



## **Exploration Permit**

# **VIC/P42**

## **Quarterly Report**

**14 August 2003 – 13 November 2003**

**Bass Strait Oil Company Ltd**

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**Enclosure 1.** Top Nannygai Oil Pay Event Depth Structure Map

**Enclosure 2.** Interpretative Palynological Range Chart for Melville-1

## **VIC/P42**

### **QUARTERLY REPORT FOR THE PERIOD**

**14 August 2003 – 13 November 2003**

#### **1. PARTICIPATING INTERESTS**

Bass Strait Oil Company Ltd	50% (Operator, Joint Venture Partner)
Inpex Alpha Ltd	50% (Joint Venture Partner)

#### **2. TITLE AND GOVERNMENT RELATED MATTERS**

On 18<sup>th</sup> August 2003 BSOC submitted a letter to the DPI reporting on rig availability and on the joint venture's progress towards securing a rig to drill the Year 3 commitment well. This was the first of the regular monthly reports as required under the terms of the suspension and extension granted on 22<sup>nd</sup> July 2003.

The second of these reports was submitted on 22<sup>nd</sup> September, along with a copy of the Letter of Intent to Diamond regarding the use of the Ocean Epoch.

On 21<sup>st</sup> October 2003, the third letter was submitted, reporting that the Ocean Epoch rig would not be available to the Vic/P42 JV and detailed the background to that outcome.

#### **3. EXPLORATION ACTIVITIES**

##### **3.1 Seismic Interpretation and Evaluation**

Seismic interpretation over the area was completed on four new seismic events intended to improve understanding of potential truncation and stratigraphic trapping at top Latrobe Group, and for intra-Latrobe Group plays in structural closures.

Regional work to assess potential reservoir / seal pairs within the Latrobe Group, specifically the deeper Kingfish and the Volador formations, was undertaken together with Dr. Alan partridge of Biostrata Pty Ltd. Significant potential is identified in the Roundhead Member sealed beneath the Kate Shale and in other reservoir seal pairs of these formations. The Roundhead Member play is analogous to the nearby Flounder Field.

Although extensive efforts had already been made on the depth conversion process, it was agreed that further depth conversion work would be undertaken with specialists Leading Edge Geophysics Pty Ltd. The objective of this further ZaneGrey depth conversion was to improve the depth prognosis for the ZaneGrey Prospect and to develop a criteria whereby a well could be abandoned without reaching the deeper Latrobe targets if off prognosis at the top of the Latrobe Group. It also attempted to more diligently quantify depth conversion 'risk' for the prospects.

This work was undertaken in November with specialist company Leading Edge Geophysics Pty Ltd (LEG).

Horizons were gridded and exported for further image ray depth conversion to proceed. These horizons are:

- Waterbottom
- Shallow Tertiary Event
- Merged base submarine canyons
- Mid Miocene Event
- Top Latrobe Group Event

Key improvements were made by a reduction of the dataset to the area of the BSOC 3D high density velocity analysis and a small extension into the Kingfish 3D area, use of quality TWT layers enveloping the canyon sequences for the velocity extraction and an image ray depth conversion approach. At quarter's end the work was completed with the exception of receipt of a final report, expected first week in December.

The main conclusion is that through use of seismic velocities alone it was possible to produce a strong correlation of seismic derived depths with actual well depths. In other words there was a consistent ratio of seismic to well velocities, suggesting a high level of accuracy in the depth conversion using seismic velocities. BSOC believe it was concluded that the resultant grid maps are most likely accurate to around  $\pm 15\text{m}$ . LEG provided a grid of the Nannygai 'pay zone' level seismic event depth converted using seismic velocities only. This was gridded in Petrosys and a map generated (without further smoothing) and is attached as Enclosure 1. There is a similarity between this more sophisticated product and earlier 'layer cake' attempts by BSOC. However, it is interesting to note that the live oil encountered in the Nannygai-1 is consistent with it being an oil accumulation over the greater ZaneGrey North structure full to structural spill point either to the west or east (see mapped closure extent on Enclosure 1). The map is less 'noisy' in general, even though there was no TWT smoothing involved. This has probably resulted from using laterally consistent TWT horizons above and at the base of the high velocity submarine canyon sequences, rather than the noisy TWT events at the canyon boundaries themselves (as was done previously).

This latest mapping would suggest that at the Nannygai 'payzone' level the areal and vertical closure of the ZaneGrey North structure is  $10.6\text{km}^2$  and 70m respectively (with  $6.2\text{km}^2$  and the culmination falling in Vic/P42). The figures of  $6.2\text{km}^2$  and 70m compared with our previous (Vic/P42 only) estimates of  $2.8\text{km}^2$  and 50m ('Base Case') and  $11.6\text{km}^2$  and 94m ('Upside Case').

The results of the depth conversion confirm the viability of the ZaneGrey North Prospect and, we believe, have reduced the depth conversion risk significantly.

Results of the quantitative geophysical studies by Total Depth Pty Ltd (Jim Dirstein principal) were received in the quarter. The objective of this work was to improve seismic definition over Hemingway and identify any DHI's there; also examine the potential over the ZaneGrey area for a similar approach in the second stage.

Spectral Attenuation spectra for the ZOI on both inline 2360 and crossline 2905 has shown an attenuation anomaly in the zone of the Hemingway prospect. However, they are not entirely consistent with the size and extent of the prospect. Whilst this is encouraging, the nature of the anomaly is not convincing enough at this stage to promote Hemingway as a drilling candidate. Further work may be undertaken, if time permits on this anomaly.

TWT, amplitude, dip maps, along with proportional slices, PCA attributes and seismic facies maps were produced. In addition, spectral attenuation analysis and spectral shaping tests were also undertaken. These give support to the eastwards truncation of the Edina Barrier Bar play and also provide understanding as to the nature of the 'Hemingway' barrier.

Spectral attenuation of data from the BSOC 3D was undertaken. The conclusions made by Total Depth Pty Ltd on these results were:

- The use of localised principal component analysis and partial reconstruction was effective at removing both coherent and random noise from the seismic data.
- While the post-stack application of spectral shaping for non-white reflectivity after improving the SNR of the data was able to increase both the dominant frequency ( $\sim 5\text{ Hz}$ ) and the

bandwidth of the data (~ 20 Hz.), the results have been constrained by the application of a high-cut filter by the data processor.

- The improvement of the spectral content of the data provides a more detailed image of the zone of interest

Jim Dirstein visited the offices of BSOC on 22<sup>nd</sup> October to more fully present results and propose further studies on quantitative geophysics to be applied.

Log evaluation of the wells Gurnard-1, Nannygai-1, Edina-1, Bream-5 and Roundhead-1 was undertaken specifically to address reservoir potential for reserves estimation and for clay smear calculation. BSOC is assessing the fault seal risk (the issue of lateral or cross fault seal risk) for ZaneGrey North and South to ascertain likely levels of hydrocarbon accumulations in the different reservoirs and hence likely reserves potential. For the deeper reservoirs (below 2680m in Nannygai-1) the cross fault seal and clay smear potential appear to suggest a low risk for the fault seal in the deeper Latrobe Group and in downthrown fault blocks (and hence support the likely occurrence of the 6m pay zone in Nannygai-1). This confirms the earlier work done by Esso Australia in 1994 on Nannygai-1 which also concluded that fault gauge ratios of 40-60% shale occur at the Nannygai pay zone level and potential sealing gouges developed from 2650m RT in the well (they use a cut-off of 45% shale for clay smear fault seal to develop in the Gippsland Basin). This augurs well for fault seal (both along the minor fault separating Nannygai-1 from ZaneGrey North and separating ZaneGrey North from Gurnard-1 block) in lower Kingfish Formation and Volador Formation reservoirs (including the Roundhead Member) in ZaneGrey North. It also has highlighted the greater potential for sealing in the downthrown blocks (i.e. ZaneGrey North over South).

An interpretative palynological range chart for Melville-1 (Enclosure-2) was produced by Alan Partridge of Biostrata Pty Ltd and received on 11<sup>th</sup> November. This chart displays and summarises all the samples examined (immediately after drilling of the well and more recently) and plots them against selected electric logs, plus lithology, stratigraphy and zone determination columns. The species are ordered according to their Last Appearances or youngest occurrences, as most of the samples are cuttings.

### 3.2 Well Planning

Preparation continued through the quarter for a Vic/P42 well (assumed to be Zane Grey for planning purposes) with progress being made on design, HSE documentation and costings. Work proceeded on the basis of being ready to drill as early as mid November. Discussions were held with Esso Australia regarding drilling near the Bream Kingfish oil pipeline. A ZaneGrey well will be required to be drilled as a deviated well starting from a surface location up to 1500m southwest of the pipeline and the well design was revised accordingly. Sperry Sun have been contracted to design a well path to achieve the well test objectives whilst fulfilling the Esso Australia pipeline permit process.

A preliminary well path has been produced which fulfills the well objectives and has a surface location ~1500m from the pipeline. If this is selected as the final location by the Joint Venture, it involves kicking off in the 17 1/2" hole section at ~500m. This technique has apparently been used by Esso in the Bass Strait many times with no hole or drilling problems. The 17 1/2" hole section would be drilled with a motor and bent housing to establish a hole angle of ~33 degrees before 13 3/8" casing is set at 1157mMDRT (1100mTVDRT). The 12 1/4" section would be drilled with a motor and adjustable stabilizer which would enable adjustments to be made in inclination, however, the 12 1/4" hole is essentially a tangent section and easy to maintain. It is planned to set the 9 5/8" shoe at ~2829mMDRT (2512mTVDRT) in a shale identified in from Nannygai-1 (provided the well is on prognosis at Top Latrobe, else it will be abandoned). FEWD would be run in the 12 1/4" BHA. The 8 1/2" hole section would maintain the tangent section to TD and would be drilled with a motor, an adjustable stabilizer and the FEWD triple combo.

Echosounder bathymetry data were loaded from the BSOC 3D survey and confirm that there are no significant seabed irregularities in the vicinity of the proposed location.

Graphical displays of the Geoscience Australia aeromagnetic data acquired over the offshore Gippsland Basin in 1998/99 clearly show the Bream-Kingfish pipeline, well heads and platforms (being metal). This high quality data has been ordered to more accurately delineate the subsurface location of the pipeline.

BSOC negotiated to secure a rig for the Vic/P42 throughout the quarter. The ZaneGrey feature was assumed to be the drilling target for planning purposes, although no formal Joint Venture vote had been taken at quarter's end.

In late August Santos committed to Diamond Offshore to use the Ocean Epoch semi-submersible rig to drill Casino-3 in the Otway Basin and at month's end the rig was under tow on its way to that location. The rig left Darwin on 10<sup>th</sup> September en route for a mid-October spud at Casino. This would leave the rig available around mid-November.

Following on from that commitment and pursuant to BSOC's ongoing dialogue with Diamond, Diamond also submitted a proposal to BSOC for the use of the Ocean Epoch to drill two wells, one in Vic/P47 and one in Vic/P42.

After discussion with Inpex, BSOC responded on 18<sup>th</sup> September 2003 by submitting a letter of intent to Diamond to contract the Ocean Epoch for two wells, one in Vic/P42 and one in the Vic/P47 permit.

Given that the Vic/P42 Joint Venture had yet to finalise a drilling target for the Year 3 well, BSOC moved to secure the availability of the Ocean Epoch by making the maximum commitment possible at that time.

On 2<sup>nd</sup> October 2003 Diamond responded by extending the validity of its proposal until 31<sup>st</sup> October 2003, but also made clear for the first time that Santos had a priority option to use the rig on the Exeter Mutineer project.

In parallel with these rig negotiations BSOC pursued operational readiness and these activities were scheduled to put BSOC in a position to drill two wells starting as early as late November after Casino-3. Application for Approval to Drill and associated approvals had been scheduled to be ready for submission to the DPI by late October 2003, subject to rig availability.

On 21<sup>st</sup> October 2003, BSOC reported to the DPI that no drilling rig will be available to Vic/P42 in the short term. This letter was forwarded to Inpex on 28<sup>th</sup> October, the substance of which, is as follows:

*... on 18 September 2003 BSOC had submitted a letter of intent to Diamond Offshore for the use of the Ocean Epoch. This was in response to a proposal dated 22nd August 2003. This proposal envisaged a multi-well programme with operators sharing mobilisation / demobilisation costs on a pro rata basis based on the number of days drilling. It also canvassed the possibility that the rig would be utilised in New Zealand and that in this event no demobilisation charges would apply. The Diamond proposal did not indicate that the availability of the rig was subject to a priority option on behalf of Santos.*

*On 25 September 2003 the Vic/P42 Joint Venture held a technical meeting at which it was agreed that ZaneGrey was the preferred drilling target for the Year 3 well. Planning and documentation for a well at this location is proceeding and current estimates for a Top Latrobe test with the option to deepen to 3200 m are for approximately 29 days drilling. The well location and design are complicated by the proximity to the Bream – Kingfish oil pipeline, necessitating a deviated well path. BSOC has been in contact with the DPI and Esso to ensure that ZaneGrey operations are conducted appropriately with regard to this issue.*

*On 2 October 2003 Diamond responded to BSOC's letter of intent with a fax that extended the validity of the original proposal until Friday 31 October 2003. This fax, however, also made clear for the first time that Santos had an option to return the Ocean Epoch to the North West shelf for the Mutineer-Exeter project and that any availability of the rig was subject to Santos's exercise of this option at any time.*

*Follow-up communication with both Diamond and Santos confirmed that the potential availability of the Ocean Epoch to BSOC was entirely in Santos's hands and that no decision had been made.*

*On 14 October 2003 Santos announced formal approval of the Mutineer-Exeter development. Casino-3 was spudded on the same day. We understand that Santos has committed to utilise the Ocean Epoch for Mutineer-Exeter and that the rig is required to be on-site for that project not later than 15 February 2004.*

*Based on a phone conversation with Santos, also on 14 October 2003, we further understand that Santos has agreed with BHPBilliton to drill a well in Vic/P45 followed by the rig being moved back to the Otway Basin for Santos to drill its second well in that area before de-mobilising the rig back to the Mutineer-Exeter project.*

*Santos indicated that scheduling was such that there would be no opportunity for BSOC to utilise the Ocean Epoch to drill a 29 day well (as planned for ZaneGrey) due to the priority in getting the rig back to Mutineer-Exeter on schedule.*

*On this basis BSOC is left with no access to the Ocean Epoch for the drilling of the Vic/P42 Year 3 well.*

*Alternative drilling rig possibilities for Bass Strait work include:*

- The Ensco 102 jackup rig which is contracted to Origin for the Yolla project starting March 2004. As we have reported previously, ESSO has committed to take any available Bass Strait slots prior to the Yolla work and also will retain the rig after this project. Therefore availability of this rig to BSOC is unlikely before late 2004.*
- The Ocean Bounty has been committed to work in New Zealand after it is finished in the Browse Basin. Timing is still subject to many factors but the rig could be in New Zealand by April 2004. This would potentially make it available in the Bass Strait area late 2004.*

*We will forward another report next month, however please contact the undersigned if you have any questions or if you require further information.*

At quarter's end the Ocean Epoch was employed in the drilling of the Casino-3 well in the Otway Basin and has since commenced its duties on the Mutineer-Exeter project.

Drilling preparation and planning activities continued during the quarter as described above. It is planned to finalise, to the extent possible, all preparation and documentation now in progress, so that this work will be in the best possible form to utilize for the eventual drilling project.

After considering insurance services proposals from both Willis and Marsh, BSOC appointed Marsh on the basis of better indicated price and recent commitment to the Australian market. During the quarter Marsh commenced liaison with drilling managers LPM and associates on the drilling programme with specific attention directed to integrating safety and operational issues and documentation.

#### 4. REPORTS SUBMITTED

On 18<sup>th</sup> August 2003 BSOC submitted a letter to the DPI reporting on rig availability and on the joint venture's progress towards securing a rig to drill the Year 3 commitment well. This was the first of the regular monthly reports as required under the terms of the suspension and extension granted on 22<sup>nd</sup> July 2003. The second and third of these reports were submitted on the 22<sup>nd</sup> September and the 21<sup>st</sup> October, respectively.

#### 5. HEALTH, SAFETY AND ENVIRONMENT

##### 5.1 Incidents

There were no health, safety or environmental incidents recorded during the report period.

#### 6. ESTIMATED EXPENDITURE FOR THE QUARTER

Estimated expenditure for the reporting period is detailed below:

Activity	Estimated Expenditure (\$000's)
Geological & Geophysical	420
Permit Administration	5
<b>Total</b>	<b>425</b>