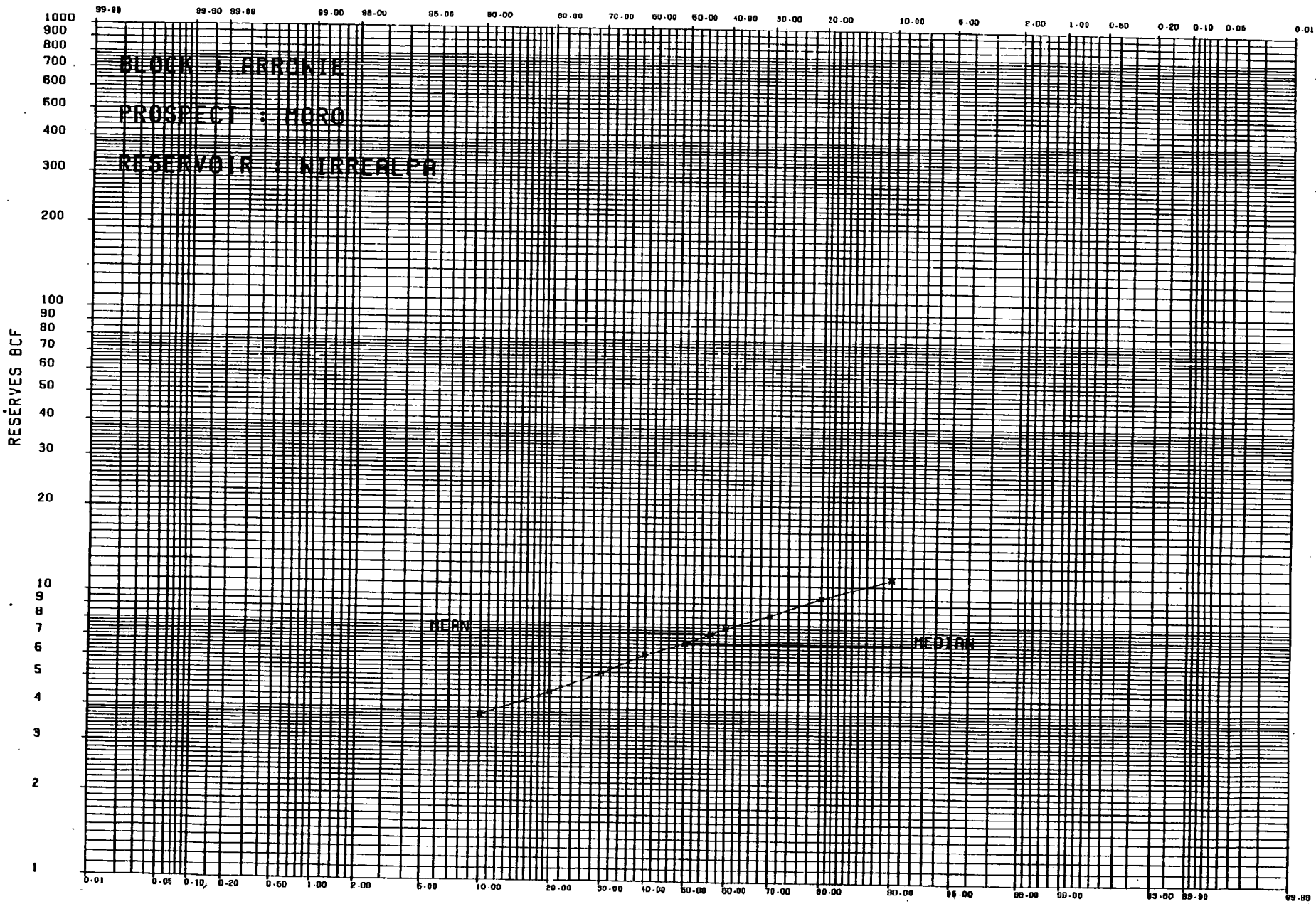
MEAN RECOVERABLE RESERVES ARE 7.43 BCF
MEDIAN RECOVERABLE VALUE P(0.5) IS 6.88 BCF
MODAL RECOVERABLE VALUE IS 7.58 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.40	3.79	4.58	5.36	6.24	6.88	7.77	8.66	9.98	11.64	41.27

RISK ANALY S GAS IMPERIAL)



00993

Imperial GEOLOGIC ASSESSMENT (OIL) 00996

PROSPECT NAME : MULGA
STATUS : WEAK LEAD
CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 25/06/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	111	215	320
CLOSURE HEIGHT (feet)	38	86	95
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.70	0.73
BULK RESERVOIR VOLUME (acre-ft)	466	4514	14016
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	37	152	320
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

OGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

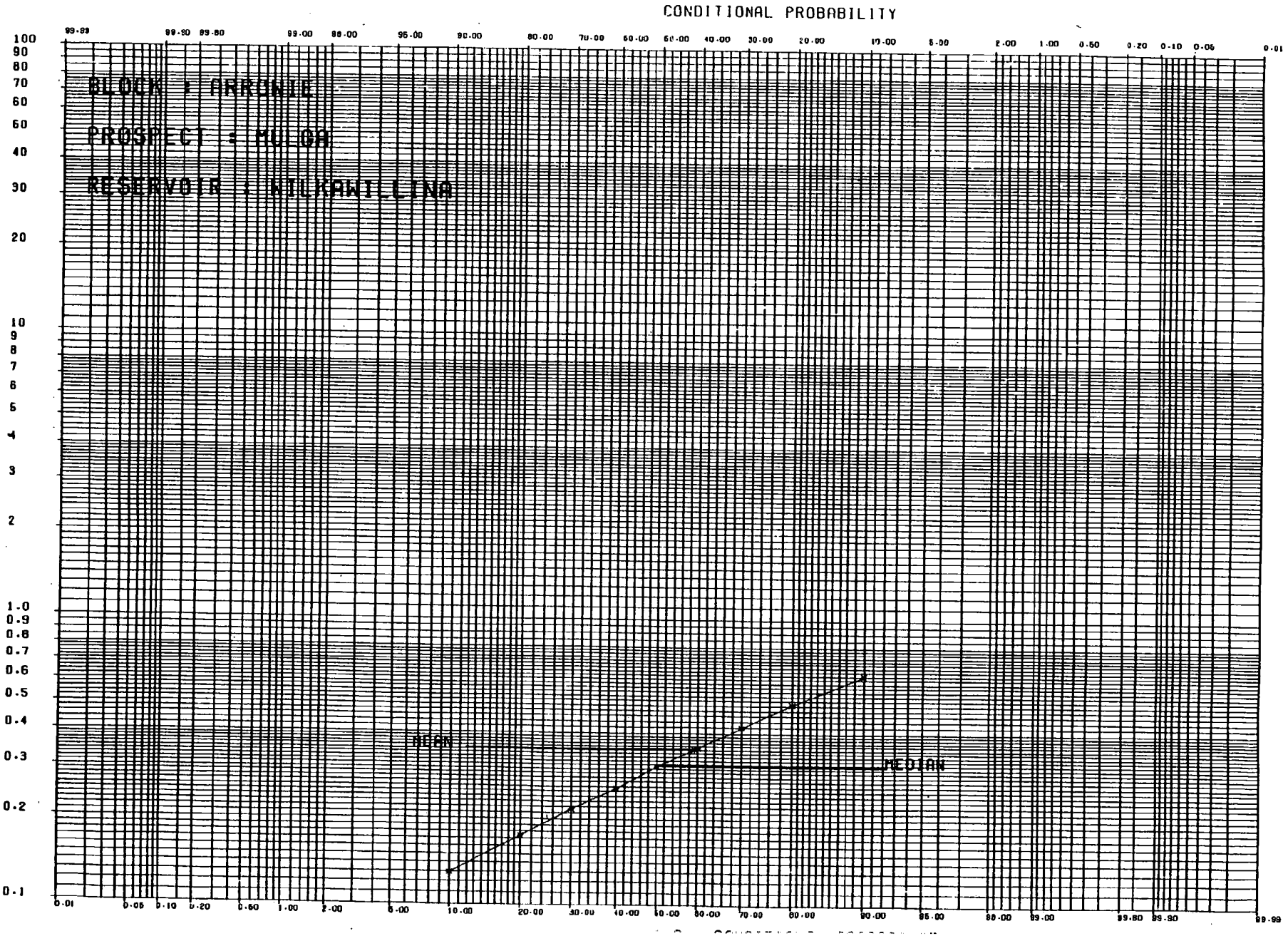
EAN RECOVERABLE RESERVES ARE 0.35 MMBBL
DIAN RECOVERABLE VALUE P(0.5) IS 0.31 MMBBL
MODAL RECOVERABLE VALUE IS 0.33 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.13	0.17	0.22	0.26	0.31	0.35	0.42	0.51	0.64	4.70

RISK ANALYSIS OIL IMPERIAL



00997

Imperial GEOLOGIC ASSESSMENT (GAS) 00998

PROSPECT NAME : MULGA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	111	215	320
CLOSURE HEIGHT (feet)	38	86	95
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.70	0.73
BULK RESERVOIR VOLUME (acre-ft)	466	4514	14016
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	78	185	320
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

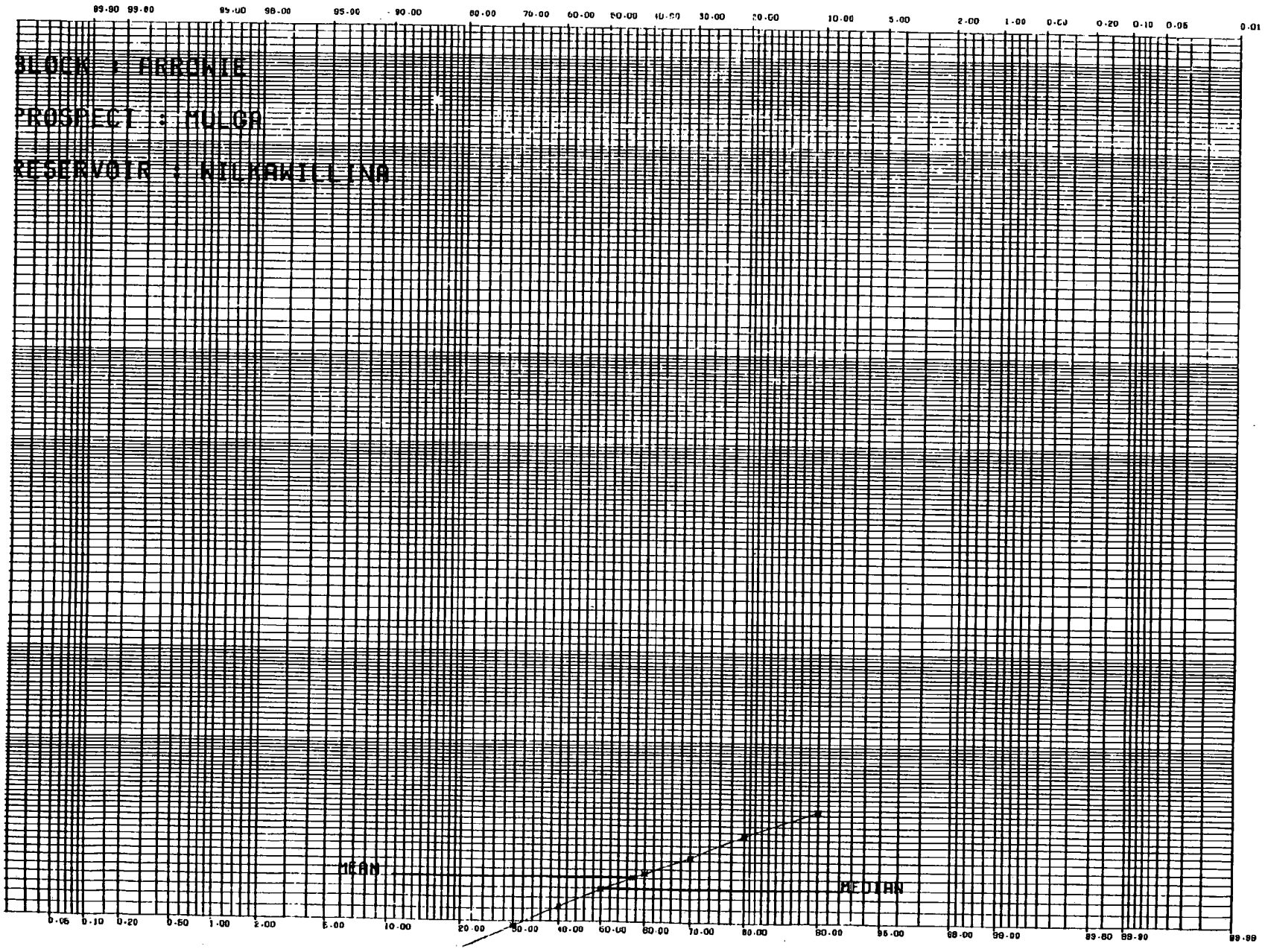
MEAN RECOVERABLE RESERVES ARE 1.41 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 1.28 BCF
MODAL RECOVERABLE VALUE IS 1.40 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

l.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.03	0.61	0.81	0.96	1.12	1.28	1.46	1.64	1.94	2.36	9.43

RISK ANAL IS GAS (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (OIL) 01000

PROSPECT NAME : MULGA
STATUS : WEAK LEAD
CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 25/06/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	111	215	320
CLOSURE HEIGHT (feet)	38	86	95
RESERVOIR THICKNESS (feet)	350	400	450
TRAP GEOMETRY CORRECTION	0.34	0.62	0.65
BULK RESERVOIR VOLUME (acre-ft)	1434	11463	19759
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	37	152	320
RESERVOIR NET/GROSS RATIO	0.10	0.30	0.50
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

MEAN RECOVERABLE RESERVES ARE 0.20 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.17 MMBBL
MODAL RECOVERABLE VALUE IS 0.25 MMBBL

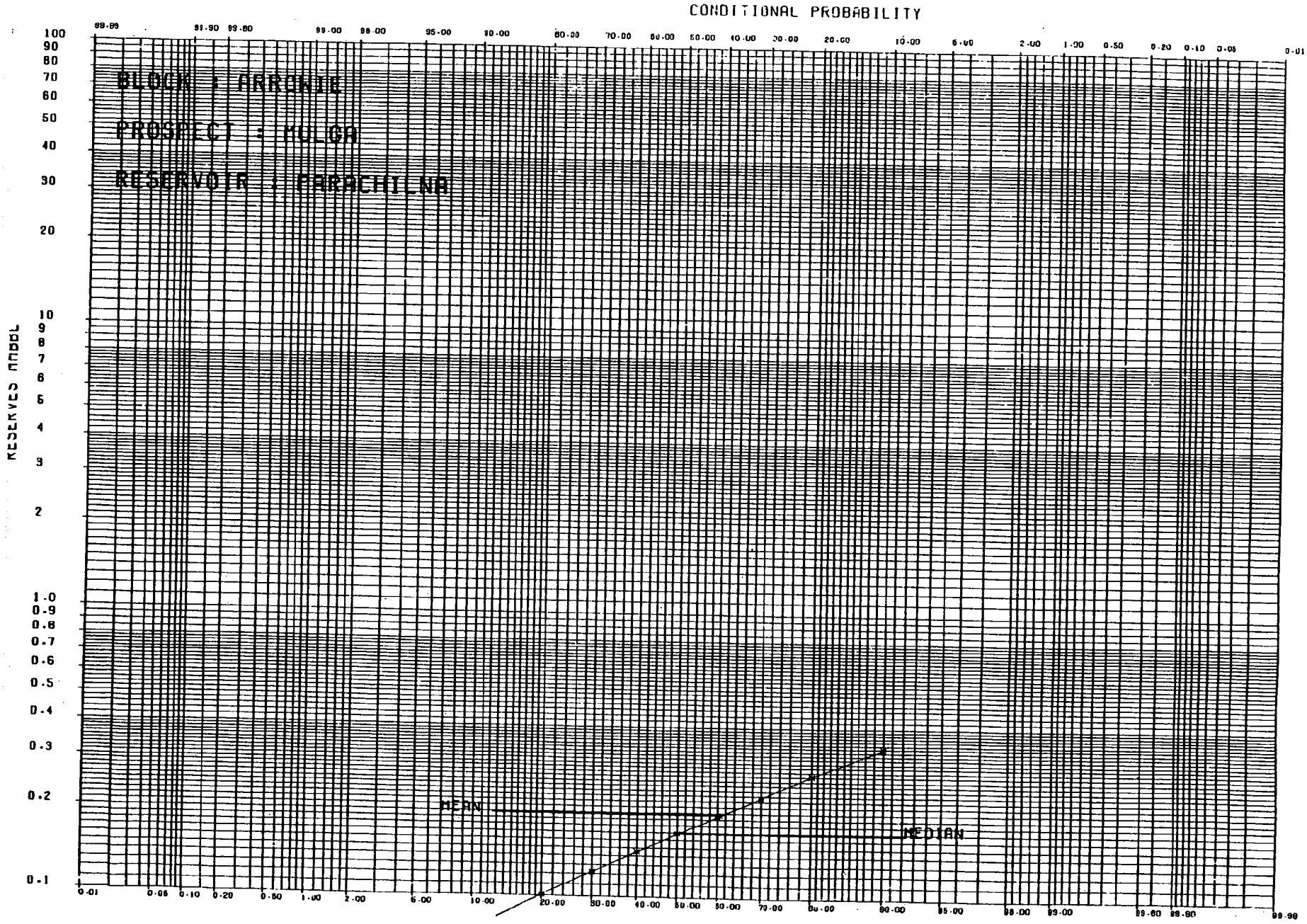
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.07	0.10	0.12	0.14	0.17	0.19	0.23	0.27	0.34	3.31

RISK ANALYSIS

OIL (1PERIAL)



01001

Imperial GEOLOGIC ASSESSMENT (GAS) 01002

PROSPECT NAME : MULGA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	111	215	320
CLOSURE HEIGHT (feet)	38	86	95
RESERVOIR THICKNESS (feet)	350	400	450
TRAP GEOMETRY CORRECTION	0.42	0.70	0.73
BULK RESERVOIR VOLUME (acre-ft)	1771	12942	22192
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	78	185	320
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

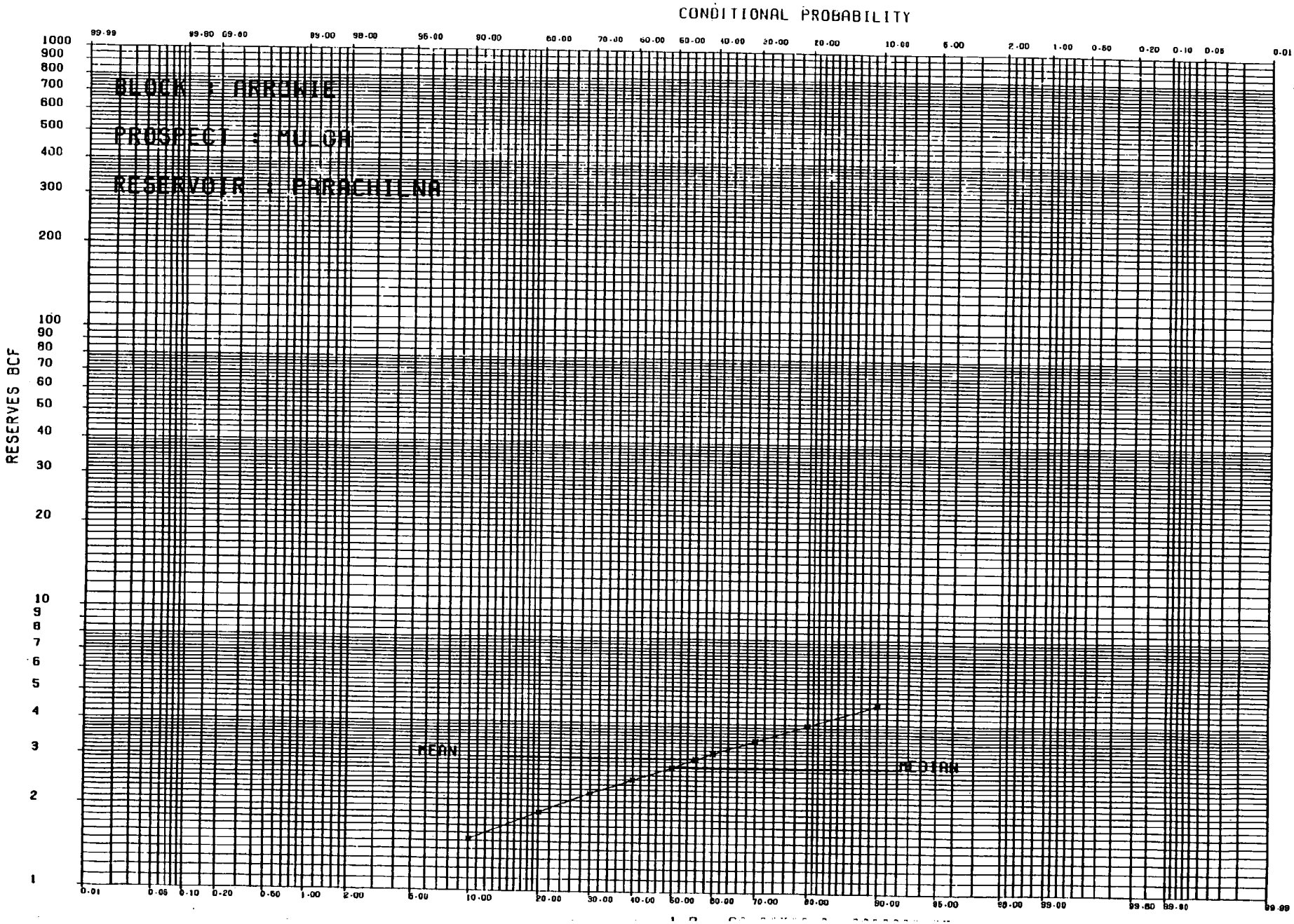
MEAN RECOVERABLE RESERVES ARE 2.98 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 2.77 BCF
MODAL RECOVERABLE VALUE IS 3.99 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.13	1.52	1.91	2.23	2.50	2.77	3.12	3.47	3.96	4.67	14.79

RISK ANALY S GAS IMPERIAL



01003

Imperial GEOLOGIC ASSESSMENT (OIL) 01004

PROSPECT NAME : WEARING
STATUS : WEAK LEAD
BLOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	210	262	288
CLOSURE HEIGHT (feet)	380	475	523
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.94	0.95	0.96
BULK RESERVOIR VOLUME (acre-ft)	1973	7466	16588
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	71	186	288
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

MEAN RECOVERABLE RESERVES ARE 0.58 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.53 MMBBL
MODAL RECOVERABLE VALUE IS 0.56 MMBBL

CONDITIONAL PROBABILITY

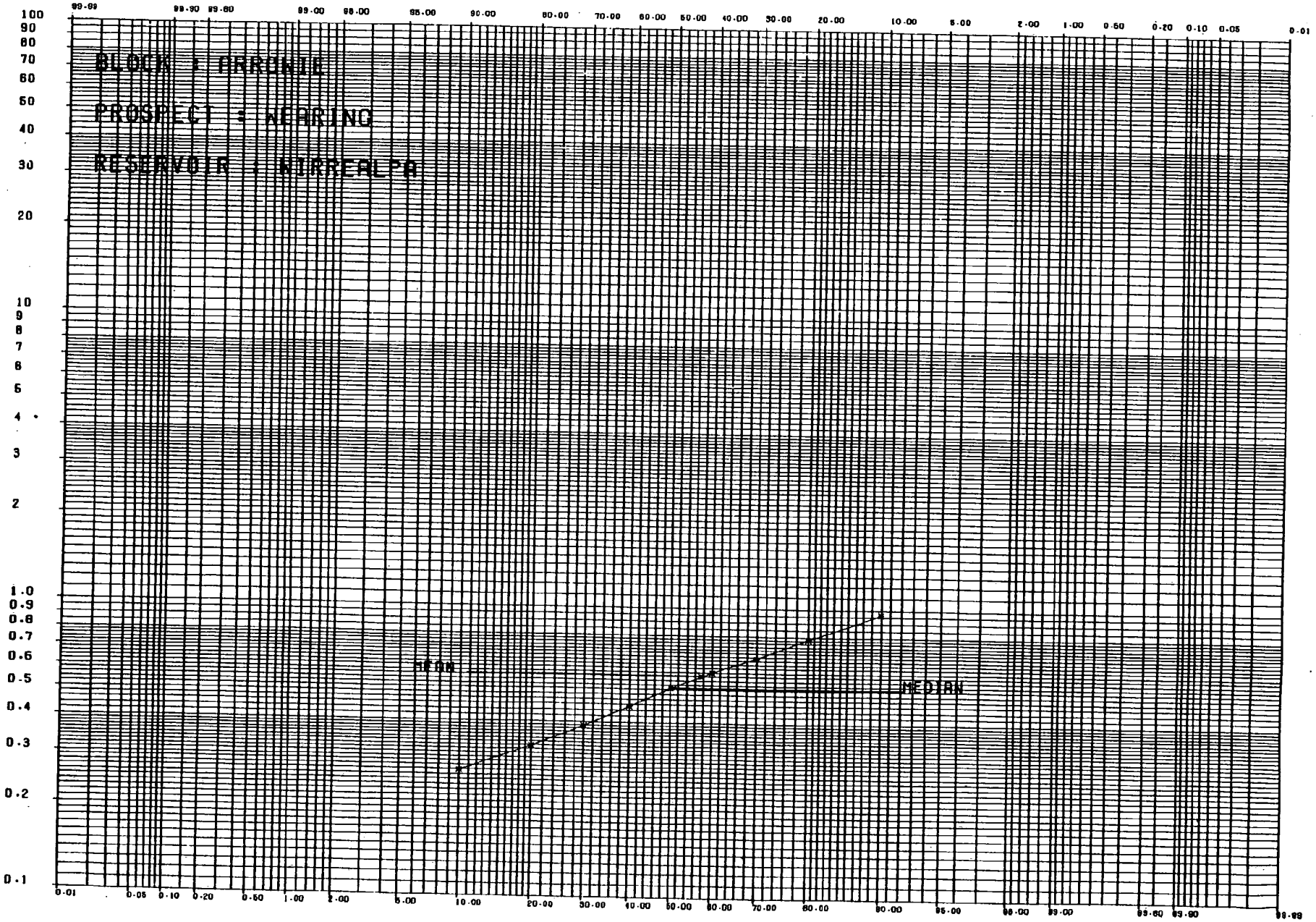
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.01	0.27	0.33	0.39	0.45	0.53	0.60	0.67	0.79	0.96	5.57

RISK ANALYSIS

OIL (IMPERIAL)

CONDITIONAL PROBABILITY



01003

Imperial GEOLOGIC ASSESSMENT (GAS) 01006

PROSPECT NAME : WEARING
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	210	262	288
CLOSURE HEIGHT (feet)	380	475	523
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.93	0.94	0.95
BULK RESERVOIR VOLUME (acre-ft)	1953	7388	16415
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	149	225	288
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

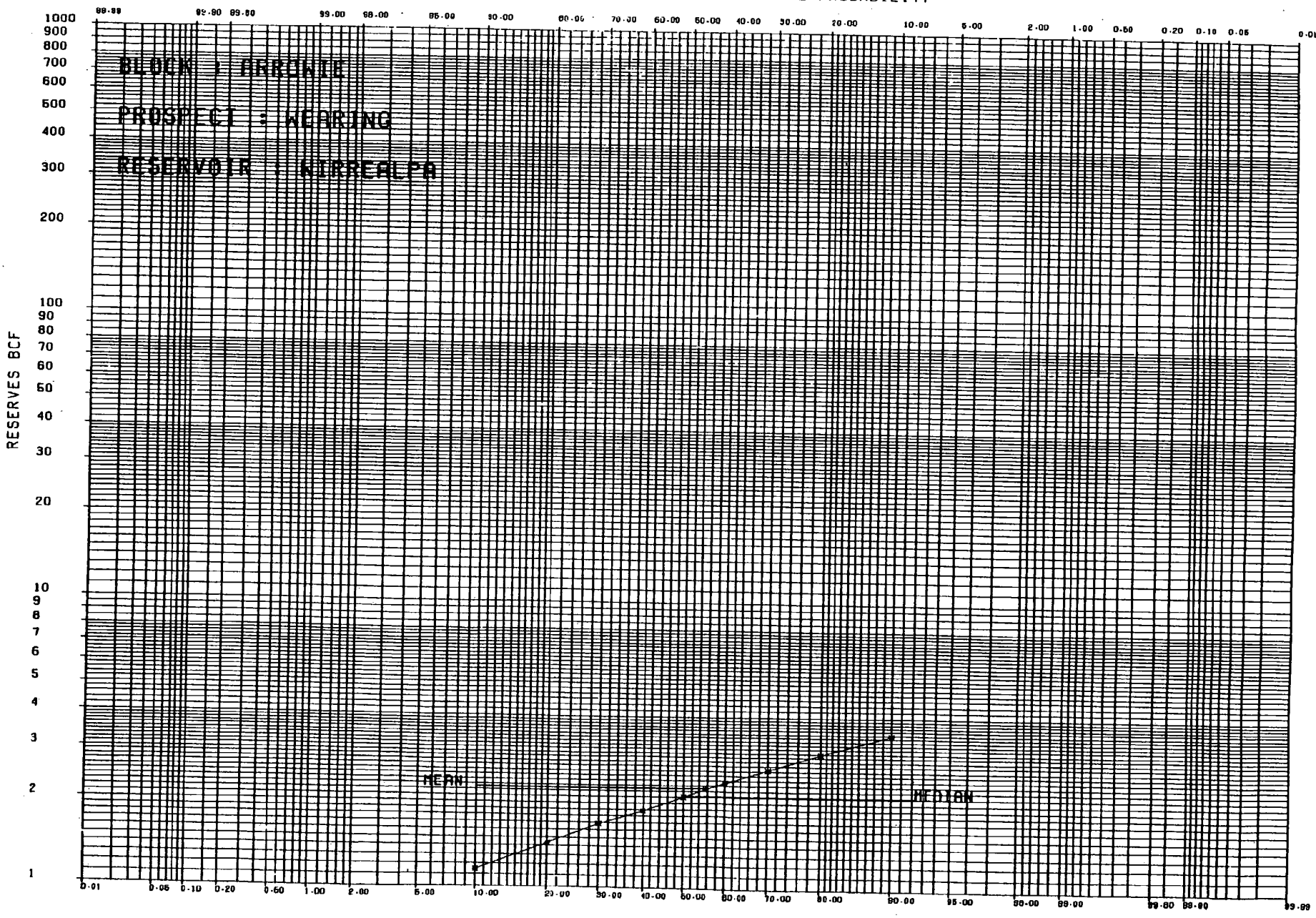
EAN RECOVERABLE RESERVES ARE 2.24 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 2.10 BCF
MODAL RECOVERABLE VALUE IS 2.22 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.12	1.14	1.43	1.69	1.87	2.10	2.35	2.63	2.98	3.47	12.32

RISK ANALY S GAS IMPERIAL)



01007

Imperial GEOLOGIC ASSESSMENT (OIL) 01008

PROSPECT NAME : WILPENA
STATUS : WEAK LEAD
[illegible]K : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	5612	7016	7718
CLOSURE HEIGHT (feet)	395	494	543
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.94	0.95	0.96
BULK RESERVOIR VOLUME (acre-ft)	52752	199955	444556
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	1919	4991	7718
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

[illegible]EAN RECOVERABLE RESERVES ARE 15.52 MMBBL
[illegible]EDIAN RECOVERABLE VALUE P(0.5) IS 14.11 MMBBL
MODAL RECOVERABLE VALUE IS 14.92 MMBBL

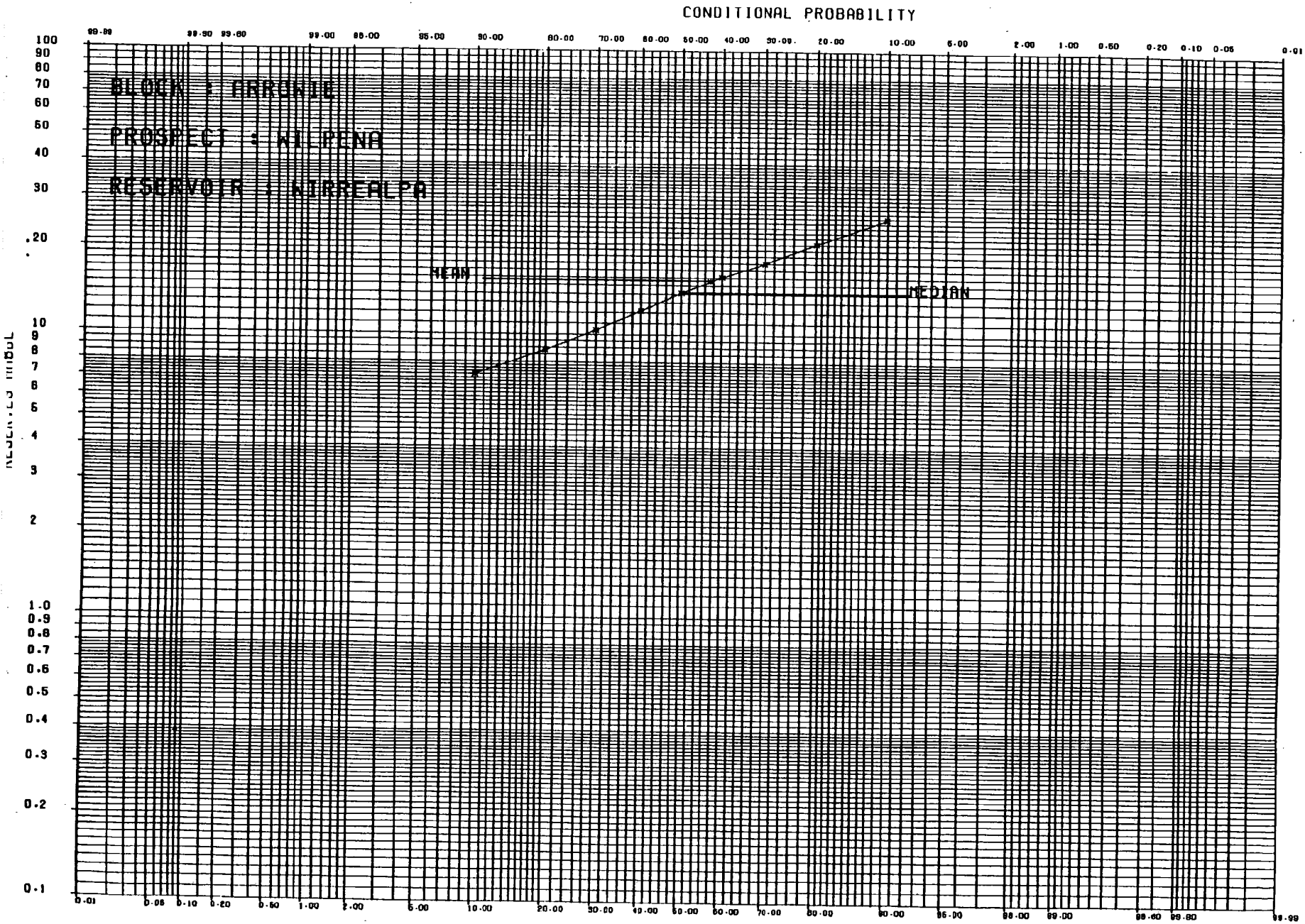
CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.28	7.20	8.81	10.37	12.15	14.11	16.05	17.98	21.02	25.80	149.29

RISK ANALYSIS

OIL (MPERIAL)



01009

Imperial GEOLOGIC ASSESSMENT (GAS) 01010

PROSPECT NAME : WILPENA
STATUS : WEAK LEAD
OCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	5612	7016	7718
CLOSURE HEIGHT (feet)	395	494	543
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.93	0.94	0.95
BULK RESERVOIR VOLUME (acre-ft)	52191	197851	439925
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	3992	6046	7718
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

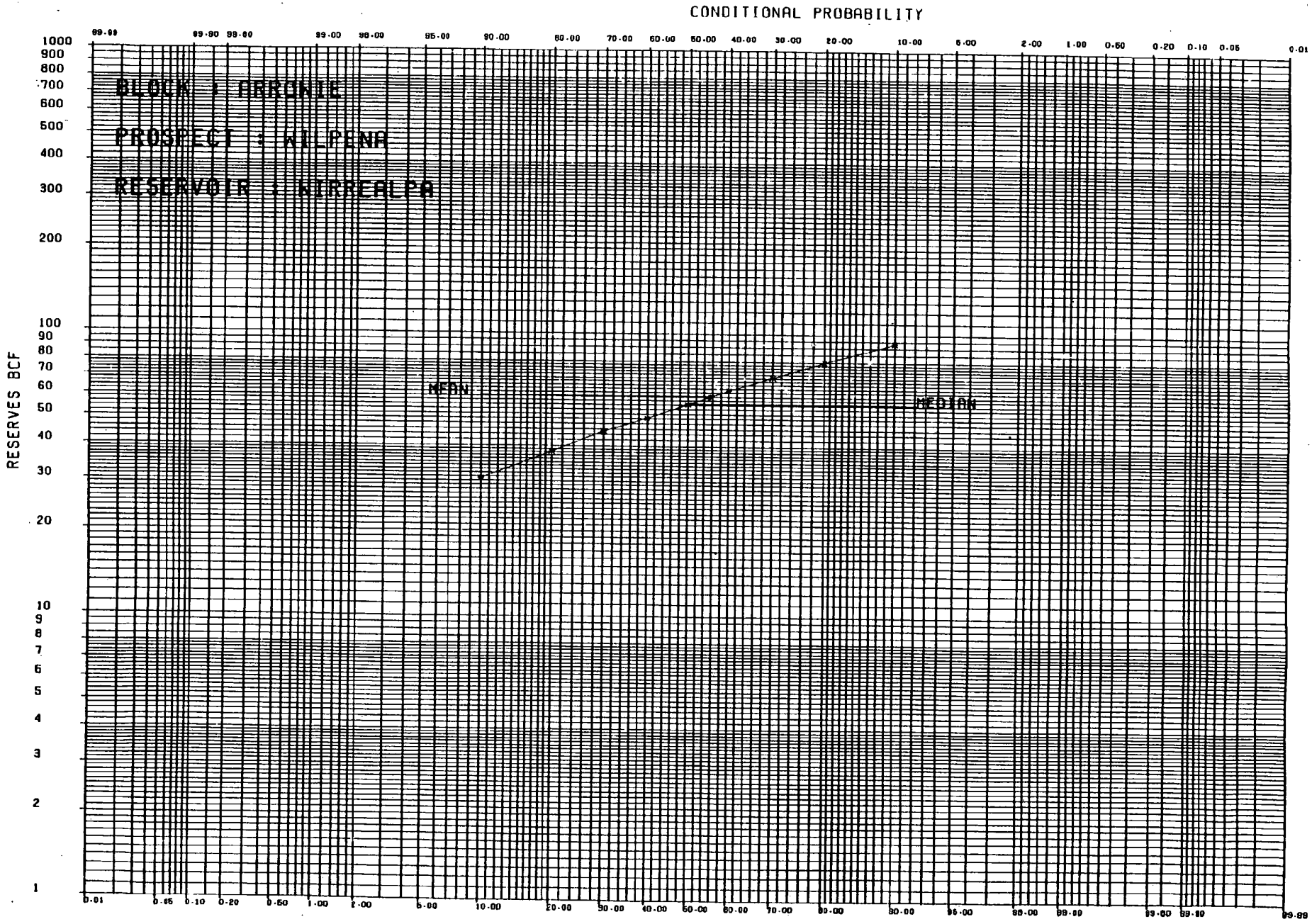
EAN RECOVERABLE RESERVES ARE 60.02 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 56.20 BCF
MODAL RECOVERABLE VALUE IS 59.58 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
3.20	30.60	38.20	45.10	50.20	56.20	63.00	70.30	79.90	93.00	330.07

RISK ANALY S GAS IMPERIAL)



01011

Imperial GEOLOGIC ASSESSMENT (OIL) 01012

PROSPECT NAME : WIRRAPOWIE
STATUS : WEAK LEAD
'K : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	294	367	404
CLOSURE HEIGHT (feet)	38	48	53
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.52	0.55
BULK RESERVOIR VOLUME (acre-ft)	1234	5725	11776
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	100	261	404
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

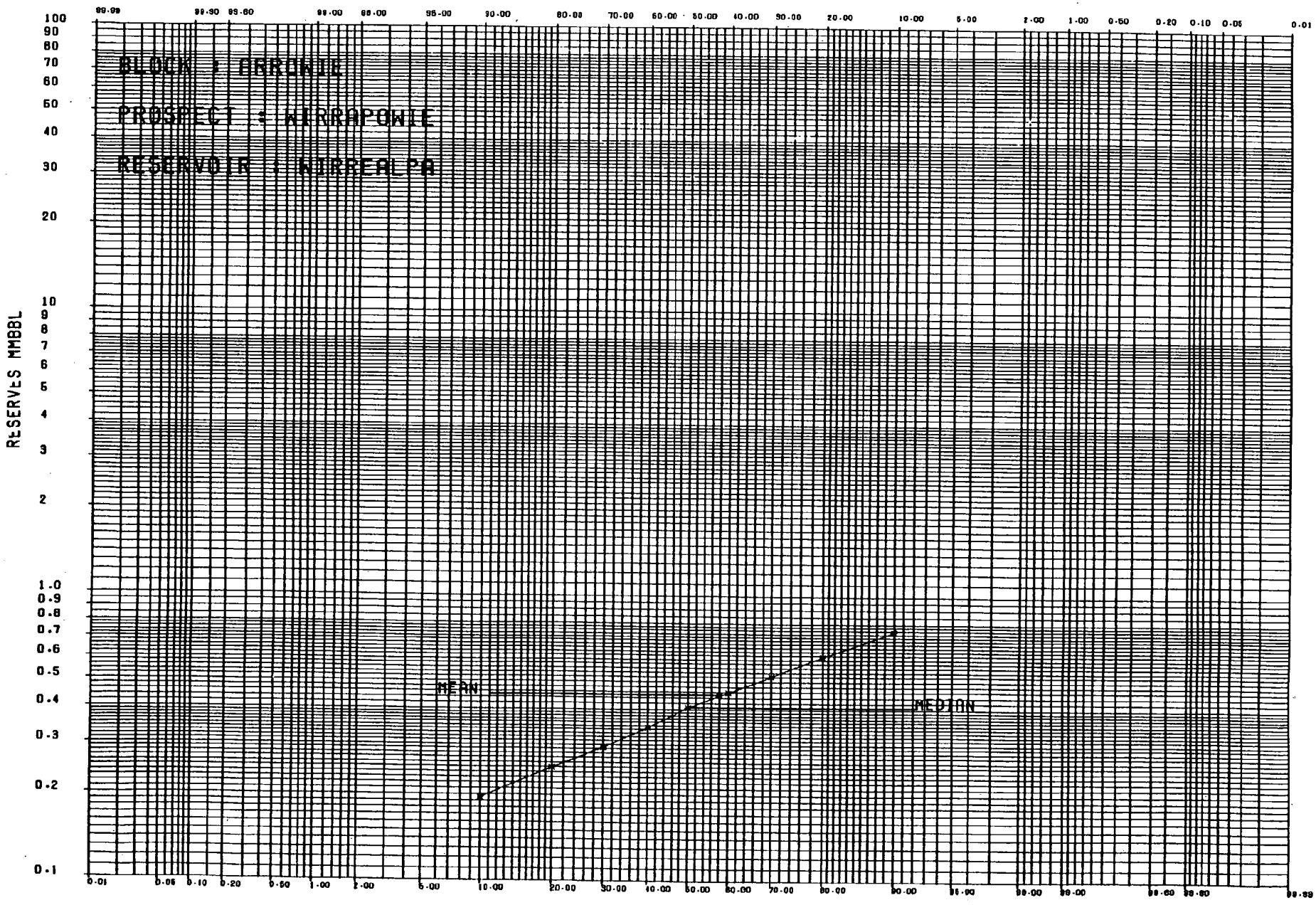
MEAN RECOVERABLE RESERVES ARE 0.45 MMBBL
EDIAN RECOVERABLE VALUE P(0.5) IS 0.41 MMBBL
ODAL RECOVERABLE VALUE IS 0.43 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.01	0.19	0.25	0.29	0.34	0.41	0.46	0.52	0.61	0.75	4.45

RISK ANALYSIS OIL (IMPERIAL)



01013

Imperial GEOLOGIC ASSESSMENT (GAS) 01014

PROSPECT NAME : WIRRAPOWIE
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	294	367	404
CLOSURE HEIGHT (feet)	38	48	53
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.42	0.52	0.54
BULK RESERVOIR VOLUME (acre-ft)	1234	5725	11562
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	209	316	404
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

JLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

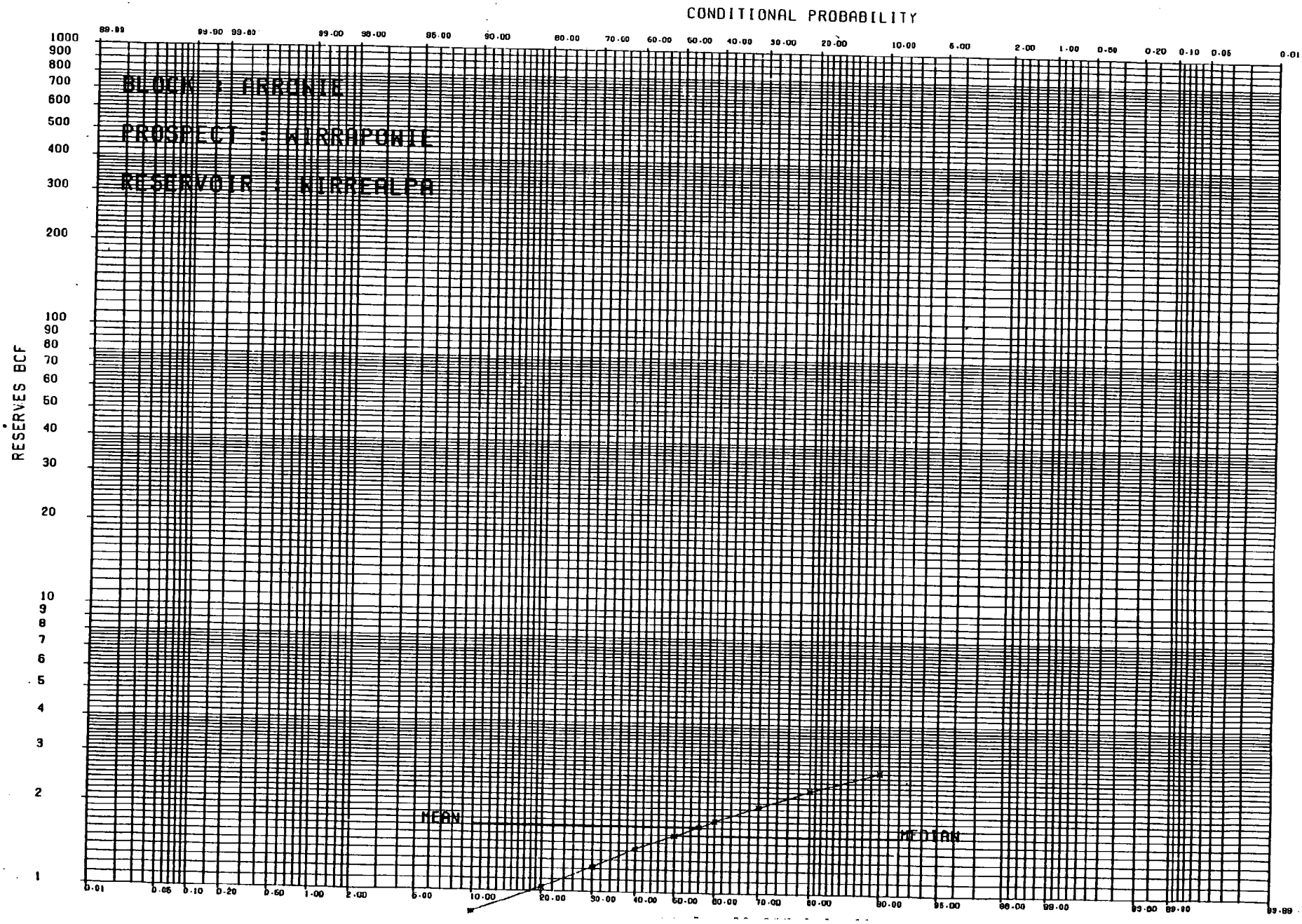
MEAN RECOVERABLE RESERVES ARE 1.72 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 1.60 BCF
MODAL RECOVERABLE VALUE IS 1.78 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.07	0.84	1.03	1.22	1.43	1.60	1.80	2.03	2.33	2.71	9.70

RISK ANALY S GAS IMPERIAL)



01015

Imperial GEOLOGIC ASSESSMENT (OIL) 01016

PROSPECT NAME : WOOKATA
STATUS : WEAK LEAD
CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 25/06/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	140	247	355
CLOSURE HEIGHT (feet)	57	66	76
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.58	0.62	0.66
BULK RESERVOIR VOLUME (acre-ft)	811	4594	14058
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	47	175	355
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

EAN RECOVERABLE RESERVES ARE 0.38 MMBBL
EDIAN RECOVERABLE VALUE P(0.5) IS 0.34 MMBBL
MODAL RECOVERABLE VALUE IS 0.34 MMBBL

CONDITIONAL PROBABILITY

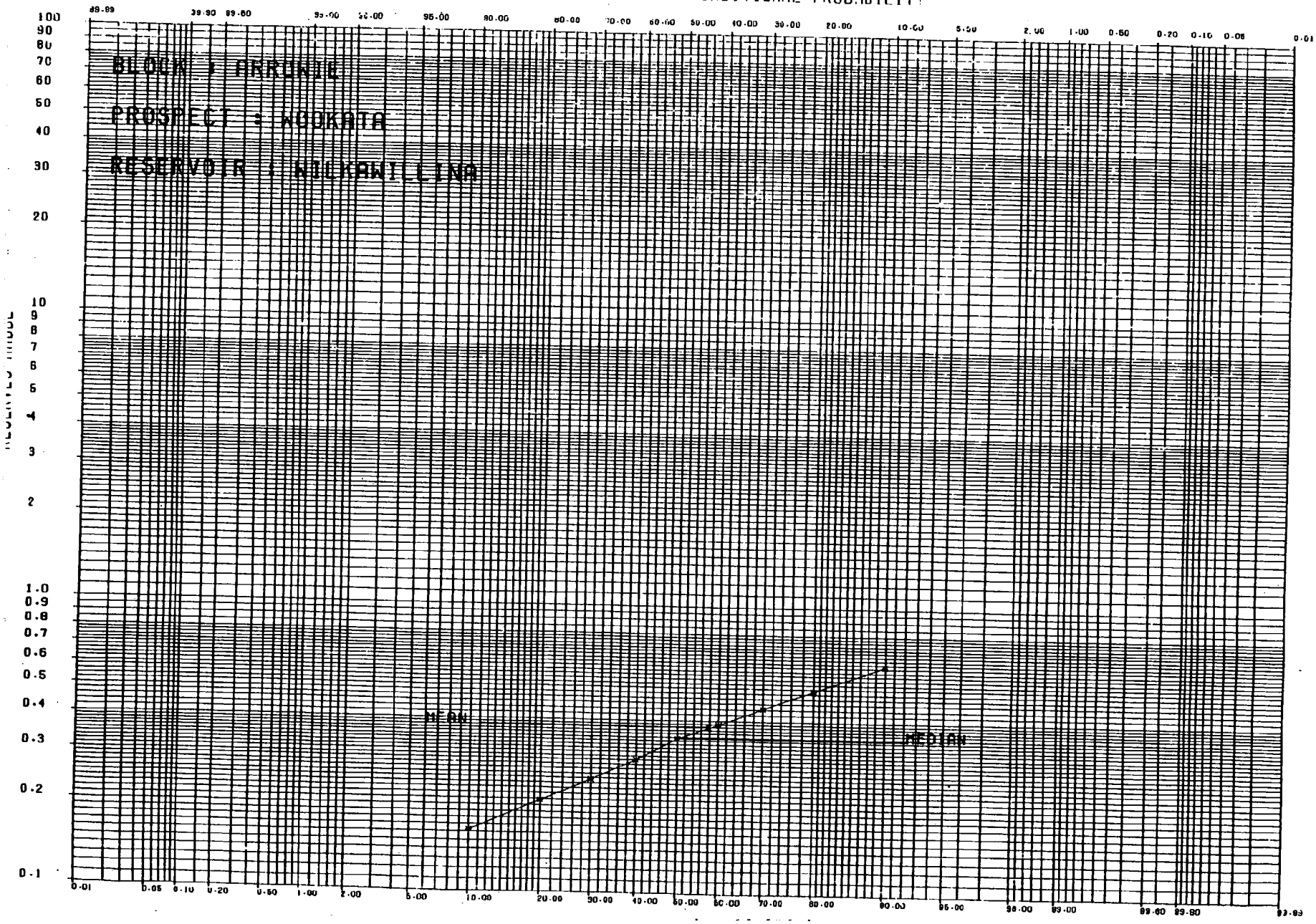
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.16	0.21	0.25	0.29	0.34	0.39	0.44	0.51	0.63	4.74

RISK ANALYSIS

OIL (IMPERIAL)

CONDITIONAL PROBABILITY



01017

Imperial GEOLOGIC ASSESSMENT (GAS) 01018

PROSPECT NAME : WOOKATA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : WILKAWILLINA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	140	247	355
CLOSURE HEIGHT (feet)	57	66	76
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.58	0.62	0.67
BULK RESERVOIR VOLUME (acre-ft)	811	4594	14271
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	99	212	355
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

)LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

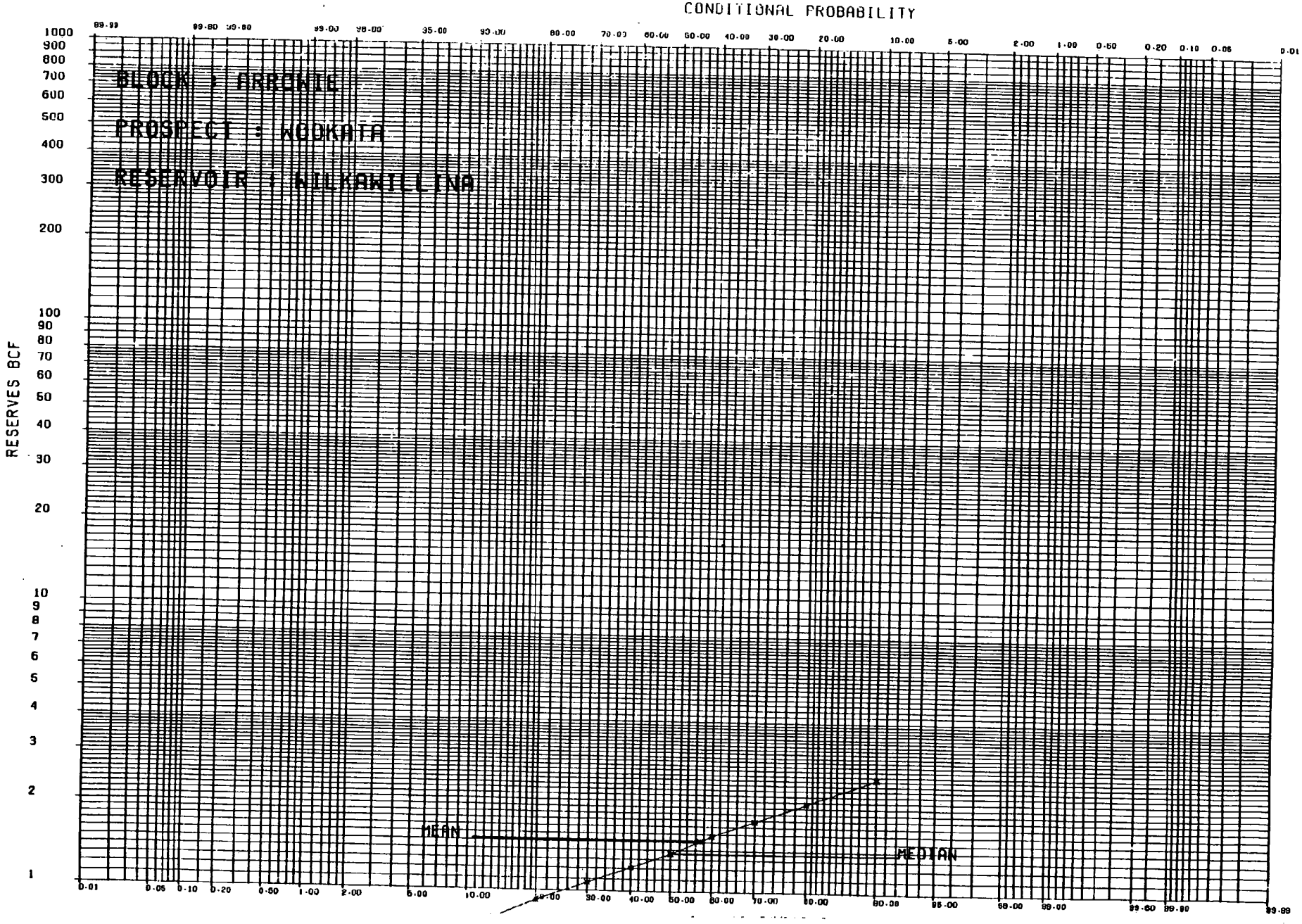
MEAN RECOVERABLE RESERVES ARE 1.51 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 1.36 BCF
MODAL RECOVERABLE VALUE IS 1.45 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.06	0.72	0.92	1.07	1.21	1.36	1.58	1.79	2.07	2.53	9.51

RISK ANALY S GAS IMPERIAL)



01019

Imperial GEOLOGIC ASSESSMENT (OIL) 01020

PROSPECT NAME : WOOKATA
STATUS : WEAK LEAD
ROCK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 25/06/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	140	247	355
CLOSURE HEIGHT (feet)	57	66	76
RESERVOIR THICKNESS (feet)	350	400	450
TRAP GEOMETRY CORRECTION	0.47	0.52	0.58
BULK RESERVOIR VOLUME (acre-ft)	3750	8477	15648
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	47	175	355
RESERVOIR NET/GROSS RATIO	0.10	0.30	0.50
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

MEAN RECOVERABLE RESERVES ARE 0.19 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 0.17 MMBBL
MODAL RECOVERABLE VALUE IS 0.18 MMBBL

CONDITIONAL PROBABILITY

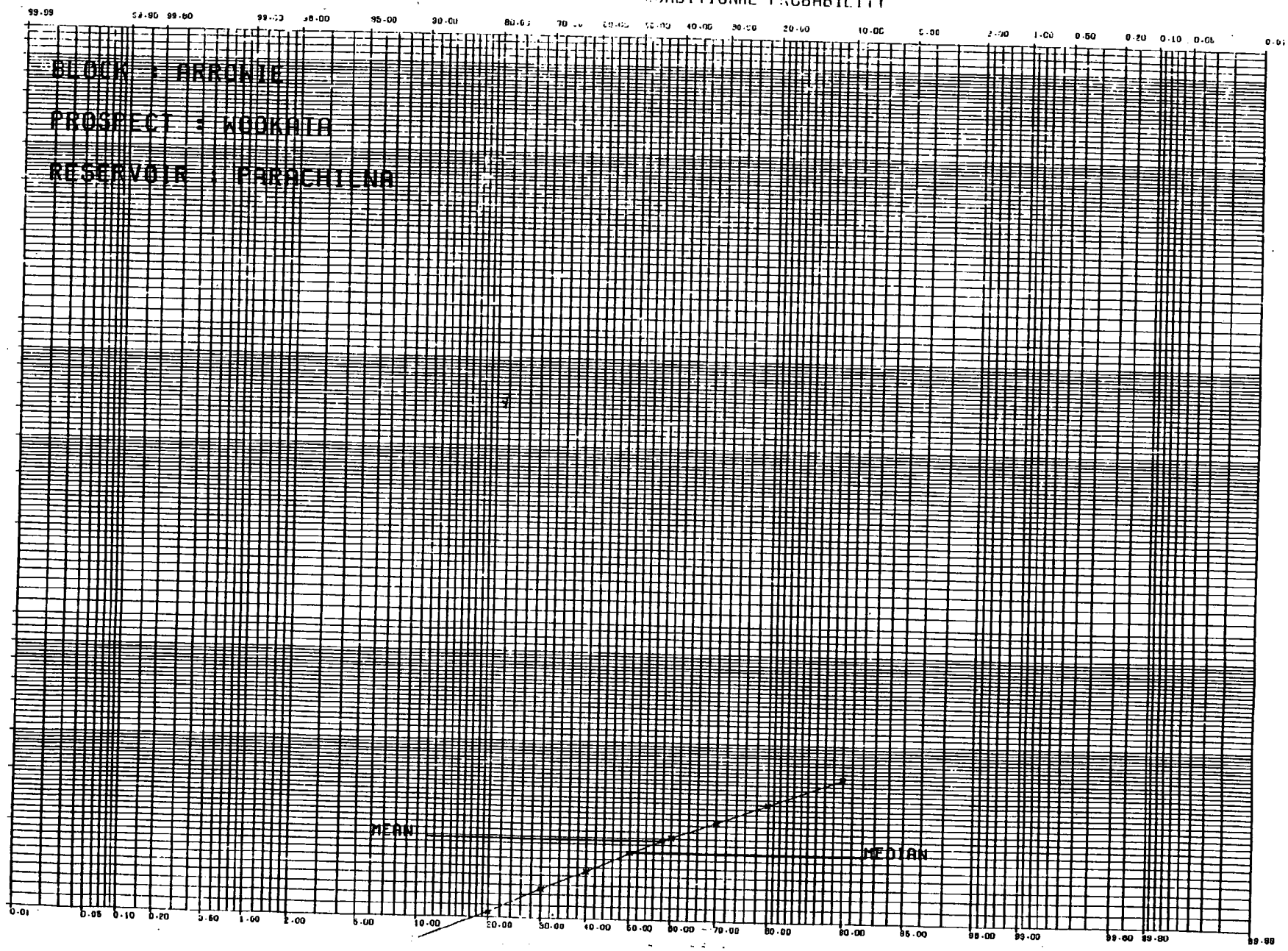
CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.00	0.08	0.10	0.13	0.14	0.17	0.19	0.22	0.25	0.31	2.60

RISK ANALYSIS

OIL (IMPERIAL)

CONDITIONAL PROBABILITY



01021

Imperial GEOLOGIC ASSESSMENT (GAS) 01022

PROSPECT NAME : WOOKATA
STATUS : WEAK LEAD
)CK : ARROWIE

RESERVOIR : PARACHILNA
DATE : 4/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	140	247	355
CLOSURE HEIGHT (feet)	57	66	76
RESERVOIR THICKNESS (feet)	350	400	450
TRAP GEOMETRY CORRECTION	0.58	0.62	0.68
BULK RESERVOIR VOLUME (acre-ft)	4628	10107	18346
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	99	212	355
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.71		

OLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.30
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.043

RESERVES

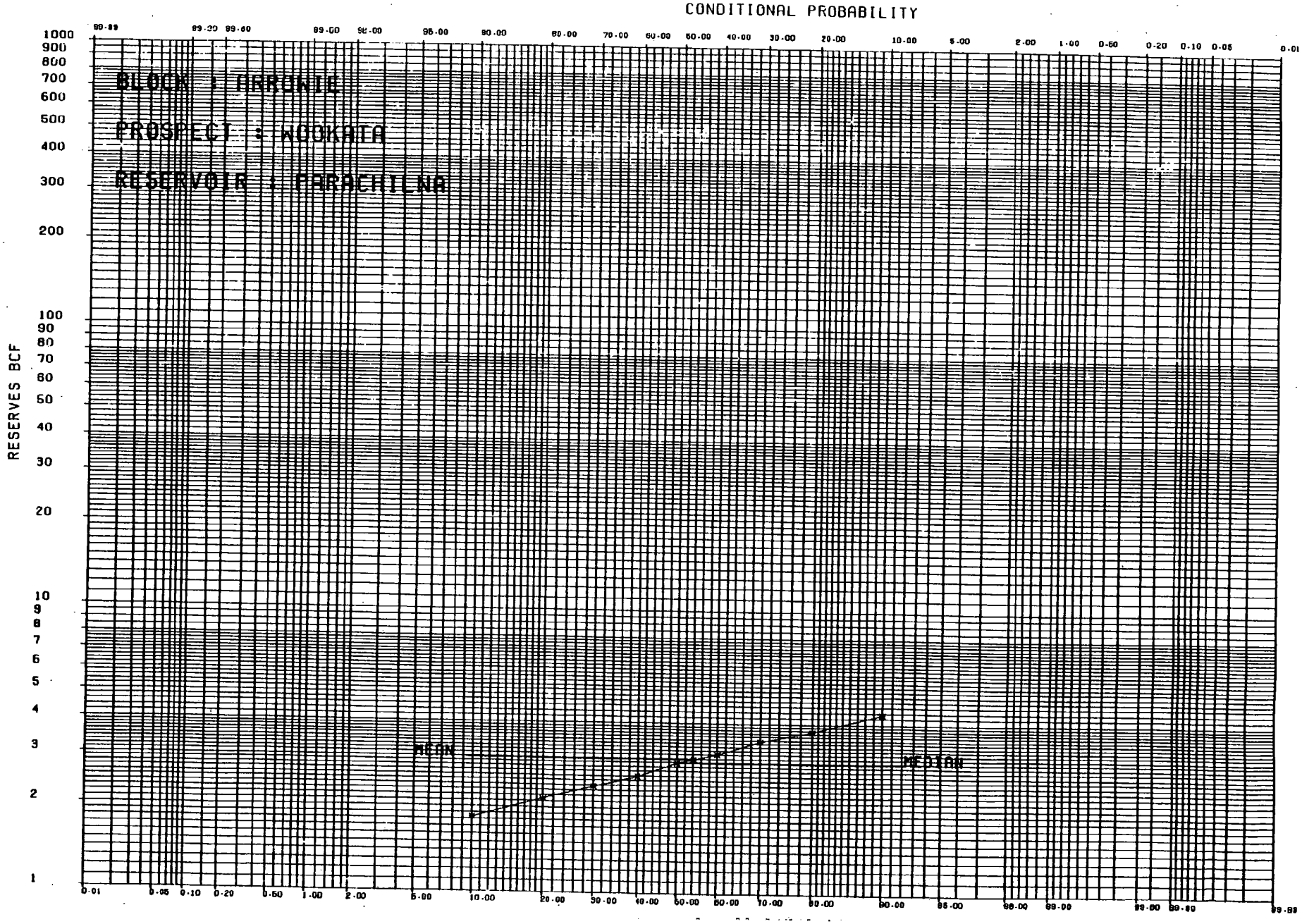
EAN RECOVERABLE RESERVES ARE 2.98 BCF
EDIAN RECOVERABLE VALUE P(0.5) IS 2.89 BCF
MODAL RECOVERABLE VALUE IS 3.13 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.35	1.83	2.14	2.38	2.58	2.89	3.11	3.45	3.76	4.34	12.36

RISK ANALY S GAS IMPERIAL



01023

Imperial GEOLOGIC ASSESSMENT (OIL) 01024

PROSPECT NAME : WOOLTANA
STATUS : WEAK LEAD
BLOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 11/6/86
AREA : PELS 5 & 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	1025	1281	1409
CLOSURE HEIGHT (feet)	122	152	167
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.77	0.83	0.84
BULK RESERVOIR VOLUME (acre-ft)	7892	31896	71013
HYDROCARBON FILL	0.20	0.60	1.00
POOL AREA (acres)	350	911	1409
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	0.65	0.75	0.85
RECOVERY FACTOR	0.20	0.25	0.35

LOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

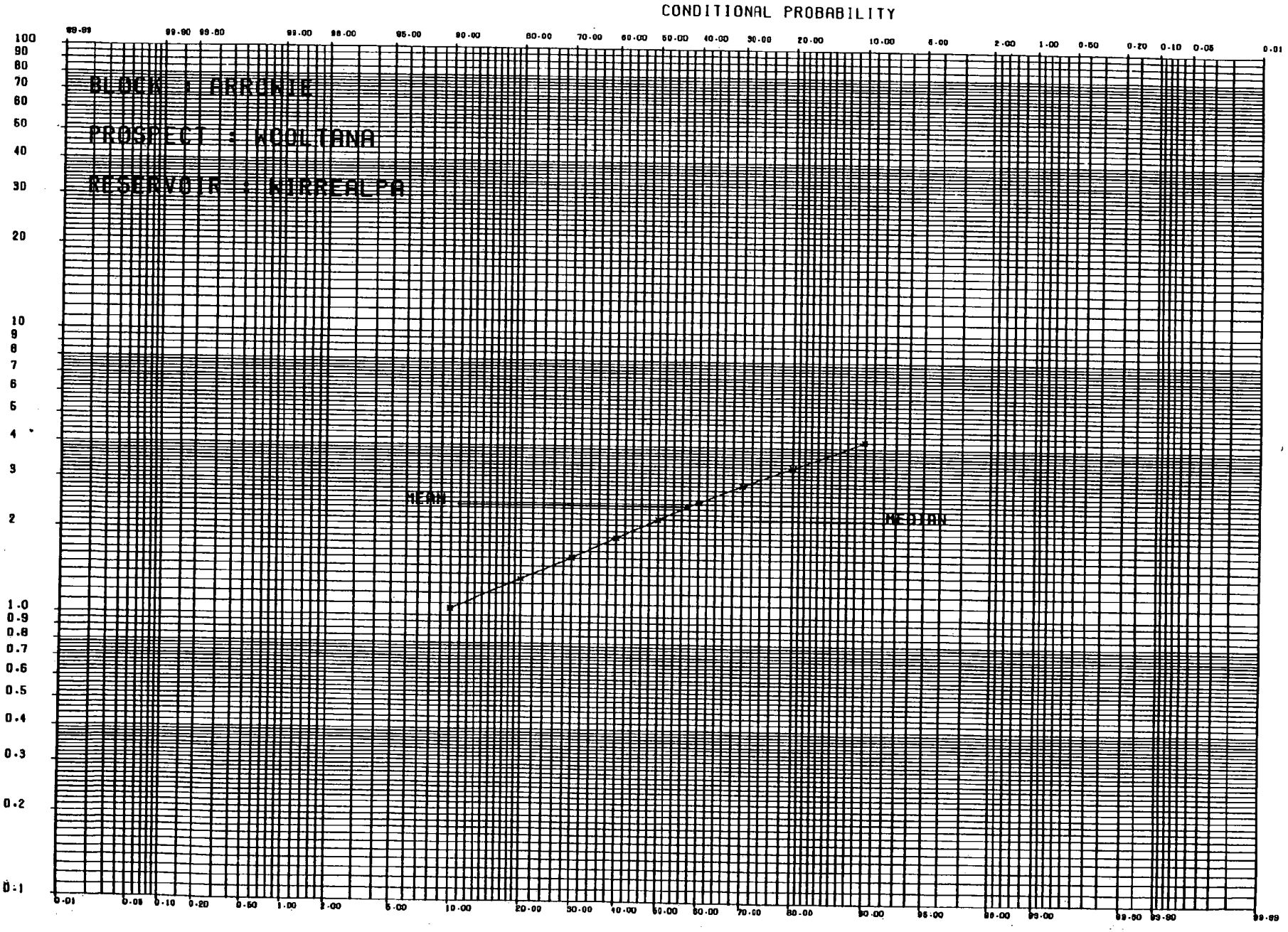
MEAN RECOVERABLE RESERVES ARE 2.45 MMBBL
MEDIAN RECOVERABLE VALUE P(0.5) IS 2.20 MMBBL
MODAL RECOVERABLE VALUE IS 2.35 MMBBL

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN MMBBL

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.05	1.06	1.35	1.61	1.90	2.20	2.54	2.92	3.39	4.21	23.50

RISK ANALYSIS OIL (IMPERIAL)



Imperial GEOLOGIC ASSESSMENT (GAS) 01026

PROSPECT NAME : WOOLTANA
STATUS : WEAK LEAD
LOCK : ARROWIE

RESERVOIR : WIRREALPA
DATE : 3/7/86
AREA : PELS 5 AND 6
1000 TRIALS

RESERVES VOLUME FACTORS	MINIMUM	MOST LIKELY	MAXIMUM
CLOSURE AREA (acres)	1025	1281	1409
CLOSURE HEIGHT (feet)	122	152	167
RESERVOIR THICKNESS (feet)	10	30	60
TRAP GEOMETRY CORRECTION	0.78	0.82	0.85
BULK RESERVOIR VOLUME (acre-ft)	7994	31512	71859
HYDROCARBON FILL	0.60	0.80	1.00
POOL AREA (acres)	729	1103	1409
RESERVOIR NET/GROSS RATIO	1.00	1.00	1.00
AVERAGE POROSITY	0.05	0.12	0.17
HYDROCARBON SATURATION	0.55	0.70	0.85
FORMATION VOLUME FACTOR	147	148	149
SALES RECOVERY FACTOR	0.60	0.70	0.80

GEOLOGICAL PROBABILITY

P(STRUCTURE) = 0.40 P(RESERVOIR) = 0.40 P(SEAL) = 0.90 P(SOURCE) = 0.20
GEOLOGIC PROBABILITY OF SUCCESS ,Pg = 0.029

RESERVES

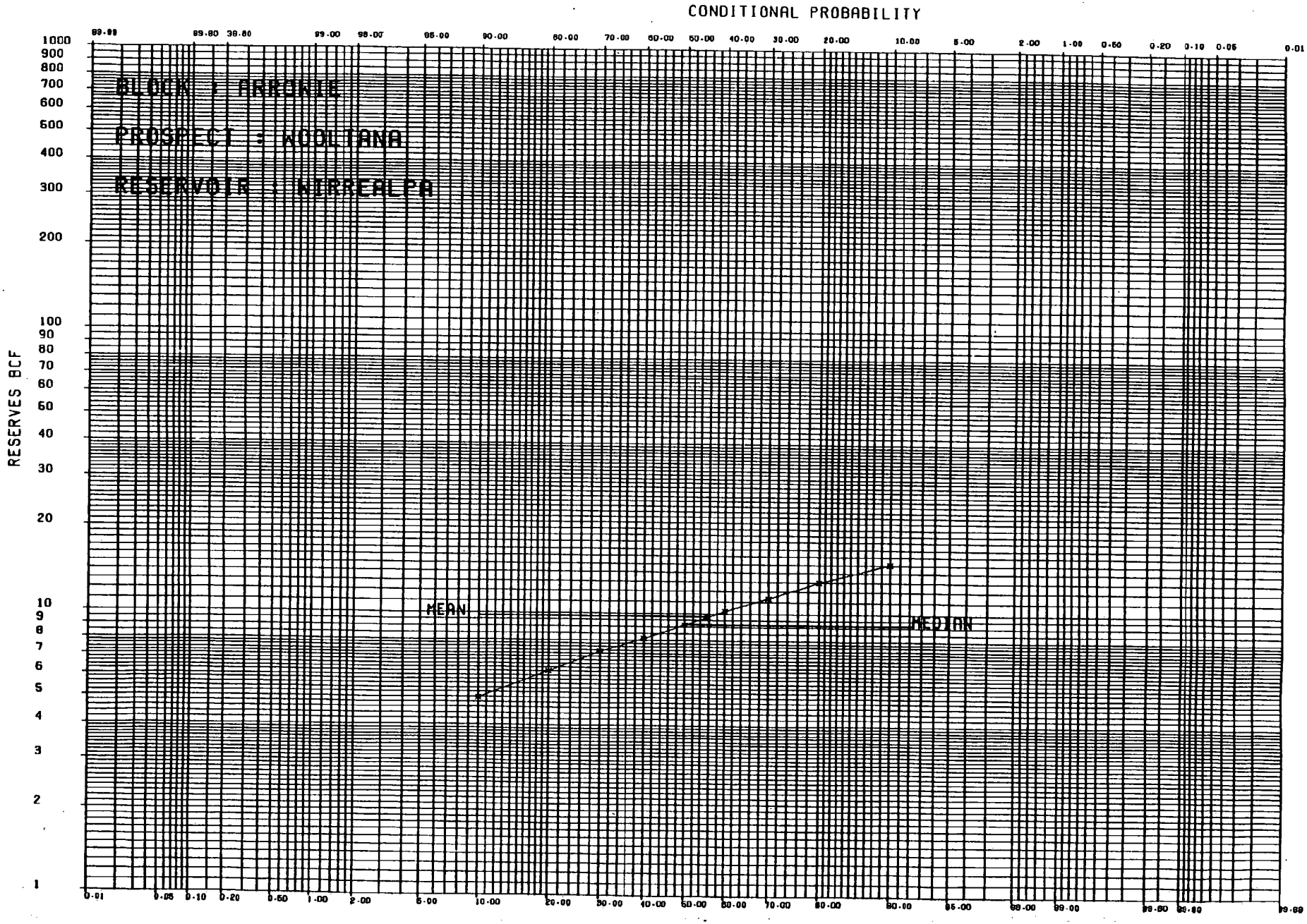
MEAN RECOVERABLE RESERVES ARE 9.74 BCF
MEDIAN RECOVERABLE VALUE P(0.5) IS 9.13 BCF
MODAL RECOVERABLE VALUE IS 9.71 BCF

CONDITIONAL PROBABILITY

CONDITIONAL PROBABILITY THAT RESERVES WILL BE GREATER THAN AMOUNT LISTED BELOW, IN BCF

P(1.0)	P(.9)	P(.8)	P(.7)	P(.6)	P(.5)	P(.4)	P(.3)	P(.2)	P(.1)	P(0)
0.52	4.98	6.21	7.33	8.15	9.13	10.21	11.37	12.97	15.07	53.92

RISK ANALY S GAS IMPERIAL)



01027

139° 15' 139° 20' 139° 30' 139° 40' 139° 50' 139° 58'

30° 23' 30° 30' 30° 40' 30° 50' 31° 00' 31° 10' 31° 20' 31° 30'

MUNYALLINNA 'A' Z1

MUNYALLINNA 'B' Z1

BIG JOHN Z1

WIRREALPA FORMATION ABSENT

THICK HAWKER GROUP ?

MORO Z5

WERTALOONA Z1, Z5

WILLAWORTINA Z1

ATC-1 Z1, Z7

HAWKER GROUP CHANNEL

LAKE FROME

WOOLTANA Z5

ATC-2 Z1

ATC-3 Z1

GAMMON Z5

WEARING Z1, Z5, Z7

WINDSOR Z1

BOBMONIE Z7

MULGA Z5, Z7

PRISM Z7

MOOROWIE 1

MOOROWIE

BROOKE Z1

CHAMBERS Z1, Z5, Z7

BORA Z1

BENDIEUTA Z1, Z6, Z7

WOOKATA Z1, Z5, Z7

LAKE VIEW Z5, Z7

BILLEROO Z5, Z7

PINDA Z7

BELL Z7

WIRRAPOWIE Z5, Z7

ERRAGOONA Z5

POVERTY LAKE 'A' Z5, Z7

POVERTY LAKE 'B' Z5, Z7

PAUL Z1, Z5, Z7

WILPENA Z5, Z7

LAKE FROME 2

LAKE FROME 1

LAKE FROME 3

DAILY Z5, Z7

REAPHOOK Z5, Z7

ERUDINA Z5, Z7

CURNAMONA Z5, Z7

P.E.L. 586 ARROWIE

ARROWIE P.E.L. 586

4879-23.

DELHI PETROLEUM PTY. LTD.

CENTRAL SOUTHERN MOOROWIE SYNCLINE
1984 HOGARTH SEISMIC SURVEY
ARROWIE BLOCK, P.E.L. 5 & 6 S. A.

PROSPECTS & LEADS

SCALE 1:100,000
1 0 1 2 3 4 5 6 KILOMETRES

Projection. T.M. CLARKE 1858	Drafted, Date. P.E.H. 1/86	Drawing Number. 86XP-5183
Contour Interval. N.A.		
Datum. M.S.L. O' PORT ADELAIDE	Chief Draftsman	File. RX-45
Supervisor		Enclosure
Interpretation. J. W. ADAMS	Date Jan. 1986	

Base Dwg No 86XP-5174

LEGEND

WELL SITE	OIL FIELD
DRY WELL	GAS FIELD
OIL SHOW	OIL & GAS FIELD
OIL WELL	POSSIBLE FIELD
GAS SHOW	PROSPECT
GAS WELL	STRONG LEAD
ABANDONED	WEAK LEAD

FIGURE 1 PROSPECT AND LEADS MAP

LINE 84-SPT

AREA: LAKE VIEW BLOCK: ARROWIE SURVEY: HOGARTH STATE: SOUTH AUSTRALIA

LINE 84-SPT

4879-24

UH UH UH UH UH UH UH UH UH UH UH UH

2410 2340 2300 2260 2220 2180 2140 2100 2060 2020 1980 1940 1900 1860 1820 1780 1740 1700 1660 1620 1580 1540 1500 1460 1420 1380 1340 1300 1260 1220 1180 1140 1100 1055

-24 -25 -26 -27 -28 -28 -29 -31 -31 -34 -35 -34 -33 -33 -28 -28 -25 -24 -22 -22 -22 -20 -21 -18 -15 -13 -13 -14 -14 -16 -16 -16 -14 -14 -14 -15 -15 -14 -13 -10 -10 -9

204 232 260 288A 316 344 372 400 428 456 484 512 540 568 596 624 652 680 708 736 764 792 820 848 876

210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 870

EAST →

Top Cambrian

Moodlatana

Wirrealpa

Billy Creek

Hawker Gp

U/C (Top Pre-C)

21 24 25 26 27 28

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8

AREA : LAKE VIEW
BLOCK : ARROWIE
SURVEY : HOGARTH
STATE : SOUTH AUSTRALIA