



Maersk Olie og Gas A/S  
Esplanaden 50  
1263 København K  
Danmark

Miljøstyrelsen  
Strandgade 29  
1401 København K

www.maerskoil.com  
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**Att.: Vicedir. Michel Schilling**

**EXECUTIVE SUMMARY FRA LR SCANDPOWER LTD – INDEPENDENT OIL  
IN WATER REVIEW, MAY 2012**

Hermed fremsendes Executive summary fra det review, der er udført i maj 2012 af LR Scandpower Ltd. (tidligere Lloyd's Register EMEA) på alle vore offshore installationer samt onshore.

Rapporten bekræfter i lighed med tidligere rapporter, at Maersk Oil har etableret procedurer, som sikrer overholdelse af de vilkår, der findes i vores udledningstilladelser for produktionsenhederne.

Rapporten bekræfter ligeledes, at Maersk Oil fortsætter med at udvikle og forbedre processerne og procedurerne for måling af OiW.

I rapporten er der endvidere anbefalinger til yderligere forbedringer af processer og procedurer. Disse anbefalinger vil blive gennemgået og vurderet og i relevant omfang implementeret, sammen med anbefalingerne fra Force's verifikation (ref. vort brev OSJ/kbr/15724 af 4. juli 2012).

Maersk Oil står gerne til rådighed for yderligere diskussion af rapportens konklusioner.

Med venlig hilsen

  
**Ole Sidelmann Jørgensen**  
[Ole.Sidelmann@maerskoil.com](mailto:Ole.Sidelmann@maerskoil.com)  
+45 3363 4097

# Maersk Oil Denmark

## Independent Oil in Water Review, May 2012

### Executive Summary



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Prepared by:

Approved by:

Doc. no.SP50102134  
21 June 2012  
LR Scandpower Ltd.  
Denburn House  
25 Union Terrace  
Aberdeen, AB10 1NN  
United Kingdom  
[www.scandpower.com](http://www.scandpower.com)  
[www.riskspectrum.com](http://www.riskspectrum.com)  
Tel. +44 (0)1224 267400  
Fax +44 (0)1224 267401

Amy Annand  
Principal Consultant

Nick Jackson  
Director, Risk Management Services

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## 1. INTRODUCTION

From 12 to 19 May 2012, LR Scandpower conducted an independent review of the Maersk Oil Denmark's Oil in Water ("OiW") sampling and analysis processes and procedures. This was a follow-up to the review conducted in October 2011 (report dated 27 January 2012). As with previous assessments, this review was conducted onshore at the Esbjerg offices of Maersk Oil Denmark and offshore on all Maersk Oil Denmark (DUC) platforms. The review identified a number of areas for potential improvement in Maersk Oil Denmark's management of the OiW processes, but did not identify any areas that were in breach of the OiW permits.

### 1.1 Scope and Criteria

The scope of this OiW review included assessment of: a) outstanding items raised at the previous review in November 2011; b) compliance with permit conditions; and c) identification of further opportunities for improvement. A further description of criteria used to assess compliance with permit conditions and progress against outstanding actions is contained in the main report.

The DECC Guidance Notes for Sampling and Analysis of Produced Water and Other Hydrocarbon Discharges provided the main source of assessment criteria, as they are considered to be best practice. These guidelines, although not mandatory, are referred to in the OiW permits and have been used as the basis in formulating OiW procedures.

## 2. COMMENDATIONS

- ✓ Maersk Oil Denmark has continued to build on the progress achieved in 2011 with further refinement and implementation of the OiW management processes.
- ✓ There is no evidence of non-compliance with permit conditions.
- ✓ Although it is not a mandated requirement, the DECC guidance notes have been taken into account in the establishment and implementation of the OiW procedures. It is also recognised that these guidelines are referred to in their OiW permits.
- ✓ OiW workshops have been established with the intent of knowledge and experience sharing within the lab tech community, nurturing a culture of consultation and performance improvement.
- ✓ New pre-printed logbooks are used on all platforms to enhance data traceability and transparency.
- ✓ Improvements have been made to the platform specific OiW procedures to achieve greater clarity.
- ✓ Consistent reporting lines have been established for the Lab Assistant and Technicians.
- ✓ Overwhelmingly, OiW samples have been collected during the allotted times across all platforms.
- ✓ Independent reviews have been conducted by Force Technology and included OiW data verification.
- ✓ With regard to limits of detection, Maersk Oil Denmark has introduced the use of two calibration curves for use on samples at the lower and higher ends of the concentration scale. Samples are now also analysed against verified standards provided by the Technical Institute.
- ✓ Certified weights are used for calibration of the laboratory balances.
- ✓ A number of internal QC controls have been established in order to manage the quality of analysis.

### 3. RECOMMENDATIONS

The OiW Review produced 15 recommendations for continued improvement in Maersk Oil Denmark's management of OiW processes and permit compliance. There are eight new recommendations amongst the 15 that have been identified, meaning that seven recommendations (out of 23) from the previous reviews remain open. **Note: expanded versions of these recommendations are contained in the full report and platform specific documents, along with the associated findings.**

#### ***OiW Procedures***

1. Update the platform specific procedures to include the continuous OiW monitoring arrangements.
2. Update the OPM Part 2B procedure to include newly implemented calibration activities associated with the laboratory balances (*new recommendation*).
3. In order to comply with the DECC method, Maersk Oil Denmark should demonstrate that laboratory temperatures are accurately and precisely measured within a +/- 3°C tolerance. Update associated procedures accordingly.

#### ***Integrity of Data***

4. To reduce the risk of potential data anomalies, logbooks should only be used to capture raw data; data from the spreadsheets should not be transferred to the logbooks. The practice of retrospectively amending the spreadsheets with an updated correlation factor should be discontinued (*new recommendation*).

#### ***Verification of Processes***

5. A programme to raise OiW awareness of those in supervisory (to the Laboratory Technicians) roles must be established. To enable Supervisors to engage more actively and skillfully within OiW QA/QC and verification processes, they must have a firm understanding of the OiW processes and the Laboratory Technicians' overall roles and responsibilities.
6. The scope of Maersk Oil Denmark's internal HSE audits should be expanded to include the key expectations of the OiW processes.
7. For data verification activities, it is important to be able to follow the progression of data transfer. This includes data recorded in logbooks, spreadsheets, databases and reports. Reinforce the requirement to provide explanatory comments whenever samples are not collected during allotted times or when sample concentrations exceed KPIs.

#### ***Variability of Reported Concentrations***

8. The OiW procedures should be updated to reflect scientific balance calibration activities. Maersk Oil Denmark should ensure that calibration activities reflect manufacturer's recommendations, including the instruction to calibrate after relocation (*new recommendation*).

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### **Commentary on OiW Permit Compliance**

9. There is evidence of a lack of awareness (to varying degrees) of OiW permit conditions within the offshore teams. Ensure that responsible personnel understand the key permit requirements (*new recommendation*).

### **Competency Assurance**

10. The competency assurance processes should reflect the DECC method, which requires *“all personnel conducting the analytical methods to be trained to a level of competency allowing personnel to perform the analysis correctly, manage routine verification, calibration, documentation and quality control test requirements without supervision”*. In order to achieve this Maersk Oil Denmark should:
  - i. Clarify the OiW competency criteria (i.e. ‘skim, read, learn’) outlined within the training matrix. This should include defining demonstrable competency expectations at each level (*new recommendation*).
  - ii. Introduce a programme of refresher training to ensure compliance with DECC guidance, which states that operators must *“determine at what frequency periodic assessment or retraining of personnel is required in order to maintain levels of competency”* (*new recommendation*).
  - iii. Ensure that Supervisors (who are now responsible for the oversight and review of the implementation of the OiW procedures) are adequately equipped with the appropriate ‘tools.’ These include: a firm awareness of the key sample collection and analysis tasks, an understanding of the key requirements of the OiW permit, OiW KPIs and related audit findings and a process for testing the competency of the Laboratory Assistants.
  - iv. Conduct OTJT verification utilising a specialist who is deemed to be an OiW Technical Authority, enabling Maersk Oil Denmark to achieve the most effective, consistent and value adding OTJT verification. This should include competency verification of contracted personnel.

### **Culture and Climate**

11. In order to further promote and nurture a culture of compliance and performance improvement, Maersk Oil Denmark should communicate the criticality of the OiW permit, including the key prerequisites and requirements (*new recommendation*).
12. Some Laboratory Assistants and Technicians perceived a conflict of interest and felt they could not retain a required degree of independence if they worked within a production team. In the opinion of LR Scandpower, this is a perception rather than a reality. Efforts need to continue to bring the Laboratory Technicians into the body of the production team, whilst ensuring that they maintain a critical degree of independence relating to OiW processes (*new recommendation*).