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EP-1

PEDIRKA BASIN, NORTHERN TERRITORY

INTERPRETATION REPORT

ONSHORE

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EP-1

PEDIRKA BASIN, NORTHERN TERRITORY

INTERPRETATION REPORT

ONSHORE

APRIL 1986

R.M. CAUSEBROOK
ECL AUSTRALIA PTY LTD

CONTENTS

EP 1 - PEDIRKA BASIN - N.T.

An Interpretation of Seismic Data for Adelaide Petroleum N.L.

1. INTRODUCTION & CONCLUSIONS

In March 1986 the undersigned was asked to carry out a geophysical and geological interpretation of seismic data recently acquired by Adelaide Petroleum N.L. over a part of the area EP 1, Northern Territory, centred on the location of the McDills-1 well, this interpretation to be integrated with the older open file data available in the area. The work was carried out in the offices of Adelaide Petroleum N.L. in Adelaide.

As a result of this interpretation it was concluded that:

1) McDills-1 was well situated and tested a local culmination on the elongate structural feature known as the McDills trend. However this closure is neither the highest nor the only culmination in the area.

2) A section of highly prospective Jurassic and Triassic sediments exists in the block which had not previously been defined on the seismic data, and which was not penetrated by McDills-1. This section was missed by the well only because of truncation on the flanks of the structure. Seismic evidence suggests that these sediments are present as far to the west as the Andado Uplift, and this extends the previously accepted limits of the Poolowanna Basin by over 100 km.

3) The seismic character suggests that the section consists of Poolowanna Beds of a coal facies, underlain by more sandy Triassic deposits. A post Purni upper Permian section may also be present.

4) The lower part of this Jurassic/Triassic section is present on the crest of the McDills trend in the south of the block.

5) There exists a separate and structurally higher closure on the trend which is centred some 18 km south of the McDills-1 location, this closure is believed to be separated by a saddle from a yet higher structure which straddles the southern boundary of the block. This lead requires a semi-detailed seismic grid to mature it.

6) There exist a number of other subtle roll-overs and leads in the more basinal parts of the block which are worthy of future exploratory seismic work.

7) Looking to the future, there exists a stratigraphic potential which may be addressed when future drilling has revealed more data on the lower Mesozoic section.

8) Large areas of the block have little or no seismic coverage while others are covered by older vintages of data, the quality of which allows only the crudest of interpretations. There is, therefore, potential for the existence of large structures, particularly within southern parts of the Aringa Trough, which are not seen in this interpretation. The block is, therefore, one of considerable potential.

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2. DISCUSSION OF THE DATA

Three vintages of data were used in this interpretation. These are shown on Figure 1.

Set 1 was the most recent, being 210 km of vibroseis data acquired for Adelaide Petroleum N.L. by Norpac in late 1985. This programme was supervised by Delhi Petroleum Pty. Ltd., who had the seismic crew under long term contract. The data was processed by SSL in Adelaide and was available to the company in March 1986. The initial interpretation was carried out on provisional stack sections, however, QC Final Stack and Preliminary Migrated Sections were available before the finalisation of the mapping. The quality of this data is excellent and allows for detailed interpretation. This data was presented on the standard 10 inches = 1 sec. scale.

Set 2 consisted of 284 km of Single Stack data acquired by Geoseismic for Beach Petroleum in 1964, as part of the Dakota Bore Survey. This is open file, archived data and is available only in photographically reduced 5 cm = 1 sec. format. Most of the interpretation of this set was carried out on the Xerox copies. In general the quality of this data was poor and allowed only the most general of horizon identification and traversing. No stratigraphic detail is evident. The quality of the reproduction varies considerably from line to line and in places accurate ties between lines of this vintage and the 1985 data were extremely difficult.

Set 3 consisted of 94 km of 1966 Single Stack data which was shot by Geoprospectors for Amerada Corporation in 1966. These are part of the Simpson Desert A Survey. This is open file archived data and is available as paper prints at $6^1/_8$ inch = 1 sec scale. In general this data is of very poor quality and the prints were faint and difficult to use. These lines were only used to make essential ties or where they could be controlled by a grid of the other vintages.

3. DATUM CORRECTIONS

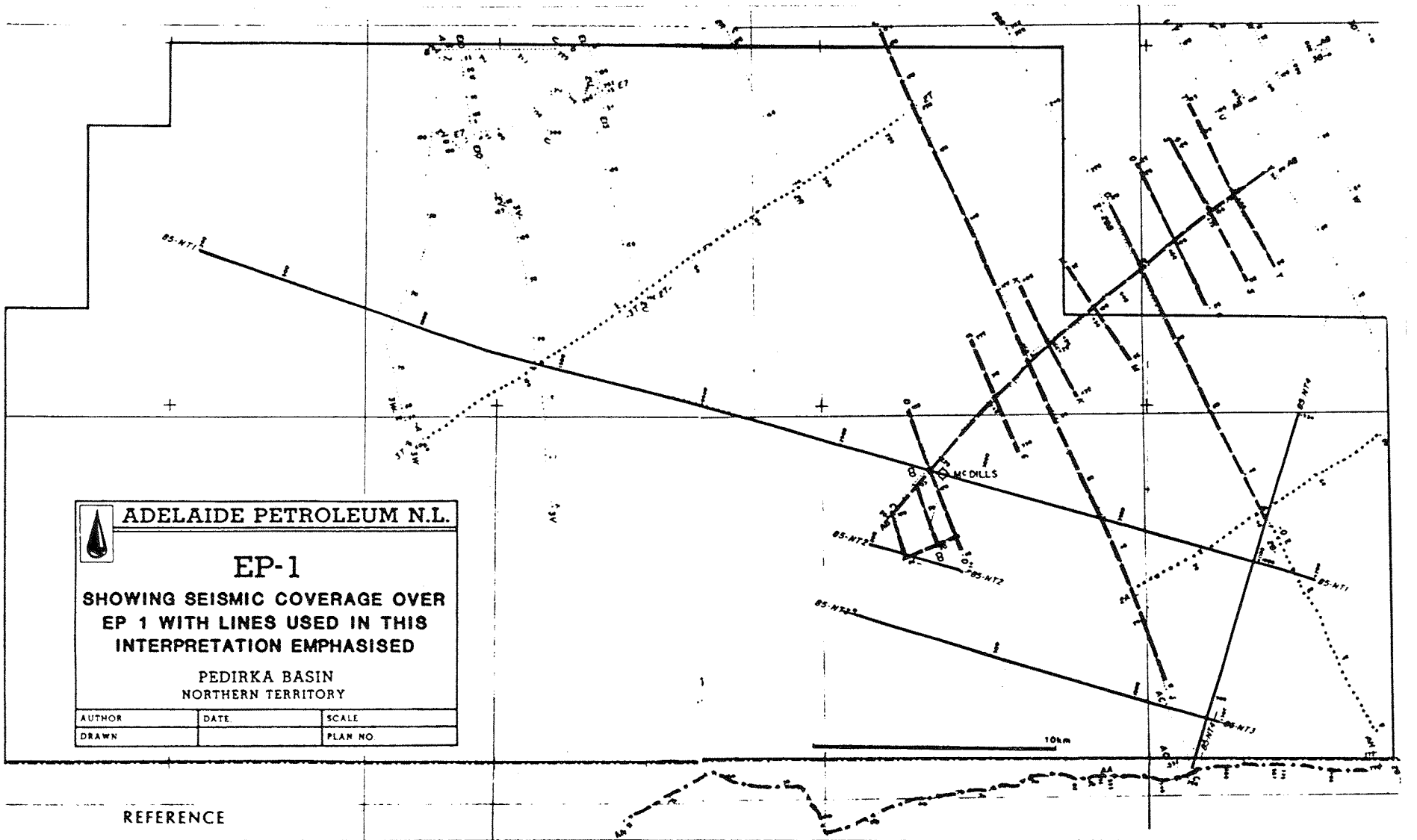
Whilst the 1985 vibroseis data was processed to a standard sea level datum, both of the earlier vintages were based on a +300 ft. datum. It therefore became necessary to make a correction for this whilst making ties and posting values.

The datum correction was calculated from the velocity survey of the McDills-1 well (which also has a + 300 ft. datum) and by comparing picks made on seismic character of specific markers, (generally of the 'C' Horizon which was identifiable on all the data). This process was carried out at a number of points over the area of the grid.

Corrections applied to the data to tie to C level were:

1. 1964 Dakota Bore Survey - 100 milliseconds

2. 1966 Simpson Desert 'A' Survey - 120 milliseconds



ADELAIDE PETROLEUM N.L.

EP-1

SHOWING SEISMIC COVERAGE OVER EP 1 WITH LINES USED IN THIS INTERPRETATION EMPHASISED

PEDIRKA BASIN
NORTHERN TERRITORY

AUTHOR	DATE	SCALE
DRAWN		PLAN NO

REFERENCE

1985 ADELAIDE PETROLEUM VIBROSEIS - ETINGIMBRA - AP

1964 BEACH PETROLEUM - DAKOTA BORE

1966 AMERADA PETROLEUM - SIMPSON DESERT A

1965 F.P.C. - POOLOWANNA SURVEY - (PEL 5 & 6) 1LINE USED

4. MAPPED HORIZONS

Time contour maps were prepared on the following horizons:

a) Cadna-owie Formation - C Horizon (Orange).

b) Base Algebuckina Formation - approx. J1 Horizon (Blue).

c) Top Purni Formation - approx. P Horizon (dark green).

Time interval (isochron) maps were prepared on:

d) Cadna-owie to Base Algebuckina.

e) Base Algebuckina to Top Purni.

In addition a map which summarised the main features of the interpretation was prepared.

The rationale of these picks is discussed in detail in the following section. Other horizons are seen locally but were not considered to be extensive enough to produce a meaningful map.

5. DISCUSSION OF INTERPRETATION

In view of the quality of the 1985 data this has been used as the framework in this interpretation and the other vintages have been adjusted to fit. The 210 kilometres which were acquired are restricted in area, however the standard is such that much stratigraphic detail can be seen, particularly within the coal section. This has allowed a number of major conclusions on the nature of the stratigraphic section in EP 1 to be drawn.

The long regional line 85-NT01 passes through the location of the McDills-1 well and this provides the majority of stratigraphic information available on the block. Although attempts have been made to tie in other wells in the general area, these all rely on old data to tie across block boundaries, and such older data allows no detailed correlations. In general it was found that only 2 horizons, the Transition beds (Cadna-owie) and the top of the first coals could be tied with any degree of confidence.

The section encountered at McDills-1 is given below:

McDILLS NO. 1

BASIC DATA

Operator	Amerada Petroleum Corporation of Aust. Ltd. (subsidised)
Location	25°43'50"S 135°47'25"E
Rotary Table Elev.	412 ft
Total Depth	10,515 ft
Drilling Period	27th May 1965 to 5th September 1965
BMR Ref. No.	65-4156

STRATIGRAPHY

Geological Age	Description	Depth (ft)
QUATERNARY	Sandstone unconsolidated	16-101
LOWER CRETACEOUS	"Rumbalara Shale" formation Mudstone, minor laminations of siltstone, scattered inoceramus prisms, limonite inclusions and stringers of limestone in lower part	101-1436
Aptian-Neocomian	Cadna-owie (Transition) Beds Sandstone with interbeds of mudstone and siltstone	1436-1518
JURASSIC Undifferentiated	Algebuckina Sandstone (De Souza) Formation Sandstone	1518-2352
	DISCONFORMITY	
PERMIAN Undifferentiated (Re-correlated after Youngs 1975)	Purni formation Sandstone with shale and siltstone interveds, lignite stringers in upper part	2352-2987
	"Crown Point" formation Sandstone with shale and siltstone interbeds	2987-3222
	UNCONFORMITY	
CARBONIFEROUS to UPPER DEVONIAN	"Finke Group" (2987'-7090') "Idracowra Sandstone" formation Sandstone with interbedded conglomerate and siltstone	-3790
	"Horseshoe Bend Shale" formation Interbedded shale and siltstone, some sandstone in lower part	3790-4070
	"Langra Sandstone" formation Sandstone, interbeds of shale and silty shale	4070-5800
	"Polly Conglomerate" formation Conglomerate pebbles of quartzite, chert, granite and shale in sandstone matrix. Minor interbeds of sandstone and shale	5800-7090
DEVONIAN	"Mereenie Sandstone" formation Sandstone and trace of shale	7090-8210
	"Un-named Unit" Sandstone, trace of shale	8210-9024
	UNCONFORMITY	
LOWER CAMBRIAN	"Todd River Dolomite" formation Dolomite, thin bands of limestone and shale partings	9024-10515

A) Correlation with Well Data

Although the Permian section penetrated in this well was originally described as Crown Point by the operators Amerada Petroleum Corporation, Youngs (1975) demonstrated that the 3 units of the Purni Formation as defined in Purni-1 were represented in this well. It is suggested that these represent a cold, fluviatile environment which succeeded the glacial conditions under which the Crown Point was deposited. This Permian sequence is overlain unconformably by the massive Algebuckina Sandstone of middle to upper Jurassic age, (previously the De Souza Sandstone in the Northern Territory). The lower Jurassic and Triassic sections (Poolowanna to Toolachee of the Cooper Basin) being absent.

Below the base Permian unconformity, the drill encountered a thick section of Carboniferous and Devonian units, and at 9,024 feet the bore hole passed through a further unconformity to enter the lower Cambrian.

Calibration of line 85-NT01 with McDills-1 was carried out by a time depth curve derived from the velocity survey of the well. No synthetic seismogram was available. After correlation for the datum change to C level, the regional seismic horizons of the Cadna-owie Beds (C Horizon) and the top Permian (P Horizon) were tied to the seismic data. Correlation was very good, the first horizon tying to a well marked, extensive event which has the distinctive character recognised as the C Horizon throughout the Eromanga Basin. The second correlates with a distinct unconformity surface which underlies a zone of low impedance contrasts which is taken to represent the massive sandstones of the Algebuckina Formation.

Below this unconformity the section loses character, and although a limited event which apparently represents the basal Permian unconformity can be seen, the underlying Palaeozic horizons have no distinct seismic markers. This is believed to be due to a combination of:

a) Lack of impedance contrasts at geological interfaces.

b) Lack of penetration of the seismic signal below the high impedance barrier of the Permian coals.

It is not possible, therefore, to tie any of the lower geological markers seen in the well with events of any significance on the seismic data.

B) Rationale for Horizon Picks

Interpretation of the data in the immediate vicinity of the well indicated that the structure at this point was flanked to the east by a series of well-defined, high amplitude events which were seen to be sub-cropping the base of the Algebuckina Formation in a zone between 2½ and 12 kilometres to the east of the McDills-1 location. These high amplitude reflectors have the seismic signature of a coal series, and their appearance indicates that there is, in this part of the Pedirka Basin, a younger coal unit which was not intersected by the well, and which has not been previously recognised in EP 1 due to the lack of stratigraphic detail on the older data.

B) Rationale for Horizon Picks (Cont'd)

Examination of Line 85-NT03 which lies 8 kilometres to the south south west of Line 85-NT01, again shows the existence of a high amplitude unit sub-cropping the base of the Algebuckina to the east of the structural crest, whilst a second high amplitude unit lying some 200 milliseconds lower, is seen to be present over the crest. It is notable that the lower unit is best defined where the higher is absent, presumably indicating the loss of deep reflections where the higher coal series has to be penetrated by the seismic signal.

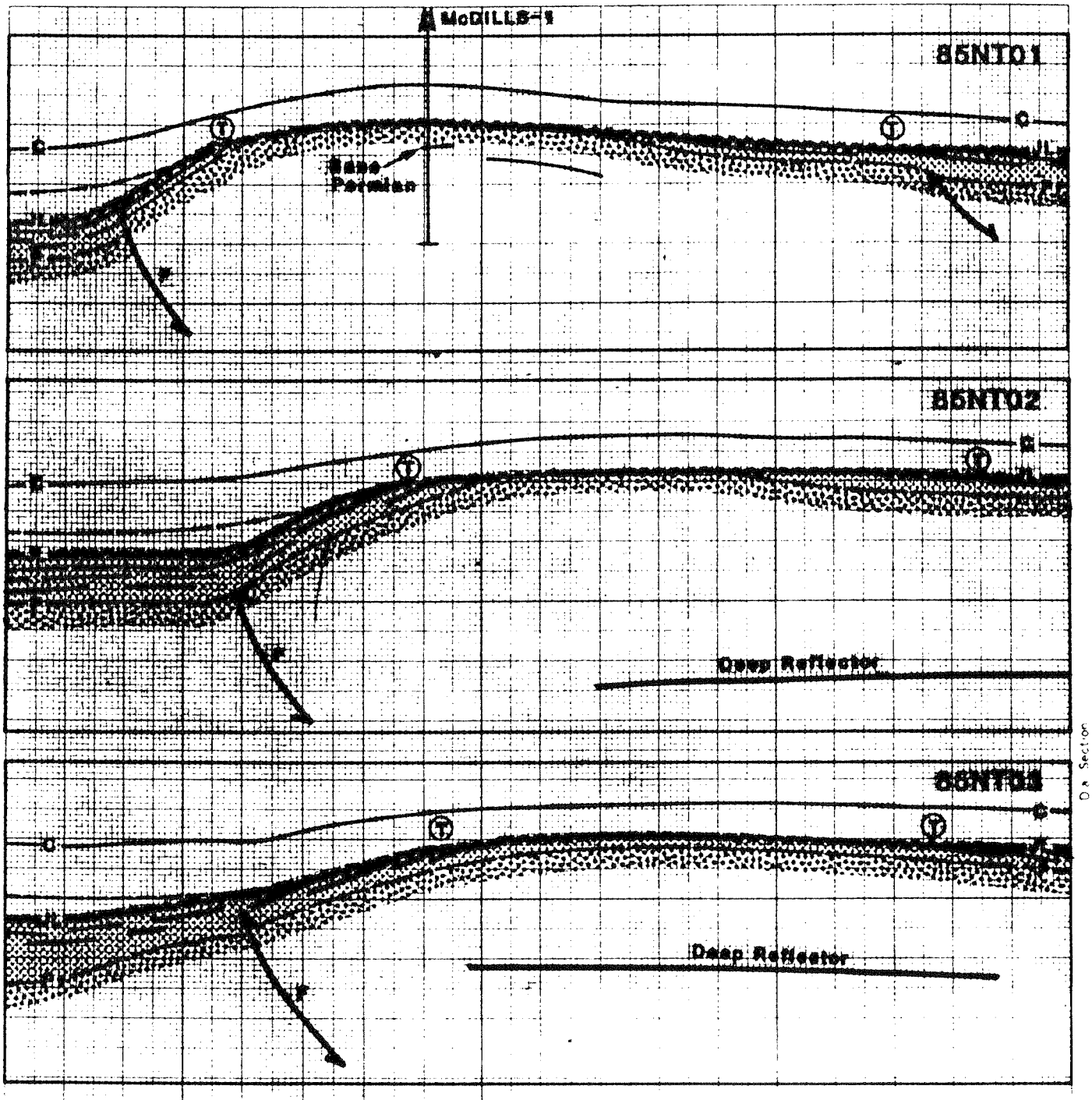
Initial examination of the individual lines, later to be followed by careful correlation, led to the conclusion that the lower high amplitude events seen on 85-NT03 represent the upper Purni coals penetrated in McDills-1, and that the higher unit represents a series of coals which have been removed from the crest of the structure by the unconformity at the base of the Algebuckina. However, whilst the base of the Algebuckina and the top of the Purni coals are coincident at the well location, the seismic evidence indicates that they are separated over the crest on Line 85-NT03 by 100 milliseconds of a unit of low impedance contrast which lies between the upper and lower coal units. Further correlation indicates that both the C horizon and the base Algebuckina unconformity are structurally higher over the crest of Line 85-NT03 than at the well location, whilst the horizon which is believed to represent the top of the Purni coals lies at about the same depth crestally on both lines. Those relationships are illustrated in Figure 2.

Extrapolation onto Line 85-NT02 indicates that the two horizons are separated by only 20-25 milliseconds at the crest, and that all horizons are deeper on this line than on either of 85-NT01 or 85-NT03. This geometry appears to indicate that Line 85-NT02 crosses a saddle on the structure. This Line is also of great importance in that the data quality to the west of the structural crest is particularly good and because of this it is apparent that there is a zone of major truncation below the base of the Algebuckina Formation on the western limb of the assymetric anticline which is the McDills feature. By correlation with this line, this western zone of truncation can be identified on the two other dip lines. There is no reason to suppose that these high amplitude events which are seen to be truncated to the west of the structure are not the same age as those seen to the east. It is therefore apparent that this newly identified upper coal facies is also present to the west of the McDills trend and indeed extends over most of the block as far as the Andado uplift.

85-NT04, which has not thus far been discussed, is a strike line which lies in the trough to the east. This line whilst being of great importance in tying Lines 85-NT01 and 85-NT03 and thus establishing the correlation of the units seen on these lines with McDills-1, does not, by the nature of its location, show any dramatic structural features.

Thus the correlation of the new 1985 data with the well indicates several important features of the McDills anticline.

a) There is a sedimentary section which is characterised by coal measures in its upper part, which lies close to the crest of the anticline, and which was not intersected by the well (the identification of this section will be discussed below).



LEGEND

C	Cadlan Oolla Beds	F	Main Modilla Fault
JL	Base Algebuckina Unconformity		Upper Coal Beds
P	Top Purni Beds		Lower Coal Beds
(T)	Areas of Truncation below Base Algebuckina Unconformity		Lower Jurassic to Triassic Section

SCHEMATIC SECTIONS TO ILLUSTRATE THE RELATIONSHIP OF THE BASE ALGEBUCKINA TO PURNI SECTIONS OVER THE CREST OF THE McDILLS STRUCTURE AS SEEN ON THE 1985 VIBROSEIS DATA.

FIG 2

B) Rationale for Horizon Picks (Cont'd)

b) The lower part of this section is seen to be present across the crest of the structure to the south on Line 85-NT03.

c) The existence of a saddle between Lines NT01 and NT03 can be demonstrated, and this indicates that the McDills feature in EP 1 consists of at least two and possibly more closures aligned along an overall N.N.E. to S.S.W. trend.

Following the correlation of the seismic events with the well data, the following horizons were chosen for mapping:

1) Cadna-owie Beds, orange marker

2) Basal Algebuckina, blue marker

3) Top of Purni Beds, dark green marker

The blue and dark green horizons are coincident at McDills.

Horizon 2 is defined by the unconformity which is seen to truncate the underlying beds on the flanks of the anticline and which lies at the base of the acoustically transparent section that represents the Algebuckina; Horizon 3 by the top of the Purni beds seen in the well, and by correlation, with the lower group of high amplitude events seen on Line 85-NT-3.

These horizons were carefully correlated throughout the 210 kilometres of the new data and then transferred on to the older data and tied around. As is shown on the shot point base map (Fig. 1) a number of these older lines are dip lines which cross the structure and can only be tied by the crestal line AB. This presented a number of difficulties since the seismic character of the crestal line is of very poor quality and character picks on the dip lines proved to be safer than attempting to pick common reflectors along line AB. Though this was the most satisfactory method of dealing with the data it is possible that it may have introduced some minor inconsistencies in horizon identification from one dip line to another.

In general the upper 2 horizons are easily identified and carry around consistently on seismic character, since the 'C' Horizon is distinct on most sections, and the base Algebuckina represents the top of the coal section. However due to the nature of the old seismic data, it is rare that information of any great reliability can be seen below the reverberations of these top coal measures. Thus, in most places, it was not possible to correlate the lower horizon around. This dark green event was picked on 1964 lines J and O which tie with line 85-NT04 in order to define the McDills anticline at this level towards the north-east, but the picks on these lines must be considered with a degree of caution since a certain amount of "railroad tracking" in the ringing of the coal measures is inevitable.

Several of the 1966 Simpson Desert A lines were used in this interpretation, but these are generally of very poor quality and seismic character, and once again caution must be used in evaluating the precise picks. No attempt was made to carry the top Purni pick on this data.

B) Rationale for Horizon Picks (Cont'd)

The grid of 1966 data in the north east corner of EP 1 was of such poor quality on the sections available for this interpretation that it was not considered useful to use them. A regional dip has been established on earlier interpretations, and the horizon values derived from the long regional line 85-NT01 were extrapolated along this regional dip into this area. Any detailed consideration of the Andado uplift which is present in this region will require a grid of new data to tie in with 85-NT01.

C) Discussion of Maps

The regional structure derived from this interpretation is well illustrated by the three time contour maps, and two isochron maps which are presented here. The McDills structure is confirmed to be a major assymetrical anticline which is associated with a high angle reverse fault along its western edge. In general the Jurassic sediments are not significantly dislocated by this fault, and their deformation is the result of drape and folding over the underlying block. The Permian horizons do appear to suffer dislocation on lines 85-NT03 and 85-NT01. However the migrated version on 85-NT02 suggests that only flexture is involved where this line crosses the fault. This difference in the degree of disruption associated with the fault along its length may suggest a strong strike-slip component to this movement. This is consistent with recent interpretations of the fault patterns in the Cooper and Pedirka Basins.

Indications of the origin of this deep seated fault may be seen on lines 85-NT02 and 85-NT03. On these lines sub-horizontal events can be seen underlying the thickening wedge of sediments which appear to correlate with the Palaeozoic section penetrated in McDills-1. These events occur at 1.70 seconds on 85-NT02 and 1.25 seconds on 85-NT03. Although the events cannot be tied between the two lines they are believed to be real and possibly represent a Proterozoic basement surface. If this is so it may indicate that the fault originated in the Palaeozic as an easterly trending normal fault, bounding a half-grabenal trough. The present sense of the fault may be interpreted as the result of compression and strike slip movement in the early Permian which brought about its rejuvenation in a reverse sense.

With no stratigraphic control to determine the thickness of the various units adjacent to the structure, the timing of fault movement is difficult to determine on the data presently available. However, the major unconformity at the base of the Algebuckina indicates that it was very active prior to this time and the relatively constant thickness of this unit on the eastern flank would suggest that middle to late Jurassic was a relatively quiescent time. However, to the west of the fault a thickening of the C-J1 isopachs represents the addition of a lower unit to this relatively constant thickness of the Algebuckina. This lower unit, which is clearly seen to overlay the coal series, may have been deposited coevally with, and possibly as a result of, the stripping of base Purni sediments from the crest of the structure.

C) Discussion of Maps (Cont'd)

The flexturing of the overlying Cretaceous units indicates that, although these may be partially drape induced, there have been some late post Cretaceous movements in this area. Both early and late Tertiary movements are frequently identified along fracture belts in the Central and South Australian regions and there is no reason to believe that the McDills structure has not been affected by compressional pulses that continued at least as late as the Miocene. However the absence of sedimentary evidence leaves the timing of these late movements open to conjecture.

This mapping has determined that the closure drilled by McDills-1 is discrete and separate from the crest of the anticline as seen to the south on line 85-NT03, and this indicates that the crestal line of the structure is the locus of a number of separate accumulations. Tentative mapping along a poor quality print of line AA which runs along the northern edge of the Dalhousie Block indicates that the mapped horizons here are at a similar depth or only slightly higher than they are on line 85-NT03. This indicates that a saddle exists between lines AA and 85-NT03, and that the crestal feature seen on 85-NT03 represents a discrete culmination lying wholly within EP 1. As has been previously discussed this closure shows strong evidence of being covered by a post Purni section which is not present at McDills-1. This feature is considered to be the most promising lead in the block and should be the focus of a more detailed seismic evaluation.

Over the remainder of the block seismic coverage is relatively sparse or absent, and detailing structure in these areas is, of necessity, difficult. Dominant east to north east regional dip is very apparent, interrupted only locally by indications of the relatively low relief roll-overs or noses. Examination of the regional dip lines, particularly 85-NT01 indicates that there are no major reversals to the regional dip apparent on the lines of section, although there are some indications of block faulting within the lower part of the coal measure section, which may provide local closure against the regional dip. Indications of faulting are more apparent on the 1964 lines J and O than on the new data, and this may be the result of a certain amount of "smearing" in the CDP processing which can disguise faults of relatively minor throw. However the existence of such faults may provide attractive exploration targets. Some of these features are seen to be in areas of relatively thick coal section which lie below one second and thus is probably within the oil window. Independent closure in these trough areas would produce very attractive exploration targets and are worthy of following up.

D) Identification of Post Purni Section Missing from McDills No. 1

Identification of the stratigraphic section seen to subcrop to the east of the McDills well has been the subject of much discussion during this interpretation. Correlation of line 85-NT01 and 85-NT03 through tie line 85-NT04 in the trough indicates that the two seismic sequences identified on 85-NT03 can be traced around to a common unconformity on 85-NT01 where the Algebuckina rests immediately on the upper Purni. (Fig. 2).

D) Identification of Post Purni Section Missing from McDills-1

The thickness of this unit in the eastern trough reaches over 400 milliseconds TWT, which at an overall interval velocity of 14,000 feet per second would amount to over 2,800 feet of section. This considerable sedimentary section cannot be directly correlated to any control wells in the adjoining acreage because:

a) Even the nearest wells are too far distant for safe correlation. Purni-1 lies 60 kilometres, and Colson-1 lies 100 kilometres from the nearest point on the 1985 EP 1 data.

b) Major faults lying between these wells and the edge of EP 1 make correlation of the lower section very difficult.

c) All correlation into EP 1 has to be done by means of older, poor quality data, particularly the French Petroleum Company's 1966 Pedirka/Dalhousie line AA. Since it is known from the comparison of new and old data in EP 1 that the subtleties of subcrop cannot be recognised on the older data, it is not to be expected that this will be any better recognised on data from outside the block.

It is therefore necessary to deduce the nature of the section from the known geology of the surrounding areas without the benefit of a seismic tie.

As has been discussed previously the seismic character of the two sequences seen on line 85-NT03 indicates that the upper parts of both are coal bearing. Since the lower sequence has been correlated around with reasonable certainty, (in view of the fact that this is a major loop), to the top of the Purni encountered at McDills-1 and since all three divisions of the Purni have been identified by Youngs (1975) in this well, it follows that the upper unit represents a coal sequence of lower Jurassic to upper Permian age.

Recent drilling in the Pedirka Basin, for example in Glen Joyce-1 and Oolarinna-1, has confirmed the presence of the coaly Poolowanna (lower Jurassic) section as far to the west as 136°30'. Although this section has not previously been thought to extend as far as the eastern edge of EP 1 the evidence of this new seismic data makes this a strong possibility. Other possible identifications are:

a) a coaly Triassic unit, equivalent to the Cooper Basin Toolachee and not hitherto seen in the Pedirka Basin; or

b) an upper Permian section overlying the Purni seen in McDills-1 and equivalent to the upper members of the Gidgealpa Group in the Cooper Basin.

Although consideration was given to the possibility that the lower sequence of reflectors on 85-NT03 were not coals but a Devonian sequence and that the long distance correlations to the coals at McDills-1 were erroneous it is felt that the shorter jump correlations from 85-NT02, taken together with the distinctive seismic character of the sequence make this possibility very unlikely.

It would seem that the most likely identification of this unit is as a Poolowanna sequence underlain by Triassic or possibly Upper Permian clastics. The distinctive character of the upper coals makes the lower Jurassic identification fairly certain. However, the total unit between the orange and green horizons is very thick in places, and since the

D) Identification of Post Purni Section Missing from McDills-1 (Cont'd)

thickest Poolowanna section encountered to date is around 600 ft in the Poolowanna area, it is probable that older sediments are present, and these may be represented by the seismically transparent section seen most clearly on 85-NT03.

A tentative identification of the base of high amplitude interval with the base of the Poolowanna unit suggests that these beds may be up to 220 milliseconds TWT thick in the eastern trough, which, at an interval velocity of around 14,000 feet per second (indicated by the Poolowanna 2 well velocity survey) suggests some 1500 feet of section.

In view of its known hydrocarbon generating potential, the presence of such a thickness of lower Jurassic section in this area must make any traps, within or adjacent to the trough very attractive. It must also be emphasised that the Poolowanna Beds in the Pedirka Basin are considered primarily as an oil rather than as a gas source and thus even structures of small areal extent have the potential for a commercial accumulation.

From the foregoing discussion it becomes apparent that the post Purni section which is seen to continue over the crest of the structure on line 85-NT03 may be of Triassic or upper Permian age. This allows the suggestion that shales in a section of that age may provide a better sealing potential over the top of the Purni coals in this location than was encountered in the McDills well.

E) Other Comments

Following the interpretation of this data and the construction of the maps an attempt was made to tie in the Colson-1 well to the new seismic grid. Colson-1 encountered both Poolowanna and Purni Beds and thus a reasonable correlation would be an important confirmation of the interpretation within EP 1. The problems of tying wells into the area have been discussed above and these are demonstrated by the Colson tie. A recently shot Delhi line 84 WMC intersects the Colson location and ties it with the old FPC line AA which runs along the northern boundary of the Pedirka and Dalhousie Blocks. This line AA is of very mixed quality and the only reproductions available are via S.A.D.M.E., and are from an old and poor sepia which makes interpretation difficult in places. However this older line does tie with the new EP 1 seismic data at the end of line 85 NT04. Although line AA is old single fold data, and the prints that are available are poor, it is possible to illustrate the presence of a lower Jurassic to Triassic Basin on this line, and it can be seen that the eastern boundary of this hitherto unrecognised basin lies immediately to the west of the Purni fault which crosses the line of section close to the border of the Pedirka and Dalhousie blocks. The section is seen to thin out dramatically on to an uplift which is the southern extension of the McDills feature and which is on trend with the Dalhousie anticline in the south.

The existence of the new seismic data in EP 1 has demonstrated the detail which can be obtained with modern seismic methods and has illustrated that this can demonstrate exploration leads which were not apparent on the older data. It is believed that this interpretation has shed a new light on the potential of the EP 1 block and has provided ample data to substantiate the conclusions that are set out at the introduction to this report.

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ECL Australia

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Detailed bibliographies of the area are given in references 3 and 4

During the preparation of this interpretation reference was made to a number of other well completion reports available in the offices of Adelaide Petroleum of wells in the South Australian portion of the Pedirka Basin. These are not listed here.