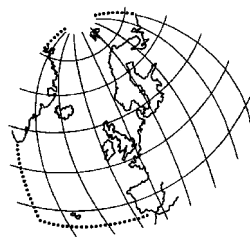


**Discharges,
waste handling and air emissions
from offshore oil and gas installations,
in 2000 and 2001**



OSPAR Commission
2003

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. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Community and Spain.

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. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, 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 et la Suisse et approuvée par la Communauté européenne et l'Espagne.

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EXECUTIVE SUMMARY

The production of hydrocarbons in OSPAR's maritime area increased by 2% both in 2000 and in 2001.

The total quantity of dispersed oil discharged into the maritime area (resulting from discharges of production and displacement water, and from accidental spillage) was 9 420 tonnes in 2000 and 9 317 tonnes in 2001 excluding organic phase drilling fluids (OPF), compared to 9 053 tonnes in 1999. An accidental spill in 2000 partly explains the increase between 1999 and 2000 and the decrease in 2001 and hides the fact that total quantity of dispersed oil discharged by production and displacement water increased slightly over these years.

The amount of organic phase drilling fluids (OPF) has further decreased over the reporting period; the 2001 discharge represented 14%, compared to the oil discharged through production water.

Four sources of oil discharges are identified. These are produced water and displacement water, OPF through drill cuttings, spills, and flaring. As in the previous years, production and displacement water are the main contributors. They represented ca. 95% and 98% of the total amount of oil discharged to the sea in 2000 and 2001 respectively. Spillage is a minor contributor, flaring being even less.

The quality of the water discharged (expressed in terms of content of dispersed/aliphatic hydrocarbons in the water discharged) remained more or less stable: its 2000 average was 20,5 mg/l, and its 2001 average 19,7 mg/l, still better than in 1993, although the quantity of water discharged has more than doubled since then.

Between 1999 and 2001, the number of installations which exceeded the 40 mg/l target standard for dispersed oil firstly decreased (from 27 down to 14 in 2000), and then increased again (up to 23 in 2001). Meanwhile the total quantity of hydrocarbons discharged by these installations increased from 153 to 365 tonnes in 2000 and then decreased to 313 tonnes in 2001.

Since 2001 onwards, use and discharge of chemicals have been regulated. 2001, the first year of reporting, should be considered as a trial as unforeseen difficulties arose, in particular in interpreting the categories for reporting.

An increasing trend of atmospheric emissions has been identified in the past. Since 1997, the picture seems to have changed slightly:

- SO₂ decreases;
- methane, NO_x and CO₂ remain more or less stable (2001 emissions equal 1999 ones);
- nmVOC increases (with no obvious explanation).

Consistency in the data reported has undoubtedly improved over the past few years. But for many reasons the intrinsic quality of the data (absolute figures) is still questionable, and one must remain cautious with the conclusions which can be drawn up when variations are less than 10%, especially regarding nmVOC which is still very difficult to evaluate.

RÉCAPITULATIF

La production d'hydrocarbures dans la zone maritime d'OSPAR a augmenté de 2 % tant en 2000 qu'en 2001. La quantité totale d'hydrocarbures dispersés et rejetés dans la zone maritime (avec l'eau de production et l'eau de déplacement, ainsi que par suite des déversements accidentels, s'est élevée à 9 420 tonnes en 2000 et à 9 317 tonnes en 2001, ces chiffres ne comprenant pas les fluides de forage à phase organique (OPF), alors qu'elle était de 9 053 tonnes en 1999. En 2000, un déversement accidentel explique l'augmentation intervenue de 1999 à 2000 et la baisse survenue en 2001, et masque le fait que la quantité totale d'hydrocarbures dispersés et rejetés avec l'eau de production et de déplacement a légèrement progressé pendant ces années.

La quantité totale de fluides à phase organique (OPF) a de nouveau baissé pendant la période objet des rapports ; en 2001, ces rejets ont représenté 14 % par rapport à la quantité d'hydrocarbures rejetés avec l'eau de production.

Quatre sources de rejets d'hydrocarbures ont été constatées. Il s'agit de l'eau de production et de l'eau de déplacement, des OPF par le biais des déblais de forage, des déversements accidentels et du brûlage à la torchère. Comme les années précédentes, les principaux responsables sont l'eau de production et l'eau de déplacement. Celles-ci ont respectivement représenté, en 2000 et 2001, à peu près 95 % et 98 % de la quantité totale d'hydrocarbures rejetés en mer. Les déversements accidentels ne représentent qu'une faible proportion, et le brûlage à la torchère moins encore.

La qualité de l'eau rejetée (exprimée en teneur en hydrocarbures dispersés/aliphatiques dans l'eau rejetée) est restée plus ou moins stable : en 2000, la moyenne était de 20,5 mg/l, tandis qu'elle était de 19,7 mg/l en 2001, soit toujours mieux qu'en 1993, quoique la quantité d'eau rejetée ait plus que doublé depuis lors. De 1999 à 2001, le nombre d'installations ayant dépassé la norme cible de 40 mg d'hydrocarbures dispersés par litre a commencé par baisser (de 27 à 14 en 2000) pour augmenter de nouveau (pour atteindre 23 installations en 2001). Entre-temps, la quantité totale d'hydrocarbures rejetés par ces installations a progressé pour passer de 153 à 365 tonnes en 2000, puis est revenue à 313 tonnes en 2001.

L'utilisation et les rejets de produits chimiques sont réglementés depuis 2001. 2001, qui est la première année objet des notifications, doit être considérée comme un test car des problèmes imprévus se sont posés, notamment dans l'interprétation des catégories devant être notifiées.

Une tendance à l'augmentation des émissions atmosphériques a été décelée par le passé. Depuis 1997, la situation semble avoir légèrement évolué :

- baisses du SO₂ ;
- le méthane, les NO_x et le CO₂ sont restés relativement stables (les émissions en 2001 sont égales à celles de 1999) ;
- les nmVOC ont augmenté (sans raison évidente).

La cohérence des données communiquées s'est incontestablement améliorée ces quelques dernières années. Toutefois, pour de nombreuses raisons, la qualité intrinsèque des données (en valeurs absolues) reste douteuse, et la prudence s'impose quant aux conclusions à tirer lorsque les variations sont inférieures à 10 %, surtout dans le cas des nmVOC qui restent très difficiles à évaluer.

1. INTRODUCTION

1.1 Programmes and measures

Since 1978, discharges and waste handling from offshore oil and gas installations have been addressed and regularly reported under the former Paris Convention (PARCOM) and under the OSPAR Convention. Since the beginning of the 1990s air emissions from these installations have been reported as well. The following relevant measures¹ are applicable under the OSPAR Convention:

Discharges contaminated with oil

- PARCOM Recommendation of a 40 mg/l Emission Standard for Platforms, 1986;
- Sampling and analysis procedure for the 40 mg/l target standard (reference number: 1997-16; currently under review);
- OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations;

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 (reference 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;
- OSPAR Recommendation 2000/4 on a Harmonised Pre-Screening Scheme for Offshore Chemicals;
- OSPAR Recommendation 2000/5 on a Harmonised Offshore Chemical Notification Format (HOCNF);

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 (reference numbers: 2000-3 until 2002-6, 2003-1 and 2003-3).

At the request of the 1998 Ministerial Meeting, the OSPAR Commission adopted in 1999 the OSPAR Strategy on Environmental Goals and Management Mechanisms for Offshore Activities which was revised at the Ministerial meeting in 2003 to update it as the Offshore Oil and Gas Industry Strategy (reference number: 2003-21). The objectives of the other OSPAR strategies (hazardous substances, radioactive substances, eutrophication, and biological diversity and ecosystems apply in so far as they relate to offshore activities and on top of that this strategy sets environmental goals for the offshore oil and gas industry and establishes improved management mechanisms to achieve them. Regular reporting is therefore required in order to review progress towards the targets of the Offshore Oil and Gas Industry Strategy.

¹ All measures referred to in this chapter can be downloaded from the OSPAR website www.ospar.org (under "measures").

1.2 Annual reporting

In 1978, Contracting Parties to the former Paris Convention initiated reporting on discharges and waste handling from offshore oil and gas installations. These data were submitted by Contracting Parties and compiled by the Secretariat and, following examination by the relevant subsidiary bodies, published by the Commission in the form of annual reports; at first as part of the Commission's general annual report, and from 1992 onwards in annual reports on discharges of oil in the Convention area. From 1999 onwards, the annual reports (starting with 1996 and 1997 data) also contain an assessment of discharges, waste handling and air emissions including a description of the trends from the beginning/mid of the 1980s until the date of the report.

Over time, reporting requirements and formats for data collection were regularly reviewed and updated in the light of ongoing work under the Commission as regards offshore installations. With a view to harmonising the way in which data and information are being established and reported, the Programmes and Measures Committee (PRAM) of the OSPAR Commission adopted in 1995 reporting formats and procedures, which set out the requirements for data and information to be provided by Contracting Parties. These report formats were revised by the Offshore Industry Committee in 2002 for preparing the publication of a more detailed annual report starting with the 2001 data (reference number: 2002-9).

2. ASSESSMENT OF THE OSPAR REPORT ON DISCHARGES, WASTE HANDLING AND AIR EMISSIONS FROM OFFSHORE INSTALLATIONS, 2000-2001

2.1 Discharges of oil and organic phase fluids into the sea

The production of hydrocarbons increased by 2% both in 2000 and in 2001; 483 million tonnes of oil equivalent were produced in 1999, 492 in 2000, and 502 in 2001².

The total quantity of dispersed oil discharged into the maritime area of OSPAR (resulting from discharges of production and displacement water, and from accidental spillage) was 9 420 tonnes in 2000 and 9 317 tonnes in 2001 excluding organic phase drilling fluids (OPF), compared to 9 053 tonnes in 1999 (tables 3A, 7B & 7C³). An accidental spill in 2000 partly explains the increase between 1999 and 2000 and the decrease in 2001 and hides the fact that total quantity of dispersed oil discharged by production and displacement water increased by 1,5% between 1999 and 2000 and by 2,9% between 2000 and 2001.

2000 and 2001 are the first years for which data related to the discharge of OPF are meaningful. The amount of OPF discharged into the sea was 3 951 tonnes in 2000, but decreased to 1 327 tonnes in 2001 (table 5). The 2001 discharge represented 14%, compared to the oil discharged through production water.

In addition to the discharge of OPF through drill cuttings, three sources of oily discharges are identified: production and displacement water, spills and flaring operations. As in the previous years, production and displacement water are the main contributors. They represented 94,5% of the total amount of oil discharged to the sea in 2000, and even 98,3% in 2001 (due to the decrease in spillage). Spillage is a minor contributor, flaring being even less (table 7).

The quality of the water discharged (expressed in terms of content of dispersed/aliphatic hydrocarbons in the water discharged) remained more or less stable: its 2000 average was 20,5 mg/l, and its 2001 average 19,7, still better than in 1993, although the quantity of water discharged has more than doubled since then (table 3).

2001 was the very first year where comprehensive data regarding the discharge of both aromatic and aliphatic compounds was made available, at least for production water. It shows that aromatics represent over a third of the total oil discharged.

Average concentration of dispersed oil in production and displacement water discharged (mg/l)

1993	1997	1998	1999	2000	2001	2001 production water*		
						aliphatics	aromatics	total
21,5	19,8	19,5	19,8	20,5	19,7	22,3	12,7	35,0

* Split available for Production water only (insufficient data available for displacement water).

Remark: This table cannot be compared to the one published in the 1998-1999 Assessment report as some data related to the quantity of PW discharged into the sea have been significantly revised.

Between 1999 and 2001, the number of installations which exceeded the 40 mg/l target standard for dispersed oil firstly decreased (from 27 down to 14 in 2000), and then increased again (up to 23 in 2001)

² Remark regarding the assessment of the production: 1999 and 2000 data were based on (1) the offshore gross production of hydrocarbons released on Internet by the DTI (for UK data) (the "Brown Book"), (2) by the Danish Energy Authority (for DK data), (3) from information provided by SFT (for Norwegian data), and (4) by SSM (for Dutch data): 492 million tonnes were produced in 2000, compared to 483 million tonnes in 1999 (conversion factors used for gas are the one defined by the Danish Energy Authority). 2001 data were reported by the Contracting Parties (502 million tonnes).

³ The numbering refers to the tables in the 1984-2001 cumulative report (part B of the OSPAR Report on Discharges, Waste Handling and Air Emissions from Offshore Installations, 2000-2001).

(table 4B). Meanwhile the total quantity of hydrocarbons discharged by these installations followed a reversed curve: it increased from 153 to 365 tonnes in 2000 and then decreased to 313 tonnes in 2001.

Remark: This erratic evolution is due to several factors: (1) the performance standard of a significant percentage of the installations concerned is close to 40 mg/l and therefore subject to annual variations; (2) reliability of data is questionable for some installations, especially for unmanned installations and for installations which discharge small volumes of water. Therefore this overall picture does not reflect the wide spectrum of cases: in 2001, out of the 23 installations concerned, 11 discharged less than 2 tonnes per year; and only 5 over 20 t/year; some installations are still equipped with simple devices (e.g. skimmer tanks) while other are equipped with significantly more sophisticated treatment units (e.g. hydrocyclones, filter coalescers) (table 3 of the 2001 Report).

It shows that despite the efforts made to reduce the number of installations which have poor records, there are still some installations which raise significant concern.

In 2000 and 2001, there have been no discharge of oil-based drillings fluids (OBM) and cuttings, except by accidental spillage. So the oil discharged via cuttings is presently related only to the use and discharge of non-OBM OPF. As OSPAR is now regulating OPF, some Contracting Parties started to report their use and discharge of OPF in 2000; all of them did report in 2001. The hydrocarbons discharged *via* the use of OPF was 3 951 tonnes in 2000, and 1 327 tonnes in 2001 (table 5).

Spillage: 205 tonnes of oil were spilled in 1999, over 453 in 2000, and 154 in 2001. In 2000, one accidental spill of 337 tonnes occurred, which explains the comparatively bad record of that year, while 2001 is one of the best recorded year (table 7B).

Flaring: flaring is a very minor contributor to the total discharge of oil, and is not regulated by OSPAR, so far. Therefore not all contracting parties report their flaring, and the increase observed between 1999 and 2000, and followed by a decrease in 2001 cannot be considered as significant (table 7C).

2.2 Chemicals

Since 2001 onwards, use and discharge of chemicals have been regulated. 2001, the first year of reporting, should be considered as a trial as unforeseen difficulties arose, in particular in interpreting the categories for reporting. Nevertheless, it appears that total quantity of chemicals discharged into the sea is roughly 320 000 tonnes (table 10B), two thirds of which being listed on the PLONOR⁴ list (mainly weighting agents for muds), and most of the rest being subject to ranking.

2.3 Atmospheric emissions

Consistency in the data reported has undoubtedly improved over the past few years. But for many reasons the intrinsic quality of the data (absolute figures) is still questionable, and one must remain cautious with the conclusions which can be drawn up when variations are less than 10%, especially regarding nmVOC which is still very difficult to evaluate.

An increasing trend of all releases into air had been identified in the past. Since 1997, the picture seems to have changed slightly :

- SO₂ decreases;
- methane, NO_x and CO₂ remain more or less stable (2001 emissions equal 1999 ones);
- nmVOC increases (with no obvious explanation).

⁴ PLONOR list: OSPAR list of substances/preparations used and discharged offshore which are considered to Pose Little OR NO Risk to the environment (Reference number: 2003-3).

Variation in atmospheric emissions, 2000/1999, 2000/1998 and 2000/1997 (in %)

	CO ₂	NO _x	nmVOC	Methane	SO ₂
2001 versus 2000	+6 %	+6 %	+10 %	+13 %	-3 %
2000 versus 1999	-3 %	-6 %	+9 %	-10 %	-20 %
2001 versus 1999	+3 %	-0,5 %	+20 %	+2 %	-23 %
2001 versus 1998	+0,5 %	-3 %	+27 %	-7 %	-37 %
2001 versus 1997	+11,5 %	-1 %	+10 %	-14 %	-45 %

In interpreting these evolutions, one must take into account two factors which have a direct influence on atmospheric emissions: (1) the increase of production of 4% between 1999 and 2001, and (2) the ageing of the fields, which globally induces a higher consumption of energy (e.g. additional compression) which, in return, leads to increase atmospheric emissions.

3. RESULTS

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 2001 data

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

Year: 2001

Country	Production ²		Subsea ⁵	Drilling ⁶	Other ⁷	Total
	Oil ³	Gas ⁴				
Denmark	10	0	0	8	0	18
Germany	1	1	0	0	1	3
Ireland	N/A	2	0	1	1	4
Netherlands	8	94	5	6,78	0	113,78
Norway	39	7	0	18,25	1	65,25
Spain	0	0	0	0	1	1
United Kingdom	94	119	76	42	1	332
Total	152	223	81	76	5	537

1. Platforms are reported individually, even when they are joined by walkways or bridges.

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

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

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

5. One installation per cluster of well heads.

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

7. Example: offshore underground storage.

Table 2: Production 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: 2001

Table 2A: Production Water ¹

	Total number of installations ²	Annual quantity of water discharged ³ m ³	Annual average oil content (mg/l)			Total amount of oil discharged (tonnes)			Number of installations injecting water ⁶	Annual quantity of water injected ⁶ m ³
			aromatics	aliphatics ⁴	total ⁵	aromatics	aliphatics ⁴	total ⁵		
Denmark	10	13 268 043	11	21,3	32,3	145,7	283,2	428,9	4	8 024 636
Germany	1	5 282	59,7	42,4	102,1	0,32	0,22	0,54	1	84 469
Ireland	2	2 732,60	N/I	N/I	10	N/I	N/I	0,027	0	0
Netherlands	70	13 912 545	6	18	24	82	252	334	2	328 062
Norway	41	115 938 249	9,5	24,6	34,1	1 101	2 852	3 953	13	13 153 719
Spain	1	0	0	0	0	0	0	0	1	760
United Kingdom ⁷	112	254 216 084	14,6	21,5	36,1	3 710	5 466	9 176	9	8 763 188
Total	237	397 342 936	12,7	22,3	35,0	5 039	8 853	13 892	30	30 354 834

1. "Production 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 (Citation from OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations; definition of produced water).

2. Total number of installations discharging produced water.

3. Total quantity of production water discharged to the sea during the year.

4. Aromatics and aliphatics are, by definition, the oily compounds measured according to the PARCOM procedure (IR, 3 or 1 wavelengths). Measurements are performed according to the PARCOM recommended standard as far as this standard stands (IR, 3 wavelengths; calculations are based on 1 or 3 wavelengths, depending whether it is aliphatics or aromatics which are to be reported). The definition for aromatics and aliphatics is the one deducted from the PARCOM method (Reference Number: 1997-16).

5. Total = aromatics + aliphatics.

6. Production water only (excluding sea water for pressure maintenance).

7. Waste streams are combined prior to treatment and discharge. Hence displacement water figures are contained within the production water figures (see Table 2B).

Table 2B: Displacement Water ¹**Year: 2001**

	Total number of installations ²	Annual quantity of water discharged ³ m ³	Annual average oil content (mg/l)			Total amount of oil discharged (tonnes)			Number of installations injecting water ⁶	Annual quantity of water injected ⁶
			aromatics ⁴	aliphatics ⁴	total ⁵	aromatics ⁴	aliphatics ⁴	total ⁵		
Denmark ⁷	2	3 621 749	0,02	1,99	2,0	0,09	7,22	7,3	0	0
Germany	0	0	0	0	0	0	0	0	0	0
Ireland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Netherlands ⁸	1	0	0	0	0	0	0	0	1	326 000
Norway	6	64 131 447	NI	4,7	4,7	NI	301	301	0	0
Spain	0	0	0	0	0	0	0	0	0	0
United Kingdom ⁹	0	0	0	0	0	0	0	0	0	0
Total	9	67 753 196	NI	4,5	NI	NI	308	NI	1	326 000

1. 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)

2. Total number of installations discharging displacement water.

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

4. Aromatics and aliphatics are, by definition, the oily compounds measured according to the PARCOM procedure (IR, 3 or 1 wavelengths). Measurements are performed according to the PARCOM recommended standard as far as this standard stands (IR, 3 wavelengths; calculations are based on 1 or 3 wavelengths, depending whether it is aliphatics or aromatics which are to be reported). The definition for aromatics and aliphatics is the one deducted from the PARCOM method (Reference Number: 1997-16).

5. Total = aromatics + aliphatics.

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

7. Danish figures for annual average oil content and total amount of oil discharged are estimated on the basis of data from other operators.

8. The Netherlands reported on drainage water. Data as follows:

	Total number of installations ²	Annual quantity of discharged ³ m ³	Annual average oil content (mg/l)			Total amount of oil discharged (tonnes)		
			aromatics ⁴	aliphatics ⁴	total ⁵	aromatics ⁴	aliphatics ⁴	total ⁵
Netherlands	79	287 272	38	9	47	11	3	14

9. Waste streams are combined prior to treatment and discharge. Hence displacement water figures are contained within the production water figures (see Table 2A).

Table 3: Installations exceeding the 40 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 40 mg/l performance standard as defined in OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations

For explanation by Contracting Parties, see Annex 1

Year: 2001

Country/ Installation ¹	Type of installation ²	Type of water treatment equipment ³	Quantity of water discharged during the year (10 ³ m ³)	Annual average oil content ^{4 6} (mg/l)			Total amount of oil discharged (tonnes per year)		
				aromatics	aliphatics	total	aromatics	aliphatics	total
Denmark/Gorm F	Oil	Hydrocyclone	136	8,2	44,2	52,4	1	6	7
Germany/A6-A	Gas	Skimmer	5	59,7	42,4	102,1	0	0	1
Ireland	NA	NA	0	0	0	0	0	0	0
Netherlands/K12-E	Gas	Skimmertank	2	12	43	55	0	0	0
Netherlands/K9c-PA	Gas	Skimmertank/CPI	4	355	76	431	1	0	2
Netherlands/J6-A	Gas	Skimmertank	16	97	48	145	2	1	2
Norway/Ekofisk 2/4 J	Oil	Hydrocyclone	475	16,3	63,5	79,8	8	30	38
Norway/Heidrun	Oil	Hydrocyclone	1019	7,4	63,8	71,2	8	65	73
United Kingdom/A ⁵	Oil	Slops Tank	338	16,6	41,8	58,4	5	14	19
United Kingdom/B ⁵	Gas	Tilted Plate Separator	50	56	70,8	126,8	28	4	32
United Kingdom/C ⁵	Gas Storage	OilY Water Separator	2	11,1	58,37	69,47	0	0	0
United Kingdom/D ⁵	Gas	Horizontal Gravity Separator	15	275,15	66,01	341,16	4	1	5
United Kingdom/E ⁵	Gas	Horizontal Gravity Separator	40	110	1 917	2 027	4	76	80
United Kingdom/F ⁵	Gas	Horizontal Gravity Separator	8	15,1	525	540,1	0	4	4

Country/ Installation ¹	Type of installation ²	Type of water treatment equipment ³	Quantity of water discharged during the year (10 ³ m ³)	Annual average oil content ^{4 6} (mg/l)			Total amount of oil discharged (tonnes per year)		
				aromatics	aliphatics	total	aromatics	aliphatics	total
United Kingdom/G ⁵	Condensate	Tilted Plate Separator/hydrocyclone	192	-	50,38	50,38	-	10	10
United Kingdom/H ⁵	Gas	Filter Coalescer	1	-	92,01	92,01	-	0	0
United Kingdom/I ⁵	Gas	Condensate Separator	12	70,4	225	295,4	1	3	4
United Kingdom/J ⁵	Gas	Drains Sump Tank	3	-	41,01	41,01	-	0	0
United Kingdom/K ⁵	Gas	Three Phase Separator	9	23,2	72	95,2	0	1	1
United Kingdom/L ⁵	Gas		9	9,5	50	59,7	0	0	1
United Kingdom/M ⁵	Gas	Gravity Separator	6	15,2	43,51	58,71	0	0	0
United Kingdom/N ⁵	Gas	Gravity Separator	29	15,1	92	107,1	0	3	3
United Kingdom/O ⁵	Gas	Gravity Separator	4	10,2	13 079,99	13 090,19	0	58	58
United Kingdom/P ⁵	Gas	Gravity Separator	52	52,8	708	760,8	3	37	40
Total			2 427	27	129	156	67	312	379

1. Name of the installation where the discharge took place.

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

3. Piece of equipment at the outlet of which the oil content - exceeding 40 mg/l - is measured.

4. The annual average oil content is 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.

5. On initial examination of 2002 analysis test data, it seems likely that the majority of installations listed above will not be included in the 2002 OSPAR returns.

6. The UK Regulator is investigating the reason for some of the high gas / condensate values reported. The majority of the data listed below is derived from a single reported test result and cannot be considered as representative or reliable for the year as a whole. Due to the adoption of a more stringent permitting regime from 2003 for condensate and gas producers, there will be an increased sampling and analysis frequency for oil in water discharges. The UK government is therefore confident that in the future more representative results will be reported.

Table 4: Use and Discharges of Organic Phase Based Drilling Fluids (OPF)**Year: 2001****Table 4A: Use and discharges of Oil-Based Fluids (OBF) ¹**

Country	Total amount of OBF used (tonnes)	Cuttings discharged to the sea			OPF ⁵ cuttings injected		Cuttings transported to shore ⁴ (tonnes)
		Number of wells concerned	Average oil concentration on cuttings (g/kg)	Total amount of oil discharged ² (tonnes)	Number of wells concerned	Total amount of cuttings injected ³ (tonnes)	
Denmark	1 685	0	NA	0	3	2 380	3 674
Germany	932	0	NA	0	0	0	1 324
Ireland	NI	NI	NI	NI	NI	NI	NI
Netherlands	18 696	0	NA	0	0	0	13 622
Norway	63 916	0	NA	0	NI	126 450	24 685
Spain	0	0	NA	0	0	0	0
United Kingdom ^{6,7,8}	88 118	3	97	105	25	7 496	15 085
Total OBF	173 347	3	97	105	>28	136 326	58 390

1. 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;

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

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

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

5. 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.

Footnotes 6,7,8 refer to the total amount of OP discharged in the UK:

6. The discharges included in this total (with the exception of 2) were made prior to OSPAR Decision 2000/3 coming into force but were included in the 2001 reported use and discharge figures.

7. One discharge of OPF was permitted in 2001 which involved the discharge of 32 tonnes of synthetic oil. This discharge was permitted for safety reasons given that the well being drilled was a highly deviated high pressure high temperature (HPHT) well. Due to these exceptional conditions the well had to be drilled rapidly to prevent the well from collapsing and this prevented an effective skip and ship operation from taking place since there was limited deck space available.

8: A second separate discharge of 7 tonnes of OPF was the subject of an investigation by the UK regulator. Although drilling of this well commenced in Nov 2000, due to unforeseen operational difficulties, the operator continued to drill and discharge OPF after the 16th January 2001 deadline.

Table 4B: Use and discharges of non-OBF Organic Phase Based Drilling Fluids (non-OBF OPF) ¹

Year: 2001

Country	Total amount of non-OBF OPF used (tonnes)	Cuttings discharged to the sea			OPF cuttings injected		Cuttings transported to shore ⁴ (tonnes)
		Number of wells concerned	Average organic phase concentration on cuttings ² (g/kg)	Total amount of oil discharged ² (tonnes)	Number of wells concerned	Total amount of cuttings injected ³ (tonnes)	
Denmark	1 745	0	0	0	0	0	661
Germany	0	0	0	0	0	0	0
Ireland	NA	NA	NA	NA	NA	NA	NA
Netherlands	0	0	0	0	0	0	0
Norway	18 636	24	92	1 127	6	1 307	7 066
Spain	0	0	NA	0	0	0	0
United Kingdom ⁶	13 124	3	111	95	6	1 880	6 420
Total non-OBF OPF	33 505	27	~100	1 222	12	3 187	14 147
Grand Total OPF ^{5 6}	206 852	30	~100	1 327		139 513	72 537

1. As defined in OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings.

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;

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;

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

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

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

5. Total OBF + non-OBF OPF.

Footnote 6 refer to the total amount of OP discharged in the UK:

6. The discharges included in this total (with the exception of 2) were made prior to OSPAR Decision 2000/3 coming into force but were included in the 2001 reported use and discharge figures.

Table 5: Accidental spillages

Year: 2001

Country	Total number of spills			Number of spills >1 tonne			Grand Total (tonnes)
	oil	chemicals ¹	flaring	oil	chemicals ¹	flaring	
Denmark	78	0	0	0	0	0	15,00
Germany	0	0	0	0	0	0	0,00
Ireland	0	0	0	0	0	0	0,00
Netherlands	36	3	0	1	0	0	4,05
Norway	228	81	NI	7	27	NI	475,50
Spain	0	0	0	0	0	0	0,00
United Kingdom	425	0	10	17	0	0	93,94
Total	767	84	10	25	27	0	588

1. Chemicals: all oil free spillages + non-OBF OPF drilling fluids spillages + oily WBM spillages (lubricant).

2. Chemicals: all oil free spillages + non-OBF OPF drilling fluids spillages + oily part of WBM spillages (lubricant).

Table 6: Emissions to air**Year: 2001**

Country	CO₂ ¹ (10³ tonnes)	NO_x ² (10³ tonnes)	nmVOCs ³ (10³ tonnes)	CH₄ ⁴ (10³ tonnes)	SO₂ (10³ tonnes)
Denmark	2 184,6	5,062	10,325	10,16	0,577
Germany	17,355	0,061	0,007	0,01	0,001
Ireland	0,08	0,18	0,001	24,6	0
Netherlands	1 329	4,8	6	15,9	0,2
Norway	11 105,4	51	229,2	34,2	0,9
Spain	21,5	0,04	0,005	0,014	0
United Kingdom	19 323	53,53	86,74	57,35	6,29
Total	33 981	114,7	332,3	142,2	8,0

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

2. 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.

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

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

**Table 7: The Use and Discharge of Offshore Chemicals
Year: 2001**

Table 7a: Quantity of Offshore Chemicals used in kg/year

Country	Prescreening Category ¹						Ranking ^{8, 10, 11}	Total
	Plonor ²	Annex 2 ³	Equivalent concern as Annex 2 ⁴	LC ₅₀ or EC ₅₀ < 1 mg/l ⁵	Biodegradation < 20 % ⁶	Substances meet two of three criteria ^{7, 9}		
Denmark ¹²	88 447 910	769	55 156	18 164 600	1 031 797	1 689 328	16 666 732	126 056 292
Germany	21 300	0	0	0	0	18 500	55 700	95 500
Ireland	NI	NI	NI	NI	NI	NI	NI	NI
Netherlands ¹³	23 995 497	2 042	1 835 120	260	1 112 344	919 017	7 339 587	35 203 867
Norway	NI	NI	NI	NI	NI	NI	NI	NI
Spain	0	0	0	0	0	0	0	0
United Kingdom	163 353 409	0	0	0	12 826 964	6 339 638	163 288 565	345 808 576
Total	275 818 116	2 811	1 890 276	18 164 860	14 971 105	8 966 483	187 350 584	507 164 235

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

2. 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: 2002-07).

3. Substance listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances (including its updates) (Reference Number: 2002-?).

4. Substance considered by the authority to be of equivalent concern for the marine environment as substances listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances.

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

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

7. 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.

8. Substance does not fulfill the above mentioned criteria (1-7) and is therefore ranked according to OSPAR Recommendation 2000/4.

Footnotes 9, 10 and 11 relate to the UK:

9. The majority of UK products do not currently have substance based toxicity data. This figure is therefore likely to increase as further data becomes available.

10. The UK ranks all products including PLONOR and those for substitution. The figure represents the total amount of substances that do not fall into any of the other categories.

11. The industry database used to record use and discharge data has been significantly modified since the implementation of the regulations in the UK.

Some products that could not be matched on the notified chemicals list due to syntax errors have been included here but will fall into other categories in future years.

12. Denmark included a category intitled "no prescreening result". This category includes all substances with missing data. The majority of the volumen is sand coated OptiProp 60/30 with no HOCNF data. Volumen used is 3 298 000 kg, volumen discharged is 121 900 kg. Denmark reported 3 298 4458 kg for this category.

The Netherlands also reported 49891 kg used for which there is no sufficient information and therefore cannot be categorised.

Table 7b: Quantity of Offshore Chemicals discharged in kg/year

Year: 2001

Country	Prescreening Category ¹							Total
	Plonor ²	Annex 2 ³	Equivalent concern as Annex 2 ⁴	LC ₅₀ or EC ₅₀ < 1 mg/l ⁵	Biodegradation < 20 % ⁶	Substances meet two of three criteria ^{7 9}	Ranking ^{8 10 11}	
Denmark ¹²	49 367 558	617	10 726	156 968	199 997	341 255	4 860 352	54 937 473
Germany ¹³	19 170	0	0	0	0	175	0	19 345
Ireland	NI	NI	NI	NI	NI	NI	NI	NI
Netherlands ¹⁴	12 580 602	145	12 160	1	9 592	5 703	311 191	12 919 394
Norway	115 098 100	917	58 530	771	733 970	327 472	11 815 950	128 035 710
Spain	0	0	0	0	0	0	0	0
United Kingdom	72 045 032	0	0	0	2 247 435	895 102	48 535 999	123 723 568
Total	249 110 462	1 679	81 416	157 740	3 190 994	1 569 707	65 523 492	319 635 490

* The substances under column "ranking" are only used under closed system.

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

2. 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: 2002-07).

3. Substance listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances (including its updates) Reference Number: 2002-?).

4. Substance considered by the authority to be of equivalent concern for the marine environment as substances listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances.

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

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

7. 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.

8. Substance does not fulfill the above mentioned criteria (1-7) and is therefore ranked according to OSPAR Recommendation 2000/4.

Footnotes 9, 10 and 11 relate to the UK:

9. The majority of UK products do not currently have substance based toxicity data. This figure is therefore likely to increase as further data becomes available.

10. The UK ranks all products including PLONOR and those for substitution. The figure represents the total amount of substances that do not fall into any of the other categories.

11. The industry database used to record use and discharge data has been significantly modified since the implementation of the regulations in the UK.

Some products that could not be matched on the notified chemicals list due to syntax errors have been included here but will fall into other categories in future years.

12. Denmark included a category entitled "no prescreening result". This category includes all substances with missing data. The majority of the volumen is sand coated OptiProp 60/30 with no HOCNF data. Volumen used is 3 298 000 kg, volumen discharged is 121 900 kg. Denmark reported 122 250 kg for this category.

13. The substances under column "ranking" are only used under closed system.

14. The Netherlands also reported 45116 kg discharged for which there is no sufficient information and therefore cannot be categorised.

Part B: Cumulative Report

Table1: Number of installations in the OSPAR maritime area,1984 - 2001**Table 1A: Number of installations in the OSPAR maritime area with discharges to the sea, or emissions to the air**

Country	1984	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Denmark	7	20	20	20	10,5	8	8,23	9	12	15	16	16	18
Germany	1	3	3	4	2	1	1	2	2	2	3	3	3
Ireland	1	2	2	2	0	0	0	4	5	2,2	2,5	2,5	4
Netherlands	30	63	60	88	97	103,5	114,93	113,8	106,3	104,1	105	108	114
Norway	13	24	25	34	93	90	83	61	53	54	59	60	65
Spain	1	1	1	1	1	1,5	9	5	2	0	0	1	1
United Kingdom	90	79	79	79	81	152	169	193	164	218	186	298	332
Total	143	192	190	228	284,5	356	385,16	387,8	344,3	395,3	371,5	488,5	537

Table 1B¹: Number of installations in the OSPAR maritime area without discharges to the sea, or emissions to the air

Country	1984	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 (2)	2001
Denmark	NI	NI	NI	NI	16	29	31	34,7	34	32	32	33	NI
Germany					1	1	1	0	0	0	0	1	NI
Ireland					2	NI	NI	0	1	1	NI	NI	NI
Netherlands					NI	17	4	3	19	21	20	19	NI
Norway					16	NI	NI	42	30	31	47	47	NI
Spain					0	NI	NI	4	4	5	5	4	NI
United Kingdom					NI	35	38	82	88	75	112	1	NI
Total					35	82	74	165,7	176	165	216	105	NI

Table 1C¹: Total number of installations in the OSPAR maritime area

	1984	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total	NI	NI	NI	NI	320	438	459	554	520	560	587	594	NI

(1) Tables 1B and 1C are no longer reported in the new reporting format. Table 1B will be deleted from the next annual report.

Data for Table 1C will be obtained and updated from the Decommissioning database.

2. Total for 2000 do not take into account Ireland, since Ireland did not report data for Table 1B in 2000.

Table 2: Number of installations, by type of installation, 1993-2001

Table 2A: Number of installations in the OSPAR maritime area with discharges to the sea, or emissions to the air

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Oil	88	104	99	133	120	135	137	174	152
Gas	148	183	204	207	171	164	186	239	223
Subsea	6	6	75	5	6	87	44	6,5	81
Drilling	43	63	7	43	47	9	4	69	76
Other	0	0	0	0	0	0	0	0	5
Total	285	356	385	388	344	395	371	489	537

Table 2B¹: Number of installations in the OSPAR maritime area without discharges to the sea, or emissions to the air

	1993	1994	1995	1996	1997	1998	1999	2000 (2)	2001
Oil	12	31	32	79	51	45	52	42	NI
Gas	8	27	14	29	63	56	70	2	NI
Subsea	15	24	25	52	57	61	94	41	NI
Drilling	0	0	3	6	5	3	0	1	NI
Other	0	0	0	0	0	0	0	0	NI
Total (3)	35	82	74	166	176	165	216	105	NI

1. Table 2B is no longer reported in the new reporting format and will be deleted from the next offshore report.

2. Total for 2000 do not take into account Ireland, since Ireland did not report data for Table 2B in 2000.

3. Total for 2000 include 19 installations for the Netherlands which were not categorised

Table 3: Oily aqueous discharges to the maritime area

Table 3A: Oil discharged in displacement and production water (in tonnes), 1984-2001

Country	1984	1990	1992	1994	1995	1996	1997	1998	1999	2000	2001	2001
											Aromatics	Aliphatics
Denmark	57	36	72	138	129	164	127	174	180	271	146	290,42
Germany	NI	NI	0	0	0	0	0	0	0	0,045	0,32	0,22
Ireland	NI	NI	NI	NI	NI	0	0,005	0,02	0,042	0,245	NI	NI
Netherlands	76	262	239	265	231	249	265	204	162	189	82	252
Norway	154	460	613	1 009	1 402	1 750	2 332	2 492	2 750	3 047	1 101	3 153
Spain	0	0,065	NI	0	NI	0	0	0	0	0	0	0
United Kingdom	1 430	3 187	4 940	4 615	5 886	5 784	5 789	5 692	5 676	5 395	3 710	5 466
Total	1 717	3 945	5 864	6 027	7 648	7 947	8 513	8 562	8 768	8 902	5 039	9 162

Table 3B: Quantity of displacement and production water discharged daily to the sea (in m3/day), 1984-2001

Country	1984	1990	1992	1994	1995	1996	1997	1998	1999	2000	2001
Denmark	NI	NI	NI	14 247	365 502	13 425	14 630	18 000	27 435	43 909	46 273
Germany				0		0	0	0	0	14	14
Ireland				NI		7	7,52	6,69	5	6	7
Netherlands				35 105		35 214	33 895	30 303	25 000	31 820	38 117
Norway				316 029		412 283	438 779	462 969	442 225	461 323	493 342
Spain				NI		0	0	0	0	0	0
United Kingdom				512 657		567 540	642 973	693 151	716 130	652 188	696 482
Total				878 038		1 028 469	1 130 285	1 204 430	1 210 795	1 189 260	1 274 236

Table 4: Installations which cannot meet OSPAR performance standards for dispersed oil in aqueous discharges ¹

Table 4A²: Number of installations with discharges exceeding the 40 mg oil/l performance standard, 1984-2001, and quantity of oil discharged by these installations (in tonnes)

	1984	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total number of installations with discharges in the Convention area	143	192	190	228	285	356	385	388	344	395	371	489	537
Number of installations exceeding 40 mg/l	12	70	68	65	64	59	46	45	32	39	28	15	23
Quantity of hydrocarbons discharged by these installations (tonnes)	601	2701	2027	4299	1017	1724	2429	840	607	420	153	365	312

Table 4B²: Number of installations with discharges exceeding the 40 mg oil/l performance standard, 1994-2001, by Contracting Party, and quantity of oil discharged by these installations (in tonnes)

	1994		1995		1996		1997		1998		1999		2000		2001	
	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	Number of installations	Amount discharged
Denmark	1	3	0	0	2	2	1	4	2	27	2	29	2	42	1	6
Germany	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Ireland	NI	NI	NI	NI	0	0	0	0	0	0	1	0,3	1	0,2	0	0
Netherlands	22	17	20	31	16	5	10	5	10	5	7	4	5	2	3	1
Norway	6	187	4	40	3	32	2	46	3	26	2	22	2	81	2	95
Spain	NI	NI	NI	NI	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	30	1 517	22	2 359	24	702	19	551	24	362	16	98	5	240	16	210
Total	59	1 724	46	2 430	45	741	32	606	39	420	28	153,29	15	365	23	313

1. 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.

2. Data in Tables 4A and 4B refer to aliphatics only.

Table 5: Quantities of oil and other organic phased fluids discharged via cuttings (in tonnes), 1984-2001

	1984	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Country	Oil & Diesel ¹	Oil	Oil	Oil	Oil	Oil	Oil	Oil	Oil and OPF ² (Oil/OPF)	Oil and OPF ² (Oil/OPF)	Oil and OPF ² (Oil/OPF)	Oil and OPF ² (Oil/OPF)	Total OPF ^{2 3}
Denmark	676	507	0		0	0	0	0	31 (0/31)	0	0	0	0
Germany	NI	NI	0	0	0	0	0	0	0	0	0	0	0
Ireland	NI	NI	NI	NI	NI	NI	0	0	0	0	NI	NI	NI
Netherlands	1 017	284	142	41	0	0	0	0	0	0	0	0	0
Norway	3 466	636	683	83	0	0	0	0	0	0	0	2 014	1 127
Spain	0	0	0	0	0	0	NI	0	0	0	0	0	0
United Kingdom	19 800	12 312	11 225	7 169	4 588	4 582	3 865	3 965	7 203 (0/7203)	5 005 (0/5005)	4 591 (0/4591)	1 937 (0/1937)	200
Total	24 959	13 739	12 050	7 293	4 588	4 582	3 865	3 965	7 234 (0/7234)	5 005 (0/5005)	4 591 (0/4591)	3 951 (0/3951)	1 327

1. Diesel oil represents roughly 10% of total oil & diesel oil discharged in 1984. The discharge of diesel oil ceased in 1985.

2. Some Contracting Parties started to report the discharge of Organic Phased Fluids (formerly called Synthetic Based Muds). First number is the total Oil + OPF discharged; data in italics provide the split between both.

3. Total OPF is the sum of OBF and non-OBF OPF. There is no discharge of oil based muds in 2001.

Table 6: Use and discharge of OBM and OPF

Table 6: Number of wells drilled with OBM or OPF, 1984-2001

Country	1984	1990	1991	1992	1993	1994	1995	1996	1997(1)		1998(1)		1999(1)		2000(1)		2001(2)	
									OBM	OPF	OBM	OPF	OBM	OPF	OBM	OPF	OBF	non-OBF OPF
Denmark	13	20	21	22	32	0	17	19	0	NA	8	NA	8	NA	5	NA	0	0
Germany	0	1	1	0	0	0	0	1	2	NA	3	NA	4	NA	3	NA	0	0
Ireland	NI	4	0	0	NI	0	NI	2	0	NA	NI	NA	NI	NA	NI	NA	NI	NA
Netherlands (3)	56	49	59	52	37	25	40	35	30	0	36	0	22	0	16	0	0	0
Norway	76	96	97	138	116	148	145	178	76	NA	76	NA	98	NA	NI	NA	0	24
Spain	NI	NI	NI	NI	NI	NI	NI	0	0	NA	0	NA	0	NA	0	NA	0	0
United Kingdom	290	314	425	372	336	328	342	374	0	185	0	172	0	166	133	NA	3	3
Total	435	484	603	584	521	501	544	609	108	185	123	172	132	166	157	NA	3	27

(1) OPF was only reported on a voluntary basis.

(2) Wells for which all cuttings are re-injected or brought to shore are not taken into account in table 6.

(3) The Netherlands reported that from 1997-2001 no wells were drilled with non-OBF OPF.

Table 7: Spillage and flaring of oil

Table 7A: Number of oil spills (other than flaring), 1994-2001 - Spills less than 1 tonne (≤ 1 T) and spills > 1 T

Country	1994		1995		1996		1997		1998		1999		2000		2001	
	≤ 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	105	10	126	1	105	1	71	2	110	0	99	4	69	4	78	0
Germany	NI	NI	NI	NI	0	0	0	0	0	0	0	0	0	1	0	0
Ireland	NI	NI	NI	NI	0	0	0	0	1	1	NI	NI	NI	NI	0	0
Netherlands	82	2	0	61	63	2	63	1	60	0	16	1	27	0	35	1
Norway	349	7	281	14	246	9	245	10	249	15	226	12	198	5	221	7
Spain	NI	NI	NI	NI	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	136	21	129	9	276	19	304	24	366	11	347	11	406	12	408	17
Total	672	40	536	85	690	31	683	37	786	27	688	28	700	22	742	25

Table 7B: Quantity of oil spilled (flaring excluded), in tonnes, 1994-2001

Country	1994		1995		1996		1997		1998		1999		2000		2001	
	≤ 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	<26	10	<66	1	7,3	1,1	11,7	2,8	11	0	11	9	5,5	402,5	15	0
Germany	NI	NI	NI	NI	0	0	0	0	0	0	0	0	0	3	0	0
Ireland	NI	NI	NI	NI	0	0	0	0	<1	0	NI	NI	NI	NI	0	0
Netherlands	<8,2	2	1,5	0	1	38	0,9	18	1,26	0	1	5,6	0,5	0	0,8	3,04
Norway	32	23	28	89	37	26	35,6	72,4	25	131	23	114	16	12	18,4	24,7
Spain	NI	NI	NI	NI	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	17,8	155,2	19,2	64,5	80,9	45,1	34,1	828,9	36,9	97,1	42	77	38	36	33,5	59,09
Total	<84	190,2	<114,7	154,5	126,2	110,2	82,3	922,1	<74,2	228,1	77	205,6	60	453,5	67,7	86,83

Table 7C: Number of flaring operations, and quantity of oil spilled through flaring, in tonnes, 1994-2001

Number of flaring operations

Country	1994	1995	1996	1997	1998	1999	2000	2001
Denmark	1	2	0	4	5	3	0	0
Germany	NI	NI	0	0	0	0	0	0
Ireland	NI	NI	0	0	1	NI	NI	0
Netherlands	0	0	2	2	0	0	0	0
Norway	NI	NI	0	NI	NI	NI	NI	NI
Spain	NI	NI	0	0	0	0	NA	0
United Kingdom	3	7	5	13	15	4	5	10
Total	4	9	7	19	21	7	5	10

Quantity of oil spilled (tonnes)

1994	1995	1996	1997	1998	1999	2000	2001
4	0,1	0	NI	0,02	0,5	0	0
NI	NI	0	0	0	0	0	0
NI	NI	0	0	0	NI	NI	0
0	0	0,01	0,01	0	0	0	0
NI	NI	0	NI	NI	NI	6,1	14,1
NI	NI	0	0	0	0	NI 1	0
1,09	0,62	1,4	0,94	3,19	1,35	4	1,35
5,1	0,7	1,4	1,0	3,2	1,9	10,1	15,45

1. Not available with the current Norwegian guidelines for reporting

Table 8: Total discharges and spillage of dispersed oil, in tonnes, 1984-2001

Country	1984	1990	1992	1994	1995	1996	1997	1998	1999	2000	2001
Denmark	763	543	81	178	196	172	173	185	201	679	305
Germany	0	NI	NI	NI	NI	NI	0	0	0	3	0
Ireland	0	NI	NI	NI	NI	NI	0	1	0,042	0,245	0
Netherlands	1 153	546	285	275	232	288	284	205	169	190	256
Norway	3 900	1 096	1 491	1 064	1 519	1 813	2 440	2 648	2 887	3 075	3 196
Spain	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	21 360	15 499	12 335	9 371	9 835	9 876	13 856	10 832	10 387	5 473	5 560
Total	27 176	17 684	14 192	10 888	11 783	12 150	16 752	13 872	13 643	9 420	9 317

(1) Spillages are not taken into account for 1990.

(2) From 1997-1999, UK data include OPF.

(3) Total for 2000 and 2001 is the sum of tables 3a, 7b and 7c.

Table 9: Emissions to air, 1992-2001

CO² (10⁶ tonnes)								
Country	1992	1995	1996	1997	1998	1999	2000	2001
Denmark	NI	1,23	1,58	1,64	1,87	2,47	2,3	2,2
Germany	0,01	0,01	0,02	0,03	0,02	0,09	0,01	0,02
Ireland	NI	NI	0,10	0,025	0,11	0,1	0,09	0,08
Netherlands	NI	1,22	1,11	1,19	1,59	1,29	1,20	1,33
Norway	7,5	8,1	8,9	8,47	9,34	9,38	10,09	11,1
Spain	0,86	NI	0,025	0,03	0	0	0,03	0,02
United Kingdom	79,36	20,46	15,9	19,1	20,9	19,8	18,3	19
Total	88	31	28	30	34	33	32	34

NO_x (10³ tonnes)							
1992	1995	1996	1997	1998	1999	2000	2001
NI	6,24	6,77	8,4	NI	13,62	12,3	5,06
0,12	0,05	0,08	0,10	0,04	0,13	0,07	0,06
NI	NI	0,25	0,61	0,26	0,2	0,17	0,18
NI	5,7	5,08	5,83	5,05	4,64	5,64	4,8
31,3	32	34,7	42,97	46,1	41	44,2	51
0,8	NI	0,113	0,14	0	0	0,11	0,04
195,7	56,69	38,8	57,8	66,7	55,8	45,8	53,53
228	101	86	116	118	115	108	115

VOCs (10³ tonnes)								
Country	1992	1995	1996	1997	1998	1999	2000	2001
Denmark	NI	1	1	1	NI	2	9	10
Germany	0	0	0	0	0	0	0	0
Ireland	NI	NI	0	0	0	0	0	0
Netherlands	NI	10	7	5	8	8	6	6
Norway	122	99	182	189	174	191	213	229
Spain	0	NI	0	0	0	0	0	0
United Kingdom	208	76	59	107	80	75	73	87
Total	331	185	249	302	262	276	301	332

CH₄ (10³ tonnes)							
1992	1995	1996	1997	1998	1999	2000	2001
NI	2	2	3	5	2	3	10
0	0	0	0	0	0	0	0
NI	NI	1	1	3	16	1	25
NI	55	41	25	21	20	15	16
11	13	26	29	26	29	29	34
1	NI	0	0	0	0	0	0
226	70	56	79	72	65	56	57
238	140	126	136	126	132	104	142

SO² (10³ tonnes)								
Country	1992	1995	1996	1997	1998	1999	2000	2001
Denmark	NI	NI	0,1	0,1	0,1	0,3	0,3	0,6
Germany	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Ireland	NI	NI	0,0	0,0	0,1	0,0	0,0	0,0
Netherlands	NI	0,4	0,5	0,4	0,2	0,2	0,1	0,2
Norway	NI	0,2	0,3	0,0	0,6	0,1	1,4	0,9
Spain	NI	NI	0,0	0,0	0,0	0,0	0,0	0,0
United Kingdom	31,4	10,4	2,3	13,9	11,6	9,7	6,4	6,3
Total	31,4	11,0	3,2	14,4	12,7	10,3	8,2	8,0

Table 10: The Use and Discharge of Offshore Chemicals

Table 10a: Total quantity of offshore chemicals used in the maritime area in kg/year

	Plonor ²	Annex 2 ³	Equivalent concern as Annex 2 ⁴	Prescreening Category ¹		Substances meet two of three criteria ^{7, 10}	Ranking ^{8, 11, 12}	Total ^{9 13}
				LC ₅₀ or EC ₅₀ < 1 mg/l ⁵	Biodegradation < 20 % ⁶			
2001	275 818 116	2 811	1 890 276	18 164 860	14 971 105	8 966 483	187 350 584	507 164 235

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

2. 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: 2002-07).

3. Substance listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances (including its updates) (Agreement Number: 2002-?).

4. Substance considered by the authority to be of equivalent concern for the marine environment as substances listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances.

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

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

7. 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.

8. Substance does not fulfill the above mentioned criteria (1-7) and is therefore ranked according to OSPAR Recommendation 2000/4.

9. The total also includes 49 891 tonnes of offshore chemicals used by the Netherlands for which no sufficient information was available and could therefore not be placed under any particular category.

Footnotes 10,11 and 12 refer to the UK:

10. The majority of UK products do not currently have substance based toxicity data. This figure is therefore likely to increase as further data becomes available

11. The UK ranks all products including PLONOR and those for substitution. This figure represents the total amount of substances that do not fall into any of the other categories

12. The industry database used to record use and discharge data has been significantly modified since the implementation of the regulations in the UK.

Some products that could not be matched on the notified chemicals list due to syntax errors have been included here but will fall into other categories in future years

13. The Netherlands reported in 2001 49891 kg offshore chemicals used for which there is no sufficient information and therefore cannot be categorised.

Table 10b: Total quantity of offshore chemicals discharged in the maritime area in kg/year

Country	Plonor ²	Annex 2 ³	Equivalent concern as Annex 2 ⁴	Prescreening Category ¹		Substances meet two of three criteria ^{7, 10}	Ranking ^{8, 11, 12}	Total ^{9 13}
				LC ₅₀ or EC ₅₀ < 1 mg/l ⁵	Biodegradatio < 20 % ⁶			
Total	249 110 462	1 679	81 416	157 740	3 190 994	1 569 707	65 523 492	319 635 490

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

2. 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: 2002-07).

3. Substance listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances (including its updates) (Agreement Number: 2002-?).

4. Substance considered by the authority to be of equivalent concern for the marine environment as substances listed in Annex 2 of the OSPAR Strategy with regard to Hazardous Substances.

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

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

7. 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.

8. Substance does not fulfill the above mentioned criteria (1-7) and is therefore ranked according to OSPAR Recommendation 2000/4.

9. The total also includes 45 116 tonnes of offshore chemicals discharged by the Netherlands for which no sufficient information was available and could therefore not be placed under any particular category.

Footnotes 10,11 and 12 refer to the UK:

10. The majority of UK products do not currently have substance based toxicity data. This figure is therefore likely to increase as further data becomes available

11. The UK ranks all products including PLONOR and those for substitution. This figure represents the total amount of substances that do not fall into any of the other categories

12. The industry database used to record use and discharge data has been significantly modified since the implementation of the regulations in the UK.

Some products that could not be matched on the notified chemicals list due to syntax errors have been included here but will fall into other categories in future years

13. The Netherlands reported in 2001 45116 kg offshore chemicals used for which there is no sufficient information and therefore cannot be categorised.

Figure 1: Number of installations in the OSPAR maritime area with discharges to the sea, or emissions to the air, 1984-2001

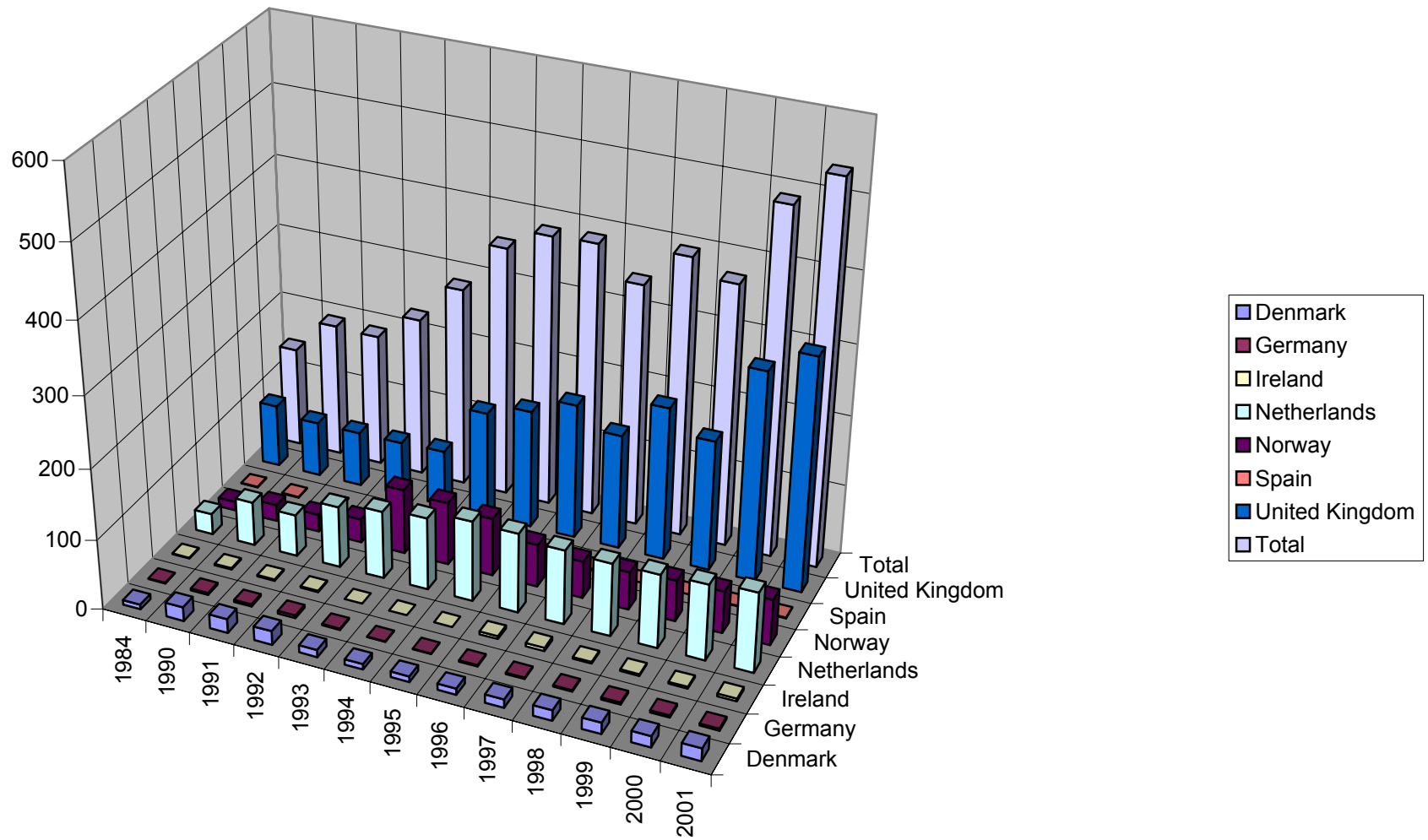


Figure 2: Total discharges and spillage of dispersed oil, in tonnes, 1984-2001

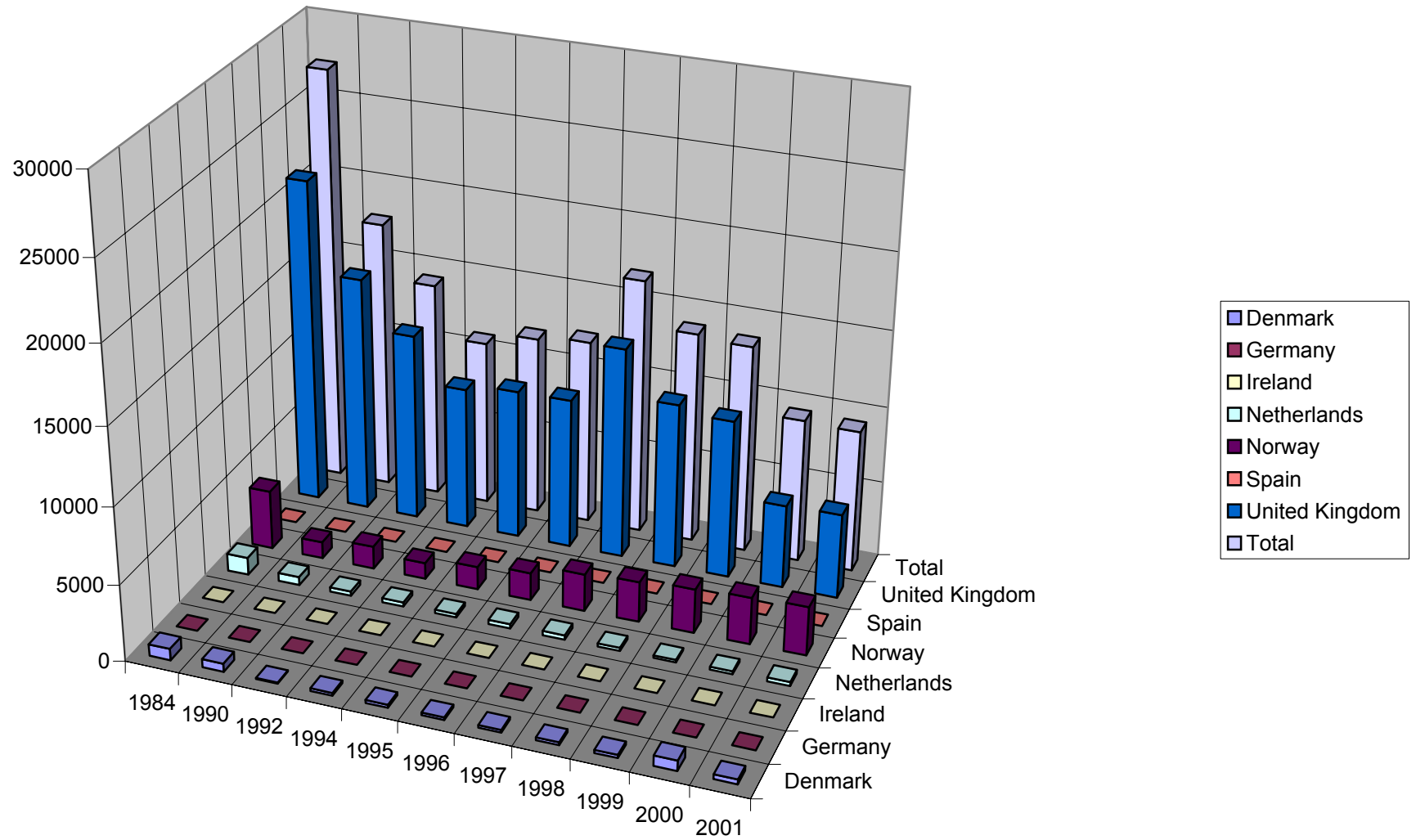
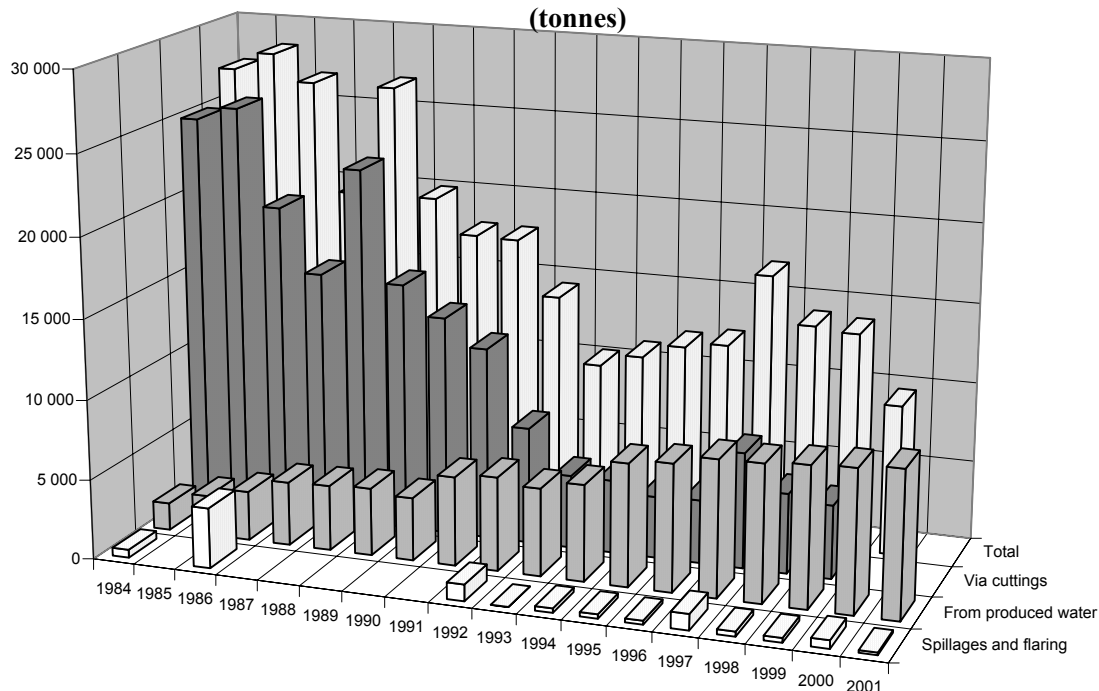


Figure 3: Contribution of different sources of inputs of oil and/or synthetic fluids to the OSPAR Convention's maritime area, 1981-2001
(tonnes)



Data for 2000 and 2001 do not include cuttings.

Expressed as proportions

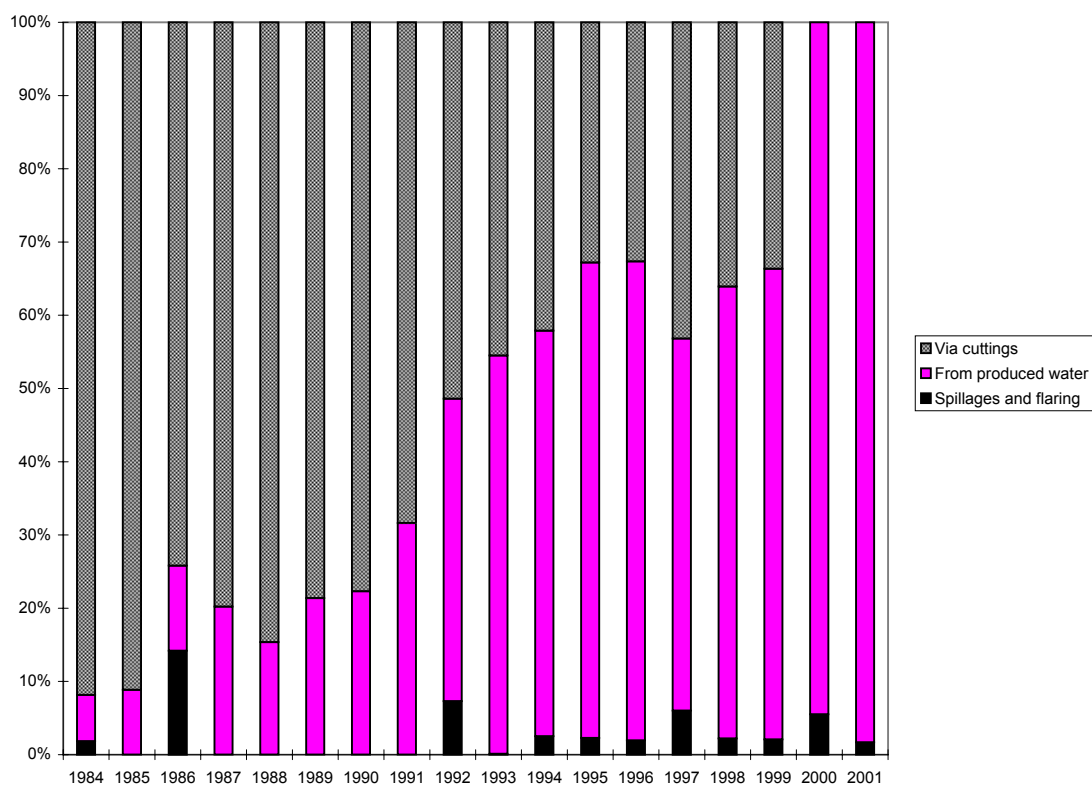
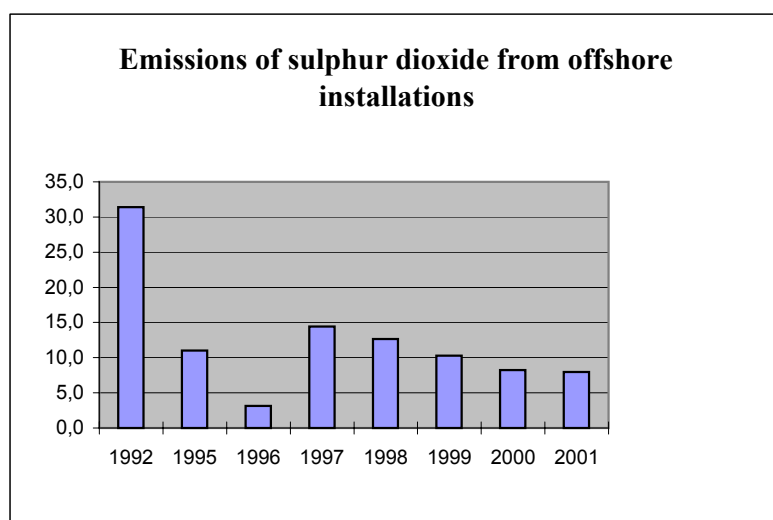
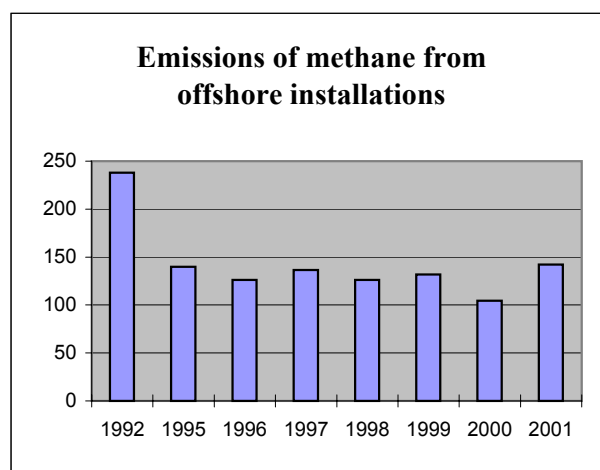
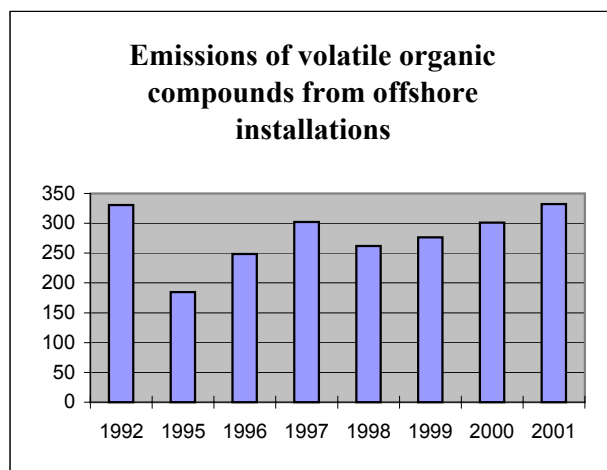
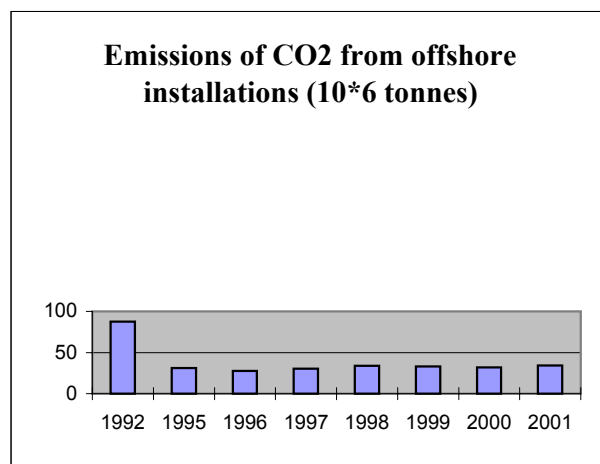
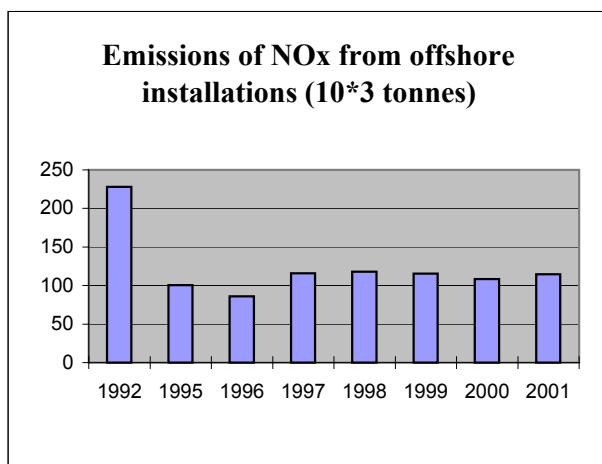


Figure 4: Emissions to the air from offshore installations, 1992 - 2001



ANNEX 1

EXPLANATION CONCERNING THE EXCEEDING OF THE 40 MG/L PERFORMANCE STANDARD BY A GAS PLATFORM IN THE GERMAN SECTOR OF THE NORTH SEA

The German report on Discharges, Waste Handling and Air Emissions from Offshore Installations for the year 2001 shows that the gas producing platform A6-A exceeded the 40 mg/l performance standard for dispersed oil in that year.

The production of this platform started in September 2000. Therefore, the installation was still in the start-up / run-in period in the first part of 2001. At the time when the problems became obvious, the main water treatment equipment was a skimmer tank. After investigation, the operator of the platform came to the conclusion that the oil-in-water problem with contents of up to about 80 mg/l was caused by an unfavourable water/condensate ratio and the use of a corrosion inhibitor which resulted in the forming of emulsions in one of the separators.

In September 2001 a cascade of three filters with hydrocarbon absorbing material was installed. An extra coalescer was also added in order to improve the efficiency of the production skimmer. After installation of the filter cascade the dispersed-oil-in-water content decreased to 3,85 mg/l in October 2001. The last reported results for dispersed oil were

July 2002:	28,31 mg/l,
August 2002:	14,35 mg/l,
September 2002:	9,84 mg/l.

In 2002, the annual average oil content of dispersed oil amounted to 22,74 mg/l so far. Therefore, the 40 mg/l performance standard as well as the national standard of 30 mg/l are likely to be fulfilled this year.