EP RESERVES
PRESENTATION TO GAC

FOIA Confidential
Treatment Requested

LON00800508
Year-end 2003 Reserves Submissions

October 17, 2003

- Updated (2003 version) Shell Guidelines issued to All EP reserves Focal Points, to enable preparation of year-end 2003 submissions by January 15, 2004

- Updated Guidelines approved by the Reserves Committee and EP Exec, but consequences of Shell interpretation of SEC Rules not made explicit

- Instructions include a request to estimate potential impact of a change to the Guidelines on Lowest Known Hydrocarbons (and also to consider impact of the alternative treatment of “Fuel and Flare”), but request data to be submitted as per Guidelines
Year-end 2003 Reserves Submissions

Early December 2003

- Rockford analysis shows 3.65 bln boe (CMD Dec 12) as exposed volumes
- Further work required to check rest of portfolio
- Focus area was "project maturity" and the corporate capital allocation database was used to identify proved reserves which do not meet the current criteria
- Specific request sent to Brunei on December 22
- Other OU's handled from SIEP (eg Venezuela)
- Final Rockford volume of 3.9 bln boe by end December
- Limited contact with OU's given Rockford sensitivities

EP Reserves review 10-13 March 2004
January 11, 2003 (following Rockford announcement)

- Updated instructions issued to all EP reserves Focal Points.
- Timeline unchanged (Jan 15) to meet Feb 5 results deadline.
- Specific Rockford changes communicated back to OUs.
- Change in Group Guidelines with respect to:
  - Lowest Known Hydrocarbons
  - Application of Year-end prices
- Also specific request to test for “economic producibility”
- Plus a general request (included in an 8 page note of instructions) to critically review the proved reserves statement in relation to the SEC Definitions and SEC Interpretations, as provided in the Shell Guidelines (App 1)
Year-end 2003 Reserves Submissions

Assurance process

- Assurances were specifically requested from OU's and then to Regional CFO's and Technical Directors, with respect to a number of issues:
  - Reserves are measured, reported etc in accordance with Shell Guidelines and the January 11 amendment
  - Reserves monitoring, review, audit trail to be assured
  - Reconciliation with Group Finance reporting systems
  - No other significant issues which would prevent compliance with Shell Guidelines

- No specific requirement for assurance to SEC Rules

- Such assurances were received, with some qualifications
  - Incl. Nigeria, Australia
Year-end 2003 Reserves Submissions

January 29, 2004

- Reserves Committee reviewed the year-end reserves data (and the assurance process)

February 1, 2004

- Group Reserves Auditor issued note to EP CFO (copy group External Auditors) stating:
  "It is my opinion that the current status of the Group’s reserves portfolio can be viewed as compliant with the SEC proved reserves definitions and the SEC’s recent additional guidelines."

- The same report identifies a number of areas of divergence between the Shell Guidelines and SEC rules, and recommends to provide clarity on these.
Year-end 2003 Reserves Submissions

Group Reserves Auditors report – comment

- The headline statement can be seen as providing assurance of compliance with SEC Rules

- The areas of Shell interpretation of the SEC Rules (which are known and understood by SIEP EPT and Reserves Co-ordinator) are apparently assumed by the Reserves Auditor to be non material in terms of compliance with SEC Rules

- Failure either to explain or to enquire on the above issue has led to the difference of understanding between EP finance and technical staff

EP - Reserves review 10-13 March 2004
Year-end 2003 Reserves Submissions

February 2, 2004
• Reserves data reviewed by External Auditors

February 3, 2004
• Reserves data reviewed by CMD

• CMD discussion included a challenge as to the legitimacy of the proposed Ormen Lange booking (256 mln boe), given the issue around Government approval. This point was addressed

February 5, 2004
• Reserves data included in year-end results disclosures
Ormen Lange issue

Technical Review
- MGDMB queried the Ormen Lange booking in connection with general discussions on SEC response, compliance etc
- A review team was sent from SIEP to review the booking on March 5

Review Findings
- The Ormen Lange asset team had conducted extensive analysis of the reserve situation and had followed a rigorous probabilistic approach (audit report available) to define a 90% confidence level of reserves of 256 mln boe – fully in line with Shell Guidelines

- The review team acknowledged the quality of the work, but pointed out that under SEC Rules, the proved volumes could only be calculated using the “one well offset” criteria, which constrained the proved volume to some 90 mln boe

- Technical background

EP
Reserves review 10-13 March 2004
Reserves Due Diligence exercise

Background

• Given the Ormen Lange finding, a more extensive review was commissioned to assess the potential impact of the areas of interpretation of SEC Rules, as contained in the Shell Guidelines, as per year-end 2003 data.

• Review Team:
  - Independent Petroleum Consultants
  - Group External Auditors
  - Group Internal Audit
  - Group Reserves consultants

• Execution: March 10 – 15

• Review covered some 80 fields
Objectives

- Provide sufficient confidence in the proposed 2003 Proved Reserve estimates so that the volumes can be assured, within an acceptable bracket of uncertainty (defined prior to the review as 400 mmboe), as being fully compliant with SEC Rules and which fairly represent in all material aspects the status of the reserves as "proved" for the year-end 2003.

- The starting point will be the proved reserves data base as submitted by OU's, and assured to be fully compliant with the Shell Guidelines (i.e., the October 2003 version as updated in January 2004).

- Specific areas of focus in the SEC Rules will be addressed in the review. A preliminary list of areas of focus is shown below.

The short (10 March to 15 March 2004) review will concentrate on those fields that have reserves booked under the Shell Guidelines, for which compliance with the focus areas will be specifically addressed.
Review Team Composition

Review Team

• **Independent Petroleum Consultants**
  – Ryder Scott: Tom Gardner, George Dames

• **Group External Auditors**
  – PWC: Edo Kienhuis, Michael Hurley
  – KPMG: Han van Delden

• **Group Reserves Consultants:**
  – Rod Siddle, David Kluesner

• **Group Internal Audit**
  – Ken Marnoch

• **Observers:**
  – John Darley, Frank Coopman, John Bell

Reserves review 10-13 March 2004
Scope of the Review

Key focus areas:

- Lateral extent of proved area (ie, application of “one offset location” rule)
- Economic producibility (eg, need for production flow test)
- Use of reservoir simulation without data to history match when not tied to actual analogue reservoir performance
- Improved recovery process reserves where no pilot or area analogue project exists (especially in frontier areas)
- Project Maturity and other
Review Process

Execution

Duration: 10-13 March, Rijswijk
Number of fields reviewed: 81
Duration of review: minimum 30 min. with follow-up as required

Interview mode:
- Representatives on-site (mostly)
- Remote presentation through netmeeting
- Teleconference back-up

Review team rated the five focus areas with a quality indicator:
A: meets SEC requirements
B: partial approval, use of discount factor between 0 and 1
C: reject

EP

Reserves review 10-13 March 2004
### Due Diligence Review: Areas of Potential Exposure

<table>
<thead>
<tr>
<th>Waterflood Maturity</th>
<th>Exposure (MMboe)</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pierce</strong></td>
<td>Yes, 50</td>
<td>Analogue required</td>
</tr>
<tr>
<td><strong>Clair</strong></td>
<td>Yes, 20</td>
<td>Analogue required</td>
</tr>
<tr>
<td><strong>Valhall (?)</strong></td>
<td>Yes, (16)</td>
<td>Analogue required</td>
</tr>
<tr>
<td><strong>Draugen (?)</strong></td>
<td>Yes, 4</td>
<td>YE pricing not used; potential upside as well</td>
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<tr>
<td><strong>Exposure</strong></td>
<td>90</td>
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<table>
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<tr>
<th>Project Maturity</th>
<th>Exposure (MMboe)</th>
<th>Issue</th>
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<tbody>
<tr>
<td><strong>Enfield, Angel</strong></td>
<td>No, 101</td>
<td>No FID, No VAR3, OBO data availability</td>
</tr>
<tr>
<td><strong>Exposure</strong></td>
<td>101</td>
<td></td>
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</tbody>
</table>

EP Reserves review 10-13 March 2004
<table>
<thead>
<tr>
<th>Proved Area</th>
<th>Shell GL/SEC divergence</th>
<th>Exposure (MMboe)</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harweel</td>
<td>Yes</td>
<td>3</td>
<td>Well test may indicate smaller productive area</td>
</tr>
<tr>
<td>Erha</td>
<td>Yes</td>
<td>4</td>
<td>Remove down dip flank</td>
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<tr>
<td>Na-Kika</td>
<td>Yes</td>
<td>2</td>
<td>Production data</td>
</tr>
<tr>
<td>Plutonio (5x)</td>
<td>Yes</td>
<td>13</td>
<td>Lateral extent</td>
</tr>
<tr>
<td>Exposure</td>
<td></td>
<td>22</td>
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</table>

<table>
<thead>
<tr>
<th>Minor Adjustments</th>
<th>Shell GL/SEC divergence</th>
<th>Exposure (MMboe)</th>
<th>Issue</th>
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<tbody>
<tr>
<td>Barik</td>
<td>No</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Upside</td>
<td>SHELL/SEC Exposure (MMboe)</td>
<td>Issue</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Brunei</td>
<td>No, 60</td>
<td>Conservatism identified by review team</td>
<td></td>
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<tr>
<td>Groningen</td>
<td>No, 60</td>
<td>Difference with Exxon booking</td>
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<tr>
<td>Upside</td>
<td>120</td>
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EP Reserves review 10-13 March 2004
# Due Diligence Review: Areas of Potential Exposure

## Totals

<table>
<thead>
<tr>
<th>Gas Commercial Arrangements</th>
<th>Shell GL/SEC divergence</th>
<th>Exposure (MMboe)</th>
<th>Issue</th>
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</thead>
<tbody>
<tr>
<td>Proved gas portfolio</td>
<td>63</td>
<td>99</td>
<td>SPDC, Malaysia</td>
</tr>
<tr>
<td>Waterflood</td>
<td>91</td>
<td></td>
<td>Analogues</td>
</tr>
<tr>
<td>Maturity</td>
<td>101</td>
<td></td>
<td>Enfield, Angel</td>
</tr>
<tr>
<td>Proved Area &amp; Minor</td>
<td>25</td>
<td></td>
<td>Harweel, Erho, Ma-Kika, Bank</td>
</tr>
<tr>
<td>Ormen Lange</td>
<td>170</td>
<td></td>
<td>Adjustment outside due diligence review</td>
</tr>
</tbody>
</table>

Exposure: 548

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**N.B.** Numbers subject to change as additional supporting data are provided.

**EP**

Reserves review 10-13 March 2004
Exposure by region - Corrected for SPDC LNG

- EPA: 40%
- EPE: 14%
- EPM: 43%
- EPW: 2%
- EPG*: 1%

300 million boe

Reserves review 10-13 March 2004

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Summary Findings

- Total exposure as identified by the review is within the set bracket of uncertainty and ranges from 300-500 mmboe

- 60-80% of the exposure is in the EPA and EPE regions

- The three largest exposure areas are:
  - Maturity
  - Waterflood / IOR
  - Gas contracts

- The review identified insufficient awareness of the Groups technical staff with the SEC guidelines and the purpose thereof
  - Discussions on the sense or otherwise of SEC guidelines

- Non-compliance with Group Reserve Guidelines was observed
  - Enfield, Angel, Koroama, Assa N.

- The exposure level indicates a significant exposure in the EPE and EPA regions and this requires follow-up

- Group reserves estimation requires reengineering
  - A training / education program for all Reservoir Engineers
  - More central reviews of proved reserves, in particular those of NOVs

EP
Reserves review 10-13 March 2004
The selection covers significant parts of the reserves portfolio

### Review Coverage (million boe)

<table>
<thead>
<tr>
<th></th>
<th>Proved Developed</th>
<th>Proved Undeveloped</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature</td>
<td>972</td>
<td>459</td>
<td>1431</td>
</tr>
<tr>
<td>Inmature</td>
<td>1033</td>
<td>3684</td>
<td>4717</td>
</tr>
<tr>
<td>Total</td>
<td>2004</td>
<td>4143</td>
<td>6148</td>
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</table>


### Review Coverage (% of total portfolio)

<table>
<thead>
<tr>
<th></th>
<th>Proved Developed</th>
<th>Proved Undeveloped</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature</td>
<td>16%</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Inmature</td>
<td>49%</td>
<td>84%</td>
<td>73%</td>
</tr>
<tr>
<td>Total</td>
<td>24%</td>
<td>60%</td>
<td>40%</td>
</tr>
</tbody>
</table>

The estimate of total proved reserves volumes as at end 2003 amounts to some 15.3 bln boe, comprising 8.3 bln boe proved developed reserves and 7.0 bln boe proved undeveloped reserves.

EP
Reserves review 10-13 March 2004
EPE and EPA regions have most exposure

Exposure by Region (corrected for SPDC LNG)
Exposure split by category

Exposure by Category
(Field based)

- Proved Area
- Waterflood
- Gas Portfolio
- Maturity

Other: LKH, lack of data

EP Reserves review 10-13 March 2004
Exposure split by category

Exposure by Category (corrected for SPDC LNG)

- Proved Area
- Other
- Waterflood
- Gas Portfolio
- Maturity
- Gas Contract
- Exposure-low
- Exposure-high

Other: LKH, lack of data

Reserves review 10-13 March 2004
The result shows a total exposure of 300-400 million boe

- Review team identified four fields where an exposure range remained
- Available data did not allow for single discount factor
- Field review results were corrected for SPDC LNG supply alternatives
- Some of the SPDC fields did not meet SEC standards, but alternatives exist to backup gas sales contract

<table>
<thead>
<tr>
<th>Field Review</th>
<th>SPDC LNG Supply Revisited</th>
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<tbody>
<tr>
<td>Low exposure</td>
<td>-81</td>
</tr>
<tr>
<td>Sakhalin</td>
<td>378</td>
</tr>
<tr>
<td>Barik</td>
<td>68</td>
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<tr>
<td>Gbaran</td>
<td>2</td>
</tr>
<tr>
<td>Forcados-Yokri</td>
<td>-101</td>
</tr>
<tr>
<td>High exposure</td>
<td>498</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>307</td>
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</table>

LON00800538
### SPDC Oil

#### Gap between Business Plan portfolio and SEC Proved Reserves: 720 million bbl

- Portfolio of ca. 1100 million bbl with which gap could be closed over time
  - Mix of small and major projects: ‘small’ insufficient to bridge gap
  - All long-term, post-plan period, immature
  - Acceleration cannot be accommodated within plan Capex ceiling
- May require carrying known exposure vs. FID criterion for several years

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#### Table

<table>
<thead>
<tr>
<th>Field</th>
<th>Developed</th>
<th>Base</th>
<th>Options</th>
<th>Unplanned</th>
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<tr>
<td>Alakiri</td>
<td>2</td>
<td>9</td>
<td>41</td>
<td>0</td>
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<tr>
<td>Benema</td>
<td>37</td>
<td>9</td>
<td>0</td>
<td>10</td>
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<tr>
<td>Bisenta</td>
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<td>16</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Bonny</td>
<td>4</td>
<td>23</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Carvingsome Channel</td>
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<td>157</td>
<td>13</td>
<td>0</td>
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<td>Forcado York</td>
<td>52</td>
<td>125</td>
<td>0</td>
<td>4</td>
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<td>Gharan/Ubie</td>
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<td>91</td>
<td>27</td>
<td>3</td>
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<td>50</td>
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<td>Olbu</td>
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<td>0</td>
<td>39</td>
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<td>Ogbia</td>
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<td>70</td>
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<td>81</td>
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<td>Warr</td>
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<tr>
<td><strong>Total</strong></td>
<td>688</td>
<td>1116</td>
<td>422*</td>
<td>1119*</td>
</tr>
</tbody>
</table>

* Doesn’t (yet) include H-Block and Utepatu

Excludes any contribution from the CW project.

#### Notes

- Base + Developed: 1804
- Currently booked oil: 2524
- Gap: 720

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2003 Proved RRR Review 14 Nov 2003

2003 Reserves 20031114.ppt