Promoting Growth through Resources

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of

The Director

Northern Territory Geological Survey

Department of Mines and Energy

Herewith an update of the “Northern Territory Geological Survey Petroleum Basin Study - Eromanga Basin” containing the results of more recent exploration.
ETINGIMBRA 1

BASIC DATA

OPERATOR: Territory Petroleum Pty Ltd.
PETROLEUM TITLE: EP-1, N.T.
PARTICIPANTS: Horizon Operating Co. & Bennett Petroleum Corp.
Territory Petroleum Pty Ltd.
Bridge Oil Ltd.
Alco Petroleum N.L.
Arabasin Oil N.L.

LOCATION: Lat: 25 51 26.63
Long: 135 45 09.67
Seismic: station 150 on line 87NT-15

ELEVATION: GL: 120m
RKB: 123m

DRILLING COMMENCED: 12th January, 1990
RIG RELEASED: 20th January, 1990
DRILLING TIME TO TD: 7 days
RIG: Drillcorp Ltd. Rig 24

TOTAL DEPTH: Driller-1004.8m, Logger-1006.3m
BOTTOM HOLE TEMP: 66°C at TD

STATUS: Plugged and Abandoned

N.T.D.M.E. REFERENCE: PR90/017

COMPLETION DETAILS: Three abandonment plugs were set at:
1. 660-600m
2. 140-80m
3. 45m-surface

STRATIGRAPHY:

<table>
<thead>
<tr>
<th>AGE</th>
<th>FORMATION</th>
<th>DEPTH(m)</th>
<th>ELEV(m)</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary-Recent</td>
<td>Surficial</td>
<td>surface</td>
<td>+120</td>
<td>7</td>
</tr>
<tr>
<td>E. Cretaceous</td>
<td>Wallumbilla Fm</td>
<td>7</td>
<td>+113</td>
<td>293</td>
</tr>
<tr>
<td>E. Cretaceous</td>
<td>Cadna-Owie Fm</td>
<td>300</td>
<td>-180</td>
<td>22</td>
</tr>
<tr>
<td>L. Jurassic</td>
<td>Algebuckina Sst</td>
<td>322</td>
<td>-202</td>
<td>289</td>
</tr>
<tr>
<td>E. Permian</td>
<td>Purni Fm</td>
<td>611</td>
<td>-491</td>
<td>23</td>
</tr>
<tr>
<td>L. Carb-E. Perm.</td>
<td>Crown Point Fm</td>
<td>634</td>
<td>-514</td>
<td>110</td>
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<tr>
<td>Devonian</td>
<td>Idracowra Sst. equiv</td>
<td>744</td>
<td>-624</td>
<td>41</td>
</tr>
<tr>
<td>Devonian</td>
<td>Langra Fm</td>
<td>785</td>
<td>-665</td>
<td>218</td>
</tr>
<tr>
<td>TD</td>
<td></td>
<td>1006</td>
<td>-883</td>
<td></td>
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</tbody>
</table>

STRUCTURE: The dominant tectonic element is the major NE-SW trending McDills Anticline which is upthrust adjacent to the Eringa Trough to the west. The anticline had been tested previously (McDills 1, 25 years earlier), however it was thought that a test of the less faulted, and shallower, Etingimbra prospect would provide a more definitive test of the potential of the McDills Anticlinal Trend.
WIRELINE LOGS: The following wireline logs were run by Gearhart Pty Ltd.

<table>
<thead>
<tr>
<th>LOG TYPE</th>
<th>RUN</th>
<th>INTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDL-MSFL-GR</td>
<td>1</td>
<td>1006-106</td>
</tr>
<tr>
<td>BCS-GR</td>
<td>1</td>
<td>1003-106</td>
</tr>
<tr>
<td>CDL-CNS-GR</td>
<td>1</td>
<td>880-633</td>
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<tr>
<td></td>
<td>2</td>
<td>350-292</td>
</tr>
</tbody>
</table>

DEVIATION SURVEYS: Borehole deviation data as recorded from Totco surveys are provided on the Mudlog and Composite Well Log. Maximum borehole deviation recorded was $3^\circ$ at 615m.

CORES: no cores were cut.

FORMATION TESTS: no testing was carried out.

VELOCITY SURVEY: no velocity survey was conducted.

HYDROCARBON SHOWS: no hydrocarbon shows were encountered during the drilling of Etingimbra 1.

RESERVOIRS: Late Jurassic Algebuckina Sandstone
L. Carb-E. Perm. Crown Point Formation
Devonian Langra Formation

SOURCE ROCKS: Potential Permian source rocks present in McDills 1 may lie within the oil generative window in the adjacent Eringa Trough. The Jurassic Poolowanna Formation and Triassic Peera Peera Formation have generated oil in the vicinity of Colson 1 and are predicted to be oil mature east of the McDills Trend (Madigan Trough). These two formations are not present on the McDills Anticline. Deeper source rocks such as the Ordovician Horn Valley Siltstone and deeper water carbonates of Lower Cambrian age could provide additional mature sources within the Eringa Trough.

COMMENTS: Etingimbra 1 was drilled along the crest of the McDills Trend, a NE-SW trending anticline in (the former) EP-1, N.T. The well was located some 14km SSW of McDills 1 drilled in 1965.

Although located on the same trend, the Etingimbra structure displays much less internal faulting, and is in a higher structural position compared to McDills 1, making it a better target.

The McDills 1 well was almost totally devoid of shows. A gas show was logged while drilling between 416-21m, but resistivity logs did not verify the show. Similarly, no hydrocarbon shows were recorded in Etingimbra 1, and wireline log analysis confirmed all porous zones to be 100% water saturated.
Seismic mapping of the Etingimbra structure at the Top Cadna-Owie Formation level indicates that the structure may be much larger, and that the well was not drilled in an optimal position. A reinterpretation of the data removes the saddle seen between two highs on seismic line 87NT-05. Connection of these two structures implies that any accumulated hydrocarbons would be found at the culmination found closer to shot point 360 on seismic line 87NT-09, with the structure not filled to spill point.

A re-evaluation of the seismic data shot to date, and further seismic over a much tighter grid may help evaluate the highest point on the structure, an important aspect in the Eromanga Basin, as many structures are not filled to spill point.

The temperature gradient of 3.9°C/100m calculated for the Etingimbra location closely corresponds with the 3.7°C/100m recorded for the McDills 1 well 14km to the NNE. Assuming a constant geothermal gradient over this region, potential source rocks within the Early Jurassic Poolowanna Formation to the base of the Permian section would be mature for oil generation and expulsion in the nearby Eringa Trough to the west, and the Madigan Trough to the NE.
ETINGIMBRA-1 LOCATION

LINE 87NT-15

TERRITORY PETROLEUM PTY. LTD.
ETINGIMBRA STRUCTURE
TIME STRUCTURE MAP
TOP CADNA-OWIE FM.
(NEAR-TOP ALGEBUCKINA)
C.I. = 10milliseconds
(PRE-DRILL INTERPRETATION)