



Discharges, spills and emissions from offshore oil and gas installations in 2009

Including assessment of data reported in 2008 and 2009

OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. The Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. Les Parties contractantes sont l'Allemagne, la Belgique, le Danemark, l'Espagne, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d'Irlande du Nord, la Suède, la Suisse et l'Union européenne.

Acknowledgement

This report has been prepared by the Offshore Industry Committee expert assessment panel (EAP) consisting of:

- Mr Leo Henriquez (convenor, the Netherlands)
- Mr Tage Andersen (Denmark)
- Ms Margot Cronin (Ireland)
- Mr Emmanuel Garland (France)
- Mr Kurt Machetanz (Germany)
- Bent Barman Skaare (Norway)
- Ms Tone Sjørgård (Norway)
- Mr Andrew Taylor (United Kingdom)

with the support of Ms Luisa Rodriguez Lucas and Mrs Sylvie Ashe of the OSPAR Secretariat.

Contents

| | |
|--|----|
| Executive Summary/Récapitulatif..... | 5 |
| 1. INTRODUCTION..... | 8 |
| 1.1 Programmes and measures relevant to this report..... | 8 |
| 1.2 Annual reporting and biannual assessments..... | 9 |
| 2. ASSESSMENT OF DATA REPORTED..... | 10 |
| 2.1 Introduction..... | 10 |
| 2.2 Discharges of produced water and displacement water..... | 11 |
| 2.3 Oil discharges..... | 12 |
| 2.4 Discharges of oil and organic phase drilling fluids into the sea..... | 15 |
| 2.5 Chemicals..... | 15 |
| 2.6 Atmospheric emissions..... | 18 |
| 2.7 Examination of the annual RSC report on non nuclear discharges..... | 19 |
| 3. RESULTS..... | 19 |
| 3.1 General information..... | 19 |
| 3.2 Glossary..... | 19 |
| Part A: Report relating to 2009 data..... | 21 |
| Table 1: Number of installations with emissions and discharges covered by OSPAR measures..... | 22 |
| Table 2a: Produced water..... | 23 |
| Table 2b: Displacement water..... | 24 |
| Table 3: Installations exceeding the 30 mg/l performance standard for dispersed oil..... | 25 |
| Table 3a: Information on installations which did not meet the 30 mg/l performance standard.. | 26 |
| Table 4a: Use and discharges of oil-based fluids (OBF)..... | 34 |
| Table 4b: Use and discharges of non-OBF organic-phase drilling fluids (non-OBF OPF)..... | 35 |
| Table 5a: Accidental spillages of oil..... | 36 |
| Table 5b: Accidental spillages of chemicals..... | 36 |
| Table 6: Emissions to air..... | 37 |
| Table 7a: Quantity of offshore chemicals used in kg/year..... | 38 |
| Table 7b: Quantity of offshore chemicals discharged in kg/year..... | 39 |
| Table 7c: Quantity of offshore chemicals spilled in kg/year..... | 40 |
| Part B: Cumulative report..... | 41 |
| Table 1a: Number of installations in the OSPAR Maritime Area with discharges to the sea, or emissions to the air, 2000-2009..... | 42 |

Discharges, Spills and Emissions from Offshore Oil and Gas Installations in 2009, including the assessment of data reported in 2008 and 2009

| | | |
|-----------|---|----|
| Table 1b: | Total number of installations in the OSPAR Maritime Area, 2000 - 2009 | 43 |
| Table 1c: | Number of installations by type of installation in the OSPAR Maritime Area with discharges to the sea, or emissions to the air, 2000 - 2009 | 44 |
| Table 2a: | Oil discharged in displacement and produced water (in tonnes), 2000 - 2009 | 45 |
| Table 2b: | Quantity of displacement and produced water discharged daily to the sea (in m ³ /day), 2000 - 2009 | 46 |
| Table 2c: | Total amount of produced water and displacement water discharged, and produced water injected, 2001 – 2009..... | 46 |
| Table 3a: | Number of installations with discharges exceeding the 40 mg oil/l performance standard, 2000 - 2006, and quantity of oil discharged by these installations (in tonnes) | 47 |
| Table 3b: | Number of installations with discharges exceeding the 30 mg oil/l performance standard, valid from 2007 onwards, and quantity of oil discharged by these installations (in tonnes)..... | 47 |
| Table 3c: | Number of installations with discharges exceeding the 40 mg oil/l performance standard, 2000 - 2006, by Contracting Party, and quantity of oil discharged by these installations (in tonnes) | 48 |
| Table 3d: | Number of installations with discharges exceeding the 30 mg oil/l performance standard, valid from 2007 onwards, by Contracting Party, and quantity of oil discharged by these installations (in tonnes), in excess of the 30 mg oil/l performance standard | 49 |
| Table 4a: | Quantities of oil and other organic-phase fluids discharged via cuttings (in tonnes), 2000 - 2009 | 50 |
| Table 4b: | Number of wells drilled with OPF, 2000..... | 51 |
| Table 4c: | Number of wells drilled with OPF, with discharge of contaminated cuttings to the Maritime Area, 2001 - 2009 | 51 |
| Table 5a: | Number of spills, 1994 - 2009 – Spills less than 1 tonne (≤ 1 T) and spills above 1 tonne (> 1 T) | 52 |
| Table 5b: | Quantity of oil spilled, in tonnes, 2000 - 2009..... | 53 |
| Table 5c: | Number of spills of chemicals and amount of chemicals spills in tonnes/year, 2006 - 2009..... | 54 |
| Table 5d: | Amount spilled in kg per year, 2006 - 2009 | 54 |
| Table 6: | Emissions to air, 2000 – 2009 | 55 |
| Table 7a: | Quantity of offshore chemicals used and discharged in kg/year on the PLONOR* List used and discharged in kg/year, 2001 - 2009..... | 57 |
| Table 7b: | Quantity of offshore chemicals used and discharged in kg/year, in inorganic substances with LC ₅₀ or EC ₅₀ > 1 mg/l, 2001 - 2009 | 58 |
| Table 7c: | Quantity of offshore chemicals used and discharged in kg/year, in substances ranked according to OSPAR Recommendation 2000/4 and which do not fulfil the criteria of tables 7 a, b, d, e, f, g, 2001 - 2009 | 59 |

| | | |
|-----------|---|----|
| Table 7d: | Quantity of offshore chemicals used and discharged in kg/year, on the List of Chemicals for Priority Action (LCPA), 2001 - 2009..... | 60 |
| Table 7e: | Quantity of offshore chemicals used and discharged in kg/year, in inorganic substances with LC ₅₀ or EC ₅₀ less than 1 mg/l, 2001-2009..... | 61 |
| Table 7f: | Quantity of offshore chemicals used and discharged in kg/year, in substances where the biodegradation is less than 20% during 28 days, 2001 - 2009..... | 62 |
| Table 7g: | Quantity of offshore chemicals used and discharged in kg/year, in substances which meet two of three PBT-criteria, 2001 -2009..... | 63 |
| Table 8: | Total discharges and spillage of dispersed oil, in tonnes, 2000-2009..... | 64 |
| Table 9: | Total production in oil equivalents, in toeq, 2001-2009..... | 65 |
| Table 10: | Discharges of radioactive substances in produced water in terabecquerel (Tbq), in 2009 | 66 |

Executive Summary

OSPAR collects annually data on discharges, spills and emissions from offshore installations.

This report presents the discharges, spills and emissions data from offshore installations for 2009 in Part A and the cumulative data from 2000 – 2009 in Part B. The report also includes in Section 2 the assessment of the data reported for 2008 (OSPAR Publication Number: 514/2010) and 2009, and the trends over the previous 9 years.

Discharges of oil continue to decrease

The total *production of hydrocarbons* in the OSPAR maritime area has decreased by 20% in the period 2001-2009. The total quantity of *dispersed oil (aliphatic oil) discharged* to the sea (from produced water, displacement water and accidental spillage) show a decreasing trend over the last few years, with the exception of 2007¹.

As in previous years, *produced water and displacement water* are the main contributors to the oil discharges from offshore oil and gas activities, representing 96% of the total amount of oil discharged to the sea in 2009.

The concentration of dispersed oil in produced water is below the performance standard for most installations

The annual average dispersed oil content in produced water was 13,6 mg/l in 2008 and 13,2 mg/l in 2009, well below the current performance standard for dispersed oil of 30 mg/l for produced water discharged into the sea. These values tie in well with annual average dispersed oil content in produced water of 12,5 mg/l in 2007. These lower concentrations may be explained to some extent by the change in method of analysis.

In 2009, 31 installations exceeded the *30 mg/l performance standard* for dispersed oil in produced water. Despite the efforts made to reduce the number of installations which have poor records, there are still some installations which raise significant concern; however, the amount of oil discharged from most of these installations is very low.

Most chemicals used and discharged offshore are considered to pose little or no risk

Since 2000 the *use and discharge of chemicals* offshore have been regulated by OSPAR under the HMCS. The first reporting year for which all major contributors provided data was 2003. The total quantity of *chemicals used offshore* in 2009 was nearly 840 000 tonnes. Less than 1,5% (by weight) of the chemicals used contains either substances on the OSPAR List of Chemicals for Priority Action (LCPA) or substances which are candidates for substitution.

The total quantity of *chemicals discharged into the sea* in 2009 was just under 300 000 tonnes, 88% of which were chemicals on the OSPAR PLONOR List². Discharge to the sea of chemicals on the LCPA was 147 kg in 2009.

Emissions to air are more or less stable

An increasing trend in *atmospheric emissions* has been identified in the past. During the last seven years the picture seems to have changed slightly:

- emissions of CO₂ in 2009 are the same as for 2007, down 3% on 2008;

¹ In 2007, a large oil spill contributed 43% to total oil discharges.

² OSPAR List of substances/preparations used and discharged offshore which are considered to pose little or no risk to the environment: (Reference number: 2004-10, 2008 update). In 2012 a revised version of the PLONOR List was adopted (OSPAR Agreement, Reference number: 2012-4). Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to the PLONOR List should be construed as the former PLONOR List.

- emissions of NO_x have decreased gradually but steadily since 2002, and by 6% between 2007 and 2009;
- non-methane VOC emissions have decreased since 2001, and are significantly lower in 2009 than in 2007.
- methane emissions have been more or less stable since 2000. 2009 emissions are significantly higher than those reported for 2007;
- SO₂ emissions have been fairly constant since 2002. Nonetheless, emissions reported for 2009 are 31% lower than for 2008;

Preliminary remarks: This assessment is based on data given in Parts A and B of this report. Part A contains data specifically from 2009. Part B contains cumulative data from 2000 to 2009. Some data used may differ slightly from data published in previous OSPAR reports. This is due to ongoing checking undertaken by Contracting Parties which has led to a small number of revisions. Data used in this assessment report are the best available data at the time the report has been written.

Récapitulatif

OSPAR recueille chaque année des données sur les rejets, déversements et émissions provenant des installations offshore.

Le présent rapport présente les rejets, déversements et émissions provenant des installations offshore pour 2009 dans la Partie A et les données cumulatives de 2000 à 2009 dans la Partie B. Le rapport comprend également en section 2 l'évaluation des données notifiées pour l'année 2008 (Publication OSPAR No. 514/2010) et pour l'année 2009, ainsi que les tendances observées durant les 9 années précédentes.

Les rejets d'hydrocarbures continuent à diminuer

La *production totale d'hydrocarbures* dans la zone maritime OSPAR a baissé de 20% entre 2001 et 2009. La quantité totale *des hydrocarbures dispersés (hydrocarbures aliphatiques) rejetés en mer* (dans l'eau de production, l'eau de déplacement et provenant de déversements accidentels) révèle une tendance à la baisse au cours des quelques dernières années, à l'exception de 2007³.

De même que les années précédentes, *l'eau de production et l'eau de déplacement sont les principaux contributeurs aux rejets d'hydrocarbures provenant des activités pétrolières et gazières offshore, représentant 96% de la quantité totale d'hydrocarbures rejetés en mer en 2009*⁴.

Les teneurs en hydrocarbures dispersés dans l'eau de production sont inférieures aux normes de performance pour la plupart des installations

La quantité moyenne annuelle d'hydrocarbures dispersés dans l'eau de production est de 14 mg/l en 2008 et 13,2 mg/l en 2009, nettement inférieure à la norme actuelle de performance pour les hydrocarbures dispersés, soit 30 mg/l, pour l'eau de production rejetée en mer. Ces valeurs correspondent bien à la quantité moyenne actuelle d'hydrocarbures dispersés dans l'eau de production s'élevant à 12,5 mg/l en 2007. Ces teneurs plus basses peuvent s'expliquer, dans une certaine mesure, par le changement de méthode d'analyse.

³ En 2007, la contribution d'une importante marée noire au total des hydrocarbures rejetés s'élève à 43 %.

⁴ Présente peu de risque voir aucun pour le milieu marin – PLONOR. En 2012 une version révisée de la Liste PLONOR est adoptée (Numéro de référence de l'Accord : OSPAR 2012-4). Ce rapport ne traitant exclusivement que des mesures antérieures à OSPAR 2010, toute référence à la Liste PLONOR se rapporte à l'ancienne liste PLONOR.

En 2009, 31 installations dépassaient la *norme de performance*, soit 30 mg/l, pour les hydrocarbures dispersés dans l'eau de production. Certaines installations causent encore des préoccupations malgré les efforts réalisés afin de réduire le nombre d'installations à performance médiocre; la quantité d'hydrocarbures rejetés est cependant très faible pour la plupart de ces installations.

On considère que la plupart des produits chimiques utilisés et rejetés offshore présentent peu de risques, voire aucun

L'utilisation et le rejet de produits chimiques sont réglementés par OSPAR depuis 2001. La première année de notification pour laquelle tous les principaux contributeurs ont communiqué des données est 2003. La quantité totale de produits chimiques utilisés offshore en 2009 s'élevait à presque 850 000 tonnes. Moins de 1,5% (en poids) des produits chimiques utilisés contiennent soit des substances de la Liste OSPAR des produits chimiques prioritaires (LCPA) soit des substances candidates à la substitution.

La quantité totale de produits chimiques rejetés en mer en 2009 était inférieure à 300 000 tonnes, dont 88% sont des produits chimiques de la Liste PLONOR OSPAR⁵. Les rejets en mer de produits chimiques figurant dans la LCPA s'élevaient à 147 kg en 2009.

Les émissions atmosphériques sont plus ou moins stables

On avait relevé une tendance à la hausse pour les *émissions atmosphériques* dans le passé. La situation semble avoir légèrement changé au cours des sept dernières années:

- les émissions de CO₂ en 2009 sont les mêmes qu'en 2007, en baisse de 3% par rapport à 2008;
- les émissions de NO_x ont diminué graduellement mais régulièrement depuis 2002, et de 6% entre 2007 et 2009;
- les émissions de COV non méthaniques ont diminué depuis 2001, et sont significativement plus faibles en 2009 qu'en 2007;
- les émissions de méthane sont plus ou moins stables depuis 2000. Les émissions notifiées pour 2009 sont significativement plus élevées que celles notifiées pour 2007;
- les émissions de SO₂ sont relativement constantes depuis 2002. Les émissions notifiées pour 2009 sont néanmoins inférieures de 31% par rapport à celles de 2008.

Remarques préliminaires: La présente évaluation se fonde sur les données figurant dans les annexes. La Partie A comporte les données spécifiques de 2009. La Partie B comporte les données cumulatives entre 2000 et 2009. Certaines données peuvent être légèrement différentes de celles publiées dans les rapports OSPAR précédents. Ceci s'explique par la vérification continue réalisée par les Parties contractantes qui permet de détecter un certain nombre de révisions. Les données utilisées dans le présent rapport sont les meilleures données disponibles au moment de la rédaction du rapport.

⁵ Présente peu de risque voir aucun pour le milieu marin – PLONOR

1. Introduction

1.1 Programmes and measures relevant to this report

The 2003 Offshore Oil and Gas Industry Strategy (Offshore Strategy)⁶ sets the objective of preventing and eliminating pollution and taking the necessary measures to protect the OSPAR maritime area against the adverse effects of offshore activities so as to safeguard human health, conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected.

As its timeframe, the Offshore Strategy further declares that the OSPAR Commission will implement this Strategy progressively and, in so far as they apply, following on and consistent with the commitments made in the other OSPAR Strategies.

The Offshore Strategy provides that the OSPAR Commission will address the programmes and measures:

- a. needed to prevent, control and eliminate pollution under Annex III to the OSPAR Convention;
- b. to be adopted under Annex V to the OSPAR Convention following the identification of relevant human activities.

In doing so, the Offshore Strategy requires the OSPAR Commission to collect information about threats to the marine environment from pollution or from adverse effects from offshore activities; establish priorities for taking action; and establish and periodically review environmental goals to achieve the Offshore Strategy's objectives.

As part of this process, the OSPAR Commission develops and keeps under review programmes and measures to identify, prioritise, monitor and control the emissions, discharges and losses of substances which could reach the marine environment and which are likely to cause pollution. Regular reporting is therefore required in order to review progress towards the targets of the Offshore Strategy.

Since 1978, discharges and waste handling from offshore oil and gas installations have been addressed and regularly reported under the former Paris Convention and under the OSPAR Convention. Since the beginning of the 1990s air emissions from these installations have been reported as well. The following measures⁷ are relevant for this report:

Discharges contaminated with oil

- PARCOM Recommendation 86/1 of a 40 mg/l Emission Standard for Platforms;⁸
- OSPAR Reference Method of Analysis for the Determination of the Dispersed Oil Content in Produced Water (OSPAR Agreement number: 2005-15);

⁶ In 2010, at its third Ministerial Meeting, OSPAR Ministers adopted the Strategy of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic 2010-2020 ("the North-East Atlantic Environment Strategy") (OSPAR Agreement 2010-3), which includes a revised Offshore Oil and Gas Industry Strategy. Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to the Offshore Strategy throughout should be construed as the 2003 Offshore Strategy.

⁷ All measures referred to in this chapter can be downloaded from the OSPAR website www.ospar.org (under "Work Areas, Offshore Oil and Gas Industry").

⁸ PARCOM Recommendation of a 40 mg/l Emission Standard for Platforms, 1986 was revoked for produced water by OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations. However, this measure is still applicable in relation to ballast water, drainage water and displacement water from offshore installations.

- OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations as amended;⁹

Use and discharge of drilling fluids and cuttings

- OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings;
- Guidelines for the Consideration of the Best Environmental Option for the Management of OPF-Contaminated Cuttings Residue (OSPAR Agreement number: 2002-8);

Chemicals used and discharged offshore

- OSPAR Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals as amended
- OSPAR Recommendation 2000/4 on a Harmonised Pre-Screening Scheme for Offshore Chemicals as amended¹⁰;
- OSPAR Recommendation 2000/5 on a Harmonised Offshore Chemical Notification Format (HOCNF) as amended¹¹;

and a whole suite of Other Agreements concerning guidance on test methods and completing data sets, and lists of chemicals that will contribute to the implementation of these measures.

1.2 Annual reporting and biennial assessments

In preparation for the Annual OSPAR Reports on Discharges, Spills and Emissions from Offshore Oil and Gas Installations, data are submitted by Contracting Parties compiled by the Secretariat and, following examination by the relevant subsidiary bodies, published by the OSPAR Commission. At first annual reports were published as part of the OSPAR Commission's general Annual Report, and from 1992 onwards they are published in the form of Annual OSPAR Reports on Discharges, Spills and Emissions from Offshore Oil and Gas Installations in the OSPAR maritime area. From 1999 onwards, annual reports also contained a biennial assessment of discharges, spills and emissions, which started in 1999 with the assessment of data reported in 1996 and 1997. .

With a view to harmonising the way in which data and information on offshore oil and gas activities are being established and reported, the Programmes and Measures Committee of the OSPAR Commission adopted in 1995 a reporting format and procedures. Over time, the reporting requirements and format for data collection have regularly been reviewed and updated in the light of ongoing work under the OSPAR Commission as regards offshore installations. The reporting format was revised by the Offshore Industry

⁹ OSPAR Recommendation 2001/1 for the management of produced water from offshore installations was amended by OSPAR Recommendation 2011/8, which came into effect on 24 June 2011. Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to OSPAR Recommendation 2001/1 throughout should be construed as OSPAR Recommendation 2011/1 as amended by OSPAR Recommendation 2006/4.

¹⁰ OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals has been replaced by OSPAR Recommendation 2010/4, which came into effect on 1 January 2011. Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to OSPAR Recommendation 2000/4 throughout should be construed as OSPAR Recommendation 2000/4 as amended by OSPAR Recommendation 2008/1.

¹¹ OSPAR Recommendation 2000/5 on a Harmonised Offshore Chemical Notification Format (HOCNF) has been replaced by OSPAR Recommendation 2010/3, which came into effect on 1 January 2011. Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to OSPAR Recommendation 2000/5 throughout should be construed as OSPAR Recommendation 2000/5 as amended by OSPAR Recommendations 2005/3 and 2008/2.

Committee in 2002 for preparing on a trial basis the publication of a more detailed annual report starting with the 2001 data. After evaluation of its first application, the reporting format (OSPAR Agreement number: 2005-14, update 2009)¹² was confirmed to be used for the submission of data and information for the Annual OSPAR Report on Discharges, Spills and Emissions from Offshore Installations.

This report presents the discharges, spills and emissions data from offshore installations for 2009 in Part A and cumulative data in Part B. The 2008 data (OSPAR Publication Number: 514/2010) and the 2009 data are assessed in Section 2 below.

2. Assessment of data reported

Some data used in this assessment may slightly differ from data previously published by OSPAR¹³. This is due to ongoing checking by Contracting Parties, which has led to a small number of revisions. Data used in this assessment report are the best available data at the time the report was written.

2.1 Introduction

The total number of installations with emissions and discharges in the OSPAR maritime area increased in 2008 to 741 from 725 in 2007, and again increased slightly in 2009 to 743.

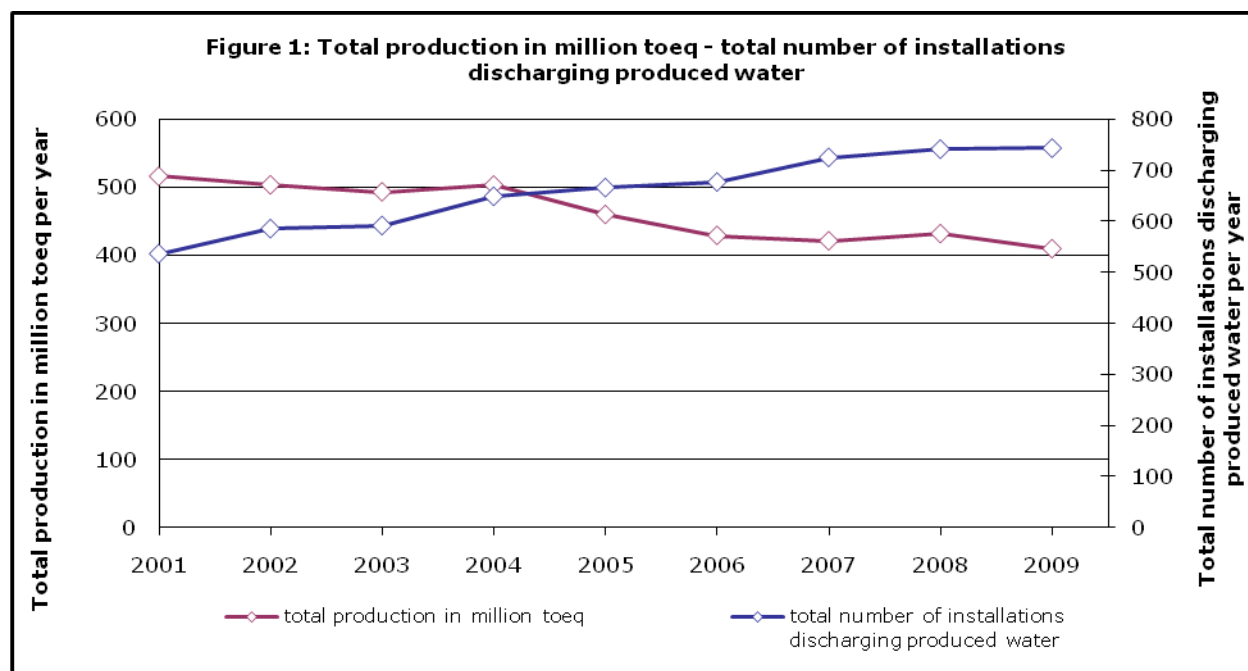
The total production of hydrocarbons increased in 2008 by 2% from 2007 but decreased in 2009 by 5% from 2008. (See Table 1 and Figure 1 below, and Part B, Table 9).

Table 1. Total production of hydrocarbons (million tonnes of oil equivalents)

| 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|
| 516 | 503 | 493 | 503 | 460 | 429 | 421 | 431 | 409 |

¹² In 2012, Agreement number: 2005-14, update 2009, was replaced by Agreement number: 2012-14. Since this report refers to discharges, spills and emissions for 2009, the former Agreement has been used by Contracting Parties for the submission of their data and information.

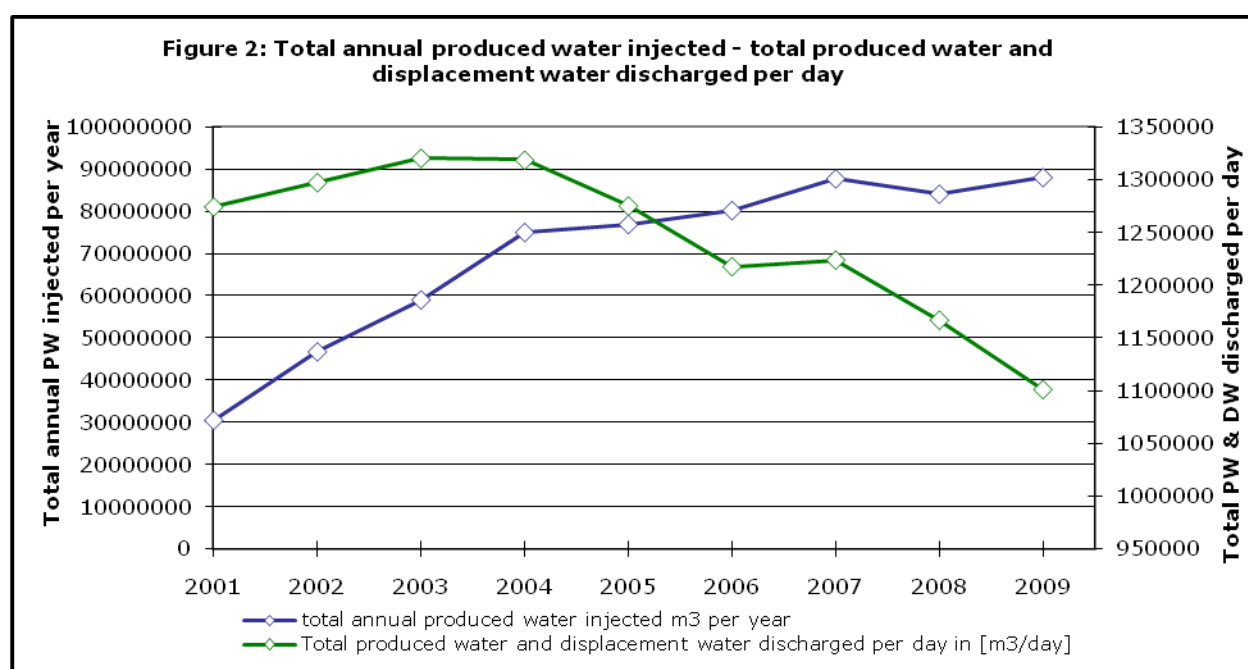
¹³ New data on dispersed oil discharges for the years 2003 up to 2007 have been reported by Norway. This had an impact on the data reported in the past.



2.2 Discharge of produced water and displacement water

Between 2001 and 2007 the discharge of produced water and displacement water remained at a level between 1,2 and 1,3 million m³ per day. Since 2008, however, a decrease has been noted, i.e. from 1,2 million m³ per day in 2007 to 1,1 million m³ per day in 2009 (See Part B, Table 2b).

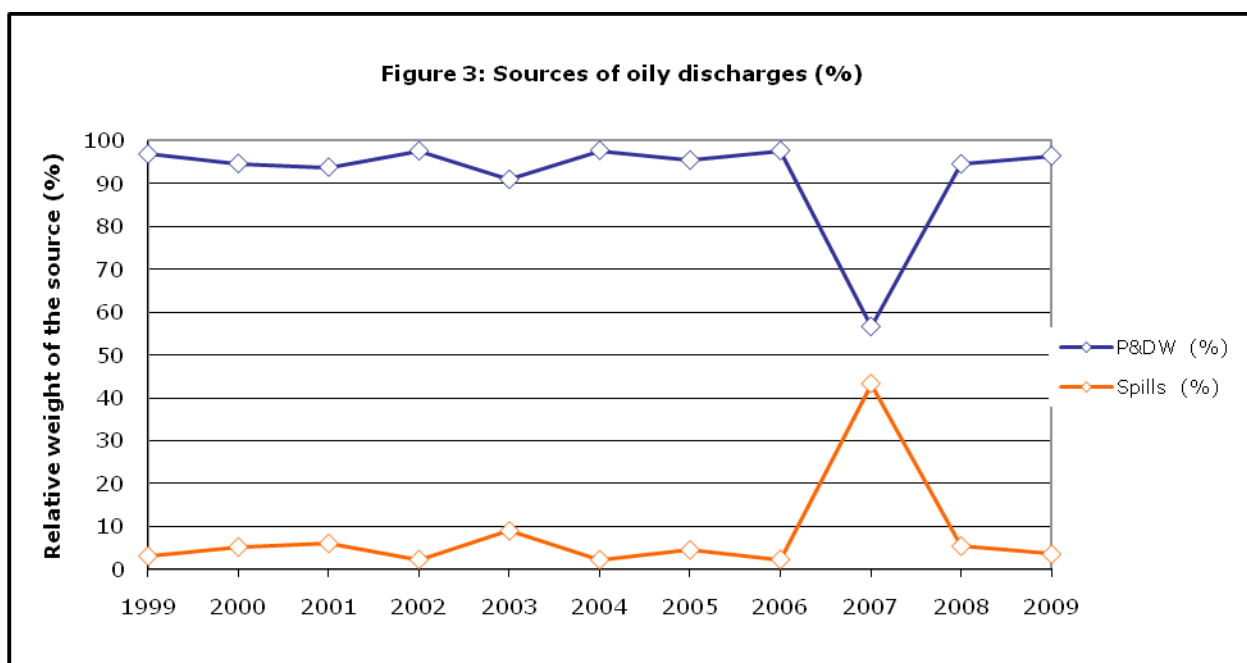
The total number of installations injecting produced water has increased significantly from 30 in 2001 to 59 in 2009 (See Part A, Table 2a). The total annual produced water injected increased from 30 million m³ per year in 2001 to 88 million m³ per year in 2009 (See Figure 2 below and Part B, Table 2c).



2.3 Oil discharges

Three sources of oily discharges are still reported: discharges of produced water (PW), displacement water (DW) and spills. As in the previous years, in 2009 PW is by far the main contributor, i.e. 4825 tonnes of dispersed oil was discharged in produced water (See Part A, Table 2a) and only 58 tonnes in displacement water (See Part A Table 2b). In 2008, 5237 tonnes of dispersed oil were discharged in produced water while 71 tonnes of dispersed oil were discharged in displacement water (see publication 2010/514).

Oil spills generally contributed less than 5% of the total oil discharges since 1999; the exception to this was 2007, in which a single large oil spill contributed more than 40% of total oil discharged in that year. See Figure 3 below.



2.3.1 Dispersed oil discharges

The OSPAR Reference method of analysis for the determination of the dispersed oil content in produced water (OSPAR Agreement number: 2005-15) took effect from 1 January 2007. This method measures the oil concentration by applying gas chromatography with flame ionisation detection (GC-FID), while the former PARCOM analysis method applied infrared analysis (IR).

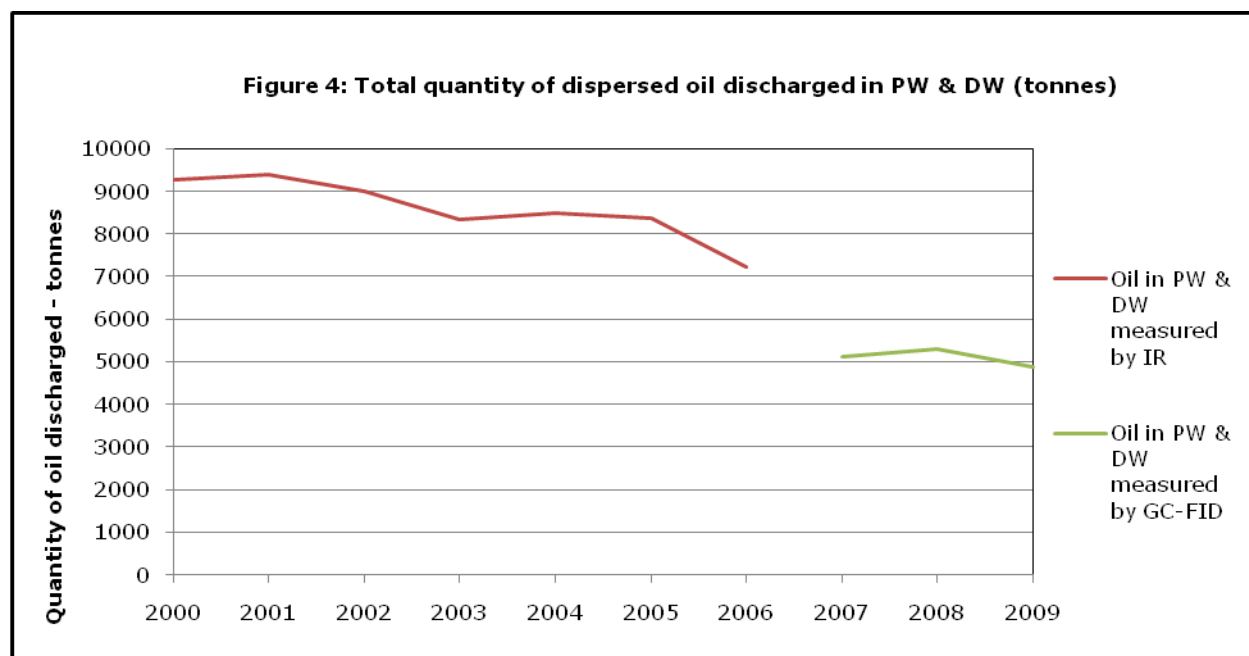
Norway and the United Kingdom implemented the OSPAR Reference method for dispersed oil in 2007. By 2009, this method had not been yet fully implemented by other Contracting Parties. Nevertheless, it is expected that all other Contracting Parties will have implemented it by 2010.

The OSPAR Reference method and the PARCOM method are based on different measuring principles. Consequently the data acquired are not directly comparable and have therefore been separated within Table 2a in Part B to show the phased implementation of the method across Contracting Parties.¹⁴

An assessment of the impact of the change in method has yet to be made but it is anticipated that this will be reported in the 2011 OSPAR Annual Report on Discharges, Spills and Emissions from Offshore Oil and Gas Installations.

Trend analysis is only possible when at least 3 years of data gathered on the basis of the GC-FID method of analysis are available. In Figure 4 below, the different methods are shown as different colours.

The total quantity of dispersed oil, as determined by the two methods, discharged into the OSPAR maritime area (resulting from discharges of production and displacement waters) has been relatively stable from 2007 to 2009 (5128, 5308 and 4890 respectively as shown in Part B, Table 2a and demonstrated in Figure 4 below).

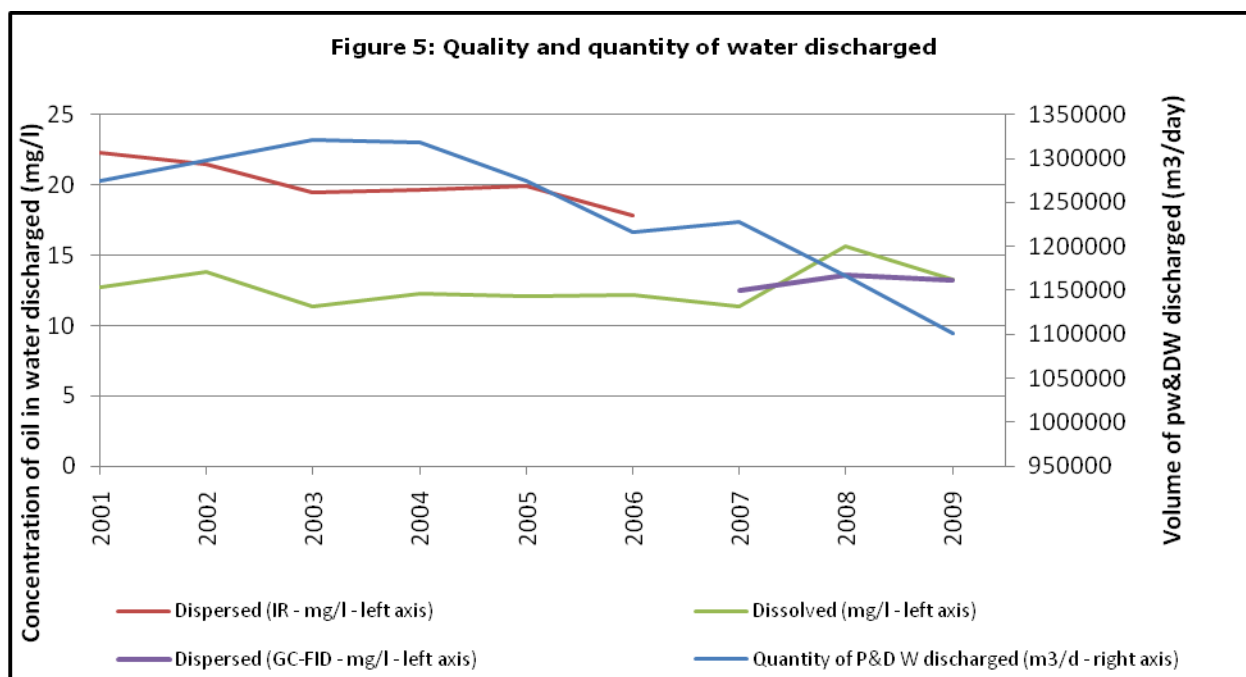


Note: Post 2006, analyses were carried out using IR and GC-FID. GC-FID has been used since 2007 by the United Kingdom and Norway and thus represents the vast majority of installations.

¹⁴ It is noted by the Expert Assessment Panel of the Offshore Industry Committee that the Netherlands objected to splitting Table 2a (in Part B) between IR and GC-FID reporting of dispersed oil in produced water.

2.3.2 Concentrations of oil in water discharges

The average concentrations of dispersed oil in produced water discharged was 13,6 mg/l in 2008 and 13,2 mg/l in 2009 (See Part A, Table 2a). Although trend analysis cannot be performed for the reason given above, quantity and quality of water discharged are illustrated in Figure 5 below. The average hydrocarbons content in displacement water is approximately a tenth of the content in produced water.



Contracting Parties also report the dissolved oil content in produced water and displacement water discharges but OSPAR does not regulate these so far.

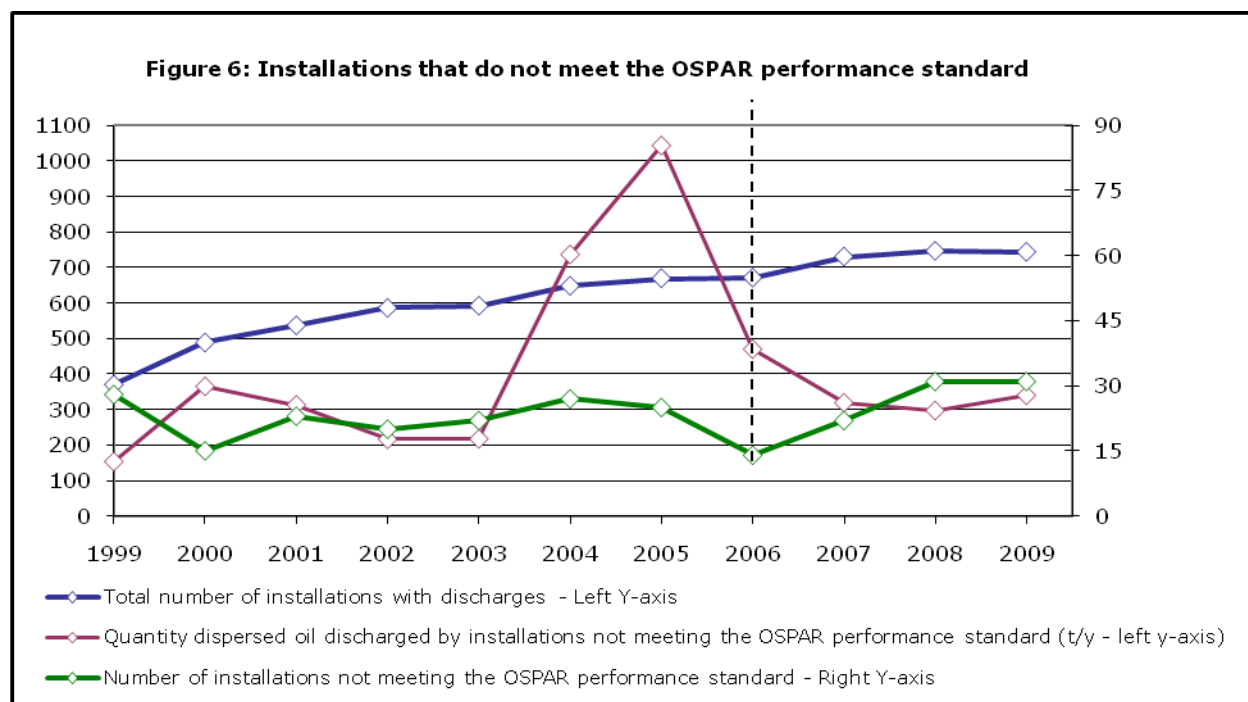
2.3.3 Installations exceeding the performance standard of 30 mg/l dispersed oil

In 2007 the OSPAR performance standard for the discharge of dispersed oil in produced water was reduced from 40 mg/l to 30 mg/l. According to OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations, as amended, by the end of 2006 no individual offshore installation should exceed the new performance standard. A report should be sent to OIC for offshore installations failing to meet the standard of 30 mg/l.

The number of installations reported in 2008 exceeding the 30 mg/l performance standard was 31, with a discharge of 217 tonnes as a result of oil in water concentration greater than 30mg/l. In 2009, 31 installations exceeded the 30 mg/l performance standard, discharging a total of 340 tonnes of dispersed oil, of which 110 tonnes of dispersed oil were discharged as a result of exceeding the 30 mg/l performance standard. See Figure 6 below and Part B Tables 3b and 3d for details. Contracting Parties having installations exceeding the performance standard of 30 mg/l on an annual basis have reported the reasons for exceeding the performance and plans for improvements (See Part A, Table 3).

This overall picture does not reflect the wide spectrum of cases: out of the 31 installations exceeding the 30 mg/l performance standard in 2008, 23 discharged less than 2 tonnes, 28 less than 10 tonnes and 1 discharged more than 100 tonnes in that year. In 2009, out of the 31 installations concerned, 22 discharged 2 tonnes or less; 29 discharged less than 10 tonnes and none discharged more than 40 tonnes (See Part A, Table 3).

The amount of oil discharged as a result of the concentration being more than 30 mg/l is very low, approximately 4 % of the total discharges. Nevertheless, Contracting Parties continuously put a lot of effort into keeping the number of installations exceeding the performance standard as low as possible.



2.3.4 Oil spill discharges

Spillage: 305 tonnes of oil were spilled in 2008, and 180 tonnes in 2009, compared to 3907 in 2007. The 2007 numbers are explained by the occurrence of one large oil spill offshore Norway (See Part B, Table 5b).

2.4. Discharges of oil and organic phase drilling fluids into the sea

Discharges of Organic Phase Drilling Fluids (OPF) ceased in 2005 and thereafter there was no discharge into the sea until 2009. In 2009 the United Kingdom reported to have discharged 0,3 tonnes of OPF but within the 1% oil on cuttings performance standard (See Part A, Table 4a), which is agreed in the OSPAR Decision 2000/3 on the Use of Organic-Phase Drilling Fluids (OPF) and the Discharge of OPF-Contaminated Cuttings.

2.5. Chemicals

From 2000 onwards, the use and discharge of chemicals offshore have been covered by OSPAR measures. Total quantity of chemicals *used* offshore in 2009 is 836,987 tonnes (See Part A Table 7a), out of which 74,2 % (by weight) are on the PLONOR List¹⁵. A further 24,5 % (by weight) contain no

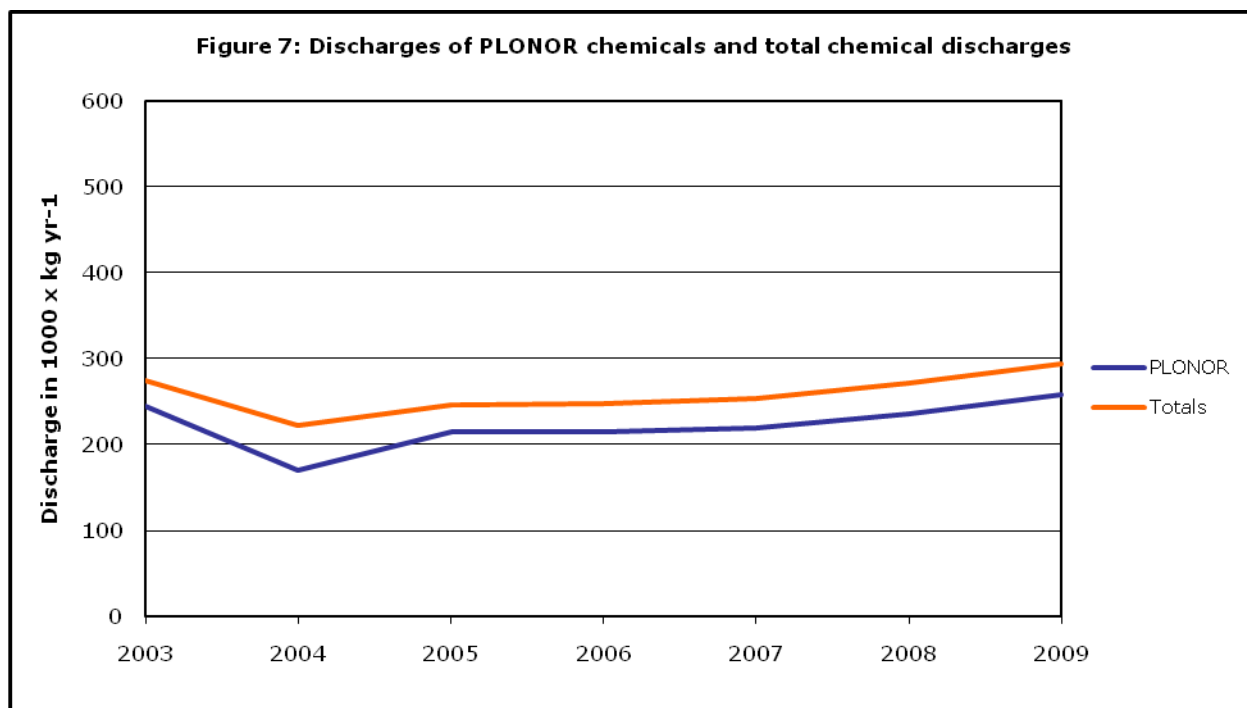
¹⁵ OSPAR List of substances/preparations used and discharged offshore which are considered to pose little or no risk to the environment. (Reference number: 2004-10, 2008 update). In 2012 a revised version of the PLONOR List was adopted

substances which are candidates for substitution. Only 1,3 % (by weight) of the chemicals used contain either substances on the List of Chemicals for Priority Action (LCPA) or substances which on the basis of the HMCS pre-screening criteria are candidates for substitution (See Part B, Table 7). Total quantity of chemicals discharged into the sea was roughly 293,249 tonnes (See Part A, Table 7b), of which almost 88 % (by weight) are on the PLONOR list and a further 11,4% (by weight) are chemicals not containing candidates for substitution. The remaining 0,6 % (by weight) of the discharged chemicals contain LCPA substances or substances candidate for substitution (See Part B, Table 7).

The amount of LCPA substances used decreased from 2,6 tonnes in 2007 to 1,3 tonnes in 2009 however the amount discharged increased from 0,070 tonnes in 2007 to 0,147 tonnes in 2009 (See Part B, Table 7d), i.e. LCPA substances still need to be used in certain application in extremely difficult conditions like high pressure high temperature wells. The use of chemicals containing substances candidate for substitution decreased significantly from 23 511 tonnes in 2007 to 10 840 tonnes in 2009, while the discharges also decreased in the same period from 2061 tonnes in 2007 to 1734 tonnes in 2009 (See Part B, Table 7).

The quality of the reported data improved significantly since the reporting started. The reported data before 2003 are not considered of sufficiently good quality, therefore it is concluded that the most reliable trend for the discharges of chemicals which should be used which are for the reporting years 2003 – 2009. In the following graphs (See Figures 7, 8 9 and 10 below) this trend is presented, showing the quantities for PLONORs and the total discharges in 10^5 tonnes per year and others (i.e. ranking substances, inorganic substances having toxicity above 1 mg/l) in 10^4 tonnes per year and substances candidate for substitution in 10^3 tonnes per year.

The overall use and discharge of chemicals has increased over the period 2007 – 2009. This is due, in part, to an increase in use of PLONOR chemicals, which have replaced hazardous chemicals.



(Reference number: 2012-4), Since this report deals exclusively with pre-OSPAR 2010 measures, any reference to the PLONOR List should be construed as the former PLONOR List.

Figure 8: Proportions of all chemicals discharged in 2009

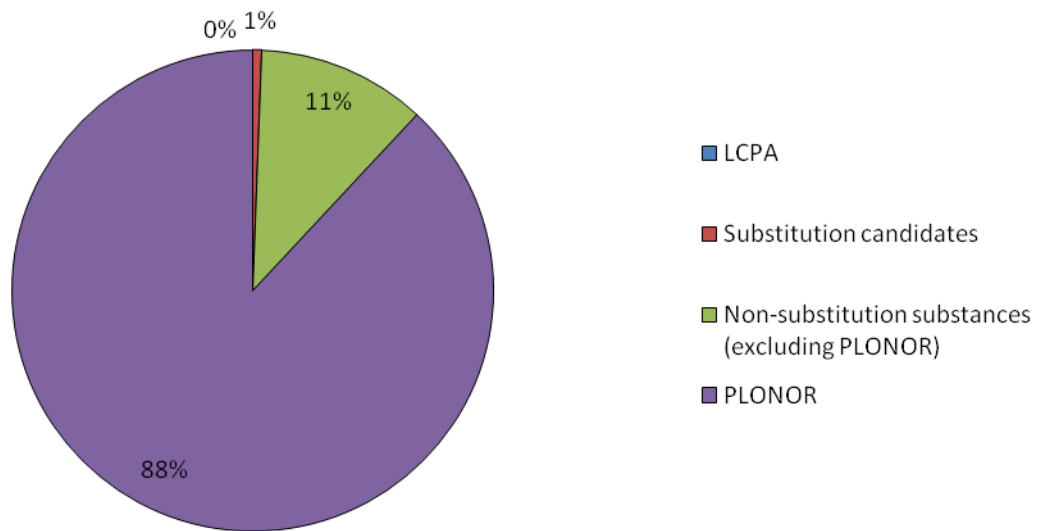
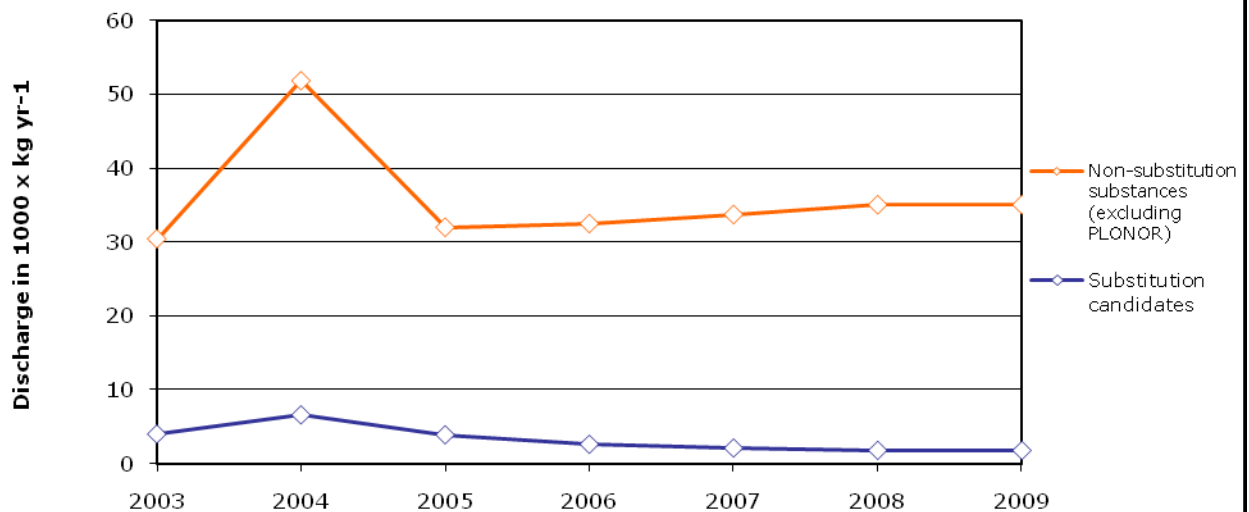
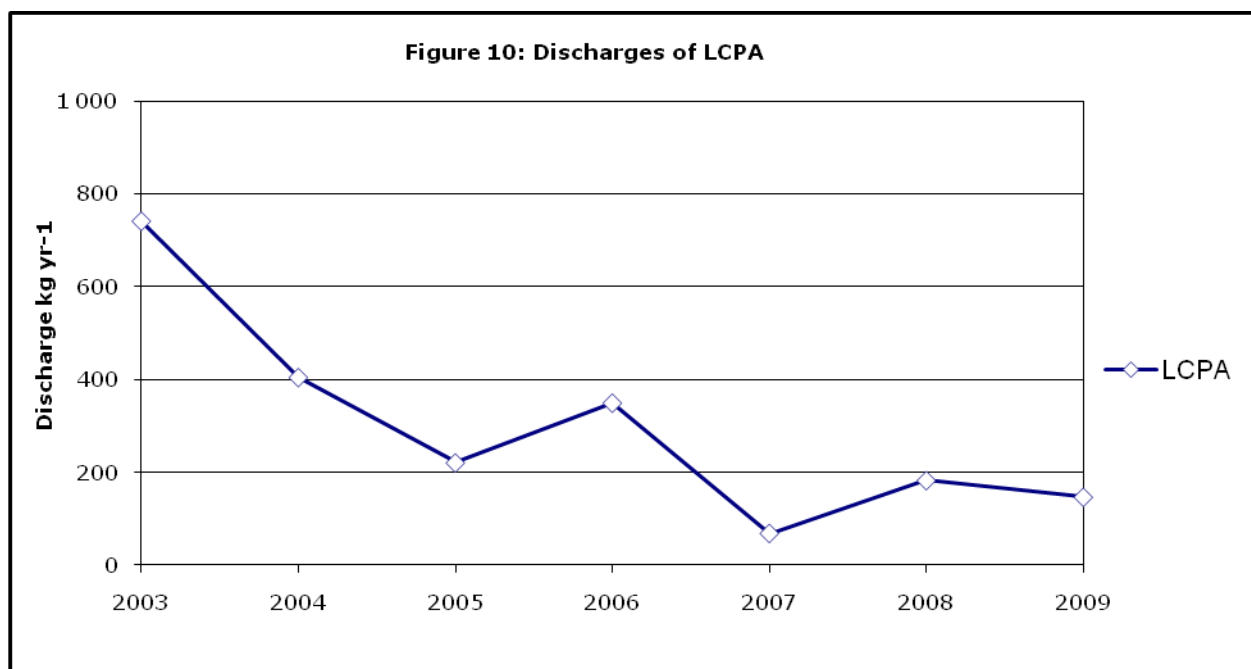


Figure 9: Discharges of Substitution and Non-Substitution candidates

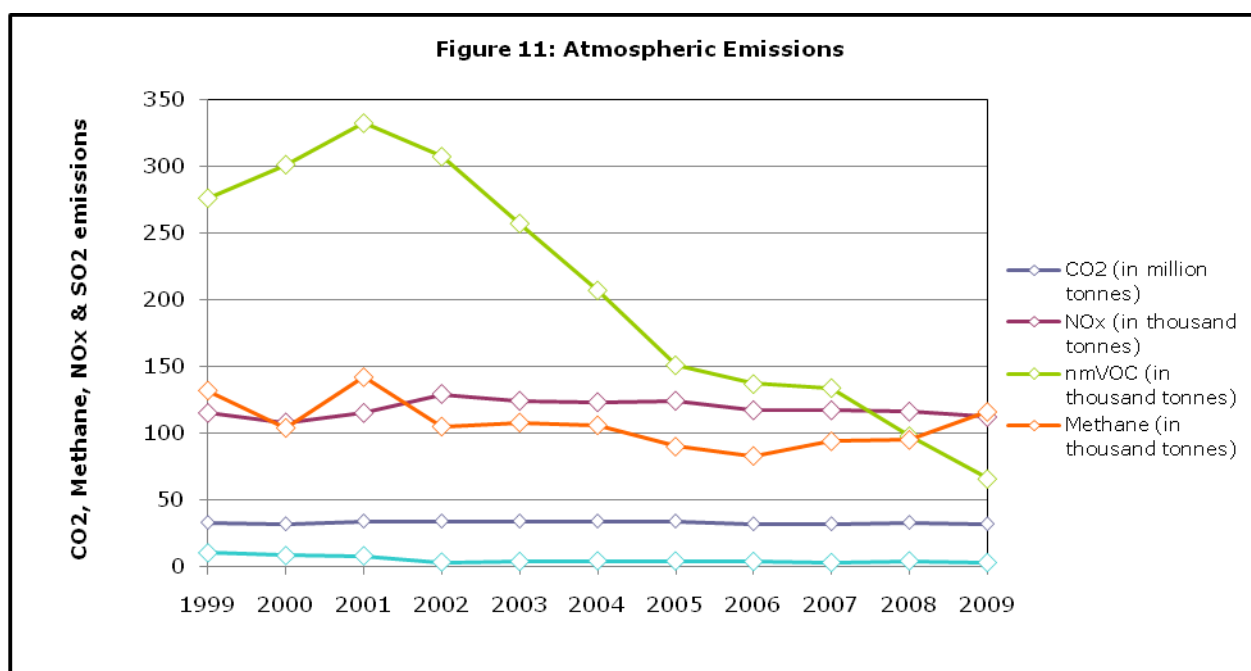




2.5.1 Spillage of chemicals

The number of chemical spills stabilised in the years 2007 – 2008 at 307 and 306 respectively. However this number increased to 354 in 2009 while the amount spilled also increased from 1163 tonnes in 2007 to 13 940 tonnes in 2009 (See Part B, Table 5d). The amount of chemicals spilled in 2009 includes 12600 tonnes from leakage after injection of oily cuttings in Norway.

2.6. Atmospheric emissions



An increasing trend of all releases into air has been identified in the past. During the last five years, the picture seems to have slightly changed (See Part B, Table 6):

- Non methane VOC (nmVOC) emissions significantly decreased in 2009 compared to 2007. This change is related to the extra measures taken in Norway, i.e. the implementation of vapour recovery systems on off-loading facilities
- Methane emissions increased significantly in 2009 compared to 2008. SO₂ emissions increased from 2900 tonnes in 2007 to 4100 tonnes in 2008 and decreased again to 2900 tonnes in 2009.
- NO_x emissions have been decreasing gradually but steadily from 129000 tonnes in 2002 to 112000 tonnes in 2009, a decrease of 13% over this period.
- CO₂ remains more or less stable at a level of 32 million tonnes per year
- SO₂ emissions have been fairly stable since 2002. Nonetheless, emissions reported for 2009 are 31% lower than for 2008;

In interpreting these changes, one must take into account factors which have a direct influence on atmospheric emissions, like the ageing of the fields, which globally induces a higher consumption of energy (e.g. additional compression) which, in return, leads to increased atmospheric emissions. These factors may partly hide the effect of the measures taken to reduce air emissions.

2.7. Examination of the annual RSC report on non-nuclear discharges

The 2008 and 2009 discharges of radioactive substances from the non-nuclear sector, including the offshore industry, have been assessed by the Radioactive Substances Committee (RSC). RSC concluded that, from all non-nuclear sources, the offshore industry is the principal source of the total alpha discharges (97,6%) of all non-nuclear sources, while for the total beta it contributed for about 9% (See RSC Annual Report on Discharge of radioactive substances from the non-nuclear sectors in 2009 (Publication 544/2011))

3. Results

Part A: Report relating to 2009 data

Part B: Cumulative Report

3.1 General information

The continental decimal system is used throughout this report (with a space as 1000 separator and a comma as decimal separator) with one decimal number after the comma.

NI means No Information available, i.e. unknown or missing data (data different from 0).

NA means Not Applicable, i.e. that the criteria is not relevant. For sums and totals, it is equivalent to 0.

3.2 Glossary

OP is the acronym for organic phase.

Organic-phase drilling fluid (OPF) means an organic-phase drilling fluid, which is an emulsion of water and other additives in which the continuous phase is a water-immiscible organic fluid of animal, vegetable or mineral origin.

Base fluid means the water immiscible fluid which forms the major part of the continuous phase of the OPS.

Drilling fluid means base fluid together with those additional chemicals which constitute the drilling system.

Oil-based fluids (OBF) means low aromatic and paraffinic oils and those mineral oil-based fluids that are neither synthetic fluids nor fluids of a class whose use is otherwise prohibited.

Synthetic fluid means highly refined mineral oil-based fluids and fluids derived from vegetable and animal sources.

Cuttings means solid material removed from drilled rock together with any solids and liquids derived from any adherent drilling fluids.

Whole OPF means OPF not adhering to or mixed with cuttings.

WBM is the acronym for water-based muds.

Part A: Report relating to 2009 data

Part A: Report relating to 2009 data

Table 1: Number of installations with emissions and discharges covered by OSPAR measures ^A

Year: 2009

| Country | Production ^B | | Subsea ^E | Drilling ^F | Other ^G | Total |
|-------------------------|-------------------------|------------------|---------------------|-----------------------|--------------------|------------|
| | Oil ^C | Gas ^D | | | | |
| Denmark | 14 | 0 | 1 | 5 | 0 | 20 |
| Germany | 1 | 2 | 0 | 0 | 0 | 3 |
| Ireland ⁽¹⁾ | 0 | 1 | 0 | 0,1 | 0 | 1 |
| Netherlands | 9 | 108 | 10 | 8 | 0 | 135 |
| Norway | 54 | 11 | 44 | 26 | 8 | 143 |
| Spain ⁽²⁾⁽³⁾ | 0 | 1 | | 0 | | 1 |
| United Kingdom | 80 | 157 | 166 | 35 | 1 | 439 |
| Total | 158 | 280 | 221 | 74 | 9 | 742 |

A. Platforms are reported separately, even when they are joined by walkways or bridges.

B. Installations are reported as "Production" when production has started, even if drilling is still undergoing. Storage installations are considered as "Production".

C. Installations which produce oil and gas are considered as "oil installations".

D. Installations which produce gas and condensate are considered as "gas installations".

E. One installation per cluster of well heads.

F. Exploration & development drilling rigs with no simultaneous production only. The number is expressed in years-equivalent of activity.

G. Example: offshore underground storage and loading buoys

(1) "Other" means a hydrotest carried out on a pipeline being laid to service a well not yet flowing

(2) Production Gas: 1 Offshore underground gas storage: platform GAVIOTA connected to a cluster of wells (ALBATROS, GAVIOTA I-II)

(3) Subsea: 1 Subsea gas storage installation: Cluster of wells (POSEIDON NORTH, POSEIDON SOUTH)

Part A: Report relating to 2009 data

Table 2: Produced water and displacement water

This table refers to all waters discharged to the sea (except cooling and sewage water) the quality of which should fit with OSPAR measures (cf. OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations). Drainage water is considered so far of such little consequence that there is no reporting requirement for OSPAR.

Year: 2009

Table 2a: Produced water ^A

| Country | Total number of installations ^B | Annual quantity of water discharged ^C m ³ | Annual average oil content (mg/l) | | | Total amount of oil discharged (tonnes) | | | Number of installations injecting water ^F | Annual quantity of water injected ^F m ³ |
|----------------------|--|--|-----------------------------------|------------------------|--------------------|---|------------------------|--------------------|--|--|
| | | | dissolved ^D | dispersed ^D | total ^E | dissolved ^D | dispersed ^D | total ^E | | |
| Denmark | 12 | 25 825 176 | 7,6 | 13,2 | 20,7 | 195,0 | 340,0 | 535,0 | 6 | 11 956 839,00 |
| Germany | 1 | 12 139 | 31,6 | 16,0 | 47,5 | 0,40 | 0,16 | 0,55 | 0 | 0 |
| Ireland | 1 | 1 286 | 19,6 | 10,4 | 30,0 | 0,03 | 0,01 | 0,04 | 0 | 0 |
| Netherlands | 75 | 9378709 | 7,0 | 10,0 | 17,0 | 57,3 | 98,4 | 155,7 | 5 | 6 171 680 |
| Norway | 42 | 134 770 215 | 14,5 | 11,0 | 25,5 | 1 954 | 1 487 | 3 441 | 22 | 29 547 450 |
| Spain ⁽¹⁾ | NA | NA | NA | NA | NA | NA | NA | NA | 0 | 0 |
| United Kingdom | 102 | 195 689 502 | 13,3 | 14,8 | 28,2 | 2 619 | 2 900 | 5 519 | 26 | 40 351 452 |
| Total | 233 | 365 677 026,75 | 13,20 | 13,20 | 26,39 | 4 825,69 | 4 825,59 | 9 651,25 | 59 | 88 027 421,00 |

A. "Produced water" means water which is produced in oil and/or gas production operations and includes formation water, condensation water and re-produced injection water;

it also includes water used for desalting oil (See OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations (as amended)).

B. Total number of installations discharging produced water.

C. Total quantity of produced water discharged to the sea during the year.

D. Dissolved and dispersed oils are, by definition, the oily compounds measured according to the PARCOM procedure as described in OSPAR Reference document 1997-16.

(IR, 3 or 1 wavelengths). Calculations are based on 1 or 3 wavelengths, depending whether it is aliphatics or aromatics which are to be reported.

E. Total = dissolved + dispersed

F. Produced water only (excluding sea water for pressure maintenance).

(1) In Spain there is only one offshore gas storage installation (platform Gaviota) connected to a cluster of three wells (Albatros, Gaviota I, Gaviota II) and one subsea gas storage installation (North Poseidon and South Poseidon). None of them discharge any produced water into the sea, since water is re-injected or treated onshore.

Part A: Report relating to 2009 data

Table 2b: Displacement water ^A

Year: 2009

| Country | Total number of installations ^B | Annual quantity of water discharged ^C m ³ | Annual average oil content (mg/l) | | | Total amount of oil discharged (tonnes) | | | Number of installations injecting water ^F | Annual quantity of water injected ^F |
|----------------------|--|--|-----------------------------------|------------------------|----------------------|---|------------------------|----------------------|--|--|
| | | | dissolved ^D | dispersed ^D | total ^{E 1} | dissolved ^D | dispersed ^D | total ^{E 2} | | |
| Denmark | 2 | 1 782 612 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0 | 0 |
| Germany | NA | NA | NA | NA | 0,0 | NA | NA | 0,0 | NA | NA |
| Ireland | NA | NA | NA | NA | 0,0 | NA | NA | 0,0 | NA | NA |
| Netherlands | 2 | 1 154 207 | 3,0 | 2,6 | 5,6 | 4,4 | 3,0 | 7 | 0 | 0 |
| Norway | 6 | 31 567 044 | NI | 1,7 | 1,7 | NI | 55,0 | 55 | 0 | 0 |
| Spain ⁽¹⁾ | NA | NA | NA | NA | 0,0 | NA | NA | 0,0 | 0 | 0 |
| United Kingdom | 2 | 932 525 | NI | 0,0 | 0,0 | NI | 0,01 | 0,0 | 0 | 0 |
| Total | 12 | 35 436 388 | 0,12 | 1,64 | 1,8 | 4,375 | 58,01 | 62 | 0 | 0 |

A. "Displacement water" is the seawater which is used for ballasting the storage tanks of the offshore installations (when oil is loaded into the tanks, the water is displaced, and is discharged to the sea; when oil is downloaded to shuttle tanks, seawater is introduced into the storage tanks to replace the downloaded oil).

B. Total number of installations discharging displacement water.

C. Total quantity of displacement water discharged to the sea during the year.

D. Dissolved and dispersed oils are, by definition, the oily compounds measured according to the PARCOM procedure as described in OSPAR Reference document 1997-16. (IR, 3 or 1 wavelengths). Calculations are based on 1 or 3 wavelengths, depending whether it is aliphatics or aromatics which are to be reported.

E. Total = dissolved + dispersed

F. Displacement water only (excluding sea water for pressure maintenance).

1. When no information is available on the annual average content of dissolved oils, total cannot be determined.

2. When no information is available on the total amount of dispersed oils discharged, total cannot be determined.

(1) There is no displacement water.

Part A: Report relating to 2009 data

Table 3: Installations exceeding the 30 mg/l performance standard for dispersed oil

This table concerns installations for which the average annual oil content of the produced water discharged to the sea exceeds the 30 mg/l performance standard as defined in OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations (as amended)

Year: 2009

| Installation ^A | Type of installation ^B | Quantity of water discharged during the year (10 ³ m ³) | Annual average oil content ^C (mg/l) | | | Total amount of oil discharged (tonnes per year) | | | Total amount of dispersed oil during the period exceeding the performance standard (tonnes per year) |
|----------------------------------|-----------------------------------|--|--|-----------|-----------|--|--------------|--------------|--|
| | | | dissolved | dispersed | total | dissolved | dispersed | total | |
| DK-Tyra EA | Oil | 610 | 19 | 33 | 52 | 11 | 20 | 31 | 2 |
| DK-Tyra EF | Oil | 2220 | 24 | 32 | 56 | 54 | 71 | 125 | 5 |
| NL-J6A | Gas | 22,3 | 36 | 169 | 205 | 0,8 | 3,8 | 4,6 | 3,1 |
| NL-G14-A | Gas | 0,2 | 22 | 37 | 59 | 0,0 | 0,0 | 0,0 | 0,001 |
| NL-K9ab-B | Gas | 4,9 | 42 | 37 | 79 | 0,2 | 0,2 | 0,4 | 0,03 |
| NL-L10-AD | Gas | 8,4 | 59 | 32 | 91 | 0,5 | 0,3 | 0,8 | 0,02 |
| NL-K6N | Gas | 3,7 | 23 | 34 | 57 | 0,1 | 0,1 | 0,2 | 0,01 |
| NL-L7N | Gas | 0,1 | 53 | 35 | 88 | 0,0 | 0,0 | 0,0 | 0,001 |
| NL-P6D | Gas | 0,3 | 18 | 32 | 50 | 0,0 | 0,0 | 0,0 | 0,001 |
| UK-Shearwater C PUQ platform | Gas | 47,1 | 92 | 813 | 905 | 4,3 | 38 | 43 | 37 |
| UK-Curlew FPSO | Oil | 4,3 | 39 | 534 | 573 | 0,2 | 2,3 | 2,5 | 2,2 |
| UK-Clipper PT Platform | Gas | 21,8 | 30 | 451 | 481 | 0,7 | 9,8 | 10 | 9,2 |
| UK-Sean PP | Gas | 5,9 | 45 | 209 | 254 | 0,3 | 1,2 | 1,5 | 1 |
| UK-West Sole WA Platform | Gas | 2,2 | 101 | 185 | 286 | 0,2 | 0,4 | 0,6 | 0,3 |
| UK-Cleeton CPQ Platform | Gas | 1,2 | 397 | 178 | 575 | 0,4 | 0,2 | 0,6 | 0,2 |
| UK-Hewett 49/29A Platform | Gas | 0,1 | 58 | 153 | 211 | 0 | 0 | 0 | 0,01 |
| UK-Ravenspurn North CPP Platform | Gas | 25,1 | 267 | 106 | 373 | 6,7 | 2,7 | 9,4 | 1,9 |
| UK-Leman AD1 Platform | Gas | 24,9 | 6 | 63 | 69 | 0,2 | 1,6 | 1,8 | 0,8 |
| UK-Armada | Gas | 129 | 42 | 55 | 97 | 5,4 | 7,1 | 13 | 3,2 |
| UK-Hyde Platform | Gas | 23,1 | 3 | 51 | 54 | 0,1 | 1,2 | 1,3 | 0,5 |
| UK-Alwyn North NAB Platform | Oil | 46,7 | 52 | 44 | 96 | 2,4 | 2,1 | 4,5 | 0,7 |
| UK-Gannet A | Oil | 2797 | 6 | 42 | 48 | 17 | 119 | 136 | 35 |
| UK-Bruce PUQ Platform | Gas | 11,9 | 79 | 42 | 121 | 0,9 | 0,5 | 1,4 | 0,1 |
| UK-Britannia | Gas | 376 | 24 | 39 | 63 | 9 | 15 | 24 | 3,3 |
| UK-Apollo Spirit | Oil | 6,2 | 41 | 38 | 79 | 0,3 | 0,2 | 0,5 | 0,1 |
| UK-Rough AD Platform | Gas | 0,3 | 39 | 36 | 75 | 0 | 0 | 0 | 0,002 |
| UK-Heather A Platform | Oil | 847 | 14 | 34 | 48 | 12 | 29 | 41 | 3,5 |
| UK-Trent Platform | Gas | 12,7 | 5 | 34 | 39 | 0,1 | 0,4 | 0,5 | 0,04 |
| UK-Rough BD Platform | Gas | 10,3 | 6 | 32 | 38 | 0,1 | 0,3 | 0,4 | 0,02 |
| UK-Excalibur A Platform | Gas | 1,4 | 10 | 31 | 41 | 0 | 0 | 0,1 | 0,002 |
| UK-Montrose A Platform | Oil | 437 | 65 | 31 | 96 | 29 | 14 | 42 | 0,6 |
| Total | | 7 701,1 | 20 | 44 | 64 | 155,2 | 339,8 | 495,0 | 109,6 |

Table 3a. Information on installations which did not meet the 30 mg/l performance standard

This table concerns installations for which the average annual oil content of the produced water discharged to the sea exceeds the 30 mg/l performance standard as defined in OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations (as amended)

Year: 2009

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|---|--|
| DK-Tyra EA | Oil | 33 | Challenging operation with slugging pipelines and solids production. | Process system and chemical injection is being optimised and upgraded to meet the challenges. |
| DK-Tyra EF | Oil | 32 | Challenging operation with slugging pipelines and solids production. | Process system and chemical injection is being optimised and upgraded to meet the challenges. |
| NL-Centrica-Venture / J6A 2009 | Gas | 169 | Due to some tie-ins which are producing more produced water (8,5% more) the separation system could not handle the amount. In the first 5 months of 2009 the 30 mg/l performance standard has been exceeded. This has been reported to the NL authorities. | The operator has taken the following actions: 1. a new temporary skimmertank has been placed 2. before this skimmertank a coalescer was also placed for increasing the droplet sizes 3. besides that an adsorption filter has also been placed to adsorb as much as possible the oil droplets 4. engineering studies are being performed to find the rootcauses and the necessary measures should be considered to solve the problem 5. the vendor of the installed unit is also to check the unit and to assess the performance of the installed system 6. by the beginning of June 2009 the 30 mg/l performance has been achieved. |
| NL/GdF/G14-A 2009 | Gas | 37 | As a consequence of a clean-up operation solids accumulated in the separation equipment leading to exceeding the performance standard during a long period in time. After this was discovered, the equipment was cleaned and the water discharge was sampled. Analysis results shown the result to meet the performance standard. | Separation equipment cleaned. No further action was needed. |
| NL/GdF/K9ab-B 2009 | Gas | 37 | After workover activities on four producing wells, production started again. After a while it was discovered that the separation equipment was full with workover waste, which lead to exceeding the performance standard during a long period. | Separation equipment cleaned. No further action was needed. |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|--|---|
| NL/GdF/L10-AD 2009 | Gas | 32 | L10-AD is central installation where produced water streams from satellite installations in the L10-block are discharging to in order to be treated. During the year increased produced water volumes from these satellites decreased the separation efficiency of the skimmertank on L10-AD which lead to exceeding the performance standard. | A back-up skimmertank, which was out of order, was repaired and put in operation to treat the increase in produced water discharges. The maintenance frequency is increased to cope with the extra solid deposits in the skimmers in order to keep the separation efficiency at a good level in order to achieve the performance standard at all times. After these measures were taken, the monthly average concentration of dispersed oil in produced water discharges were considerably lower than the performance standard. |
| NL/Total/K6N 2009 | Gas | 34 | Separation efficiency was affected by wax in the system. | CCFU and a Twinfilter were placed and by October 2009 the 30 mg/l performance was again achieved. |
| NL/Total/L7N 2009 | Gas | 35 | Adsorption filters were dirty and therefore the 30 mg/l was not possible to achieve | Dirty adsorption filters were replaced by clean ones and by the 17th of September 2009 the 30 mg/l performance was again achieved |
| NL/Wintershall /P6D 2009 | Gas | 32 | P6-D is unmanned installation and when the performance standard was exceeded, a investigation started to determine the direct causes. The result lead to the conclusion that a level transmitter was not working while increase level of produced water discharge volumes was experienced. | The level transmitter malfunction was repaired. The skimmertank was cleaned and new samples taken. The results of the analysis of the samples shown the skimmer to separate the oil well below the performance standard of 30 mg/l |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|---|--|
| UK-Shell Shearwater | Condensate | 813 | Scale Inhibitor / Corrosion Inhibitor (SICI) chemicals are used to protect pipelines from subsea tiebacks. The introduction of subsea tiebacks and the need to transport the hydrocarbons in subsea pipelines to the Shearwater has led to a reduction in the temperature of the hydrocarbons which has had a negative impact on produced water quality. The Shearwater also has low water cut wells. All these factors taken together has led to the production of a very stable produced water/oil emulsion which has proven very difficult to break. Difficulties in treating the fluids using currently installed technologies and strengthened treatment options is being experienced. | Shell have 2 monthly meetings with DECC to discuss progress made on trials being conducted to find a means for reducing their oil in water concentrations. They have a Produced Water team specifically looking at how to improve their produced water. This update only includes those actions taken during 2009 and does not cover all the previous trials and actions taken during previous years. During 2009 Shell conducted several trials and have separated their actions into 2 groups as follows: operational group which has looked at different chemicals including new Scale Inhibitor / Corrosion Inhibitors and deoilers, differing well configuration to try and raise the temperature of the fluids and increase produced water to try and aid separation of oil and water, desanding of their separators and other vessels to improve residence time; end of pipe solutions including: trialing existing technologies: CETCO Hiflow, coalescing oil polishing unit, Crudesorb, new hydrocyclone liners and new technologies such as Electro-coagulant; Regenerable Activated Carbon Units, Trials on existing technologies have been completed but show mixed results the ones which show improvements are not operationally sustainable due to either the low produced water flow or initial trial results could not be reproduced during extended trials. Focus is now on the new technologies and continuing operational optimisation. Shipping/barging of produced water to shore and the option for produced water reinjection are also being considered. |
| UK-Shell Curlew | Oil | 534 | Low produced water rates on Curlew result in produced water being batch discharged on an irregular basis from the Curlew. During 2009 produced water discharge only occurred in March and April. Total produced water discharged in 2009 was 4280 m3. Low produced water rates that are below the design parameters for the hydrocyclones present on the Curlew combined with the use of corrosion inhibitor chemicals have affected produced water quality and resulted in a very stable emulsion which have proved very difficult to break despite the long residence times. | Quarterly meetings and annual updates are provided to DECC on progress being made with the Curlew FPSO – Oil in Produced Water Action Plan. During 2009 plans to flow a high water producing well to allow continuous operation of the hydrocyclone failed due to problems with high ion concentration causing corrosion issues and further work is proposed prior to continuing with this trial. Chemical trials continue looking for an effective corrosion inhibitor that does not affect separation; plus a new deoiler chemical which generates a residue which can be skimmed off is being investigated. The option to add seawater upstream of the hydrocyclones is being investigated to achieve flow rates which are within their design parameters. The option for tankering and onshore disposal is also being investigated. |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|--|---|
| Shell Clipper | Gas | 451 | The Clipper were unable to achieve compliance due to the production of a very stable emulsion. As a result Shell made a commitment to introduce produced water reinjection (PWRI) . PWRI has been in place since May 2009 and produced water is only discharged overboard when PWRI is not working. Total volume of oil discharged to sea during 2009 is 9.8426 Tonnes. Total oil to sea since May 2009 PWRI commencement is 0.2115 Tonnes a considerable reduction in the oil to sea. PWRI uptime since its introduction is >95%. | Shell are committed to achieving 100% reinjection to prevent discharge of oil to sea and hope to achieve this by making improvements to the reliability of PWRI and to have critical spares kept onboard. During periods of overboard discharge centrifuge packages are available to clean the produced water prior to discharge. |
| Shell Sean | Gas | 209 | Corrosion Inhibitor used in the processes forms a stable emulsion but hadn't historically been identified as an issue as it was only being injected sporadically. As Sean is now producing additional fluids corrosion inhibitor is now being injected continuously causing problems with produced water treatment. Total Oil to Sea 2009: 1.2316 Tonnes. | Shell Global Solutions team has been set up to look at the produced water treatment package on the Sean and quarterly updates on progression are given to DECC. Water clarifier trials have shown that its use has no effect on produced water quality at low flow production, the trial is to continue once in high flow production. New absorbent material used the absorber package has proved successful during low production. Sean is currently in low production and has been in compliance since November 2009 to date. The Sean will return at some point to high flow production and will continue trials with chemicals the new absorbent material at this time. |
| UK-West Sole Alpha/BP | Gas | 185 | Produced water on the West Sole Alpha has been investigated and it was established that there is insufficient residence time in vessel to allow separation. 0,4 tonnes of oil was discharged in 2009. | Produced water loading will be reduced by multiphasing the Newsham produced water to shore. |
| UK-Cleeton/BP | Gas | 178 | Due to a tight emulsion, the produced water treatment plant on the Cleeton is unable to achieve compliance. The platform have concentrated efforts on commissioning a produced water re-injection system which has been up and running since January 2009. Mass of oil discharged during PWRI downtime was 0,2 tonnes. | Since January 2009, the Cleeton can re-inject 100% of it's produced water. Uptime in 2009 was 96%. |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|---|---|
| UK-Hewett 48/29a Installation / ENI Hewett | Gas | 153 | Discharged for only first two months of the year. Sump tank liquid level controls had been found to be not fit for purpose. Control valve on PW dump line not functioning correctly | ENI now return all produced fluids onshore to Bacton and will continue to do so until Oct 2010, when a decision will be made to either continue this or revert to discharge at the installation. New control valve and other instrumentation to be installed on dump line prior to recommencing any discharge at the installation. |
| UK-Ravenspurn North/BP | Gas | 106 | The oil in produced water on the Ravenspurn North forms a tight emulsion caused by the corrosion inhibitor. This has affected produced water treatment. | To improve PW quality, BP added a produced water vessel in 2005 and additional hydrocyclones in 2007. Sand management is a major issue and BP have added a manual desanding unit to the production separator and intend to fit another desanding unit to the test separator which will be commissioned in 2011. |
| UK-Shell Leman | Gas | 63 | Leman has had issues with increased levels of mud/sand in the PW treatment tank and the failure of their hydrocyclone pump. They conducted foam water lift trials to remove dirty water during April and May which had a further negative impact on produced water quality. A 2nd foam trial was stopped early due to these negative impacts. Total oil to sea during 2009 was 1,5584 tonnes. | Quarterly updates are provided to DECC. Cleaning of mud/ sand from the process system has been increased from once every 5 weeks to weekly to reduce the impact of the increased sand/mud. Leman was back in compliance between July and November 2009. During December the hydrocyclones failed and a new pump was sourced and fitted returning the Leman to compliance. |
| UK-Armada/BG | Oil | 55 | The Rev tieback to the Armada installation commenced production in January 2009. The corrosion inhibitor forms an emulsion with the oil resulting in high oil in water concentrations. | BG have changed the corrosion inhibitor and optimised the dose rate. By the end of 2009 the discharge was 30mg/l |
| UK-Hyde/BP | Gas | 51 | Hyde is a normally unmanned installation with gravity based production and test separators. Due to sand and scale build up in the vessels, it is thought that there is insufficient residence time for the oil and water to separate and achieve compliance. 1.2 tonnes oil was discharged in 2009. | Separator will be cleaned and sand and scale removed in 2011 shutdown. This will increase residence time and it is anticipated that oil in water will achieve compliance. |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|--|---|
| UK-Total Alwyn North NAB Platform | Oil | 44 | <p>Throughout 2009 Total were utilising phase 1 and phase 2 of Alwyn/Dunbar PWRI systems. Commissioning of phase 2 PWRI took place early 2009 and presented Total with some challenges. Total have invested some £19.75M in PWRI. There has been significant reductions in both PW and dispersed oil quantities to sea as a result of the commissioning of phase 2 PWRI. During 2008 some 879000m3 of PW was discharged to sea, containing 21.2 tonnes of dispersed oil. In 2009 the quantity of PW discharged fell to 47000 m3 and dispersed oil dropped to 2.1 tonnes, an order of magnitude reduction. The main cause of the failure to meet an annual average dispersed oil concentration of 30mg/l is due to tripping of the PWRI system. If the system trips, PW is routed overboard. Whilst the overboard discharge may only take place for a short time period (sometimes a couple of minutes), the dispersed oil concentration may be high and significantly above 30mg/l. The commissioning phase at the start of 2009 caused most significant problems with the first four months of the year all have dispersed oil concentrations above 30mg/l. There were two further monthly non-compliances during 2009. Total plan to continue work of PWRI systems in order to improve efficiency and availability. It is also planned to workover injection well N27 in Q1 2010 to repair tubing issues and return the well to injection service if required. Total also look to optimise production rates to maintain dispersed oil concentrations to as low a level as possible so that PWRI trips do not result in very high overboard discharges.</p> | <p>Further optimisation work is planned throughout 2010 to both Alwyn and Dunbar PWRI systems. The objective is to improve PWRI efficiency and availability. It is also planned to upgrade Alwyn PWRI control systems during 2010. Total also plan on working over injection well N27 (Q1 2010) to rectify tubing issues and return the well to water injection service if required. The drilling of further disposal wells may also be considered.</p> |
| UK-Shell Gannet | Oil / Condensate | 42 | <p>Introduced Scale Inhibitor / Corrosion Inhibitor (SICI) chemical to protect pipeline integrity. CISI together with temperature reduction decreased the efficiency of the process.</p> | <p>The previous corrosion inhibitor chemical found to be ineffective at protecting pipeline integrity. Project team established to investigate the root causes. The following options are being considered:</p> <ol style="list-style-type: none"> 1. Chemical optimisation: de-oiler trials, 2. New technologies: Hydrocyclone high performance liners, 3. Operation: Vessel de-sanding operation |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|---|-----------------------------------|--|--|--|
| UK-Bruce/BP | Oil | 42 | The Bruce treatment plant is unable to treat the produced water to less than 30mg/l due to a lack of differential pressures across the hydrocyclone skids. For this reason, the Bruce aims to re-inject all its produced water. The PWRI pump is over capacity for current produced water volumes so the produced water is mixed with seawater to make up the required volume. Uptime for PWRI system was 85% in 2009. Mass of oil discharged during PWRI downtime was 0,5 tonnes. | When PWRI is down a small amount can be exported to Kinneal (2%BS&W), remainder is discharged overboard. Contingency plan for when PWRI down is to maximise production while minimising water production wells. |
| UK-Britannia / Britannia Operator Limited | Gas | 39 | 2 new fields tied back to Britannia commenced production during 2nd half 2008. Following water breakthrough Britannia produced water quality was affected by emulsion issues. | Operator produced an Oil in Water Improvement Plan including process reviews, chemical trials, hardware modifications, etc which they continue to progress. |
| UK-Apollo Spirit / CNR International (UK) Ltd | Oil | 38 | Batch produced water discharge from this FSO was out of compliance for one month in 2009 which had a knock on effect for the full 2009 data. (excluding the non-compliant month the average for 2009 was 25 mg/l) | New filters were installed in the Produced Water System allowing compliance to be maintained. |
| UK-Rough AD / Centrica Storage Limited | Gas | 36 | As a gas storage facility, this installation only produces gas for approximately half the year and only produces/discharges water for approximately half of this time. Further to the intermittent and variable nature of the water production during these periods the installation has not met the 30 mg/l permit limit. | The operator commissioned an independent initial review of current and available technologies in March 2009, which identified that options would be limited due to the intermittent and variable nature of water production. The UK Government has requested that the Operator investigate this matter further and as a result a more detailed review was to be carried out during the second quarter 2010, looking at the original design of the produced water system, changes in production operations and the functionality of the system. |
| UK-Heather Alpha / Lundin Britain Limited | Oil | 34 | Process issues as a result of a breach of subsea pipeline bundle insulation. | Subsea pipeline offline pending replacement. |
| UK-Trent | Gas | 34 | Trent hosts produced water handling from other fields. Production from these fields is dosed with MEG which was originally recovered on Trent. However these fields now generate large volumes of saline formation water and this has precluded MEG recovery and presented problems of HC separation. | MEG storage vessels on Trent were converted to provide long residence time gravity separation. Since completing that work, Trent average discharge for 2010 (to September 2010) is 18 mg/l. |

| Country/Installation/Operator ^A | Type of installation ^B | Annual average oil content mg/l ^C | Reasons for not achieving the standard | Action being taken |
|--|-----------------------------------|--|--|--|
| UK-Rough BD / Centrica Storage Limited | Gas | 32 | As a gas storage facility, this installation only produces gas for approximately half the year and only produces/discharges water for approximately half of this time. Further to the intermittent and variable nature of the water production during these periods the installation has not met the 30 mg/l permit limit. | The operator commissioned an independent initial review of current and available technologies in March 2009, which identified that options would be limited due to the intermittent and variable nature of water production. The UK Government has requested that the Operator investigate this matter further and as a result a more detailed review was to be carried out during the second quarter 2010, looking at the original design of the produced water system, changes in production operations and the functionality of the system. |
| UK-Excalibur | Gas | 31 | Excalibur's exceedance was due to a high result in April 2009 which was due to corrosion of the main separator and the need to route liquids through the much smaller test separator. | On re-instatement of the main separator the performance has improved with the performance to date (September 2010 data) at 24 mg/l. |
| UK-Montrose Alpha / Talisman | Oil | 31 | Plant instability with gas compression and the gas export pipeline system (WAGE) trips and poor performance from CETCO unit resulted in poor PW separation | New level control instrumentation on A Train process will improve control of separation process. Hydrocyclones have been optimised and will be hard piped. Plans to reinstate large degasser vessel once integrity issues resolved and the additional capacity and residence time will greatly improve final PW performance. CETCO unit will be decommissioned once settling tank reinstated. Improved uptime on WAGE module is still a priority and remains a key area of focus. |

A. Name of the installation where the discharge takes place.

B. Same categories as in table 1: Oil (O), Gas (G), Sub-sea (S), Other (oth) installations.

C. The annual average oil content should be calculated on the basis of the total weight of oil discharged per year by the installation, divided by the total volume of produced water discharged during the same period.

Part A: Report relating to 2009 data

Table 4: Use and discharges of organic-phase drilling fluids (OPF) ^A

Year: 2009

Table 4a: Use and discharges of oil-based fluids (OBF) ^B

| Country | Total amount of OBF used (tonnes) | Cuttings discharged to the sea | | | OPF cuttings injected | | Cuttings transported to shore ^E (tonnes) |
|------------------|-----------------------------------|--------------------------------|--|--|---------------------------|---|---|
| | | Number of wells concerned | Average oil concentration on cuttings (g/kg) | Total amount of oil discharged ^C (tonnes) | Number of wells concerned | Total amount of cuttings injected ^D (tonnes) | |
| Denmark | 15 787 | 0 | 0 | 0 | 0 | 0 | 7 880 |
| Germany | 1 510 | 0 | 0 | 0 | 0 | 0 | 2 426 |
| Ireland | 792 | 0 | 0 | 0 | 0 | 0 | 662 |
| Netherlands | 26 223 | 0 | 0 | 0 | 0 | 0 | 15 381 |
| Norway | 220 394 | 0 | 0 | 0 | 71 | 47 640 | 39 072 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 80 100 | 1 | 0,5 | 0,3 | 27 | 10 105 | 35 101 |
| Total OBF | 344 806 | 1 | 0,5 | 0,3 | 98 | 57 745 | 100 522 |

A. "Organic-phase Drilling Fluid (OPF)" means an organic-phase drilling fluid, which is an emulsion of water and other additives in which the continuous phase is

a water-immiscible organic fluid of animal, vegetable or mineral origin (See OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings).

B. "Oil-based Fluids (OBF)" means low aromatic and paraffinic oils and those mineral oil-based fluids that are neither synthetic fluids nor fluids of a class whose use is otherwise prohibited (See OSPAR Dec

C. Estimated amount of oil discharged to the sea, through the cuttings discharged.

D. Estimated amount of cuttings injected into disposal wells, excluding the water added for slurryfication.

E. Amount of cuttings transported to shore, for treatment and/or disposal.

Part A: Report relating to 2009 data

Table 4b: Use and discharges of non-OBF organic-phase drilling fluids (non-OBF OPF) ^A

Year: 2009

| Country | Total amount of non-OBF OPF used (tonnes) | Cuttings discharged to the sea | | | OPF cuttings injected | | Cuttings transported to shore ^D (tonnes) |
|-------------------------------------|---|--------------------------------|--|--|---------------------------|---|---|
| | | Number of wells concerned | Average organic phase concentration on cuttings (g/kg) | Total amount organic phase fluids discharged ^B (tonnes) | Number of wells concerned | Total amount of cuttings injected ^C (tonnes) | |
| Denmark | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway | 0 | 0 | NA | 0 | 0 | 0 | 0 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 1 247 | 0 | 0 | 0 | 0 | 0 | 655 |
| Total non-OBF OPF | 1 247 | 0 | 0 | 0 | 0 | 0 | 655 |
| | | | | | | | |
| Grand total OPF ^E | 346 053 | 1 | 1 | 0 | 98 | 57 745 | 101 177 |

A. "Organic-phase Drilling Fluid (OPF)" means an organic-phase drilling fluid, which is an emulsion of water and other additives in which the continuous phase is a water-immiscible organic fluid of animal, vegetable or mineral origin (See OSPAR Decision 2000/3)

"Oil-based Fluids (OBF)" means low aromatic and paraffinic oils and those mineral oil-based fluids that are neither synthetic fluids nor fluids of a class whose use is otherwise prohibited (See OSPAR Decision 2000/3)

B. Estimated amount of organic phase discharged to the sea, through the cuttings discharged.

C. Estimated amount of cuttings injected into disposal wells, excluding the water added for slurryfication.

D. Amount of cuttings transported to shore, for treatment and/or disposal.

E. Total OBF + non-OBF OPF.

Part A: Report relating to 2009 data

Table 5: Accidental spillages

Year: 2009

Table 5a: Accidental spillages of oil

| Country | Number of oil spills | | |
|----------------------------|----------------------|-----------|--------------|
| | ≤ 1 tonne | > 1 tonne | Total number |
| Denmark | 23 | 2 | 25 |
| Germany | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 |
| Netherlands ⁽¹⁾ | 14 | 1 | 15 |
| Norway | 142 | 4 | 146 |
| Spain | 0 | 0 | 0 |
| United Kingdom | 291 | 8 | 299 |
| Total | 470 | 15 | 485 |

| Quantity of oil spilled (tonnes) | | |
|----------------------------------|------------|--------------|
| ≤ 1 tonne | > 1 tonne | Total number |
| 2 | 4 | 6 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 1 | 22 | 23 |
| 8 | 88 | 97 |
| 0 | 0 | 0 |
| 15 | 39 | 54 |
| 26 | 154 | 180 |

(1) Netherlands: oil in OBF spilled have to be reported as oil in Table 5A and not in Table 5B.

Table 5b: Accidental spillages of chemicals ^A

| Country | Number of chemical spillages | | |
|-----------------------|------------------------------|-----------|--------------|
| | ≤ 1 tonne | > 1 tonne | Total number |
| Denmark | 1 | 2 | 3 |
| Germany | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 |
| Netherlands | 3 | 0 | 3 |
| Norway ⁽¹⁾ | 119 | 43 | 162 |
| Spain | 0 | 0 | 0 |
| United Kingdom | 132 | 54 | 186 |
| Total | 255 | 99 | 354 |

| Quantity of chemicals spilled (tonnes) | | |
|--|---------------|---------------|
| ≤ 1 tonne | > 1 tonne | Total number |
| 0 | 29 | 29 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0,006 | 0 | 0 |
| 23 | 13 057 | 13 080 |
| 0 | 0 | 0 |
| 25 | 1 330 | 1 355 |
| 48 | 14 416 | 14 464 |

A. Chemical spills include all drilling fluids for all Contracting Parties except for the Netherlands in case of the oil in OBF

(1) Norway: the total number of chemicals spilled includes 12 600 tonnes from leakage after injection at Veslefrikk. Injected cuttings at Veslefrikk leaking base fluid over several years, discovered and reported in 2009.

Part A: Report relating to 2009 data

Table 6: Emissions to air

Year: 2009

| Country | CO ₂ ^A (10 ³ tonnes) | NO _x ^B (tonnes) | nmVOCs ^C (tonnes) | CH ₄ ^D (tonnes) | SO ₂ (tonnes) |
|----------------|--|--|---------------------------------|--|-----------------------------|
| Denmark | 2 164 | 8 100 | 1 810 | 3 100 | 94 |
| Germany | 42 | 45 | 115 | 3 133 | 0,2 |
| Ireland | 44 | 118 | 1 | 6 | 2 |
| Netherlands | 1 485 | 4 173 | 4 999 | 14 482 | 103 |
| Norway | 12 444 | 50 000 | 18 000 | 50 000 | 500 |
| Spain | 2 | 10 | 0 | 0 | 0 |
| United Kingdom | 15 435 | 49 500 | 41 300 | 45 300 | 2 170 |
| Total | 31 616 | 111 946 | 66 225 | 116 021 | 2 869 |

A. CO₂ is carbon dioxide emitted, not the carbon dioxide equivalents of the various greenhouse gases. Carbon monoxide (CO) is not included.

B. NO_x is the sum of nitric oxide (NO) and nitrogen dioxide (NO₂) expressed as NO₂ equivalent. Nitrous oxide (N₂O) is not included as a component of NO_x.

C. VOCs (Volatile Organic Compounds) comprise all hydrocarbons, other than methane, released to the atmosphere.

D. CH₄ corresponds to the methane released to the atmosphere, from any source.

Part A: Report relating to 2009 data

Table 7: The use and discharge of offshore chemicals

Year: 2009

Table 7a: Quantity of offshore chemicals used in kg/year

| Country | Plonor ^B | "LCPA" ^C | Prescreening Category ^A | | | | Ranking ^H | Total |
|----------------------------|---------------------|---------------------|---|---------------------------------------|--|--|----------------------|--------------------|
| | | | LC ₅₀ or EC ₅₀ < 1 mg/l ^D | Biodegradation < 20 % ^E | Substances meet two of three criteria ^F | Inorganic, LC50 or EC50 > 1 mg/l ^G | | |
| Denmark | 45 732 541 | 0 | 8 550 | 515 528 | 231 350 | 11 660 616 | 15 792 136 | 73 940 721 |
| Germany | 2 425 | 0 | 0 | 5 906 | 0 | 0 | 2 993 | 11 324 |
| Ireland | 1 020 082 | 0 | 0 | 3 498 | 1 271 | 138 | 358 021 | 1 383 010 |
| Netherlands ⁽²⁾ | 29 127 105 | 0 | 0 | 162 510 | 979 280 | 817 256 | 6 388 029 | 37 474 180 |
| Norway ⁽¹⁾ | 289 681 616 | 20 | 53 | 2 144 671 | 1 061 115 | 0 | 92 409 851 | 385 297 326 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 255 518 585 | 1 267 | 856 | 2 581 413 | 3 142 275 | 1 657 961 | 75 977 678 | 338 880 035 |
| Total | 621 082 354 | 1 287 | 9 459 | 5 413 526 | 5 415 291 | 14 135 971 | 190 928 708 | 836 986 596 |

A. According to OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals (as amended) and the terminology used in this Recommendation.

B. Substance on OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or no Risk to the Environment (PLONOR)

(Reference Number: 2004-10, 2008 update).

C. Substance listed in the OSPAR List of Chemicals for Priority Action (LCPA) (including its updates). Previously called Annex 2 substances because it referred to Annex 2 of the 1998 OSPAR Strategy with regard to Hazardous Substances. This Annex 2 has now been replaced by the LCPA. (Reference Number: 2004-12)

D. Inorganic substance with LC₅₀ or EC₅₀ less than 1 mg/l.

E. Biodegradation of the substance is less than 20% during 28 days.

F. Substance meets two of the following three criteria:

- I. biodegradation in 28 days less than 70% (OECD 301A, 301E) or less than 60% (OECD 301B, 301C, 301F, 306);
- II. bioaccumulation log Pow > 3 or BCF > 100 and considering molecular weight;
- III. toxicity LC50 < 10mg/l or EC50 < 10mg/l.

G. Inorganic substance with LC50 or EC50 over 1 mg/l.

H. Substance does not fulfill the above mentioned criteria (B-G) and is therefore ranked according to OSPAR Recommendation 2000/4.

(1) For Norway the figures for the column inorganic, LC50 or EC50 >1 mg/l has been included in the column "Ranking".

(2) The Netherlands reported to have use 147 kg of substances for which there are no data on: the so-called substances X.

Part A: Report relating to 2009 data

Table 7b: Quantity of offshore chemicals discharged in kg/year

Year: 2009

| Country | Plonor ^B | "LCPA" ^C | Prescreening Category ^A | | | | Ranking ^H | Total |
|----------------------------|---------------------|---------------------|---|---------------------------------------|--|--|----------------------|--------------------|
| | | | LC ₅₀ or EC ₅₀ < 1 mg/l ^D | Biodegradation < 20 % ^E | Substances meet two of three criteria ^F | Inorganic, LC50 or EC50 > 1 mg/l ^G | | |
| Denmark | 24 603 595 | 0 | 0 | 1 061 | 360 | 431 845 | 4 987 546 | 30 024 407 |
| Germany | 2 220 | 0 | 0 | 37 | 0 | 0 | 0 | 2 257 |
| Ireland | 125 905 | 0 | 0 | 0 | 391 | 110 | 1 827 | 128 233 |
| Netherlands ⁽²⁾ | 8 989 344 | 0 | 0 | 19 730 | 37 089 | 105 070 | 584 237 | 9 735 470 |
| Norway ⁽¹⁾⁽³⁾ | 111 268 937 | 58 | 0 | 16 318 | 5 152 | See note (1) | 14 700 303 | 125 990 768 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 113 184 172 | 89 | 0 | 608 549 | 1 046 561 | 453 499 | 12 074 628 | 127 367 497 |
| Total | 258 174 174 | 147 | 0 | 645 695 | 1 089 553 | 990 524 | 32 348 540 | 293 248 632 |

A. According to OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals (as amended) and the terminology used in this Recommendation.

B. Substance on OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or no Risk to the Environment (PLONOR)

(Reference Number: 2004-10, 2008 update).

C. Substance listed in the OSPAR List of Chemicals for Priority Action (LCPA) (including its updates). Previously called Annex 2 substances because

it referred to Annex 2 of the 1998 OSPAR Strategy with regard to Hazardous Substances. This Annex 2 has now been replaced by the LCPA. (Reference Number: 2004-12)

D. Inorganic substance with LC₅₀ or EC₅₀ less than 1 mg/l.

E. Biodegradation of the substance is less than 20% during 28 days.

F. Substance meets two of the following three criteria:

I. (biodegradation in 28 days less than 70% (OECD 301A, 301E) or less than 60% (OECD 301B, 301C, 301F, 306);

II. bioaccumulation log Pow > 3 or BCF > 100 and considering molecular weight;

III. toxicity LC₅₀ < 10mg/l or EC₅₀ < 10mg/l.

G. Inorganic substance with LC50 or EC50 over 1 mg/l.

H. Substance does not fulfill the above mentioned criteria (B-G) and is therefore ranked according to OSPAR Recommendation 2000/4.

(1) For Norway the figures for the column inorganic, LC50 or EC50 >1 mg/l has been included in the column "Ranking".

(2) The Netherlands reported to have discharged 116 kg of substances for which there are no data for: the so-called substances X.

(3) Norway reported 20 kg used and 58 kg discharged due to LCPA hydraulic fluid in system sweating, being replaced by "ranking" hydraulic fluid.

Part A: Report relating to 2009 data

Table 7c: Quantity of offshore chemicals spilled in kg/year

Year: 2009

| Country | Plonor ^B | "LCPA" ^C | Prescreening Category ^A | | | | Ranking ^H | Total |
|-------------------------------|---------------------|---------------------|---|---------------------------------------|--|--|----------------------|-------------------|
| | | | LC ₅₀ or EC ₅₀ < 1 mg/l ^D | Biodegradation < 20 % ^E | Substances meet two of three criteria ^F | Inorganic, LC50 or EC50 > 1 mg/l ^G | | |
| Denmark | 40 | | | | | | 27 500 | 27 540 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 0 | 53 | 0 | 53 |
| Norway ⁽¹⁾ | 6 035 000 | 1600 | 0 | 348 000 | 0 | See note (1) | 6 233 000 | 12 617 600 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom ⁽²⁾ | 1 216 434 | 0 | 0 | 5 271 | 244 | 3 164 | 70 259 | 1 295 372 |
| Total | 7 251 474 | 1 600 | 0 | 353 271 | 244 | 3 217 | 6 330 759 | 13 940 565 |

A. According to OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals (as amended) and the terminology used in this Recommendation.

B. Substance on OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or no Risk to the Environment (PLONOR)
(Reference Number: 2004-10, 2008 update).

C. Substance listed in the OSPAR List of Chemicals for Priority Action (LCPA) (including its updates). Previously called Annex 2 substances because it referred to Annex 2 of the 1998 OSPAR Strategy with regard to Hazardous Substances. This Annex 2 has now been replaced by the LCPA. (Reference Number: 2004-12)

D. Inorganic substance with LC₅₀ or EC₅₀ less than 1 mg/l.

E. Biodegradation of the substance is less than 20% during 28 days.

F. Substance meets two of the following three criteria:

- I. (biodegradation in 28 days less than 70% (OECD 301A, 301E) or less than 60% (OECD 301B, 301C, 301F, 306);
- II. bioaccumulation log Pow > 3 or BCF > 100 and considering molecular weight;
- III. toxicity LC₅₀ < 10mg/l or EC₅₀ < 10mg/l.

G. Inorganic substance with LC50 or EC50 over 1 mg/l.

H. Substance does not fulfill the above mentioned criteria (B-G) and is therefore ranked according to OSPAR Recommendation 2000/4.

(1) For Norway the figures for the column inorganic, LC50 or EC50 >1 mg/l has been included in the column "Ranking".

(2) For the United Kingdom the figures exclude the water component of chemicals released to sea.

Part B: Cumulative Report

Part B: Cumulative Report

Table 1: Number of installations in the OSPAR maritime area

**Table 1a: Number of installations in the OSPAR maritime area with discharges to the sea, or emissions to the air
2000-2009***

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Denmark | 16 | 18 | 17 | 19 | 20 | 17 | 19 | 19 | 18 | 20 |
| France ¹ | 0 | 0 | 0 | 0,1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 3 | 3 | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 3 |
| Ireland | 3 | 4 | 4 | 1 | 1 | 1 | 1 | 2 | 2 | 1 |
| Netherlands | 108 | 114 | 114 | 123 | 124 | 129 | 128 | 130 | 132 | 135 |
| Norway ² | 60 | 65 | 67 | 63 | 103 | 108 | 109 | 125 | 128 | 143 |
| Spain | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| UK ³ | 298 | 332 | 381 | 383 | 396 | 407 | 416 | 444 | 457 | 438 |
| Total | 489 | 537 | 586 | 592 | 649 | 666 | 677 | 725 | 741 | 742 |

¹ France had 1 exploratory well in 2003.

² The fact that Norway reports subsea installations for the first time in 2004 leads to an artificial significant increase in the total.

³ UK has revised its criteria for counting subsea installations as from 2000.

⁴ The increase of the number of installations from year 2002 is mainly due to the change of rules in counting the installations. The numbers given for 2003 and 2004 reflect the current OSPAR database on offshore installations set up in accordance with OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations.

* These data are taken from table 1 of Part A of the report.

Table 1 (cont'd): Number of installations in the OSPAR maritime area

Table 1b ¹: Total number of installations in the OSPAR maritime area, 2000-2009**

| | 2000 | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 |
|-------|------|------|------|------|------|------|------|
| Total | 717 | 869 | 1167 | 1131 | 1281 | 1340 | 1495 |

¹ The increase of the number of installations from year 2002 is mainly due to the change of rules in counting the installations. The numbers given for 2003 and 2004 reflect the current OSPAR database on offshore installations set up in accordance with OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations.

** These data are taken from the OSPAR inventory on offshore installations

Part B: Cumulative Report

Table 1c: Number of installations by type of installation in the OSPAR maritime area with discharges to the sea, or emissions to the air, 2000-2009*

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Oil | 174 | 152 | 153 | 146 | 148 | 148 | 151 | 154 | 155 | 158 |
| Gas | 239 | 223 | 225 | 254 | 256 | 255 | 258 | 274 | 275 | 280 |
| Subsea | 7 | 81 | 120 | 143 | 177 | 182 | 187 | 203 | 217 | 221 |
| Drilling | 69 | 76 | 86 | 45 | 58 | 71 | 75 | 85 | 84 | 74 |
| Other | 0 | 5 | 2 | 4 | 10 | 10 | 7 | 10 | 10 | 9 |
| Total | 489 | 537 | 586 | 592 | 649 | 666 | 678 | 725 | 741 | 742 |

* These data are taken from table 1 of Part A of the report.

Part B: Cumulative Report

Table 2: Oily aqueous discharges to the maritime area *

Table 2a: Oil discharged in displacement and produced water (in tonnes), 2000-2009

| Country | 2001 (IR) | 2002 (IR) | 2003 (IR) | 2004 (IR) | 2005 (IR) | 2006 (IR) | 2007 (IR) | 2008 (IR) | 2009 (IR) |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|---------------|---------------|
| | Dispersed | Dispersed | Dispersed | Dispersed | Dispersed | Dispersed | Dispersed | Dispersed (1) | Dispersed (2) |
| Denmark | 290 | 294 | 358 | 431 | 446 | 385 | 386 | 380 | 340 |
| Germany | 0,22 | 0,17 | 0,20 | 0,20 | 0,15 | 0,13 | 0,12 | 0,11 | 0,16 |
| Ireland | NI | NI | NI | 0,12 | 0,02 | 0,05 | 0,03 | 0,04 | 0,01 |
| Netherlands | 252 | 148 | 114 | 119 | 108 | 114 | 156 | 140 | 54 |
| Norway | 3 153 | 2 827 | 2 584 | 2 653 | 2 833 | 2 379 | | | n.d. |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 5 694 | 5 721 | 5 276 | 5 279 | 4 970 | 4 357 | | | |
| Total | 9 390 | 8 990 | 8 332 | 8 482 | 8 357 | 7 235 | 542 | 520 | 394 |

| Country | 2007 (GC-FID) | 2008 (GC-FID) | 2009 (GC-FID) |
|--------------|---------------|---------------|---------------|
| | Dispersed | Dispersed | Dispersed |
| Denmark | n.d. | n.d. | n.d. |
| Germany | n.d. | n.d. | n.d. |
| Ireland | n.d. | n.d. | n.d. |
| Netherlands | n.d. | n.d. | 54 |
| Norway | 1 626 | 1 627 | 1 542 |
| Spain | 0 | 0 | 0 |
| UK | 2 960 | 3 160 | 2 900 |
| Total | 4 586 | 4 787 | 4 496 |

(1) The Netherlands have reported on IR in 2007 and on a mixture of IR and GC in 2008

(2) The Netherlands went over to the new GC-FID on 1st July 2009.

Dissolved from 2001

| Country | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Dissolved | Dissolved | Dissolved | Dissolved | Dissolved | Dissolved | Dissolved | Dissolved | Dissolved |
| Denmark | 205 | 192 | 265 | 292 | 348 | 360 | 353 | 202 | 195 |
| Germany | 0,32 | 0,42 | 0,50 | 0,80 | 0,76 | 0,95 | 0,59 | 0,55 | 0,40 |
| Ireland | NI | NI | NI | 0,38 | 0,02 | 0,004 | 0,05 | 0,01 | 0,03 |
| Netherlands | 82 | 57 | 72 | 76 | 70 | 52 | 72 | 67 | 61,649 |
| Norway | 1 101 | 1 165 | 906 | 1 547 | 1 524 | 1 711 | 1 879 | 1 852 | 1 954 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| UK | 3 710 | 4 260 | 3 599 | 3 276 | 3 049 | 2 756 | 2 273 | 3 783 | 2 619 |
| Total | 5 098 | 5 674 | 4 843 | 5 192 | 4 992 | 4 880 | 4 578 | 5 905 | 4 830 |

Please note that the Netherlands are not in favour of splitting Table 2a data from 2007 into IR and GC-FID, as they believe that insufficient evidence is presented.

Table 2: Oily aqueous discharges to the maritime area *

Table 2b: Quantity of displacement and produced water discharged daily to the sea (in m³/day), 2000-2009

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Denmark | 43 909 | 46 273 | 44 158 | 54 243 | 67 578 | 74 522 | 76 677 | 75 204 | 83 442 | 75 638 |
| Germany | 14 | 14 | 19 | 18 | 22 | 22 | 26 | 23 | 23 | 33 |
| Ireland | 6 | 7 | 8 | NI | 8 | 7 | 9 | 6 | 5 | 4 |
| Netherlands | 31 820 | 38 117 | 24 263 | 21 381 | 23 313 | 24 275 | 26 429 | 38 391 | 34 542 | 28 857 |
| Norway | 461 323 | 493 342 | 490 826 | 524 910 | 537 342 | 533 349 | 510 618 | 558 647 | 506 912 | 455 719 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 |
| UK | 652 188 | 696 482 | 738 082 | 719 950 | 690 481 | 642 967 | 603 112 | 555 784 | 541 611 | 538 690 |
| Total | 1 189 260 | 1 274 236 | 1 297 356 | 1 320 502 | 1 318 745 | 1 275 143 | 1 216 873 | 1 228 058 | 1 166 536 | 1 098 941 |

* These data are taken from table 2 of Part A of the report.

Table 2c: Total volume of produced water and displacement water discharged, and produced water injected

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| PW* | 397 342 936 | 406 980 758 | 419 235 111 | 422 925 843 | 413 865 753 | 398 629 647 | 401 516 892 | 385 158 923 | 365 677 026 |
| DPW** | 67 753 196 | 66 554 292 | 62 747 873 | 58 416 126 | 51 561 436 | 45 740 777 | 46 723 197 | 40 626 832 | 35 436 388 |
| IPW* | 30 354 834 | 46 619 734 | 58 960 839 | 74 978 612 | 76 893 589 | 80 185 640 | 87 721 185 | 84 083 816 | 88 027 421 |
| Total | 465 096 132 | 520 154 784 | 540 943 823 | 556 320 581 | 542 320 778 | 524 556 064 | 535 961 274 | 509 869 571 | 489 140 835 |

* Produced and injected water as mentioned in Table 2a in Part A

** Displacement water as mentioned in Table 2b in Part A

Part B: Cumulative Report

Table 3: Installations which do not meet OSPAR performance standard for dispersed oil in aqueous discharges ^{A*}

Table 3a ^B: Number of installations with discharges exceeding the 40 mg oil/l performance standard, 2000-2006, and quantity of oil discharged by these installations (in tonnes)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--|------|------|------|------|------|------|------|
| Total number of installations with discharges in the Convention area | 489 | 537 | 586 | 623 | 648 | 671 | 671 |
| Number of installations exceeding 40 mg/l | 15 | 23 | 20 | 22 | 28 | 25 | 14 |
| Quantity of dispersed oil discharged | 365 | 312 | 216 | 217 | 737 | 1044 | 469 |

Table 3b ^B: Number of installations with discharges exceeding the 30 mg oil/l performance standard, valid from 2007 onwards, and quantity of oil discharged by these installations (in tonnes)

| | 2007 | 2008 | 2009 |
|--|------|------|------|
| Total number of installations with discharges in the Convention area | 730 | 746 | 743 |
| Number of installations exceeding 30 mg/l | 22 | 31 | 31 |
| Quantity of dispersed oil discharged | 319 | 297 | 340 |

1. "Dispersed oil", or aliphatics, as measured according to the PARCOM Procedure described in the "Methods of sampling and analysis for implementing the provisional target standard for discharges from oil and gas production platforms (OSPAR Reference document OSPAR 1997-16).

A. The performance standard of 40 mg/l is defined on the basis of a monthly average. Most Contracting Parties, however, reported until 2000 only installations which exceeded the 40 mg/l performance standard on the basis of an annual average. From 2001 onwards, all the data is based on annual averages.

B. Data in Tables 3a and 3b refer to dispersed oil only.

The figures for Contracting Parties' total amount of oil discharged have been rounded up. The overall total value is the exact figure and may differ slightly from the sum of the Contracting Parties' total amount of oil discharged.

* These data are taken from table 3 of Part A of the report.

Table 3: Installations which do not meet OSPAR performance standard for dispersed oil in aqueous discharges ^{A *}

Table 3c: Number of installations with discharges exceeding the 40 mg oil/l performance standard, 2000-2006, by Contracting Party, and quantity of oil discharged by these installations (in tonnes)

| Country | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|--------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|
| | Number of installations | Amount discharged | Number of installations | Amount discharged | Number of installations | Amount discharged | Number of installations | Amount discharged | Number of installations | Amount discharged | Number of installations | Amount discharged | Number of installations | Amount discharged |
| Denmark | 2 | 42 | 1 | 6 | 0 | 0 | 1 | 52 | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 1 | 0,2 | 0 | 0 | 0 | 0 | NI | NI | 1 | 0,1 | 0 | 0 | 0 | 0 |
| Netherlands | 5 | 2 | 3 | 1 | 5 | 2 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway | 2 | 81 | 2 | 95 | 1 | 82 | 0 | 0 | 3 | 344 | 4 | 468 | 3 | 339 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 5 | 240 | 16 | 210 | 14 | 130 | 17 | 162 | 23 | 393 | 21 | 576 | 11 | 477 |
| Total | 15 | 365 | 23 | 313 | 20 | 216 | 22 | 217 | 27 | 737 | 25 | 1 044 | 14 | 816 |

A. The performance standard of 40 mg/l is defined on the basis of a monthly average. Most Contracting Parties, however, reported until 2000 only installations which exceeded the 40 mg/l performance standard on the basis of an annual average. From 2001 onwards, all the data is based on annual averages.

The figures for Contracting Parties' total amount of oil discharged have been rounded up. The overall total value is the exact figure and may differ slightly from the sum of the Contracting Parties' total amount of oil discharged.

* These data are taken from table 3 of Part A of the report.

Table 3: Installations which do not meet OSPAR performance standard for dispersed oil in aqueous discharges ^{A *}

Table 3d: Number of installations with discharges exceeding the 30 mg oil/l performance standard, valid from 2007 onwards, and quantity of oil discharged by these installations (in tonnes), in excess of the 30 mg oil/l performance standard

| Country | 2007 | | 2008 | | 2009 | |
|----------------|-------------------------|-------------------|----------------------|-------------------|----------------------|-------------------|
| | Number of installations | Amount discharged | Number installations | Amount discharged | Number installations | Amount discharged |
| Denmark | 0 | 0 | 0 | 0 | 2 | 7 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 4 | 2 | 7 | 1 | 7 | 4 |
| Norway | 2 | 22 | 4 | 12 | 0 | 0 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 16 | 295 | 20 | 205 | 22 | 99,4 |
| Total | 22 | 319 | 31 | 217 | 31 | 110 |

A. The performance standard of 40 mg/l is defined on the basis of a monthly average. Most Contracting Parties, however, reported until 2000 only installations which exceeded the 40 mg/l performance standard on the basis of an annual average. From 2001 onwards, all the data is based on annual averages.

Part B: Cumulative Report

Table 4: Use and discharges of organic-phase drilling fluids (OPF) and cuttings

Table 4a: Quantities of oil and other organic-phase fluids discharged via cuttings (in tonnes), 2000-2009 *

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 | Total OPF 1 |
| Country | | | | | | | | | | |
| Denmark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway | 2 014 | 1 127 | 954 | 342 | 425 | 0 | 0 | 0 | 0 | 0 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 1 937 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 3 951 | 1 327 | 954 | 342 | 425 | 0 | 0 | 0 | 0 | 0 |

1 Total OPF is the sum of OBF and non-OBF OPF. No oil-based mud contaminated cuttings have been discharged since 1996.

* These data are taken from table 4b of Part A of the report.

Part B: Cumulative Report

Table 4b: Number of wells drilled with OPF, 2000 *

| Country | 2000 ⁽²⁾ | |
|----------------|---------------------|-----------|
| | OBF | OPF |
| Denmark | 5 | NA |
| Germany | 3 | 0 |
| Ireland | NI | NA |
| Netherlands | 16 | 0 |
| Norway | NI | NA |
| Spain | 0 | NA |
| United Kingdom | 133 | NA |
| Total | 157 | NA |

(2) OPF (non-OBF OPF) was only reported on a voluntary basis.

Table 4c: Number of wells drilled with OPF, with discharge of contaminated cuttings to the maritime area, 2001-2009*

Wells for which all cuttings are re-injected or brought to shore are not taken into account in this table.

| Country | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|----------------|----------|-------------|----------|-------------|----------|-------------|-----------|-------------|----------|-------------|----------|-------------|
| | OBF | non-OBF OPF | OBF | non-OBF OPF | OBF | non-OBF OPF | OBF | non-OBF OPF | OBF | non-OBF OPF | OBF | non-OBF OPF |
| Denmark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | NI | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NA | 0 | 1 | NI | NI | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| Norway | 0 | 24 | 0 | 13 | 0 | 7 | 0 | 4 | 0 | 0 | 0 | 0 |
| Spain | 0 | 0 | NA | N/A | NA | NA | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 3 | 27 | 0 | 14 | 0 | 7 | 17 | 4 | 0 | 0 | 0 | 0 |

| Country | 2007 | | 2008 | | 2009 | |
|----------------|----------|-------------|----------|-------------|----------|-------------|
| | OBF | non-OBF OPF | OBF | non-OBF OPF | OBF | non-OBF OPF |
| Denmark | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway | 0 | 0 | 0 | 0 | 0 | 0 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 0 | 0 | 0 | 0 | 1 | 0 |
| Total | 0 | 0 | 0 | 0 | 1 | 0 |

* The data in tables 4b and 4c are taken from table 4 of Part A.

Part B: Cumulative Report

Table 5: Spillage of oil and chemicals *

Table 5a: Number of oil spills, 2000-2009 - Spills less than 1 tonne (≤ 1 T) and spills above 1 tonne (> 1 T)

| Country | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | |
|----------------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T |
| Denmark | 69 | 4 | 79 | 0 | 58 | 2 | 82 | 2 | 70 | 0 | 44 | 1 | 46 | 0 | 30 | 1 | 24 | 2 | 23 | 2 |
| Germany | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | 0 | 0 | 0 | 0 | NI | NI | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 0 |
| Netherlands | 27 | 0 | 35 | 1 | 24 | 0 | 33 | 0 | 31 | 1 | 25 | 0 | 25 | 0 | 35 | 0 | 20 | 1 | 14 | 1 |
| Norway | 198 | 5 | 221 | 7 | 238 | 9 | 121 | 11 | 108 | 10 | 141 | 6 | 115 | 7 | 155 | 12 | 164 | 9 | 142 | 4 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 406 | 12 | 408 | 17 | 454 | 16 | 366 | 6 | 445 | 13 | 428 | 10 | 305 | 8 | 270 | 9 | 262 | 8 | 291 | 8 |
| Total | 700 | 22 | 743 | 25 | 774 | 27 | 602 | 19 | 654 | 24 | 638 | 17 | 494 | 15 | 493 | 22 | 471 | 20 | 470 | 15 |

Table 5: Spillage of oil and chemicals ***Table 5b: Quantity of oil spilled, in tonnes, 2000-2009**

| Country | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|-----------------------------|-----------|--------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T |
| Denmark | 6 | 403 | 15 | 0 | 7 | 21 | 12 | 7 | 6 | 50 | 3 | 3 | 4 | 0 |
| Germany | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | 0 | 0 | 0 | 0 | NI | NI | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 1 | 0 | 1 | 3 | 1 | 0 | 0,2 | 0 | 0,1 | 2 | 0,2 | 0 | 1 | 0 |
| Norway | 16 | 12 | 18 | 25 | 17 | 76 | 47 | 690 | 7 | 58 | 13 | 303 | 10 | 95 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom ¹ | 38 | 36 | 34 | 509 | 31 | 60 | 21 | 47 | 29 | 47 | 38 | 39 | 23 | 40 |
| Total | 60 | 453,5 | 68 | 537 | 56 | 158 | 80 | 744 | 42 | 157 | 54 | 345 | 38 | 135 |

| Country | 2007 | | 2008 | | 2009 | |
|-----------------------------|-----------|--------------|-----------|------------|-----------|------------|
| | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T | ≤ 1 T | > 1 T |
| Denmark | 2 | 30 | 2 | 99 | 2 | 4 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0,2 | 0 | 0,004 | 0 | 0 | 0 |
| Netherlands | 1 | 0 | 1 | 3 | 1 | 22 |
| Norway | 10 | 3805 | 8 | 156 | 8 | 88 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom ¹ | 12 | 47 | 17 | 20 | 15 | 39 |
| Total | 25 | 3 882 | 27 | 278 | 26 | 154 |

1. Revised data for 2001: Pipeline leak investigated in 2001 resulted in operator being fined for a discharge of 450 tonnes of crude oil

* These data are taken from table 5a of Part A of the report.

Table 5c: Number of spills of chemicals and amount of chemical spills in tonnes/year, 2006-2009

| | 2006 | 2007 | 2008 | 2009 |
|---|------|-------|-------|--------|
| Number of spills of chemicals | 230 | 307 | 306 | 354 |
| Amount of tonnage of chemicals discharged | 840 | 1 181 | 1 071 | 14 464 |

Table 5d: Amount^k spilled in kg per year, 2006-2009

| Prescreening category ^A | 2006 | 2007 | 2008 | 2009 |
|---|---------|-----------|-----------|------------|
| PLONOR ^B | 559 929 | 1 000 374 | 895 579 | 7 251 474 |
| List of Chemicals for Priority Action ^C | 6 | 0 | 0 | 1 600 |
| Inorganic LC ₅₀ or EC ₅₀ < 1 mg/l ^D | 0 | 0 | 0 | 0 |
| Biodegradation < 20% ^E | 2 725 | 7 119 | 12 800 | 353 271 |
| Substance meets two of three criteria ^F | 11 259 | 30 516 | 1 980 | 244 |
| Inorganic, LC ₅₀ or EC ₅₀ > 1 mg/l ^G | 90 | 77 | 1 661 | 3 217 |
| Ranking ^H | 158 470 | 125 649 | 163 063 | 6 330 759 |
| Total | 732 479 | 1 163 735 | 1 075 083 | 13 940 565 |

Category

A. According to OSPAR Recommendation 200/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals (and its updates) and the terminology used in this Recommendation.

B. Substance on OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or no Risk to the Environment (PLONOR)
(Agreement Number: 2004-10, 2008 update).

C. Substance listed in the OSPAR List of Chemicals for Priority Action (LCPA) (including its updates) (Agreement Number: 2004-12).

D. Inorganic substance with LC₅₀ or EC₅₀ less than 1 mg/l.

E. Biodegradation of the substance is less than 20% in OECD 306, Marine BODIS or any other accepted marine protocols; or less than 20% during 28 days in freshwater (ready test).

F. Substance meets two of the following three criteria:
marine protocol); or in the absence of valid results for such tests; less than 60%
301E);

II. bioaccumulation: BCF > 100 or log Pow >= 3 and molecular weight <700;

III. toxicity: LC50 < 10mg/l or EC50 < 10mg/l; if toxicity values <10 mg/l are derived from limit tests to fish, actual fish LC50 data should be submitted.

G. Inorganic substance with LC₅₀ or EC₅₀ over 1 mg/l.

H. Substance does not fulfill the above mentioned criteria (A-G) and should therefore be ranked according to OSPAR Recommendation 2000/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals (including its updates) and the terminology used in this Recommendation.

I. Calculate the amount of substances on the basis of §1.6 of Appendix 1 of OSPAR Recommendation 2000/5 on a Harmonised Offshore Chemical Notification Format (HOCNF), including its updates

Spillage

K. All chemical spilled, including those related to accidental spillage of drilling fluids

Important! To avoid double reporting, the first appropriate category for the substance shall be chosen. This means that the PLONOR substances are chosen first, and the ranking substances are chosen last.

Part B: Cumulative Report

Table 6: Emissions to air, 2000-2009 *

| CO₂ (10⁶ tonnes) | | | | | | | | | | |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 2,3 | 2,2 | 2,2 | 2,2 | 2,3 | 2,1 | 2,1 | 2,1 | 2,1 | 2,2 |
| Germany | 0,01 | 0,02 | 0,01 | 0,02 | 0,03 | 0,06 | 0,05 | 0,06 | 0,04 | 0,04 |
| Ireland | 0,09 | 0,08 | 0,07 | NI | 0,07 | 0,06 | 0,06 | 0,06 | 0,09 | 0,04 |
| Netherlands | 1,2 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 | 1,3 | 1,4 | 1,4 | 1,5 |
| Norway | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 11 | 14 | 12 |
| Spain | 0,03 | 0,02 | 0,04 | 0,03 | 0,03 | 0,06 | 0,04 | 0,04 | 0,05 | 0,00 |
| United Kingdom | 18 | 19 | 20 | 19 | 19 | 18 | 16 | 17 | 16 | 15 |
| Total | 32 | 34 | 34 | 34 | 34 | 34 | 32 | 32 | 33 | 32 |

| NO_x (10³ tonnes) | | | | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 12 | 5,4 | 5,3 | 5,3 | 7,2 | 6,8 | 8,1 | 8,9 | 8,5 | 8,1 |
| Germany | 0,07 | 0,06 | 0,04 | 0,08 | 0,11 | 0,14 | 0,04 | 0,03 | 0,05 | 0,05 |
| Ireland | 0,17 | 0,18 | 0,16 | NI | 0,16 | 0,15 | 0,27 | 0,25 | 0,52 | 0,12 |
| Netherlands | 5,6 | 4,8 | 5,0 | 6,6 | 3,7 | 3,8 | 3,9 | 4,0 | 3,8 | 4,2 |
| Norway | 44 | 51 | 49 | 50 | 52 | 54 | 54 | 54 | 51 | 50 |
| Spain | 0,11 | 0,04 | 0,08 | 0,07 | 0,08 | 0,13 | 0,08 | 0,01 | 0,11 | 0,01 |
| United Kingdom | 46 | 54 | 69 | 61 | 60 | 59 | 52 | 52 | 52 | 50 |
| Total | 108 | 115 | 129 | 124 | 123 | 124 | 119 | 119 | 116 | 112 |

| nm VOCs (10³ tonnes) | | | | | | | | | | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|
| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 9 | 10 | 10 | 8 | 5 | 3 | 2 | 2 | 2 | 2 |
| Germany | 0,002 | 0,01 | 0,01 | 0,01 | 0,01 | 0,29 | 0,68 | 0,22 | 0,12 | 0,12 |
| Ireland | 0,001 | 0,001 | 0,001 | NI | 0,20 | 0,001 | 0,10 | 0,01 | 0,04 | 0,001 |
| Netherlands | 6 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 5 |
| Norway ⁽¹⁾ | 213 | 229 | 198 | 165 | 132 | 94 | 80 | 73 | 50 | 18 |
| Spain | 0,11 | 0,01 | 0,09 | 0,10 | 0,09 | 0,13 | 0,08 | 0,10 | 0,11 | 0,00 |
| United Kingdom | 73 | 87 | 93 | 79 | 66 | 49 | 51 | 54 | 41 | 41 |
| Total | 301 | 332 | 307 | 257 | 207 | 150 | 137 | 133 | 98 | 66 |

* These data are taken from table 6 of Part A of the report.

(1) Norway: there was a substantial reduction the last years due to nmVOC recovery requirements on tankers

Table 6: Emissions to air, 2000-2009 * (cont'd)

CH₄ (10³ tonnes)

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Denmark | 3 | 10 | 7 | 7 | 8 | 1 | 2 | 2 | 3 | 3 |
| Germany | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 3 |
| Ireland | 1 | 25 | 0 | NI | 1 | 0 | 3 | 1 | 1 | 0 |
| Netherlands | 15 | 16 | 13 | 19 | 11 | 12 | 12 | 14 | 16 | 14 |
| Norway | 29 | 34 | 32 | 31 | 31 | 29 | 26 | 25 | 31 | 50 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 56 | 57 | 52 | 51 | 55 | 41 | 37 | 48 | 42 | 45 |
| Total | 104 | 142 | 105 | 108 | 106 | 85 | 83 | 91 | 93 | 116 |

SO₂ (tonnes)

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Denmark | 300 | 577 | 300 | 400 | 480 | 230 | 230 | 220 | 200 | 94 |
| Germany | 3,0 | 1,0 | 0,0 | 0,0 | 2,0 | 2,0 | 1,0 | 0,0 | 0,4 | 0,2 |
| Ireland | 0,0 | 0,0 | 0,0 | 0,0 | 0,8 | 0,8 | 10 | 15 | 12 | 1,8 |
| Netherlands | 129 | 200 | 200 | 200 | 130 | 136 | 170 | 200 | 135 | 103 |
| Norway | 1 400 | 900 | 800 | 600 | 600 | 700 | 696 | 700 | 500 | 500 |
| Spain | 0,3 | 0,0 | 0,0 | 0,0 | 0,2 | 0,3 | 0,8 | 0,0 | 0,4 | 0,0 |
| United Kingdom | 6 400 | 6 290 | 2 020 | 2 560 | 2 940 | 3 000 | 2 570 | 1 740 | 3 290 | 2 170 |
| Total | 8 232 | 7 968 | 3 320 | 3 760 | 4 153 | 4 069 | 3 678 | 2 875 | 4 138 | 2 869 |

Part B: Cumulative Report

Table 7: The use and discharge of offshore chemicals

Year: 2001-2009

The Netherlands have included 2 575 451 kg of unknown chemicals in their total in 2006

UK Report only contains a full report for the first ¾ of the year 2006. For the last quarter of 2006 the figures only contain a full report for production installations and not drilling installations

Table 7a: Quantity of offshore chemicals used and discharged in kg/year on the PLONOR* List used and discharged in kg/year

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|----------------|---------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 92 514 186 | 72 358 514 | 60 382 417 | 52 667 440 | 41 208 531 | 78 932 552 | 66 356 341 | 55 035 267 | 45 732 541 |
| France | 0 | 0 | 526 654 | NI | NA | NA | NA | NA | NA |
| Germany | 21 300 | 4 000 | 1 098 862 | 977 651 | 2 138 463 | 716 405 | 710 225 | 503 527 | 2 425 |
| Ireland | NI | NI | NI | 830 542 | 9 287 | 1 549 666 | 3 876 616 | 6 274 318 | 1 020 082 |
| Netherlands | 23 995 497 | NI | 31 899 171 | 26 342 421 | 35 701 161 | 36 984 151 | 27 052 063 | 27 200 803 | 29 127 105 |
| Norway | NI | NI | 237 163 000 | 226 932 000 | 228 476 000 | 227 536 000 | 253 122 000 | 259 360 628 | 289 681 616 |
| Spain | 0 | 0 | 1 272 695 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 163 353 409 | 249 030 742 | 255 774 970 | 126 364 612 | 271 496 796 | 243 677 347 | 294 780 970 | 252 351 135 | 255 518 585 |
| Total | 279 884 392 | 321 393 256 | 588 117 769 | 434 114 666 | 579 030 238 | 589 396 121 | 645 898 215 | 600 725 678 | 621 082 354 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|----------------|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 51 541 713 | 50 619 400 | 38 246 458 | 30 666 043 | 28 296 022 | 37 853 418 | 30 919 208 | 31 370 942 | 24 603 595 |
| France | 0 | 0 | 526 654 | NI | NA | NA | NA | NA | NA |
| Germany | 19 170 | 3 600 | 517 593 | 761 332 | 1 036 263 | 347 565 | 342 003 | 503 282 | 2 220 |
| Ireland | NI | NI | NI | 460 057 | 2 566 | 1 040 761 | 1 660 002 | 4 203 349 | 125 905 |
| Netherlands | 12 580 602 | NI | 10 920 587 | 10 946 870 | 12 104 182 | 15 093 836 | 8 191 288 | 12 878 422 | 8 989 344 |
| Norway | 115 098 100 | 102 934 930 | 78 976 000 | 63 582 000 | 56 370 000 | 63 424 400 | 73 624 000 | 76 539 183 | 111 268 937 |
| Spain | 0 | 0 | 976 450 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 72 045 032 | 109 474 671 | 113 811 824 | 64 219 437 | 117 027 290 | 102 846 899 | 104 733 835 | 110 746 879 | 113 184 172 |
| Total | 251 284 617 | 263 032 601 | 243 975 566 | 170 635 739 | 214 836 323 | 220 606 879 | 219 470 336 | 236 242 057 | 258 174 174 |

* Substance on OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or no Risk to the Environment (PLONOR)

(Agreement Number: 2004-10, update 2008).

Table 7: The use and discharge of offshore chemicals**Year: 2001-2009****Table 7b: Quantity of offshore chemicals used and discharged in kg/year, in inorganic substances with LC50 or EC50 > 1 mg/l***

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|-----------------------|---------------------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | | | | 14 196 383 | 12 738 121 | 16 361 467 | 7 996 987 | 14 435 908 | 11 660 616 |
| France | | | | NA | NA | NA | NA | NA | NA |
| Germany | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | | | | NI | 0 | 0 | 2 252 | 745 | 138 |
| Netherlands | | | | 2 032 827 | 1 916 271 | 3 066 667 | 367 282 | 815 948 | 817 256 |
| Norway ⁽¹⁾ | | | | NI | 2 671 000 | 2 654 000 | 1 860 000 | (1) | (1) |
| Spain | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | | | | 33 542 | 73 409 | 949 303 | 2 326 787 | 4 150 103 | 1 657 961 |
| Total | | | | 16 262 752 | 17 398 801 | 23 031 437 | 12 553 308 | 19 402 704 | 14 135 971 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|-----------------------|---------------------------------------|------|------|------------------|----------------|------------------|----------------|------------------|----------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | | | | 980 564 | 138 620 | 408 828 | 169 353 | 1 484 608 | 431 845 |
| France | | | | NA | NA | NA | NA | NA | NA |
| Germany | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | | | | NI | 0 | 0 | 870 | 545 | 110 |
| Netherlands | | | | 240 660 | 172 416 | 364 578 | 179 066 | 169 047 | 105 070 |
| Norway ⁽¹⁾ | | | | NI | 137 000 | 126 000 | 143 000 | (1) | (1) |
| Spain | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | | | | 25 964 | 64 902 | 376 830 | 483 930 | 594 504 | 453 499 |
| Total | | | | 1 247 188 | 512 938 | 1 276 236 | 976 219 | 2 248 704 | 990 524 |

* No data submitted prior to 2004

(1) For Norway the figures for the column inorganic, LC50 or EC50 >1 mg/l has been included in the column "Ranking".

Part B: Cumulative Report

Table 7: The use and discharge of offshore chemicals

Year: 2001-2009

Table 7c: Quantity of offshore chemicals used and discharged in kg/year, in substances ranked according to OSPAR Recommendation 2000/4 and which do not fulfill the criteria of tables 7 a, b, d, e, f, g

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|-----------------------|---------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 16 890 132 | 29 776 007 | 28 646 471 | 17 001 572 | 14 093 489 | 1 378 038 | 12 049 738 | 14 703 054 | 15 792 136 |
| France | 0 | 0 | 3 025 | NA | NA | NA | NA | NA | NA |
| Germany | 55 700 | 84 900 | 361 531 | 424 432 | 387 282 | 127 403 | 124 599 | 4 333 | 2 993 |
| Ireland | NI | NI | NI | NI | 0 | 150 115 | 151 051 | 722 136 | 358 021 |
| Netherlands | 7 339 587 | NI | 3 809 425 | 2 811 406 | 2 809 975 | 5 490 597 | 5 443 977 | 7 572 521 | 6 388 029 |
| Norway ⁽¹⁾ | NI | NI | 79 178 000 | 83 915 000 | 82 626 000 | 87 938 000 | 93 313 000 | 95 347 550 | 92 409 851 |
| Spain | 0 | 0 | 16 950 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 163 288 565 | 49 435 450 | 27 483 033 | 63 147 289 | 44 840 086 | 100 831 149 | 100 834 384 | 78 776 917 | 75 977 678 |
| Total | 187 573 984 | 79 296 357 | 139 498 435 | 167 299 699 | 144 756 832 | 195 915 302 | 211 916 749 | 197 126 511 | 190 928 708 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|-----------------------|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 5 009 968 | 4 580 064 | 4 194 417 | 3 191 761 | 3 223 911 | 4 500 119 | 4 629 994 | 3 833 698 | 4 987 546 |
| France | 0 | 0 | 3 025 | NA | NA | NA | NA | NA | NA |
| Germany | 0 | 0 | 19 944 | 69 099 | 41 275 | 11 223 | 3 659 | 52 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 110 604 | 61 016 | 242 717 | 1 827 |
| Netherlands | 311 191 | NI | 157 936 | 157 648 | 193 412 | 254 341 | 263 184 | 435 387 | 584 237 |
| Norway ⁽¹⁾ | 11 815 950 | 10 897 930 | 10 977 000 | 10 599 000 | 10 103 000 | 10 952 000 | 11 880 000 | 12 956 914 | 14 700 303 |
| Spain | 0 | 0 | 3 450 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom | 48 535 999 | 16 904 059 | 11 101 380 | 29 930 079 | 14 056 179 | 13 144 219 | 13 866 642 | 13 596 227 | 12 074 628 |
| Total | 65 673 108 | 32 382 053 | 26 457 152 | 43 947 587 | 27 617 777 | 28 972 506 | 30 704 495 | 31 064 995 | 32 348 540 |

(1) For Norway these figures include inorganic chemicals having a LC50 or a EC50 > 1 mg/l.

Table 7: The use and discharge of offshore chemicals
Year: 2001-2009

Table 7d: Quantity of offshore chemicals used and discharged in kg/year, on the List of Chemicals for Priority Action (LCPA)*

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|--------------|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 0 | 900 | 606 | 136 | 0 | 0 | 0 | 10 | 0 |
| France | 0 | 0 | 0 | NA | 0 | 0 | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 2 042 | NI | 302 | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway | NI | NI | 844 | 800 | 2 505 | 1 094 | 497 | 146 | 20 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 0 | 222 | 2 090 | 2 285 | 2505 | 1896 | 2128 | 3773 | 1 267 |
| Total | 2 042 | 1 122 | 3 842 | 3 221 | 5 010 | 2 990 | 2 625 | 3 929 | 1 287 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|-----------------------|---------------------------------------|--------------|------------|------------|------------|------------|-----------|-----------|------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 0 | 300 | 60 | 14 | 0 | 0 | 0 | 1 | 0 |
| France | 0 | 0 | 0 | NA | NA | NA | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 145 | NI | 271 | 0 | 0 | 0 | 0 | 0 | 0 |
| Norway ⁽¹⁾ | 917 | 765 | 240 | 200 | 30 | 213 | 1 | 0 | 58 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 0 | 46 | 171 | 191 | 191 | 141 | 69 | 42 | 89 |
| Total | 1 062 | 1 111 | 742 | 405 | 221 | 354 | 70 | 43 | 147 |

* Substance listed in the OSPAR List of Chemicals for Priority Action (LCPA) (including its updates). (Reference number: 2004-12).

(1) Norway reported: due to LCPA hydraulic fluid in system sweating, being replaced by "ranking" hydraulic.

Part B: Cumulative Report

Table 7: The use and discharge of offshore chemicals

Year: 2001-2009

Table 7e: Quantity of offshore chemicals used and discharged in kg/year, in inorganic substances with LC₅₀ or EC₅₀ less than 1 mg/l

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|--------------|---------------------------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|--------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 18 164 615 | 85 194 | 128 622 | 14 839 | 8 115 | 12 550 | 9 950 | 10 502 | 8 550 |
| France | 0 | 0 | 0 | NA | NA | NA | 0 | 0 | 0 |
| Germany | 0 | 0 | 2 000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 0 | 0 | 0 |
| NL | 260 | NI | 0 | 31 | 0 | 0 | 0 | 0 | 0 |
| Norway | NI | NI | 0 | 0 | 1 000 | 0 | 20 | 0 | 53 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 0 | 0 | 0 | 0 | 10 333 | 1 510 | 910 | 1 720 | 856 |
| Total | 18 164 875 | 85 194 | 130 622 | 14 870 | 19 448 | 14 060 | 10 880 | 12 222 | 9 459 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|--------------|---------------------------------------|---------------|---------------|--------------|---------------|--------------|--------------|--------------|----------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 156 968 | 43 443 | 58 553 | 1 215 | 54 | 117 | 250 | 2 | 0 |
| France | 0 | 0 | 0 | NA | NA | NA | 0 | 0 | 0 |
| Germany | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 0 | 0 | 0 |
| NL | 1 | NI | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| Norway | 771 | 100 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 0 | 0 | 0 | 0 | 10 306 | 1440 | 864 | 1596 | 0 |
| Total | 157 740 | 43 543 | 58 553 | 1 218 | 10 360 | 1 557 | 1 115 | 1 598 | 0 |

Table 7: The use and discharge of offshore chemicals**Year: 2001-2009****Table 7f: Quantity of offshore chemicals used and discharged in kg/year, in substances where the biodegradation is less than 20% during 28 days**

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|--------------|---------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 1 041 714 | 1 324 413 | 1 813 142 | 1 782 941 | 894 141 | 582 599 | 302 503 | 766 936 | 515 528 |
| France | 0 | 0 | 0 | NI | NA | NA | NA | NA | NA |
| Germany | 0 | 0 | 3 239 | 4 333 | 4100 | 1516 | 1 400 | 0 | 5 906 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 12 319 | 8 730 | 3 498 |
| NL | 1 112 344 | NI | 4 279 111 | 633 725 | 3 433 667 | 885 546 | 3 173 171 | 303 012 | 162 510 |
| Norway | NI | NI | 3 450 000 | 3 769 100 | 3 066 300 | 2 935 500 | 3 024 000 | 3 141 149 | 2 144 671 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 12 826 964 | 4 934 729 | 8 240 728 | 4 227 698 | 7 244 942 | 6 419 857 | 3 974 251 | 3 156 299 | 2 581 413 |
| Total | 14 981 022 | 6 259 142 | 17 786 220 | 10 417 797 | 14 643 150 | 10 825 018 | 10 487 644 | 7 376 126 | 5 413 526 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|--------------|---------------------------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 200 844 | 166 387 | 163 236 | 123 729 | 106 127 | 92 047 | 44 682 | 56 457 | 1 061 |
| France | 0 | 0 | 0 | NI | NA | NA | NA | 0 | 0 |
| Germany | 0 | 0 | 3 104 | 634 | 4 100 | 1 458 | 1 400 | 0 | 37 |
| Ireland | NI | NI | NI | NI | 0 | 0 | 651 | 0 | 0 |
| NL | 9 592 | NI | 64 041 | 77 473 | 42 716 | 35 123 | 6 179 | 5 775 | 19 730 |
| Norway | 733 970 | 796 810 | 331 000 | 211 490 | 62 270 | 18 661 | 13 900 | 10 515 | 16 318 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 2 247 435 | 1 328 207 | 1 547 258 | 1 734 676 | 1 889 783 | 1577219 | 660 055 | 661 647 | 608 549 |
| Total | 3 191 841 | 2 291 404 | 2 108 639 | 2 148 002 | 2 104 996 | 1 724 508 | 726 867 | 734 394 | 645 695 |

Part B: Cumulative Report

Table 7: The use and discharge of offshore chemicals

Year: 2001-2009

Table 7g: Quantity of offshore chemicals used and discharged in kg/year, in substances which meet two of three PBT-criteria*

| Country | Quantity of chemicals used (kg) | | | | | | | | |
|--------------|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 1 695 332 | 1 353 975 | 1 341 775 | 1 494 033 | 1 322 226 | 1 066 216 | 575 771 | 459 550 | 231 350 |
| France | 0 | 0 | 0 | NA | NA | NA | NA | NA | NA |
| Germany | 18500 | 20 337 | 1 132 505 | 652 623 | 2 631 107 | 878 855 | 879 156 | 6 972 | 0 |
| Ireland | NI | NI | NI | 26 | 0 | 13 241 | 604 258 | 35 612 | 1 271 |
| NL | 919 017 | NI | 3 918 807 | 2 097 535 | 8 972 101 | 5 291 265 | 2 533 475 | 185 157 | 979 280 |
| Norway | NI | NI | 4 023 000 | 4 069 000 | 3 428 700 | 2 761 900 | 2 363 000 | 1 182 315 | 1 061 115 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 6 339 638 | 9 323 127 | 9 836 007 | 8 014 175 | 4 630 943 | 1 505 806 | 6 056 927 | 2 712 894 | 3 142 275 |
| Total | 8 972 487 | 10 697 439 | 20 252 094 | 16 327 392 | 20 985 077 | 11 517 283 | 13 012 587 | 4 582 500 | 5 415 291 |

| Country | Quantity of chemicals discharged (kg) | | | | | | | | |
|--------------|---------------------------------------|------------------|------------------|------------------|------------------|----------------|------------------|------------------|------------------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Denmark | 347 438 | 332 519 | 206 293 | 301 211 | 319 223 | 193 506 | 76 655 | 57 512 | 360 |
| France | 0 | 0 | 0 | NA | NA | NA | NA | NA | NA |
| Germany | 175 | 183 | 1 372 | 9 429 | 9 316 | 50 | 50 | 0 | 0 |
| Ireland | NI | NI | NI | 1 | 0 | 4 364 | 880 | 3692,79 | 391,00 |
| NL | 5 703 | NI | 11 368 | 39 107 | 16 560 | 13 811 | 10 182 | 28 462 | 37 089 |
| Norway | 327 472 | 210 150 | 293 000 | 81 900 | 33 985 | 23 450 | 9 900 | 4 579 | 5 152 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| UK | 895 102 | 1 051 622 | 1 318 525 | 4 062 814 | 1 399 510 | 631 877 | 1 234 498 | 918 515 | 1 046 561 |
| Total | 1 575 890 | 1 594 474 | 1 830 558 | 4 494 462 | 1 778 594 | 867 058 | 1 332 165 | 1 012 761 | 1 089 553 |

* The criteria are as follows:

- I. (biodegradation in 28 days less than 70% (OECD 301A, 301E) or less than 60% (OECD 301B, 301C, 301F, 306);
- II. bioaccumulation log Pow > 3 or BCF > 100 and considering molecular weight;
- III. toxicity LC50 < 10mg/l or EC50 < 10mg/l.

Part B: Cumulative Report

Table 8: Total discharges and spillage of dispersed oil, in tonnes, 2000-2009

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Denmark | 679 | 305 | 322 | 377 | 487 | 452 | 389 | 418 | 481 | 346 |
| Germany | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,2 |
| Ireland | 0,2 | 0 | 0 | NI | 0 | 0 | 0 | 0 | 0 | 0,01 |
| Netherlands | 190 | 256 | 149 | 114 | 121 | 108 | 114 | 157 | 144 | 124 |
| Norway | 3 081 | 3 210 | 2 921 | 3 321 | 2 718 | 3 149 | 2 484 | 5 441 | 1 791 | 1 639 |
| Spain | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| United Kingdom ¹ | 5 473 | 6 010 | 5 817 | 5 345 | 5 355 | 5 047 | 4 420 | 3 019 | 3 198 | 2 954 |
| Total | 9 426 | 9 782 | 9 209 | 9 157 | 8 681 | 8 756 | 7 407 | 9 035 | 5 614 | 5 063 |

¹ Revised data for 2001: Pipeline leak investigated in 2001 resulted in operator being fined for a discharge of 450 tonnes of crude oil

These data are taken from Table 2a Part A, Table 2b Part A and Table 5a of Part A

Table 9: Total production in oil equivalents, in toeq, 2001-2009

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Denmark | 27 681 479 | 28 417 000 | 25 502 326 | 29 220 320 | 28 349 771 | 25 654 788 | 25 034 608 | 25 654 788 | 21 136 996 |
| Germany | 1 800 000 | 2 169 437 | 1 990 664 | 2 120 124 | 1 024 948 | 1 890 000 | 1 724 604 | 1 468 139 | 1 323 703 |
| Ireland | 780 172 | 112 027 | 762 285 | 1 014 893 | 592 617 | 514 683 | 301 455 | 524 423 | 392 584 |
| The Netherlands | 23 024 869 | 22 307 046 | 19 905 219 | 23 958 559 | 20 380 637 | 17 752 641 | 19 051 921 | 19 601 935 | 17 931 997 |
| Norway | 251 400 000 | 241 000 000 | 245 886 380 | 264 600 000 | 245 262 000 | 233 976 120 | 231 697 250 | 249 282 000 | 246 686 000 |
| Spain | 448 300 | 466 045 | 142 355 | 269 005 | 119 660 | 37 693 | 6 628 | 6 862 | 0 |
| United Kingdom | 211 000 000 | 209 000 000 | 199 000 000 | 182 000 000 | 164 000 000 | 149 000 000 | 143 000 000 | 134 900 000 | 121 700 000 |
| TOTAL | 516 134 820 | 503 471 555 | 493 189 229 | 503 182 901 | 459 729 633 | 428 825 925 | 420 816 466 | 431 438 147 | 409 171 280 |

Table 10: Discharges of radioactive substances in produced water in terabecquerel (TBq), in 2009

| Country | OSPAR Region | Pb-210 | Ra-226 | Ra-228 |
|-------------------|--------------|-------------|-------------|-------------|
| Denmark | II | 1,17E-02 | 1,02E-02 | 6,40E-03 |
| Ireland | III | 1,77E-06 | 2,54E-06 | 4,82E-07 |
| Germany | II | 2,50E-06 | 4,40E-05 | 3,80E-06 |
| Netherlands | II | 2,90E-02 | 1,50E-01 | 1,40E-01 |
| Norway | I | 7,00E-03 | 6,50E-02 | 5,00E-02 |
| Norway | II | 3,80E-02 | 4,13E-01 | 3,13E-01 |
| UK | II | 1,04E-01 | 3,00E-01 | 1,99E-01 |
| UK ⁽¹⁾ | III | 1,35E-06 | 8,10E-05 | 5,92E-06 |
| Total | | 0,19 | 0,94 | 0,71 |

| | Total alpha | Total beta |
|------|-------------|------------|
| 2006 | 6,9 | 4,67 |
| 2007 | 7,41 | 4,94 |
| 2008 | 6,76 | 4,54 |
| 2009 | 7,4 | 5,02 |

The calculations for alpha and beta are estimates of activities discharged, rather than a measured value.

(1) Only one operator reported discharges to OSPAR Region III of Pb-210, Ra-226 and Ra-228.



Victoria House
37-63 Southampton Row
London WC1B 4DA
United Kingdom

t: +44 (0)20 7430 5200
f: +44 (0)20 7242 3737
e: secretariat@ospar.org
www.ospar.org

**OSPAR's vision is of a clean, healthy and biologically diverse
North-East Atlantic used sustainably**

ISBN 978-1-907390-83-8
Publication Number: 566/2012

© OSPAR Commission, 2012. Permission may be granted by the publishers for the report to be wholly or partly reproduced in publications provided that the source of the extract is clearly indicated.

© Commission OSPAR, 2012. La reproduction de tout ou partie de ce rapport dans une publication peut être autorisée par l'Editeur, sous réserve que l'origine de l'extrait soit clairement mentionnée.