



Ship/platform collision incident database (2001)

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J K Robson
Serco Assurance
Culham
Abingdon
Oxfordshire
OX14 3ED
United Kingdom

This report covers work carried out by MaTSU at the request of the Offshore Division of the Health and Safety Executive (HSE) to update the database of collision incidents on the UKCS and the collision frequency analysis provided in the report of MaTR0447.

Data has been collected from a number of collision incident record sources to confirm or complete previous records and to expand the database up to October 2001. The database has expanded from 494 records in MaTR0447 to 557 records. The database of operating experience has been recompiled and extended to encompass all mobile and fixed installations operating on the UKCS and takes into account recent abandonments.

The database has been sorted into incidents involving "passing vessels" and "attendant vessels". Fortunately, over the whole period of the study, collision incidents involving the former have occurred only 8 times. Nonetheless, the potential exists for major structural damage, possibly even catastrophic, from even a glancing blow by a passing merchant vessel.

As in the previous report (OTO 1999/080) the main database only includes actual collisions and does not include 'near misses'. However, in an attempt to gain a better understanding as to the scale and nature of the 'near miss' events, this report (Appendices E, F and G) does include 'near miss' data from a variety of sources; and interprets the findings in section 6.

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Executive Summary

This report covers work carried out by MaTSU at the request of the Offshore Division of the Health and Safety Executive to update the database of collision incidents on the UKCS and the collision frequency analysis provided in the report of MaTR0447.

Data has been collected from a number of collision incident record sources to confirm or complete previous records and to expand the database up to October 2001. The database has expanded from 494 records in MaTR0447 to 557 records. The database of operating experience has been recompiled and extended to encompass all mobile and fixed installations operating on the UKCS and takes into account recent abandonments.

By combining data of collision incidents with installation operating experience, it has been possible to establish the variation of incident frequency with time, and the likely confidence limits that may be placed on them. This has been done for each of the major installation types. This variation has been considered for all incidents and, separately, for those resulting in damage categorised as moderate or severe. The definition of moderate being damage requiring repair in the medium (up to 6 months) or longer term (over 6 months); and severe being damage affecting the integrity of an installation sufficient to require repair in the immediate or short term (up to 1 month).

With certain exceptions, i.e., in 1997, in the last 5 years the mean incident frequency has generally shown a downward trend, particularly for those incidents that resulted in moderate or severe damage.

The database has been sorted into incidents involving “passing vessels” and “attendant vessels”. Fortunately, over the whole period of study, collision incidents involving the former have occurred only 8 times. Nonetheless, the potential exists for major structural damage, possibly even catastrophic, from even a glancing blow by a passing merchant vessel.

The probability of a collision incident per installation year for all incidents, those by passing vessels and for those where the installation/rig required repair were found to be:

Summary of mean incident frequencies of all reported incidents and moderate or severe damage category incidents (all vessel types)

Installation/rig type	Mean incident frequency: 1975 to 31/10/2001	
	All reported incidents/year	Incidents resulting in moderate or severe damage/year
All installations	0.0987	0.0152
Fixed installations	0.0630	0.0095
Semi-submersibles	0.2379	0.0487
Jack-ups	0.1413	0.0054

Summary of mean incident frequencies of all reported incidents and moderate or severe damage category incidents (passing vessels)

Mean incident frequency: 1975 to 31/10/2001		
Installation/rig type	All reported incidents/year	Incidents resulting in moderate or severe damage/year
All installations	0.0014	0.0004
Fixed installations	0.0012	0.0002
Semi-submersibles	0.0000	0.0000
Jack-ups	0.0054	0.0018

Notwithstanding the figures quoted in the tables above, data interpretation should be carried out with caution as it is highly likely that some degree of under reporting of incidents has occurred. Primarily this is thought to be of those incidents where little or no damage resulted to the installation, however, it may also include more serious incidents to normally unattended installations.

As in the previous report (OTO 1999 080) the main database only includes actual collisions and does not include 'near misses'. However, in an attempt to gain a better understanding as to the scale and nature of 'near miss' events, this report (Appendices E, F and G) does include 'near miss' data from a variety of sources; and interprets the findings in Section 6. In recent work by the HSE, UKOOA and others the definition of 'near miss' has been agreed to be 'the approach by any vessel that caused any part of the Duty Holder's emergency response plan to be activated'. Though it has not been possible to strictly apply that definition to this data, an attempt has been made to interpret the data in the light of that definition. Using such an interpretation it was found that there were 14 such events. These ranged in severity from a precautionary mustering of personnel to an actual down manning of an installation.

Collision threat causation factors have been developed from the "primary cause" field in the database, though almost exclusively, this information comes from personnel on board the installation and may lack subjectivity. Nonetheless, the primary cause of the majority of incidents involving "attendant vessels" was linked to some form of control failure; either human or mechanical while watchkeeping failure was assessed as the primary cause in each "passing vessel" incident.

The most frequent 'activity' that attendant vessels were engaged on when a collision with an installation occurred was "cargo transfer", although "approaching installation" also figured highly, perhaps also being the precursor to cargo operations.

Geographical location was found to have an effect on the likelihood of a "passing vessel" collision and it appears that installations in the Southern North Sea are at greater risk than those in other areas. This is perhaps understandable considering the traffic density in this area compared to the other relatively remote areas of the UKCS.

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1 Introduction

A database of vessel/platform collision incidents on the United Kingdom Continental Shelf (UKCS) was originally created for the Health & Safety Executive, Offshore Safety Division (OSD) in 1985. It has subsequently been amended and extended on several occasions, in 1995 (MaTR0321) when it also underwent rigorous qualitative checking and most recently in 1997 (MaTR0447) when it was updated with incidents in intervening years.

MaTSU were requested by OSD to update the previous data evaluation exercise contained in MaTR0447 and also to search through various data sources to extend the database to include incidents which have occurred since the last review. The compilation of the database is described in more detail in Section 2 of this report.

Information has been extracted from the database to establish the variation of incident frequency with time for different types of offshore oil and gas installations and for different vessel types. The resulting analysis of incident statistics is necessarily broad, in line with the likely accuracy of the data, and is presented in Section 3 of this report.

An assessment of the implications of the results of analysis is presented in Section 4.

At OSD's request an analysis of the world fleet of platform support vessels (PSV) was carried out. The data used for this exercise came from information held by the Maritime Statistics Collection Agency, an organisation administered by the Department of Transport, Local Government and the Regions (DTLR) to collect information on the quantity and nature of commercial cargo passing through the UK's major ports. Using this information it was possible to:

- Quantify the number, size and type of vessels that have carried cargo between the UK's major ports and the UKCS and hence develop a guideline measure of vessels that transit UKCS oil fields as part of their normal activities;
- Develop an understanding of the way in which PSV dimensions and tonnages have changed in recent years;
- Identify the extent to which stand-by vessels (SBV) have been utilised for carrying cargo to/from offshore installations on the UKCS.

The results of these analyses are presented in Section 5.

The database only contains details of collision incidents that have actually occurred. There exists a separate record of incidents which, although not resulting in actual contact between vessel and installation, resulted in a so called "near miss". This is discussed further in Section 6.

The conclusions to the report are contained in Section 7.

2 Compilation of Database

2.1 COLLISION INCIDENT DATABASE

For this study an incident has been defined as a reported impact in terms of the OIR/9A incident report, between a vessel and a fixed or mobile installation (jack-up or semi-submersible).

The original 1985 collision incident database was compiled from studies performed by the National Maritime Institute Ltd. (NMI) (Refs. 1 and 2) and the International Association of Drilling Contractors (IADC) (Ref. 3). An update in 1991 by Advanced Mechanics and Engineering Limited (AME) (Ref. 4) used incident records taken from OSD's OIR/9A files.

The Collision Incident Database produced under MaTSU reports MaTR0321 (1995) and MaTR0447 (1997) (Refs. 5 and 6) have been extended and further cross-checked. The complete database is included as Appendix A to this report wherein a total of 557 incidents of vessels contacting offshore oil and gas installations have been recorded in the period from 1 January 1975 to 31 October 2001. These data have been developed from a number of sources; the prime source being that recorded in the "Information Source" field. Where data have been supplemented or confirmed from an independent source this have been recorded in the "Other Source Confirms" field. Collision incidents confirmed (in part or whole) or added in the current study have been extracted from the following sources:

- Marine Accident Investigation Branch (MAIB) using the search criteria "offshore installations - collisions and contacts" - (Ref. 7).
- 'Orion' Safety System of the OSD using search criteria "collision", "impact", "contact", "collide", "hit", "landed" - (Ref. 8).
- World Offshore Accident Database (WOAD) using search criteria "collision", "contact" - (Ref. 9).

Despite the large literature search a number of inconsistencies and unconfirmed data have been highlighted within the database. A series of asterisk (***) adjacent to an entry indicate the following areas of concern:

- *** Rig Registration No. could not be confirmed from information provided by OSD.
- **** Vessel name, type or gross tonnage could not be confirmed by Anchor Handling Tugs and Supply Vessels of the World (Ref. 10), Stand-by Vessels of the World (Ref. 11) or Lloyd's Maritime Directory 1986 (Ref. 12).
- ***** In the author's opinion text entries appear to be incomplete, erroneous or inconsistent but due to the lack of other data sources have been retained.

The database contained in Appendix A has been compiled according to the following sort criteria:

- First: “Passing Vessel” (vessels which should not have contravened the safety zone) and “Attendant Vessel” (vessels working in the vicinity of the installation) categories.
- Second: Severity of “Installation Damage Class”, severe, moderate, minor, none, unspecified, not applicable.
- Third: Date of incident.

2.2 CODING AND CATEGORIES

For clarity and ease of interpretation the use of codes within the fields has been kept to a minimum.

2.2.1 Information source & Other source confirms

- DEn Data extracted from Draft Report MaTR0141 - (Ref. 13);
- OTN 92 235 Data extracted from OTN 92 235 - (Ref. 14).
- LMIS Data supplied to MaTSU by Lloyds Maritime Information Service – (Ref. 15);
- NMI National Maritime Institute Ltd. - (Ref. 1, 2);
- HSE Data supplied by OSD - (Ref. 16);
- BOMEL Data extracted from Billington Osborne-Moss Engineering Limited – Drawing No. C/587/R002.22 - (Ref. 17);
- MAIB Data supplied to MaTSU by Marine Accident Investigation Branch – (Ref. 7);
- WOAD World Offshore Accident Database - (Ref. 9).

2.2.2 Installation damage class

In order to permit more meaningful evaluation of the database all incidents have been placed into a damage severity category, labelled “Installation Damage Class”, in accordance with the following criteria. In some instances, where the damage class was not originally reported or was clearly inaccurate, the category has been assigned by the author based on the extent of reported damage and the criticality of the member involved:

- Severe: Damage affecting the integrity of an installation sufficient to require repair in the immediate or short term (up to 1 month). Where the actual date of repair could not be determined then the criticality of the damage damaged member was considered where this was available. In the absence of other repair information damage to non redundant members was considered severe;
- Moderate: Damage requiring repair in the medium (up to 6 months) or longer term (over 6 months);
- Minor: Damage not affecting the integrity of the installation;
- None: No damage occurred;
- Unspecified: Damage believed to have occurred but was not specified in reports;
- Not Applic.: Report of incident which was not applicable to installation’s structure.

2.3 DATA ON OPERATING EXPERIENCE

For the purposes of this study an installation is defined as a fixed platform or group of platforms linked by bridges or walkways and may be of either steel or concrete construction. Operating experience of fixed installations is presented in “installation years” rather than platform years because in the southern North Sea a supply vessel, for example, is only likely to approach those platforms installed with a crane or living quarters when carrying cargo. In these circumstances it would be unrealistic to include every individual platform in the count of operating experience as not all will be visited by vessels.

Operating experience of fixed structures has been determined using information provided by OSD. This contained the ‘start-up’ date and ‘abandonment’ date, where appropriate.

Mobile rig operating experience on the United Kingdom Continental Shelf (UKCS) has been determined from information provided by Rigzone (Ref. 18) and refers to any jack-up, semi-submersible or variant. The operating experience of semi-submersible or monohull production facilities and floating storage units (as supplied by OSD) has been added to the monthly figure to determine the total experience of this type of unit.

A summary of operating experience for fixed installations/complex and mobile units over the period of study is contained in Table 1 (overleaf) and represented graphically in Figure 1.

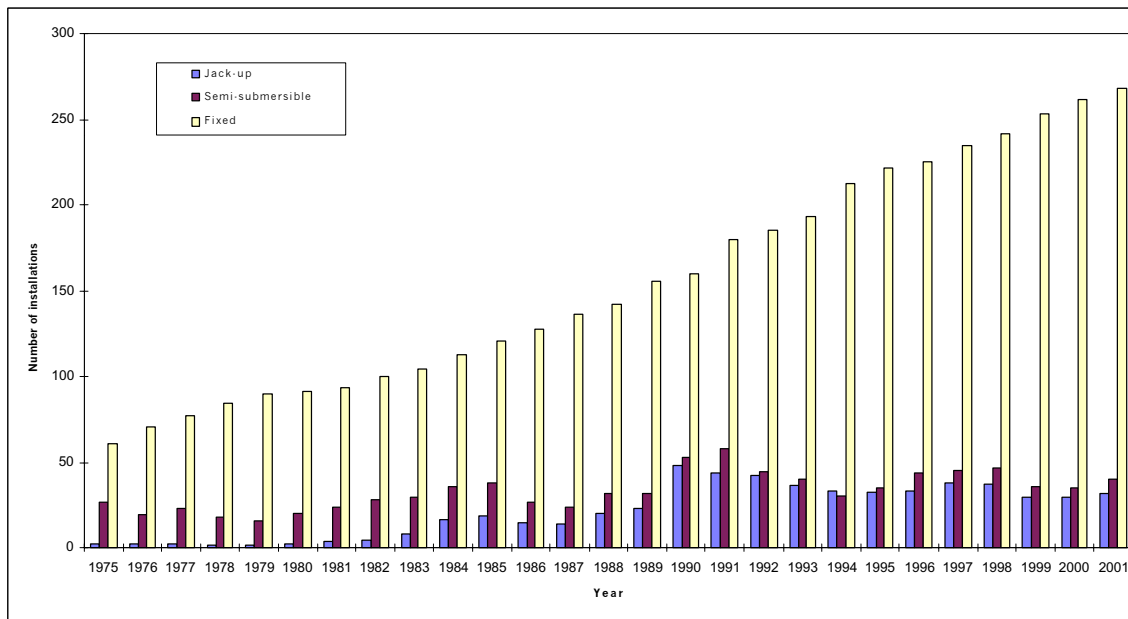


Figure 1: Fixed installations and mobile rig utilisation

Table 1: Operating experience for fixed installations and mobile units on the UKCS

Year	Mean installations operating in year				Operating experience: date of installation to year end (installation years)			
	Jack-up	Semi-submersible	Fixed	TOTAL	Jack-up	Semi-submersible	Fixed	TOTAL
1975	1.9	26.4	60.5	88.8	1.9	26.4	60.5	88.8
1976	2.5	19.6	70.5	92.6	4.4	46.0	131.0	181.4
1977	1.9	22.8	77.3	102.0	6.3	68.8	208.4	283.5
1978	1.4	17.6	84.3	103.3	7.7	86.4	292.7	386.8
1979	1.6	15.5	89.4	106.5	9.3	101.9	382.1	493.3
1980	2.1	19.9	91.2	113.2	11.4	121.8	473.3	606.5
1981	3.4	23.7	93.6	120.7	14.8	145.5	566.9	727.2
1982	4.5	28.0	99.9	132.4	19.3	173.5	666.8	859.6
1983	8.2	29.7	104.3	142.2	27.5	203.2	771.1	1001.8
1984	16.2	35.9	112.6	164.7	43.7	239.1	883.7	1166.5
1985	18.3	38.0	120.7	177.0	62.0	277.1	1004.4	1343.5
1986	14.7	26.6	127.3	168.6	76.7	303.7	1131.7	1512.1
1987	13.9	24.0	136.3	174.2	90.6	327.7	1268.0	1686.3
1988	20.2	32.0	142.5	194.7	110.8	359.7	1410.5	1881.0
1989	23.0	31.9	155.3	210.2	133.8	391.6	1565.8	2091.2
1990	48.4	52.8	160.4	261.5	182.2	444.4	1726.2	2352.8
1991	43.3	57.4	180.3	281.1	225.6	501.8	1906.5	2633.8
1992	42.3	44.3	185.3	271.9	267.8	546.1	2091.9	2905.8
1993	36.6	40.3	193.5	270.4	304.4	586.4	2285.4	3176.1
1994	33.4	30.1	212.5	276.0	337.8	616.4	2497.9	3452.1
1995	32.8	34.9	221.3	289.0	370.6	651.4	2719.1	3741.1
1996	33.5	43.3	225.5	302.4	404.1	694.7	2944.7	4043.5
1997	37.6	44.9	234.5	317.0	441.7	739.6	3179.1	4360.4
1998	36.8	46.3	241.4	324.6	478.6	785.9	3420.5	4685.0
1999	29.9	35.4	253.6	318.9	508.5	821.4	3674.2	5004.0
2000	29.4	34.5	261.5	325.4	537.9	855.9	3935.6	5329.4
2001	32.0	40.0	267.8	339.8	559.2	882.6	4203.5	5645.3
Pro rata to 31/10/01								

3 Analysis of Historical Data

3.1 INTRODUCTION

This Section presents an analysis of collision incident statistics for the UKCS in the period from 1 January 1975 to 31 October 2001. For statistical analysis purposes a total incident population of 557 has been used throughout. When determining incident frequencies for 2001 installation operating experience has been prorated to 31 October of that year.

Data were analysed for all reported incidents and separately for those classified as moderate or severe, to investigate any trends which might exist. While it is reasonable to anticipate that not all minor incidents would be reported, it is believed that most, if not all, incidents resulting in moderate or severe installation damage should have been. Thus, there should be increased confidence in the observed trends in the more serious incidents. Additionally, incidents resulting in moderate or severe damage are more likely to exceed normal operational loading and are therefore of greater interest in comparing design against accidental damage.

The main areas covered in this Section are:

- Variation of incident frequency and confidence limits with time for different damage categories and types of installations;
- Variation of incident numbers with time for different types of vessels.

Where possible tables, graphs or histograms have been used to illustrate the various aspects of collision incidents that have occurred.

As in other studies (Refs. 19 and 20) it has been assumed that the incident likelihood follows a Poisson distribution. With this assumption 5% and 95% confidence limits for fixed installations and mobile rigs have been calculated and are shown in Figures 5, 6, 9, 10, 13, 14, 17 and 18. The interval between the limits reflects the number of incidents and causes the line connecting the upper and lower confidence limit to be longer where there are fewer incidents. 5% and 95% confidence limits have been calculated using accepted methodology (note Refs. 19 and 20) including those occasions where no collision incidents have been reported.

3.2 VARIATION OF INCIDENT FREQUENCY WITH TIME

The variation of incident frequency with time for fixed installations and mobile units have been analysed both together and separately. Incident frequencies for all reported incidents and those categorised as resulting in moderate or severe damage have also been analysed separately.

3.2.1 All installations

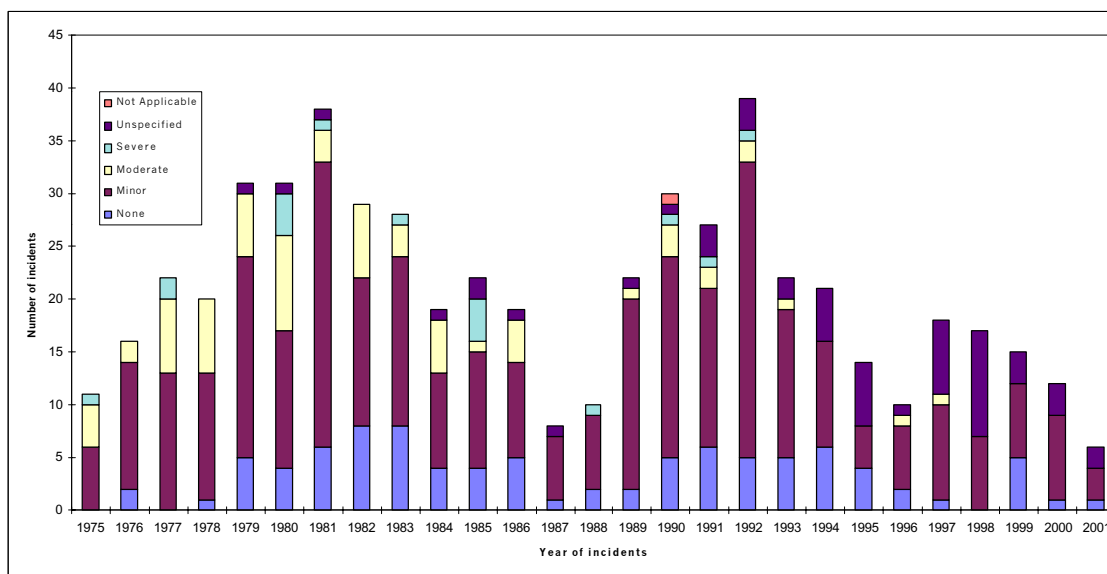
Table 2 and Figure 2 summarise the number and damage category of all recorded incidents to fixed installations and mobile units, by year, since 1975. Seventeen incidents were classed as severe, 69 incidents as moderate and the remainder classed under minor or no damage, including 55 incidents where the damage was not specified but is believed to be minor or none.

Table 2: Damage resulting from incidents to all installations per year

Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1975	0	6	4	1	0	0	11
1976	2	12	2	0	0	0	16
1977	0	13	7	2	0	0	22
1978	1	12	7	0	0	0	20
1979	5	19	6	0	1	0	31
1980	4	13	9	4	1	0	31
1981	6	27	3	1	1	0	38
1982	8	14	7	0	0	0	29
1983	8	16	3	1	0	0	28
1984	4	9	5	0	1	0	19
1985	4	11	1	4	2	0	22
1986	5	9	4	0	1	0	19
1987	1	6	0	0	1	0	8
1988	2	7	0	1	0	0	10
1989	2	18	1	0	1	0	22
1990	5	19	3	1	1	1	30
1991	6	15	2	1	3	0	27
1992	5	28	2	1	3	0	39
1993	5	14	1	0	2	0	22
1994	6	10	0	0	5	0	21
1995	4	4	0	0	6	0	14
1996	2	6	1	0	1	0	10
1997	1	9	1	0	7	0	18
1998	0	7	0	0	10	0	17
1999	5	7	0	0	3	0	15
2000	1	8	0	0	3	0	12
2001	1	3	0	0	2	0	6
TOTAL	93	322	69	17	55	1	557
	16.7%	57.8%	12.4%	3.1%	9.9%	0.2%	100%

To 31 October 2001

Figure 2: Damage resulting from incidents to all installations per year



A summary and chart of impact vessel types is produced as Table 3 and Figure 3. This indicates that the vast majority of incidents, as would be expected, have occurred with attendant vessels. Of the attendant vessels, 353 incidents were with “Supply Vessels”, 87 were “Stand-By Vessels” with the remaining being either “Unspecified”, with 35 incidents or “Other Attendant Vessels”, 74 incidents. The latter category comprising the following vessel types:

- Anchor handler 18 incidents
- Barge (pushed by tug) 1 incident
- Diver support 36 incidents
- Maintenance 1 incident
- Merchant tanker (approaching/at loading terminal) 9 incidents
- Research 3 incidents
- Survey 2 incidents
- Tug 4 incidents

Table 3: Incidents per year by all vessel types

Year	Collision vessel type					TOTAL
	Supply vessels	Stand-by vessels	Other attendant	Passing vessels	Unspecified vessels	
1975	7	0	0	0	4	11
1976	13	1	2	0	0	16
1977	12	3	3	0	4	22
1978	19	0	0	0	1	20
1979	16	7	7	0	1	31
1980	20	0	4	0	7	31

Table 3: (continued)

Year	Collision vessel type					TOTAL
	Supply vessels	Stand-by vessels	Other attendant	Passing vessels	Unspecified vessels	
1981	26	4	4	1	3	38
1982	21	4	2	0	2	29
1983	20	1	5	1	1	28
1984	10	2	5	2	0	19
1985	9	5	6	1	1	22
1986	12	1	2	0	4	19
1987	4	4	0	0	0	8
1988	5	2	1	2	0	10
1989	12	7	3	0	0	22
1990	17	11	1	0	1	30
1991	21	4	2	0	0	27
1992	29	7	3	0	0	39
1993	16	4	2	0	0	22
1994	13	5	3	0	0	21
1995	6	2	5	1	0	14
1996	7	1	1	0	1	10
1997	7	4	3	0	4	18
1998	10	1	5	0	1	17
1999	12	2	1	0	0	15
2000	8	1	3	0	0	12
2001	1	4	1	0	0	6
TOTAL	353	87	74	8	35	557
	63.4%	15.6%	13.3%	1.4%	6.3%	100%

To 31 October 2001

In view of the potentially catastrophic consequences of a 'passing vessel' collision on the integrity of an installation, details of the 8 incidents where this has occurred have been separated from the 'attendant vessels' incidents in the database presented in Appendix A. The sort criteria of the database in Appendix A are outlined in more detail in Section 2.1 of this report.

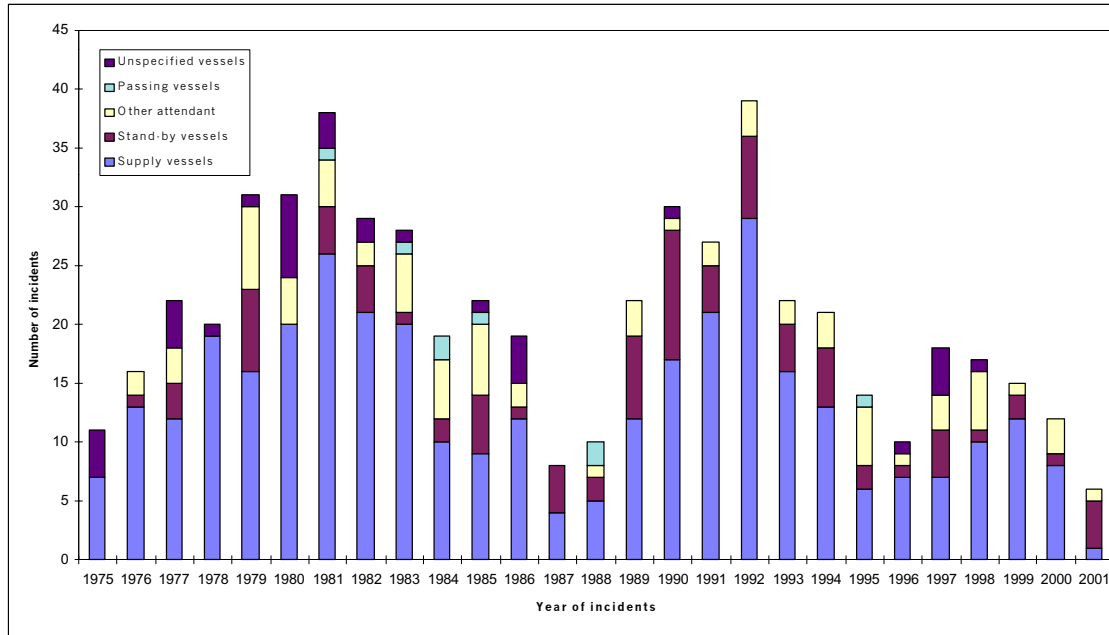


Figure 3: Incidents per year by all vessel types

Table 4 and Figure 4 summarise the trend for incidents occurring with respect to month for all different vessel types. Despite several slight anomalies, possibly caused by the small number of data for some vessel categories, broadly speaking more incidents have occurred during the period October to February. For supply vessels engaged in cargo transfer this is perhaps understandable when weather conditions are more likely to be adverse with high winds and storms. Conversely, in the months normally associated with better weather (July to September) the incidence of stand-by vessel collision has increased, possibly caused by more installation overside work being carried out and the need for close support. The months between May and October also see an increase in the number of incidents involving diver support vessels when annual inspections and repairs to installations tend to take place.

Table 4: Incidents per month by vessel type

Month	Collision vessel type					TOTAL	
	Supply vessels	Stand-by vessels	Other attendant	Passing vessels	Unspecified vessels		
January	43	9	5	1	2	60	10.8%
February	41	3	5	1	1	51	9.4%
March	29	6	2	1	1	39	7.0%
April	25	7	7	0	0	39	7.0%
May	29	7	11	0	0	47	8.4%
June	17	3	2	2	1	25	4.5%

Table 4: (continued)

Month	Collision vessel type					TOTAL	
	Supply vessels	Stand-by vessels	Other attendant	Passing vessels	Unspecified vessels		
July	21	11	12	2	0	46	8.3%
August	26	7	3	1	0	37	6.6%
September	25	12	9	0	0	46	8.3%
October	32	8	7	0	1	48	8.6%
November	27	8	6	0	0	41	7.4%
December	36	3	4	0	1	44	7.9%
Unspecified	2	3	1	0	28	34	6.1%
TOTAL	353	87	74	8	35	557	100%
	63.4%	15.6%	13.3%	1.4%	6.3%		

To 31 October 2001

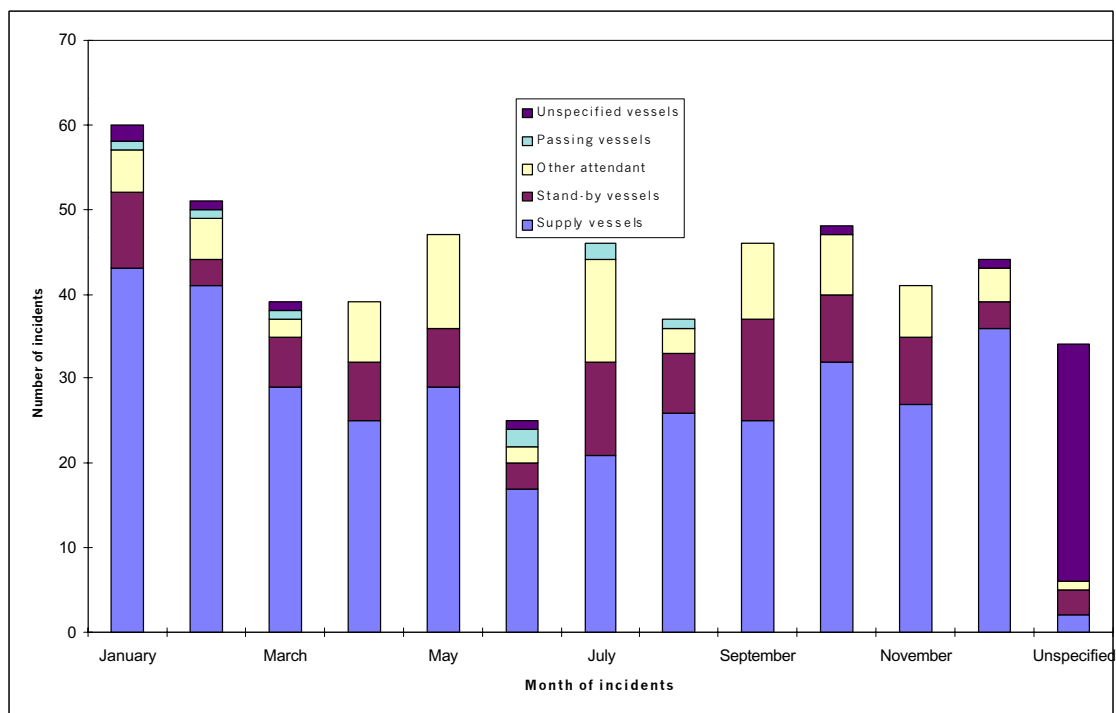


Figure 4: Incidents per month by vessel type

Tables 5 and 6 respectively, show the mean frequency and confidence limits of all reported incidents and those categorised as resulting in moderate or severe damage occurring to all installations by year. Table 7 summarises the mean frequency in the year in question and also cumulatively to any year end from 1975. Figures 5, 6 and 7 graphically represent the variation in the results summarised in these tables.

Table 5: Frequency of all reported incidents to all installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	11	88.8	0.20	0.12	0.07
1976	16	92.6	0.26	0.17	0.11
1977	22	102.0	0.31	0.22	0.15
1978	20	103.3	0.28	0.19	0.13
1979	31	106.5	0.39	0.29	0.21
1980	31	113.2	0.37	0.27	0.20
1981	38	120.7	0.41	0.31	0.24
1982	29	132.4	0.30	0.22	0.16
1983	28	142.2	0.27	0.20	0.14
1984	19	164.7	0.17	0.12	0.08
1985	22	177.0	0.18	0.12	0.08
1986	19	168.6	0.17	0.11	0.07
1987	8	174.2	0.08	0.05	0.02
1988	10	194.7	0.09	0.05	0.03
1989	22	210.2	0.15	0.10	0.07
1990	30	261.5	0.16	0.11	0.08
1991	27	281.1	0.13	0.10	0.07
1992	39	271.9	0.19	0.14	0.11
1993	22	270.4	0.12	0.08	0.06
1994	21	276.0	0.11	0.08	0.05
1995	14	289.0	0.08	0.05	0.03
1996	10	302.4	0.06	0.03	0.02
1997	18	317.0	0.08	0.06	0.04
1998	17	324.6	0.08	0.05	0.03
1999	15	318.9	0.07	0.05	0.03
2000	12	325.4	0.06	0.04	0.02
2001	6	339.8	0.03	0.02	0.01

To 31 October 2001

Table 6: Frequency of moderate or severe damage to all installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	5	88.8	0.12	0.06	0.02
1976	2	92.6	0.07	0.02	0.00
1977	9	102.0	0.15	0.09	0.05
1978	7	103.3	0.13	0.07	0.03
1979	6	106.5	0.11	0.06	0.02
1980	13	113.2	0.18	0.11	0.07
1981	4	120.7	0.08	0.03	0.01
1982	7	132.4	0.10	0.05	0.02
1983	4	142.2	0.06	0.03	0.01
1984	5	164.7	0.06	0.03	0.01
1985	5	177.0	0.06	0.03	0.01
1986	4	168.6	0.05	0.02	0.01
1987	0	174.2	0.02	0.00	#N/A
1988	1	194.7	0.02	0.01	0.00
1989	1	210.2	0.02	0.00	0.00
1990	4	261.5	0.04	0.02	0.01
1991	3	281.1	0.03	0.01	0.00
1992	3	271.9	0.03	0.01	0.00
1993	1	270.4	0.02	0.00	0.00
1994	0	276.0	0.01	0.00	#N/A
1995	0	289.0	0.01	0.00	#N/A
1996	1	302.4	0.02	0.00	0.00
1997	1	317.0	0.01	0.00	0.00
1998	0	324.6	0.01	0.00	#N/A
1999	0	318.9	0.01	0.00	#N/A
2000	0	325.4	0.01	0.00	#N/A
2001	0	339.8	0.01	0.00	#N/A

To 31 October 2001

Table 7: Mean and cumulative frequency of all reported incidents to all installations

Year	Number of incidents in year (r)	Cumulative number of incidents (r1)	Mean installations operating in year (T)	Cumulative operating experience (T1)	Incident frequency (= r/T)	Cumulative incident frequency (= r1/T1)
1975	11	11	88.8	88.8	0.12	0.12
1976	16	27	92.6	181.4	0.17	0.15
1977	22	49	102.0	283.5	0.22	0.17
1978	20	69	103.3	386.8	0.19	0.18
1979	31	100	106.5	493.3	0.29	0.20
1980	31	131	113.2	606.5	0.27	0.22
1981	38	169	120.7	727.2	0.31	0.23
1982	29	198	132.4	859.6	0.22	0.23
1983	28	226	142.2	1001.8	0.20	0.23
1984	19	245	164.7	1166.5	0.12	0.21
1985	22	267	177.0	1343.5	0.12	0.20
1986	19	286	168.6	1512.1	0.11	0.19
1987	8	294	174.2	1686.3	0.05	0.17
1988	10	304	194.7	1881.0	0.05	0.16
1989	22	326	210.2	2091.2	0.10	0.16
1990	30	356	261.5	2352.8	0.11	0.15
1991	27	383	281.1	2633.8	0.10	0.15
1992	39	422	271.9	2905.8	0.14	0.15
1993	22	444	270.4	3176.1	0.08	0.14
1994	21	465	276.0	3452.1	0.08	0.13
1995	14	479	289.0	3741.1	0.05	0.13
1996	10	489	302.4	4043.5	0.03	0.12
1997	18	507	317.0	4360.4	0.06	0.12
1998	17	524	324.6	4685.0	0.05	0.11
1999	15	539	318.9	5004.0	0.05	0.11
2000	12	551	325.4	5329.4	0.04	0.10
2001	6	557	339.8	5645.3	0.02	0.10

To 31 October 2001

Figure 5: Frequency of all reported incidents to all installations per year

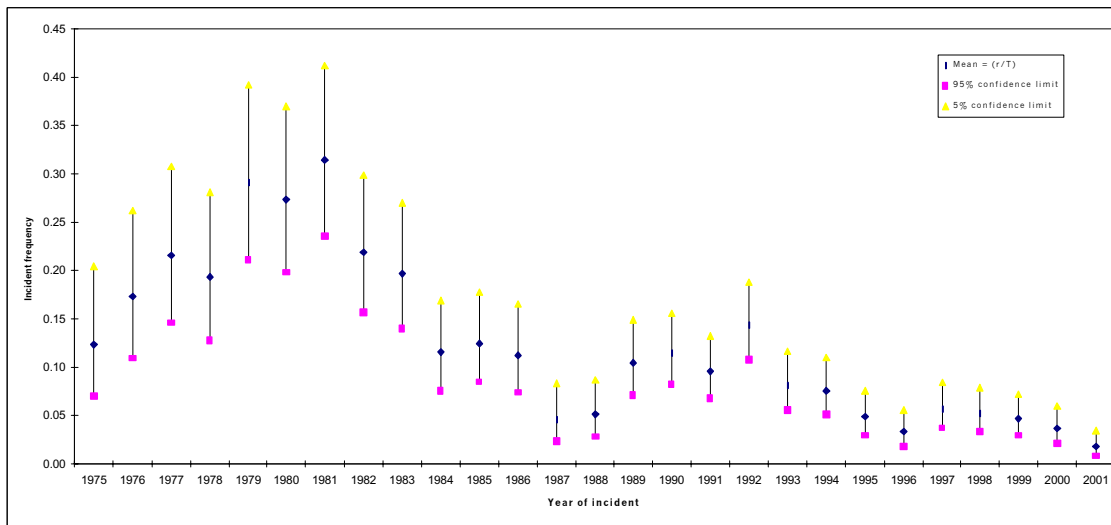


Figure 6: Frequency of moderate or severe damage to all installations per year

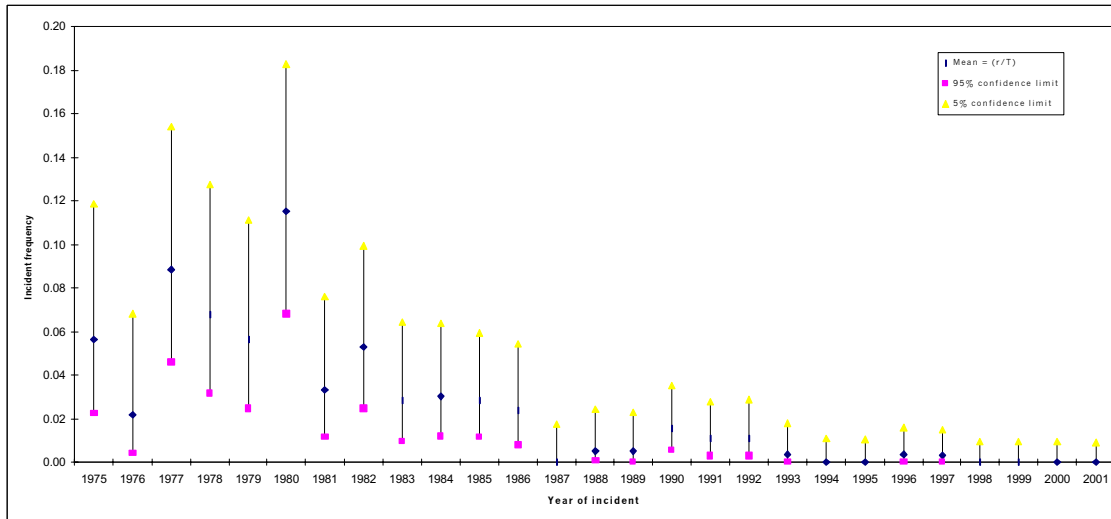
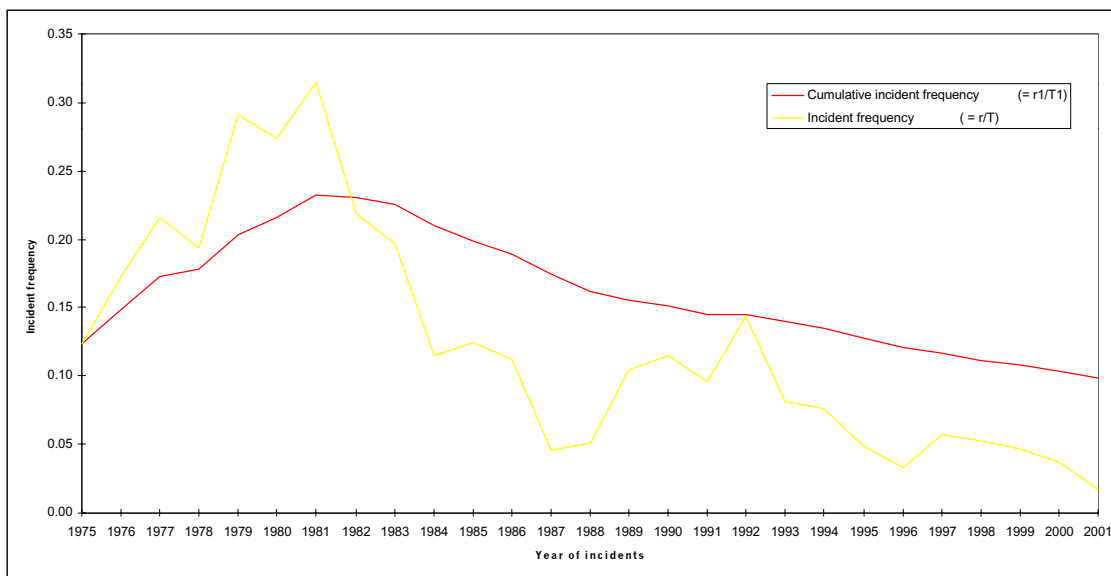


Figure 7: Mean and cumulative frequency of all reported incidents to all installations



There is a large spread in the annual incident frequency but generally the number of reported incidents tends to increase to a peak in 1981 before declining quite rapidly to a minimum in 1987. A second, lesser, peak occurred in 1992 before declining again. The rise in the mean incident frequency in 1992 can almost entirely be accounted for by the rise in the number of reported incidents involving semi-submersibles, and to a lesser extent jack-ups. This is broadly in line with the increase in mobile rig utilisation during this period with its attendant collision risks, for example when anchor handling.

Though the average, all incident frequency, has fluctuated considerably over the period of study the probability is on average 0.099 per year. Using the total operating experience this equates to 1 incident every 10.14 installation years or approximately 33 per annum for the current year level of installation activity. The analysis for reported incidents resulting in damage categorised as moderate or severe indicates the probability is on average 0.015 per year (1 incident every 65.64 years or approximately 5 every year for the current level of installation activity). These statistics are clearly at odds with the actual number of recorded incidents in recent years and highlight the general improvements made in support vessel operating practices.

3.2.2 Fixed installations

To provide a more meaningful statistical base, especially for installation types with smaller populations, the following types of installation have been included in this category. A total of 268 incidents were recorded where the installation type was stated to be in this category, or could be determined to be, with the following breakdown:

- Fixed steel installation 243 incidents
- Fixed concrete installation 20 incidents
- Tension leg platform 2 incidents
- Unspecified installation type 3 incidents

Table 8 and Figure 8 summarise the number and damage category of all incidents occurring to fixed installations. Eight incidents were classed as severe, 32 incidents as moderate and the remainder classed under minor or no damage, including 22 incidents where the damage was not specified but is believed to be minor or none.

Table 8: Damage resulting from incidents to fixed installations by year

Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1975	0	1	3	1	0	0	5
1976	2	1	1	0	0	0	4
1977	0	7	4	1	0	0	12
1978	0	1	3	0	0	0	4
1979	4	10	2	0	0	0	16
1980	1	9	6	2	1	0	19

Table 8: (continued)

Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1981	3	21	2	0	1	0	27
1982	3	10	6	0	0	0	19
1983	4	8	1	1	0	0	14
1984	0	5	0	0	1	0	6
1985	3	9	0	2	1	0	15
1986	5	8	2	0	0	0	15
1987	0	5	0	0	0	0	5
1988	0	1	0	0	0	0	1
1989	1	8	0	0	0	0	9
1990	2	12	2	0	0	0	16
1991	1	4	0	1	1	0	7
1992	1	9	0	0	2	0	12
1993	1	4	0	0	1	0	6
1994	1	8	0	0	1	0	10
1995	3	1	0	0	5	0	9
1996	2	5	0	0	1	0	8
1997	1	3	0	0	3	0	7
1998	0	2	0	0	2	0	4
1999	3	3	0	0	1	0	7
2000	1	6	0	0	1	0	8
2001	1	2	0	0	0	0	3
TOTAL	43	163	32	8	22	0	268
	16.0%	60.8%	11.9%	3.0%	8.2%	0.0%	100%

To 31 October 2001

Tables 9 and 10 show respectively, the mean frequency and confidence limits of all reported incidents and those categorised as resulting in moderate or severe damage occurring to fixed installations by year. Table 11 summarises the mean frequency in the year in question and also cumulatively to any year end from 1975. Figures 9, 10 and 11 graphically represent the variation in the results summarised in these tables.

Table 9: Frequency of all reported incidents to fixed installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	5	60.5	0.17	0.08	0.03
1976	4	70.5	0.13	0.06	0.02
1977	12	77.3	0.25	0.16	0.09
1978	4	84.3	0.11	0.05	0.02
1979	16	89.4	0.27	0.18	0.11
1980	19	91.2	0.31	0.21	0.14
1981	27	93.6	0.40	0.29	0.20
1982	19	99.9	0.28	0.19	0.12
1983	14	104.3	0.21	0.13	0.08
1984	6	112.6	0.11	0.05	0.02
1985	15	120.7	0.19	0.12	0.08
1986	15	127.3	0.18	0.12	0.07
1987	5	136.3	0.08	0.04	0.01
1988	1	142.5	0.03	0.01	0.00
1989	9	155.3	0.10	0.06	0.03
1990	16	160.4	0.15	0.10	0.06
1991	7	180.3	0.07	0.04	0.02
1992	12	185.3	0.10	0.06	0.04
1993	6	193.5	0.06	0.03	0.01
1994	10	212.5	0.08	0.05	0.03
1995	9	221.3	0.07	0.04	0.02
1996	8	225.5	0.06	0.04	0.02
1997	7	234.5	0.06	0.03	0.01
1998	4	241.4	0.04	0.02	0.01
1999	7	253.6	0.05	0.03	0.01
2000	8	261.5	0.06	0.03	0.02
2001	3	267.8	0.03	0.01	0.00

To 31 October 2001

Table 10: Frequency of moderate or severe damage to fixed installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	4	60.5	0.15	0.07	0.02
1976	1	70.5	0.07	0.01	0.00
1977	5	77.3	0.14	0.06	0.03
1978	3	84.3	0.09	0.04	0.01
1979	2	89.4	0.07	0.02	0.00
1980	8	91.2	0.16	0.09	0.04
1981	2	93.6	0.07	0.02	0.00
1982	6	99.9	0.12	0.06	0.03
1983	2	104.3	0.06	0.02	0.00
1984	0	112.6	0.03	0.00	#N/A
1985	2	120.7	0.05	0.02	0.00
1986	2	127.3	0.05	0.02	0.00
1987	0	136.3	0.02	0.00	#N/A
1988	0	142.5	0.02	0.00	#N/A
1989	0	155.3	0.02	0.00	#N/A
1990	2	160.4	0.04	0.01	0.00
1991	1	180.3	0.03	0.01	0.00
1992	0	185.3	0.02	0.00	#N/A
1993	0	193.5	0.02	0.00	#N/A
1994	0	212.5	0.01	0.00	#N/A
1995	0	221.3	0.01	0.00	#N/A
1996	0	225.5	0.01	0.00	#N/A
1997	0	234.5	0.01	0.00	#N/A
1998	0	241.4	0.01	0.00	#N/A
1999	0	253.6	0.01	0.00	#N/A
2000	0	261.5	0.01	0.00	#N/A
2001	0	267.8	0.01	0.00	#N/A

To 31 October 2001

Table 11: Mean and cumulative frequency of all reported incidents to fixed installations

Year	Number of incidents in year (r)	Cumulative number of incidents (r1)	Mean installations operating in year (T)	Cumulative operating experience (T1)	Incident frequency (= r/T)	Cumulative incident frequency (= r1/T1)
1975	5	5	60.5	60.5	0.08	0.08
1976	4	9	70.5	131.0	0.06	0.07
1977	12	21	77.3	208.4	0.16	0.10
1978	4	25	84.3	292.7	0.05	0.09
1979	16	41	89.4	382.1	0.18	0.11
1980	19	60	91.2	473.3	0.21	0.13
1981	27	87	93.6	566.9	0.29	0.15
1982	19	106	99.9	666.8	0.19	0.16
1983	14	120	104.3	771.1	0.13	0.16
1984	6	126	112.6	883.7	0.05	0.14
1985	15	141	120.7	1004.4	0.12	0.14
1986	15	156	127.3	1131.7	0.12	0.14
1987	5	161	136.3	1268.0	0.04	0.13
1988	1	162	142.5	1410.5	0.01	0.11
1989	9	171	155.3	1565.8	0.06	0.11
1990	16	187	160.4	1726.2	0.10	0.11
1991	7	194	180.3	1906.5	0.04	0.10
1992	12	206	185.3	2091.9	0.06	0.10
1993	6	212	193.5	2285.4	0.03	0.09
1994	10	222	212.5	2497.9	0.05	0.09
1995	9	231	221.3	2719.1	0.04	0.08
1996	8	239	225.5	2944.7	0.04	0.08
1997	7	246	234.5	3179.1	0.03	0.08
1998	4	250	241.4	3420.5	0.02	0.07
1999	7	257	253.6	3674.2	0.03	0.07
2000	8	265	261.5	3935.6	0.03	0.07
2001	3	268	267.8	4203.5	0.01	0.06
To 31 October 2001						

Figure 8: Damage resulting from incidents to fixed installations per year

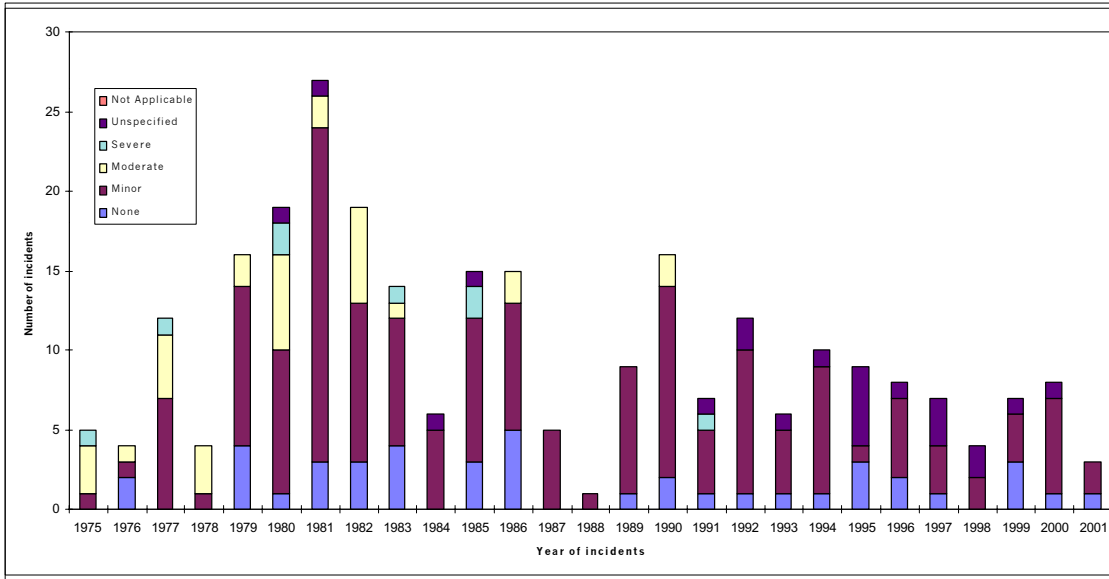


Figure 9: Frequency of all reported incidents to fixed installations per year

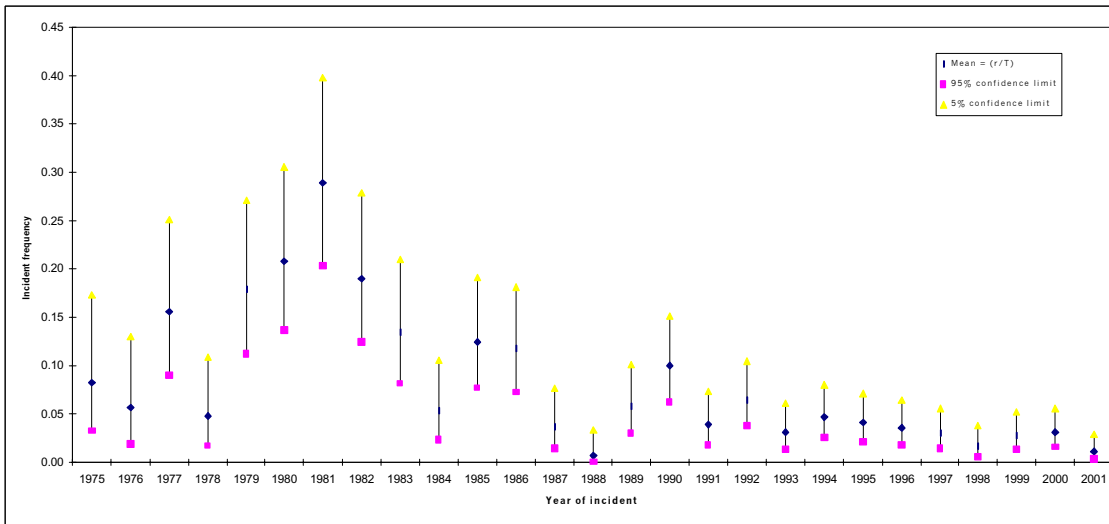


Figure 10: Frequency of moderate or severe damage to fixed installation per year

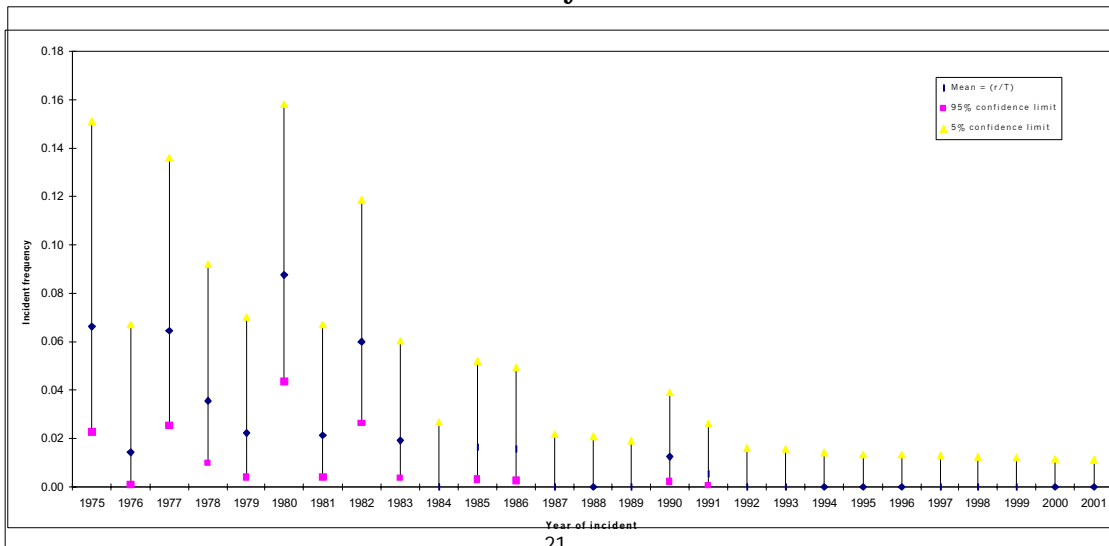


Figure 11: Mean and cumulative frequency of all reported incidents to fixed installations



Apart from 1978, in the early years of the study the mean incident frequency rose dramatically until 1981. Subsequent to this the incident frequency rose and fell over a relatively narrow range caused by an erratic number of incidents occurring each year and, prior to 1994, a reasonably consistent increase in the number of installations operating.

Over the whole period of study the probability of an incident occurring is on average 0.064 per year (1 incident every 15.68 years or approximately 17 every year for the current level of installation activity). The analysis for reported incidents resulting in damage categorised as moderate or severe indicates the probability is on average 0.009 per year (1 incident every 105.09 years or approximately 2.5 every year for the current level of installation activity). Recent experience indicates that these figures are an exaggeration of the actual number and are probably skewed by the larger incident frequencies in the early years of study adversely affecting the figure for the current level of activity.

3.2.3 Floating installations

Once again for statistical purposes a number of different installation types have been included in this category. All, however, are either floating units or such that the surface part can move with the action of the sea, i.e., articulated loading columns or single point moorings. A total of 210 incidents were recorded to installations of this type, with the following breakdown:

- Semi-submersible drilling 158 incidents
- Semi-submersible production 6 incidents
- Semi-submersible crane barge 2 incidents
- Semi-submersible emergency support 3 incidents
- Semi-submersible mobile support 5 incidents
- Semi-submersible accommodation 16 incidents

- Single buoy mooring 3 incidents
- Single point mooring 3 incidents
- Articulated loading column 1 incident
- Floating production and storage 10 incidents
- Floating storage 1 incident
- Drill ship 1 incident
- Barge 1 incident

Table 12 and Figure 12 summarise the number and damage category of all incidents occurring to floating installations. Eight incidents were classed as severe, 35 incidents as moderate and the remainder resulting in minor or no damage, including 20 incidents where the damage was not specified but is believed to be minor or none.

Table 12: Damage resulting from incidents to floating installations by year

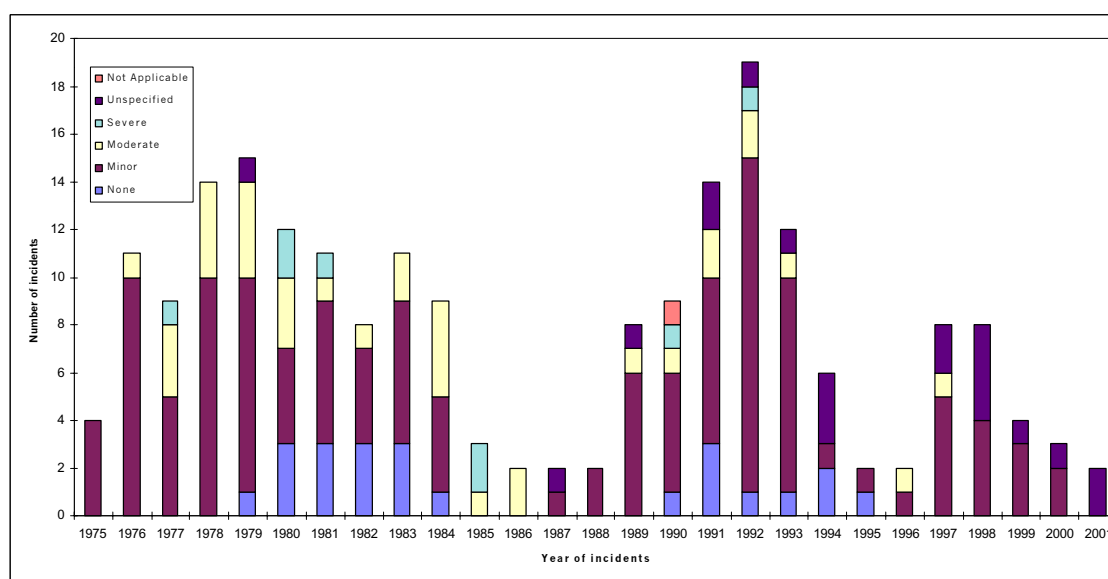
Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1975	0	4	0	0	0	0	4
1976	0	10	1	0	0	0	11
1977	0	5	3	1	0	0	9
1978	0	10	4	0	0	0	14
1979	1	9	4	0	1	0	15
1980	3	4	3	2	0	0	12
1981	3	6	1	1	0	0	11
1982	3	4	1	0	0	0	8
1983	3	6	2	0	0	0	11
1984	1	4	4	0	0	0	9
1985	0	0	1	2	0	0	3
1986	0	0	2	0	0	0	2
1987	0	1	0	0	1	0	2
1988	0	2	0	0	0	0	2
1989	0	6	1	0	1	0	8
1990	1	5	1	1	0	1	9
1991	3	7	2	0	2	0	14
1992	1	14	2	1	1	0	19
1993	1	9	1	0	1	0	12
1994	2	1	0	0	3	0	6
1995	1	1	0	0	0	0	2
1996	0	1	1	0	0	0	2
1997	0	5	1	0	2	0	8
1998	0	4	0	0	4	0	8

Table 12: (continued)

Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1999	0	3	0	0	1	0	4
2000	0	2	0	0	1	0	3
2001	0	0	0	0	2	0	2
TOTAL	23	123	35	8	20	1	210
	11.0%	58.6%	16.7%	3.8%	9.5%	0.5%	100%

To 31 October 2001

Figure 12: Damage resulting from incidents to floating installations by year



The mean frequency and confidence limits of all reported incidents and those categorised as resulting in moderate or severe damage occurring to semi-submersibles by year are summarised in Tables 13 and 14 respectively. Table 15 summarises the mean frequency in the year in question and also cumulatively to any year end from 1975. Figures 13, 14 and 15 graphically represent the variation in these results.

Table 13: Frequency of all reported incidents to floating installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	4	26.4	0.35	0.15	0.05
1976	11	19.6	0.93	0.56	0.31
1977	9	22.8	0.69	0.39	0.21
1978	14	17.6	1.24	0.80	0.48
1979	15	15.5	1.49	0.97	0.60

Table 13: (continued)

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1980	12	19.9	0.98	0.60	0.35
1981	11	23.7	0.77	0.46	0.26
1982	8	28.0	0.52	0.29	0.14
1983	11	29.7	0.61	0.37	0.21
1984	9	35.9	0.44	0.25	0.13
1985	3	38.0	0.20	0.08	0.02
1986	2	26.6	0.24	0.08	0.01
1987	2	24.0	0.26	0.08	0.01
1988	2	32.0	0.20	0.06	0.01
1989	8	31.9	0.45	0.25	0.12
1990	9	52.8	0.30	0.17	0.09
1991	14	57.4	0.38	0.24	0.15
1992	19	44.3	0.63	0.43	0.28
1993	12	40.3	0.48	0.30	0.17
1994	6	30.1	0.39	0.20	0.09
1995	2	34.9	0.18	0.06	0.01
1996	2	43.3	0.15	0.05	0.01
1997	8	44.9	0.32	0.18	0.09
1998	8	46.3	0.31	0.17	0.09
1999	4	35.4	0.26	0.11	0.04
2000	3	34.5	0.22	0.09	0.02
2001	2	40.0	0.16	0.05	0.01

To 31 October 2001

Table 14: Frequency of moderate or severe damage to floating installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	0	26.4	0.11	0.00	#N/A
1976	1	19.6	0.24	0.05	0.00
1977	4	22.8	0.40	0.18	0.06
1978	4	17.6	0.52	0.23	0.08
1979	4	15.5	0.59	0.26	0.09
1980	5	19.9	0.53	0.25	0.10
1981	2	23.7	0.27	0.08	0.01
1982	1	28.0	0.17	0.04	0.00
1983	2	29.7	0.21	0.07	0.01
1984	4	35.9	0.26	0.11	0.04
1985	3	38.0	0.20	0.08	0.02
1986	2	26.6	0.24	0.08	0.01
1987	0	24.0	0.12	0.00	#N/A
1988	0	32.0	0.09	0.00	#N/A
1989	1	31.9	0.15	0.03	0.00
1990	2	52.8	0.12	0.04	0.01
1991	2	57.4	0.11	0.03	0.01
1992	3	44.3	0.17	0.07	0.02
1993	1	40.3	0.12	0.02	0.00
1994	0	30.1	0.10	0.00	#N/A
1995	0	34.9	0.09	0.00	#N/A
1996	1	43.3	0.11	0.02	0.00
1997	1	44.9	0.11	0.02	0.00
1998	0	46.3	0.06	0.00	#N/A
1999	0	35.4	0.08	0.00	#N/A
2000	0	34.5	0.09	0.00	#N/A
2001	0	40.0	0.07	0.00	#N/A

To 31 October 2001

Table 15: Mean and cumulative frequency of all reported incidents to floating installations

Year	Number of incidents in year (r)	Cumulative number of incidents (r1)	Mean installations operating in year (T)	Cumulative operating experience (T1)	Incident frequency (= r/T)	Cumulative incident frequency (= r1/T1)
1975	4	4	26.4	26.4	0.15	0.15
1976	11	15	19.6	46.0	0.56	0.33
1977	9	24	22.8	68.8	0.39	0.35
1978	14	38	17.6	86.4	0.80	0.44
1979	15	53	15.5	101.9	0.97	0.52
1980	12	65	19.9	121.8	0.60	0.53
1981	11	76	23.7	145.5	0.46	0.52
1982	8	84	28.0	173.5	0.29	0.48
1983	11	95	29.7	203.2	0.37	0.47
1984	9	104	35.9	239.1	0.25	0.43
1985	3	107	38.0	277.1	0.08	0.39
1986	2	109	26.6	303.7	0.08	0.36
1987	2	111	24.0	327.7	0.08	0.34
1988	2	113	32.0	359.7	0.06	0.31
1989	8	121	31.9	391.6	0.25	0.31
1990	9	130	52.8	444.4	0.17	0.29
1991	14	144	57.4	501.8	0.24	0.29
1992	19	163	44.3	546.1	0.43	0.30
1993	12	175	40.3	586.4	0.30	0.30
1994	6	181	30.1	616.4	0.20	0.29
1995	2	183	34.9	651.4	0.06	0.28
1996	2	185	43.3	694.7	0.05	0.27
1997	8	193	44.9	739.6	0.18	0.26
1998	8	201	46.3	785.9	0.17	0.26
1999	4	205	35.4	821.4	0.11	0.25
2000	3	208	34.5	855.9	0.09	0.24
2001	2	210	40.0	882.6	0.05	0.24

To 31 October 2001

Figure 13: Frequency of all reported incidents to floating installations per year

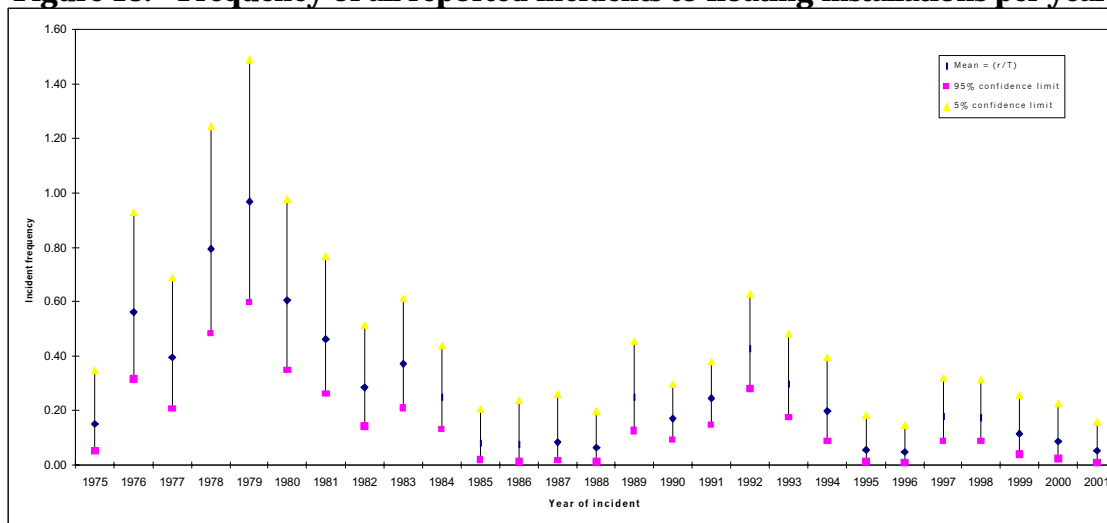


Figure 14: Frequency of moderate or severe damage to floating installations per year

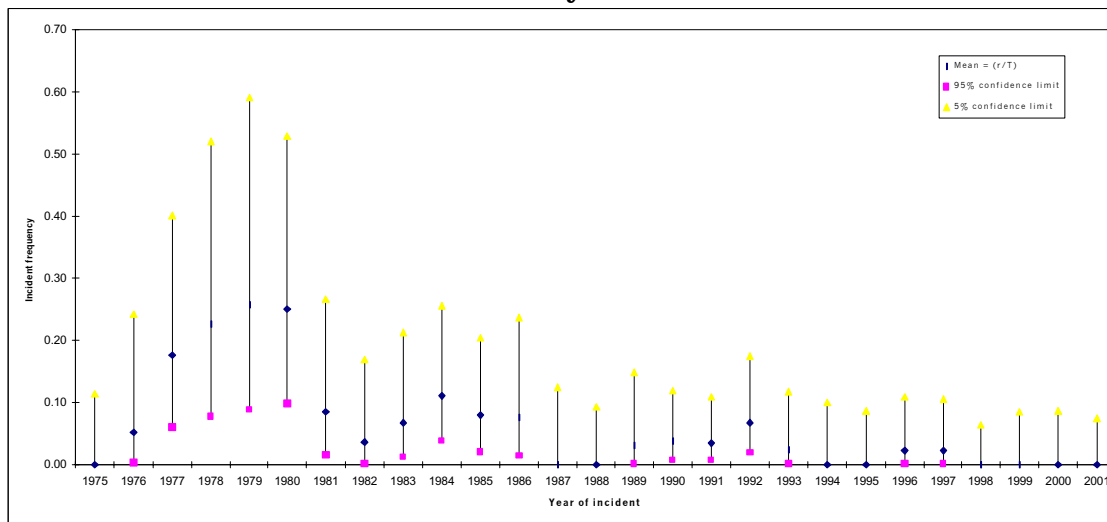
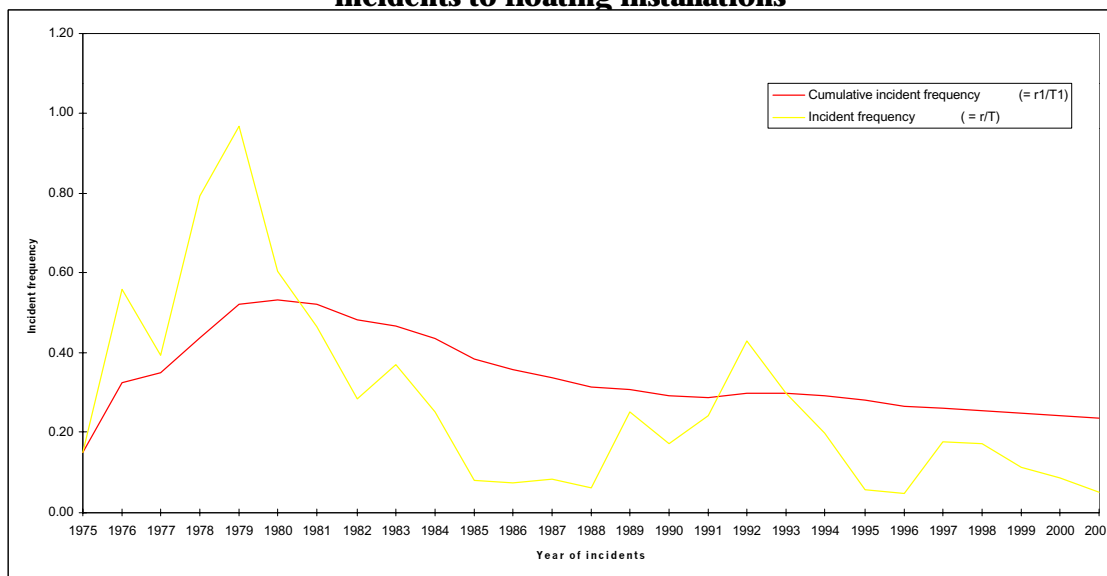


Figure 15: Mean and cumulative frequency of all reported incidents to floating installations



Overall there is a large spread in the annual incident frequency. The number of reported incidents increased to a peak in 1979 before declining to a minimum in the years 1986 to 1988. An increase in the annual incident frequency then occurred up to a second, lesser, peak in 1992, this generally being in line with the increase in semi-submersible utilisation. A minimum frequency occurred in 1995 and 1996, however, in more recent years the frequency has again increased before gradually decreasing again.

Over the whole period of study the probability of an incident occurring is on average 0.238 per year (1 incident every 4.20 years or approximately 9 every year for the current level of installation activity). The analysis for reported incidents resulting in damage categorised as moderate or severe indicates the probability is on average 0.049 per year (1 incident every 20.53 years or approximately 2 every year for the current level of installation activity). Recent experience indicates that these figures are an exaggeration of the actual number.

The probability of a floating installation suffering damage categorised as moderate or severe is five times more likely than that for fixed installations and nine times more likely than for jack-ups. The reasons for this increased susceptibility are not clear however, it may be explained by floating installations being mobile and therefore it is possible that they may be prone to errors in manoeuvrability or slight movement while moored. Increased risk may also result from the need for anchor handling, which other types of installations do not require, as this is likely to bring attendant vessels into close proximity more frequently leading to the possibility of collision. Further investigation of the database reveals that anchor handling was given as the “Operating Circumstance” in 18 of 180 incidents where this data was recorded for floating installations.

3.2.3.1 Floating Production, Storage and Offloading and Floating Storage Units

Over approximately the last decade the UKCS has seen an increasing trend towards the use of floating production, storage and offloading (FPSO) and floating storage units (FSU) as a cost effective method, particularly in deep waters, of producing and holding oil prior to transfer to onshore terminals

As the data set has expanded it was considered appropriate to look at this class of installation in greater detail than is possible when they are incorporated within the large ‘Floating Installations’ grouping. Accordingly, an overview of the incidents affecting FPSO has been developed:

- 10 incidents to FPSOs and 1 incident to a FSU since 1992 (1 in 1992, 3 in 1993, 4 in 1997 and 3 in 1998).
- 3 incidents occurred in February, 1 incident in March, 2 incidents in April, 2 incidents in July, 1 incident in August and 2 incidents in September.
- 5 incidents occurred in the ‘Central North Sea’, 3 incidents in the ‘Northern North Sea’, 2 incidents ‘West of Shetlands’ and the location was ‘unspecified’ in 1 incident.
- 1 incident with an anchor handler, 1 incident with a stand by vessel, 6 with a supply vessel and 3 incidents with an offloading shuttle tanker.
- 3 incidents resulted in ‘unspecified’ damage to the FPSO and 8 incidents resulted in ‘minor’ damage.

- ‘Anchor handling’ was the operating circumstance in 2 incidents, ‘bunkering operations in 1 incident, ‘cargo transfer’ (cargo of the colliding vessel being transferred to the FPSO/FSU) in 5 incidents and oil transfer to the shuttle tanker in 3 incidents.
- ‘Mechanical control failure’ (i.e., bowthruster failure, D.P. control failure, D.P. failure) was the primary cause in 4 incidents; ‘human control failure’ was the primary cause in 3 incidents (i.e., misjudgement, operator error); ‘external factors’ (i.e., weather conditions) was the primary cause in 2 incidents and was ‘unspecified’ in 2 incidents.

3.2.4 Jack-ups

A total of 79 incidents were recorded to installations of this type. Table and Figure 16 summarise the number and damage category of all incidents occurring to jack-ups. One incident (Glomar Labrador 1/Irving Forest - 23/06/88) was classed as severe, 2 incidents as moderate and the remainder resulting in minor or no damage, including 13 incidents where the damage was not specified but is believed to be minor or none.

Figure 16: Damage resulting from incidents to jack-up installations by year

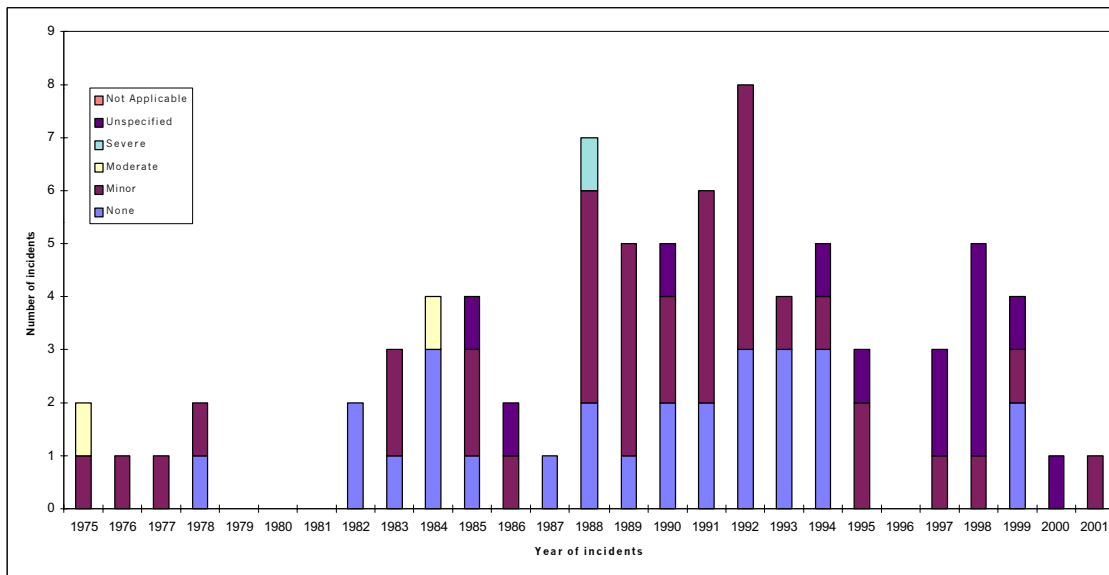


Table 16: Damage resulting from incidents to jack-up installations by year

Year	Installation damage class						TOTAL
	None	Minor	Moderate	Severe	Unspecified	Not Applicable	
1975	0	1	1	0	0	0	2
1976	0	1	0	0	0	0	1
1977	0	1	0	0	0	0	1
1978	1	1	0	0	0	0	2
1979	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1982	2	0	0	0	0	0	2
1983	1	2	0	0	0	0	3
1984	3	0	1	0	0	0	4
1985	1	2	0	0	1	0	4
1986	0	1	0	0	1	0	2
1987	1	0	0	0	0	0	1
1988	2	4	0	1	0	0	7
1989	1	4	0	0	0	0	5
1990	2	2	0	0	1	0	5
1991	2	4	0	0	0	0	6
1992	3	5	0	0	0	0	8
1993	3	1	0	0	0	0	4
1994	3	1	0	0	1	0	5
1995	0	2	0	0	1	0	3
1996	0	0	0	0	0	0	0
1997	0	1	0	0	2	0	3
1998	0	1	0	0	4	0	5
1999	2	1	0	0	1	0	4
2000	0	0	0	0	1	0	1
2001	0	1	0	0	0	0	1
TOTAL	27	36	2	1	13	0	79
	34.2%	45.6%	2.5%	1.3%	16.5%	0.0%	100%

To 31 October 2001

The mean frequency and confidence limits of all reported incidents and those categorised as resulting in moderate or severe by year are summarised in Tables 17 and 18 respectively. Table 19 summarises the mean frequency in the year in question and also cumulatively to any year end from 1975. Figures 17, 18 and 19 graphically represent the variation in these results.

Table 17: Frequency of all reported incidents to jack-up installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	2	1.9	3.31	1.05	0.19
1976	1	2.5	1.90	0.40	0.02
1977	1	1.9	2.50	0.53	0.03
1978	2	1.4	4.50	1.43	0.25
1979	0	1.6	1.87	0.00	#N/A
1980	0	2.1	1.43	0.00	#N/A
1981	0	3.4	0.88	0.00	#N/A
1982	2	4.5	1.40	0.44	0.08
1983	3	8.2	0.95	0.37	0.10
1984	4	16.2	0.57	0.25	0.08
1985	4	18.3	0.50	0.22	0.07
1986	2	14.7	0.43	0.14	0.02
1987	1	13.9	0.34	0.07	0.00
1988	7	20.2	0.65	0.35	0.16
1989	5	23.0	0.46	0.22	0.09
1990	5	48.4	0.22	0.10	0.04
1991	6	43.3	0.27	0.14	0.06
1992	8	42.3	0.34	0.19	0.09
1993	4	36.6	0.25	0.11	0.04
1994	5	33.4	0.31	0.15	0.06
1995	3	32.8	0.24	0.09	0.02
1996	0	33.5	0.09	0.00	#N/A
1997	3	37.6	0.21	0.08	0.02
1998	5	36.8	0.29	0.14	0.05
1999	4	29.9	0.31	0.13	0.05
2000	1	29.4	0.16	0.03	0.00
2001	1	32.0	0.15	0.03	0.00

To 31 October 2001

Table 18: Frequency of moderate or severe damage to jack-up installations per year

Year	Number of incidents in year (r)	Mean installations operating in year (T)	Incident frequency (per installation per year)		
			5% confidence limit	Mean = (r/T)	95% confidence limit
1975	1	1.9	2.50	0.53	0.03
1976	0	2.5	1.20	0.00	#N/A
1977	0	1.9	1.58	0.00	#N/A
1978	0	1.4	2.14	0.00	#N/A
1979	0	1.6	1.87	0.00	#N/A
1980	0	2.1	1.43	0.00	#N/A
1981	0	3.4	0.88	0.00	#N/A
1982	0	4.5	0.67	0.00	#N/A
1983	0	8.2	0.37	0.00	#N/A
1984	1	16.2	0.29	0.06	0.00
1985	0	18.3	0.16	0.00	#N/A
1986	0	14.7	0.20	0.00	#N/A
1987	0	13.9	0.22	0.00	#N/A
1988	1	20.2	0.23	0.05	0.00
1989	0	23.0	0.13	0.00	#N/A
1990	0	48.4	0.06	0.00	#N/A
1991	0	43.3	0.07	0.00	#N/A
1992	0	42.3	0.07	0.00	#N/A
1993	0	36.6	0.08	0.00	#N/A
1994	0	33.4	0.09	0.00	#N/A
1995	0	32.8	0.09	0.00	#N/A
1996	0	33.5	0.09	0.00	#N/A
1997	0	37.6	0.08	0.00	#N/A
1998	0	36.8	0.08	0.00	#N/A
1999	0	29.9	0.10	0.00	#N/A
2000	0	29.4	0.10	0.00	#N/A
2001	0	32.0	0.09	0.00	#N/A

To 31 October 2001

Table 19: Mean and cumulative frequency of all reported incidents to jack-up installations

Year	Number of incidents in year (r)	Cumulative number of incidents (r1)	Mean installations operating in year (T)	Cumulative operating experience (T1)	Incident frequency (= r/T)	Cumulative incident frequency (= r1/T1)
1975	2	2	1.9	1.9	1.05	1.05
1976	1	3	2.5	4.4	0.40	0.68
1977	1	4	1.9	6.3	0.53	0.63
1978	2	6	1.4	7.7	1.43	0.78
1979	0	6	1.6	9.3	0.00	0.65
1980	0	6	2.1	11.4	0.00	0.53
1981	0	6	3.4	14.8	0.00	0.41
1982	2	8	4.5	19.3	0.44	0.41
1983	3	11	8.2	27.5	0.37	0.40
1984	4	15	16.2	43.7	0.25	0.34
1985	4	19	18.3	62.0	0.22	0.31
1986	2	21	14.7	76.7	0.14	0.27
1987	1	22	13.9	90.6	0.07	0.24
1988	7	29	20.2	110.8	0.35	0.26
1989	5	34	23.0	133.8	0.22	0.25
1990	5	39	48.4	182.2	0.10	0.21
1991	6	45	43.3	225.6	0.14	0.20
1992	8	53	42.3	267.8	0.19	0.20
1993	4	57	36.6	304.4	0.11	0.19
1994	5	62	33.4	337.8	0.15	0.18
1995	3	65	32.8	370.6	0.09	0.18
1996	0	65	33.5	404.1	0.00	0.16
1997	3	68	37.6	441.7	0.08	0.15
1998	5	73	36.8	478.6	0.14	0.15
1999	4	77	29.9	508.5	0.13	0.15
2000	1	78	29.4	537.9	0.03	0.15
2001	1	79	32.0	559.2	0.03	0.14

To 31 October 2001

Figure 17: Frequency of all reported incidents to jack-up installations per year

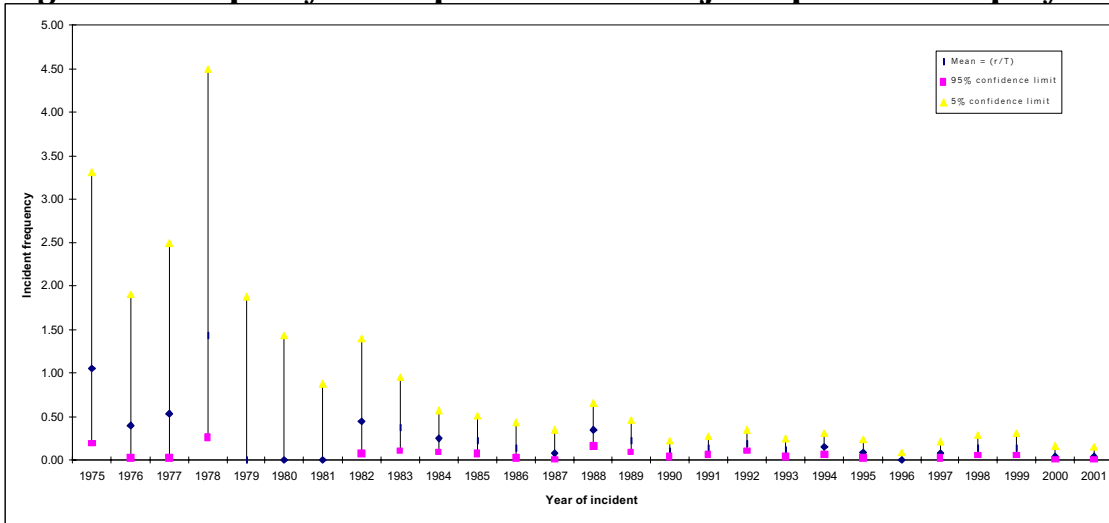


Figure 18: Frequency of moderate or severe damage to jack-up installations per year

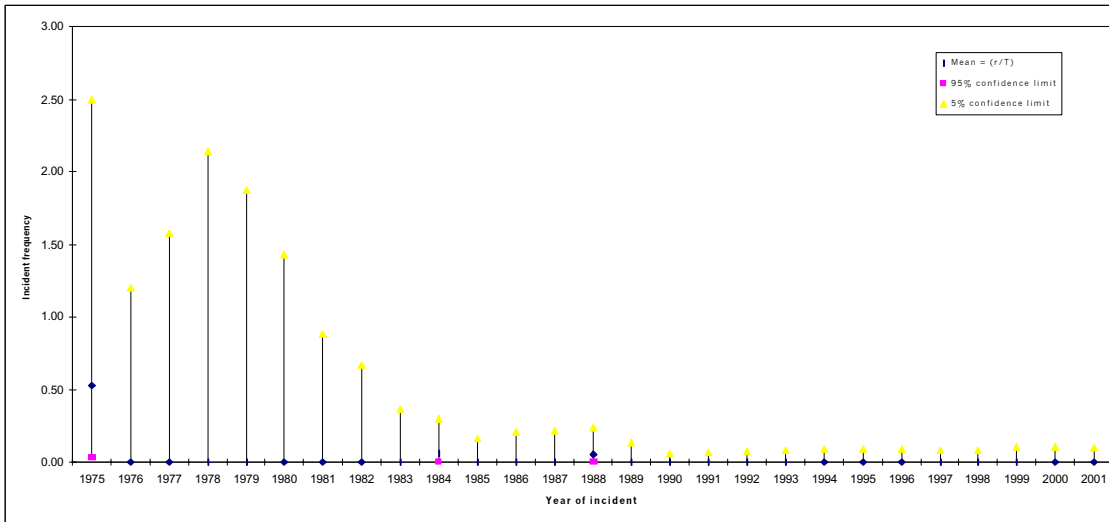
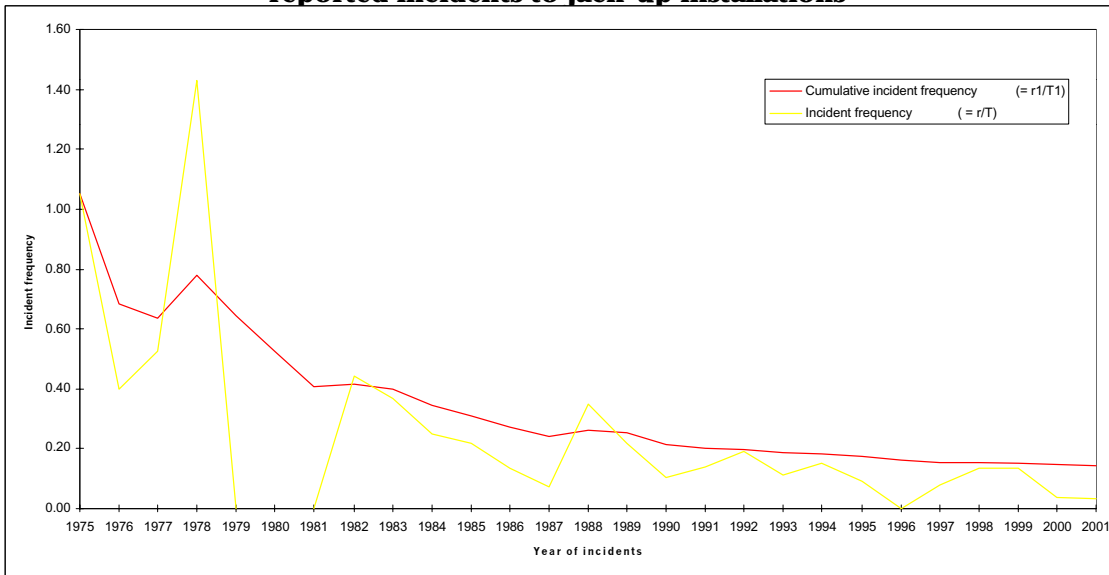


Figure 19: Mean and cumulative frequency of all reported incidents to jack-up installations



The relatively small jack-up population, especially in the early years of the study, has to a degree devalued the data. Post 1983 jack-up utilisation increased four fold from two years previously and thereafter mean incident frequency remained within a reasonably narrow band in relation to the constraints imposed by a small population.

Over the whole period of study the probability of an incident occurring is on average 0.141 per year (1 incident every 7.08 years or approximately 4.5 every year for the current level of installation activity). The analysis for reported incidents resulting in damage categorised as moderate or severe indicates the probability is on average 0.005 per year (1 incident every 186.4 years or approximately 1 every 6 years for the current level of installation activity). Recent experience indicates that these figures are an exaggeration of the actual number and is probably skewed by the larger incident frequencies in the early years of study adversely affecting the figure for the current level of activity.

3.2.5 Summary of incident frequencies

A summary of incident frequencies for all vessel types and those involving passing vessels is presented as Table 20 and Table 21, respectively. The tables have been generated using both the number of all recorded incidents and those which only resulted in damage classified as severe or moderate. Installation types have been analysed both cumulatively and separately.

Table 20: Summary of mean incident frequencies of all reported incidents and moderate or severe damage category incidents (all vessel types)

Installation/rig type	Mean incident frequency: 1975 to 31/10/2001	
	All reported incidents/year	Incidents resulting in moderate or severe damage/year
All installations	0.0987	0.0152
Fixed installations	0.0638	0.0095
Semi-submersibles	0.2379	0.0487
Jack-ups	0.1413	0.0054

Table 21: Summary of mean incident frequencies of all reported incidents and moderate or severe damage category incidents (passing vessels)

Installation/rig type	Mean incident frequency: 1975 to 31/10/2001	
	All reported incidents/year	Incidents resulting in moderate or severe damage/year
All installations	0.0014	0.0004
Fixed installations	0.0012	0.0002
Semi-submersibles	0.0000	0.0000
Jack-ups	0.0054	0.0018

3.3 OPERATING CIRCUMSTANCES

A wide variety of 'operating circumstances' have been reported by those making the collision incident report. In the context of the database the operating circumstance is a fairly broad grouping of categories of what activity the vessel was engaged in when the collision occurred. Table 22 presents an overview of the activities that were reported together with a measure of what proportion of the total number of incidents a particular operating circumstance was mentioned.

The most common type of activity leading to a collision with the installation is one involving the transfer of cargo whereas the second most frequent involves vessels that are approaching the installation, possibly to transfer cargo. This is not surprising as it is by far the most frequent occurrence that puts a vessel into close proximity to an installation and one that requires the vessel to maintain station with respect to the installation. Depending on the level of vessel's equipment, i.e., dynamic positioning, conventional thrusters or a standard propeller and rudder, the possibility of excursion and contact with the installation is more or less likely to occur.

Table 22: Operating circumstances at time of incident

Operating circumstances	Number of occurrences	
Anchor Handling	18	3.2%
Approaching Installation	103	18.5%
Awaiting Cargo Transfer	1	0.2%
Bunkering Operations	4	0.7%
Cargo Loading	11	2.0%
Cargo Transfer	128	23.0%
Cargo Unloading	63	11.3%
Cargo Unloading - Containers	11	2.0%
Close Support	29	5.2%
Departing Installation	6	1.1%
Disconnecting Towing Line	1	0.2%
Diving Operations	23	4.1%
Loading Crude Oil	5	0.9%
Maintenance	1	0.2%
Man Overboard Drill	2	0.4%
Passing Cargo Vessel	2	0.4%
Passing Fishing Vessel	5	0.9%
Passing Supply Vessel	1	0.2%
Personnel Transfer	6	1.1%
Rock Dumping	1	0.2%
Surveying	4	0.7%
Towing	1	0.2%
Unspecified	131	23.5%
TOTALS	557	100.0%

To 31 October 2001

3.4 CAUSATION FACTORS

The database contains a “Primary Cause” field wherein the perceived cause of the incident has been stated. These data have been recorded for 375 incidents. Although the database records the primary cause as precisely as possible, to gain a clearer understanding of the causation factors the primary causes have been broken down into 4 main categories. In the author’s opinion, analysis of the primary cause field has yielded the main categories to be; external factors; mechanical control failure; human control failure; watchkeeping failure. Table 23 lists the primary cause and number within each category.

Table 23: Primary cause factors

External factors		Mechanical control failure		Human control failure		Watchkeeping failure		Unspecified
Sub-categories	Number of occurrence	Sub-categories	Number of occurrence	Sub-categories	Number of occurrence	Sub-categories	Number of occurrence	Number of occurrence
Anchor Dragged	11	Anchor Chain Broke	1	D.P. Operator Error	1	Post/Operation Neglected	15	182
Anchor Dragged Due Weather	2	Autopilot Failure	2	Error in Mooring Procedure	2	-	-	-
Obscured Vision	1	Bowthruster Failure	2	Manoeuvring Misjudgement	3	-	-	-
Poor Visibility	1	Clutch Failure	1	Misjudgement	124	-	-	-
Weather Conditions	67	Crane Failure	1	Misjudgement by Poor Visibility	2	-	-	-
-	-	D.P. Computer Failure	2	Misjudgement by Poor Weather	1	-	-	-
-	-	D.P. Control Failure	7	Operator Error	18	-	-	-
-	-	D.P. Electrical Failure	3	Untangling Nets	1	-	-	-
-	-	D.P. Failure	17	-	-	-	-	-
-	-	D.P. Remote Control Failure	1	-	-	-	-	-
-	-	D.P. Thruster Failure	4	-	-	-	-	-
-	-	Electrical Failure	4	-	-	-	-	-
-	-	Engine Control Failure	26	-	-	-	-	-
-	-	Engine Failure	3	-	-	-	-	-
-	-	Engine Power Failure	13	-	-	-	-	-
-	-	Mooring Failure	9	-	-	-	-	-
-	-	Power Failure	4	-	-	-	-	-
-	-	Propeller Failure	1	-	-	-	-	-
-	-	Rudder Misaligned	1	-	-	-	-	-
-	-	Steering Control Failure	1	-	-	-	-	-
-	-	Steering Failure	4	-	-	-	-	-
-	-	Thruster Control Failure	3	-	-	-	-	-
-	-	Thruster Electrical Failure	1	-	-	-	-	-
-	-	Thruster Failure	9	-	-	-	-	-
-	-	Total Power Loss	6	-	-	-	-	-
TOTALS	82	-	126	-	152	-	15	182
	14.7%	-	22.6%	-	27.3%	-	2.7%	32.7%

To 31 October 2001

Analysis of the results indicates, as perhaps is to be expected, that the majority of incidents involving “attendant vessels” has a primary cause linked to some form of control failure; be it either human or mechanical. Furthermore, while the category of external factors contains predominantly environmental causes, it may be argued that these too should fall within the human control failure as perhaps the operation should have been aborted or postponed if conditions were so severe so as to possibly lead to a collision.

Watchkeeping failure was assessed as the primary cause in each “passing vessel” incident. Unfortunately, the precise nature of the watchkeeping failure is unknown, and is unlikely to remain so unless an impartial, third party investigation into the full circumstances of the accident is initiated and reported.

3.5 GEOGRAPHICAL DISTRIBUTION

For the purposes of this analysis all installation types have been combined. Jack-up installations are rarely used in the Northern North Sea, and similarly semi-submersibles are less likely in the shallower waters of the Southern North Sea. To analyse the data by individual installation types may suggest that some types have experienced less incidents in certain areas, when in reality their populations are very small.

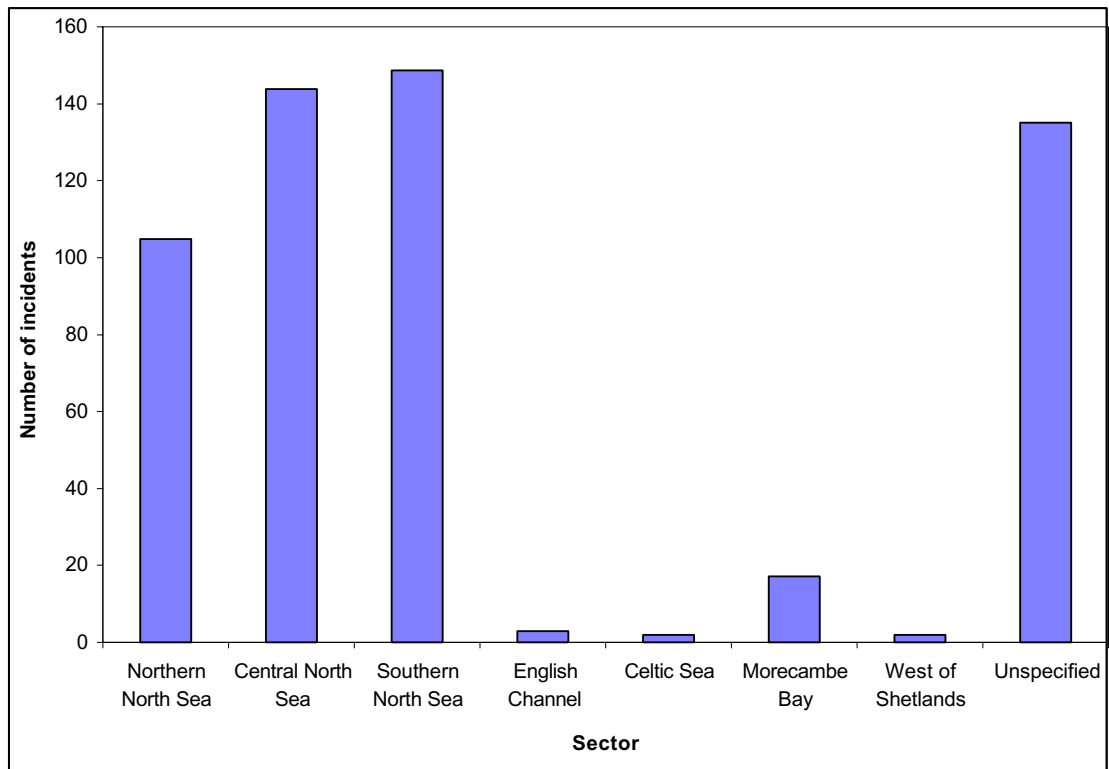
A simple comparison of the number of incidents occurring in each sector of the UKCS has been produced in Table 24 and graphically in Figure 20. These highlight those areas that have historically suffered most incidents, however, it should be viewed against the very different levels of activity between sectors. Unless the number of incidents is compared with the total number of installations operating in that sector a relative frequency is impossible to determine. Unfortunately, sector activity throughout the period of study is difficult to achieve with any degree of accuracy as mobile units move location frequently even when engaged under the same contract.

Table 24: Geographical distribution of incidents

Sector	Incidents	
	Number	Percentage
Northern North Sea	105	18.85%
Central North Sea	144	25.85%
Southern North Sea	149	26.75%
English Channel	3	0.54%
Celtic Sea	2	0.36%
Morecambe Bay	17	3.05%
West of Shetlands	2	0.36%
Unspecified	135	24.24%

To 31 October 2001

Figure 20: Geographical distribution of incidents



Of particular interest is the geographical distribution of “passing vessel” incidents as these tend to be more location specific than those of “attendant vessels”. The 8 passing vessels incidents all occurred in the Southern North Sea.

4 Discussion

4.1 INCIDENT FREQUENCIES

In the period since 1992 the mean incident frequency has generally shown a downward trend, particularly for those incidents which, in accordance with the outlined criteria, result in moderate or severe damage. For the most part this may be due to the adoption of improved working practices by installation operators and of better standards of attendant vessel repair and maintenance by their owners/operators. The exception to this is the frequency of incidents to semi-submersibles, where, in 1996 and 1997, the frequency increased slightly resulting in an almost constant cumulative incident frequency. The reasons for this increase could not be explained, other than perhaps to suggest that there was a degree of under reporting in the previous years.

4.2 DATA COMPLETENESS

Despite exhaustive cross-checking, a number of otherwise unsubstantiated incidents are contained within the database. While this is perhaps to be expected in the early part of the study it has even occurred in more recent years (post 1990), predominantly for incidents where little or no damage has resulted. To some extent this is not surprising. Individual O.I.M.'s are responsible for the completion of OIR/9A forms, and where a minor contact has occurred, possibly not resulting in any damage to the installation, the need to complete a report may not be apparent. In this respect it is believed that the database has suffered a degree of under-reporting such that undue confidence should not be placed in the completeness of the 'minor', 'unspecified' and 'none' damage categories. Further, these concerns are compounded by the unknown accuracy of incidents to normally unattended installations.

The quantification of confidence in the various damage categories is extremely difficult to predict with accuracy. Using only the 'minor', 'unspecified', and 'none' damage categories, if the number of incidents where a confirming source is recorded is compared to the total number, the figure is 31.7% (149 confirmed of 470 incidents). Conversely, where damage categorised as 'moderate' or 'severe' has occurred, the same method produces a figure of 48.8% (42 confirmed of 86 incidents). When the years 1991-2001 are considered (1991 being the year in which the MAIB database, as a supporting source, commenced) figures of 30.7% and 78% are produced for, respectively, 'minor', 'unspecified', 'none'; and 'moderate', 'severe' categories.

4.3 PASSING VESSELS

Fortunately, over the whole period of study, collision incidents involving "passing vessels" have occurred very infrequently. Of the 557 recorded incidents only 8 have involved passing vessels and either fixed steel or jack-up installations; that other installation types have not been involved would seem to be fortuitous rather than due to anything inherent in their design. The potential for severe damage, possibly even catastrophic, is greatly

increased when passing vessels infringe the 500 metres safety zone, whether by accident or design. The kinetic energy possessed by passing cargo vessels and tankers may result in even a glancing blow causing major structural damage. The potential for a passing vessel to collide with an installation is to a large extent outside the control of the installation operator and its attendant stand-by vessel, though if timely action is taken to warn an errant vessel it may be possible to influence their actions.

All passing vessel collisions have occurred in the Southern North Sea and to some extent this is not surprising. The waters in this area are more densely populated with passing commercial shipping traffic engaged on domestic coastal voyages, short sea international traffic between UK ports and the near continent and long international voyages between 'foreign' ports and North European ports. To this should be added the large numbers of inshore and near water fishing vessels from both East Coast UK and near continent ports.

Coupled to the increase in traffic density is the need for much of this traffic to follow traffic lanes rather than being able to follow their courses at will. Many of the traffic lanes are in the form of International Maritime Organisation (IMO) adopted traffic separation schemes whereas others have developed over time and are now 'customary' routes.

The historic development of the oil and gas industry in the region has seen a relatively large number of installations in locations in fairly close proximity to the traffic lanes, both customary and mandatory, and what is perhaps more surprising are the relatively few passing vessel incidents when viewed against this backdrop. Certainly, based on anecdotal evidence of vessel/vessel collisions it is felt the incident frequency for vessel/platform collisions is far lower than for vessel/vessel collisions in the same area. However, this assumption is not based on any formal analysis rather than on the MAIB's simple accident data not taking into account populations etc.

It can be argued that in some respects the existence of large numbers of vessels and installations in close proximity ought to lead to a heightened awareness among vessel watchkeepers compared to areas where vessels/installations are less numerous. Unfortunately, the passing vessel data do not reinforce this argument and it appears that installations in the Southern North Sea are at greater risk than those in other areas; probably because the increased awareness of vessel watchkeepers fails to keep pace with the increase in risk in congested areas.

4.4 PRIMARY CAUSE

In apportioning a "primary cause" to an incident great faith has been placed in the contents of the OIR/9A forms. Almost exclusively, these have been completed by personnel on board the installation who may, or may not, have contacted those on board the relevant vessel to determine their opinion of the circumstances. It is quite possible that where, for instance, the primary cause is stated to be 'judgement', this may be the Offshore Installation Manager's (O.I.M.) assessment based on second hand information from those witnessing the incident, rather than after discussion with subject vessel's Master.

5 Analysis of Platform Supply Vessel Fleet and Commercial Shipping Trends on the UKCS

5.1 INTRODUCTION

With the entering into statute of The Statistical Returns (Carriage of Goods and Passengers by Sea) Regulations 1997 (S.I. No. 2330/97) and the advent of the Maritime Statistics Collection Agency (MARSTATS) on 1 January 2000 it has become possible to develop information about a number of factors that may have an impact on ship/platform collision incidents generally. At HSE's request data about several related issues were obtained from the data set held by MARSTATS of behalf of the Department of Transport, Local Government and the Regions (DTLR).

Information about the number of voyages into and out of U.K. ports from/to the UKCS, the identity of the vessels involved and the type of cargo carried by those vessels has been extracted from MARSTATS. The statutory duty on shipping lines or their agents to supply the information is limited to cargo loaded/discharged at the U.K.'s 'major' ports. These are defined as ports having a total annual throughput exceeding 1 million tonnes, of which there are 52 in the U.K. There is no reporting requirement for vessels loading/discharging in ports that handle less than 1 million per year, of which several are involved in the offshore oil and gas industry, for example, Montrose and Lowestoft, therefore it is certain that the data analysed does not represent all offshore traffic. Furthermore, although it is a legal requirement for shipping lines or their agents to supply the data it is almost inevitable that there may be a degree of under reporting in even the 'major' ports; the extent of which is not known with certainty. Bearing these in mind, the figures presented below represent the minimum estimate of vessels actively engaged in platform supply operations or shuttle tanker activity.

5.2 PLATFORM SUPPLY VESSELS

For some time there has been an unsubstantiated belief among some in HSE that the development of platform supply vessels (PSV) over time has led to a gradual increase in size, both in terms of their external dimensions and tonnages. The Maritime Statistics Collection Agency holds a listing of all currently registered commercial vessels together with detailed information about their type, dimensions, tonnages, year of build, speed and flag etc. Although information about a vessel's displacement is not included in the MARSTATS fleet list, at HSE's request an attempt has also been made to determine this by using the other available parameters as well as an assumed block coefficient of 0.77. The block coefficient figure was chosen in consultation with staff within HSE.

Using the primary search criterion of 'type = offshore supply' an extract of the fleet list was taken to assess how the main vessel criteria have changed. The search produced a total of 2827 current vessels. The oldest vessel listed as 'offshore supply' was built in 1943 and

of the vessels built between then and 1960 only 33 are listed as current. For statistical purposes vessels built prior to 1961 have been excluded.

It is stressed that the information produced depends entirely on the correct classification of vessel type within the fleet list. It is believed, for instance, that a number of vessels that are now working as Emergency Response and Rescue Vessels (ERRV) but where previously PSV still retain their original classification as 'offshore supply'. Furthermore, some vessels that are actually diver support vessels are classified as 'offshore supply'. The latter misclassification will have a bearing on the analyses, particularly on the comparison of vessel dimensions, because of the generally larger size of these vessels that will tend to increase the averages disproportionately. Notwithstanding this, the figures presented are believed to give a good appreciation of the trends in changing of vessel dimensions/tonnages if not a comparison in absolute terms.

Although the fleet list held by MARSTATS contains a large number of vessels listed as 'offshore supply' there are a number of gaps within the data and where certain of the parameters for a particular vessel are unknown then a '0' is recorded. This has occurred in for various parameters i.e., dimensions, tonnages, speed etc. To avoid skewing the results of the parameter analysis it has been necessary to exclude those vessels where a parameter is unknown. For example, of the 35 vessels listed as being built in 1997 the vessel's length was not known in 1 case and the deadweight not known in 6 cases. The average vessel length for 1997 built vessels was based on the 34 vessels where this was known and, similarly, for the deadweight, was based on 29 vessels.

Parallel analyses were carried out to derive the average parameters for all vessels classified as 'offshore supply' and, separately, for those reported as active on the UKCS since 1 January 2000 through MARSTATS. This was based on their year of build.

A graphical representation of the year on year average of the main vessel dimensions and speed is presented in Figure 21 for all vessels listed as 'offshore supply' and in Figure 22 for those that have been active on the UKCS. Similarly, Figures 23 and 24 present a representation of the year on year average of tonnages.

Although the information in the graphs is as accurate as the raw data allows, it should be remembered that certain factors may have an influence on how the data appear. This is particularly true, for example, in 1990 when there were only 5 new builds and all were of approximately the same dimensions. This has led to an apparent anomaly in the data compared to the preceding and following years. In an attempt to minimise the effects of such occurrences a linear trend line has been inserted over each parameter. This has the effect of calculating the least squares fit for a line represented by the equation:

$$y = mx + b \quad \text{where } m \text{ is the slope and } b \text{ is the intercept.}$$

As will be noted, there has been an increase to varying degrees in all the assessed parameters over time. This is the case for both all the current offshore supply vessels and those active on the UKCS.

Figure 21: All offshore supply vessels average dimensions over time

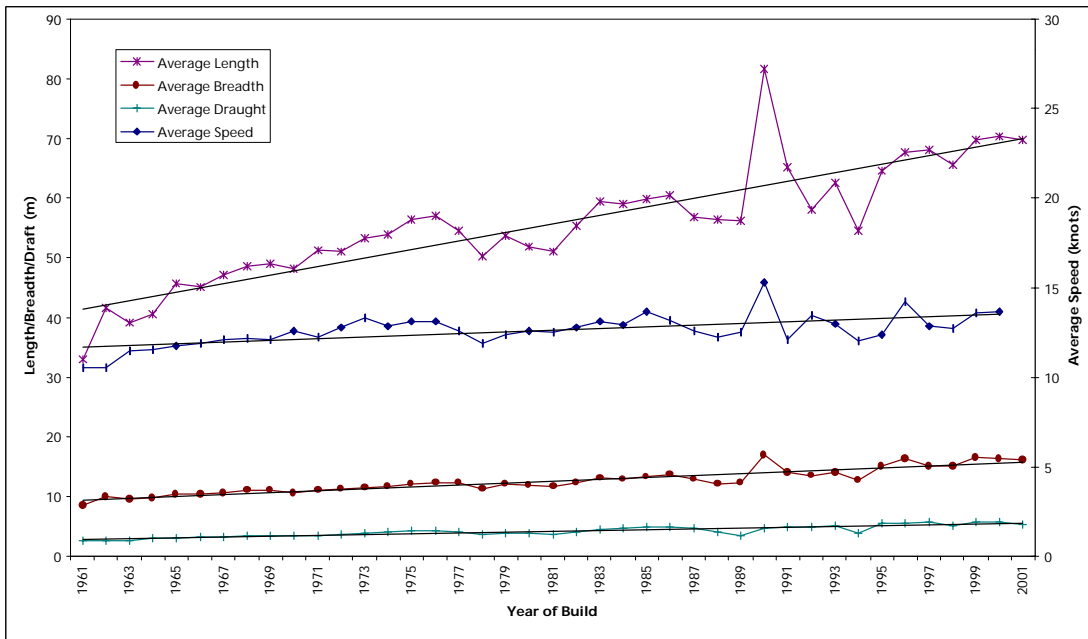
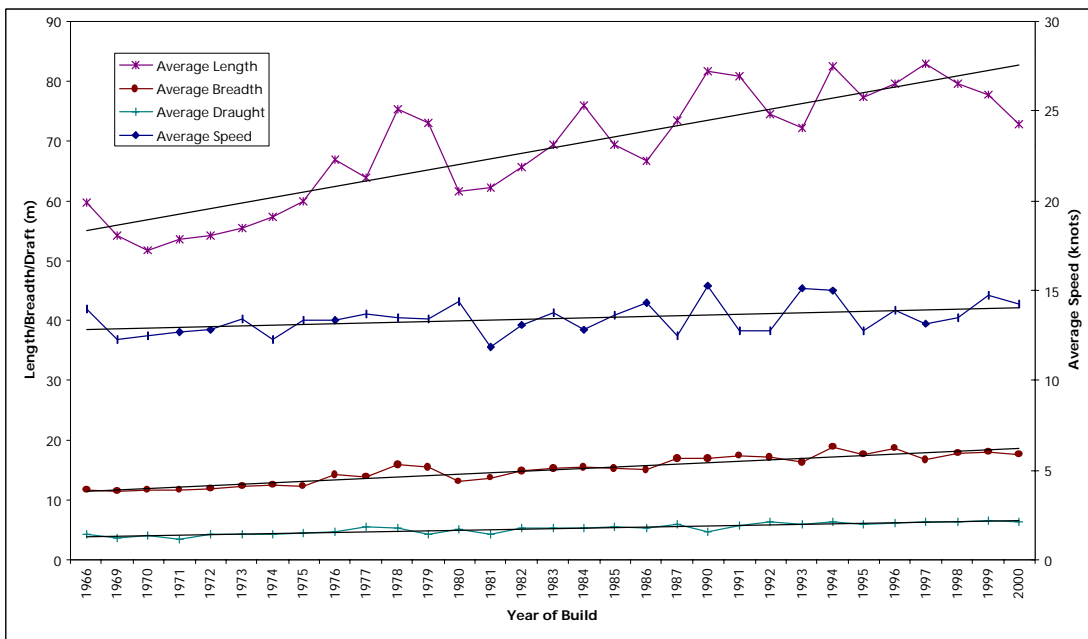


Figure 22: UKCS offshore supply vessels average dimensions over time



NB: The apparent omission of data for 1967 – 1968 and 1988 – 1989 occurred because there were no vessels built in these years operating on the UKCS and reporting cargo through MARSTATS. The inclusion of 'zero' data for these years would have unjustly skewed the average figures and trend lines.

Figure 23: All offshore supply vessels average tonnages over time

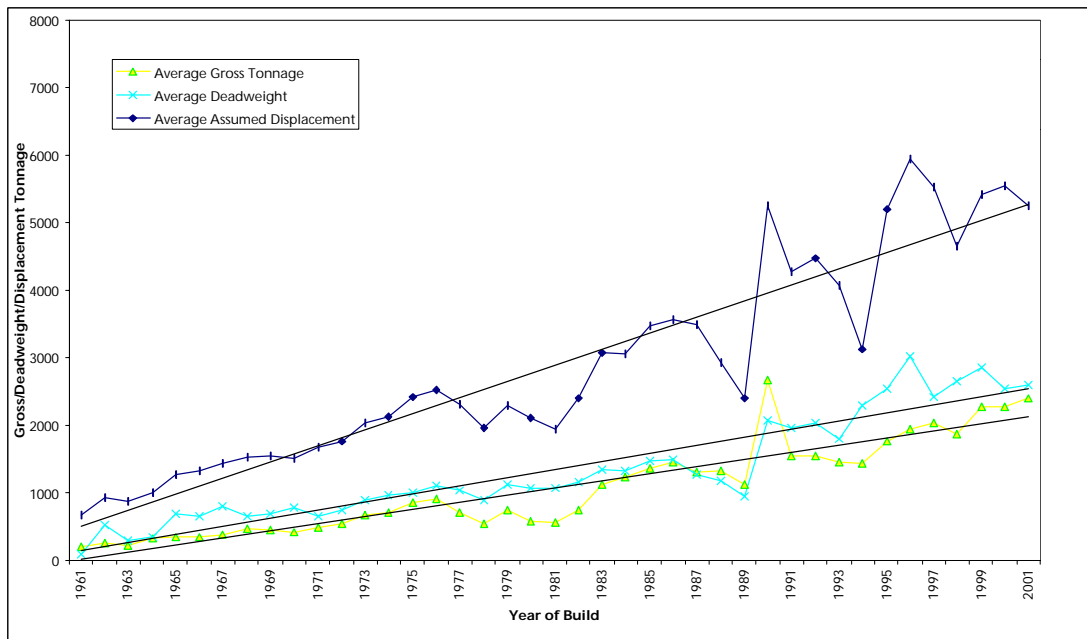
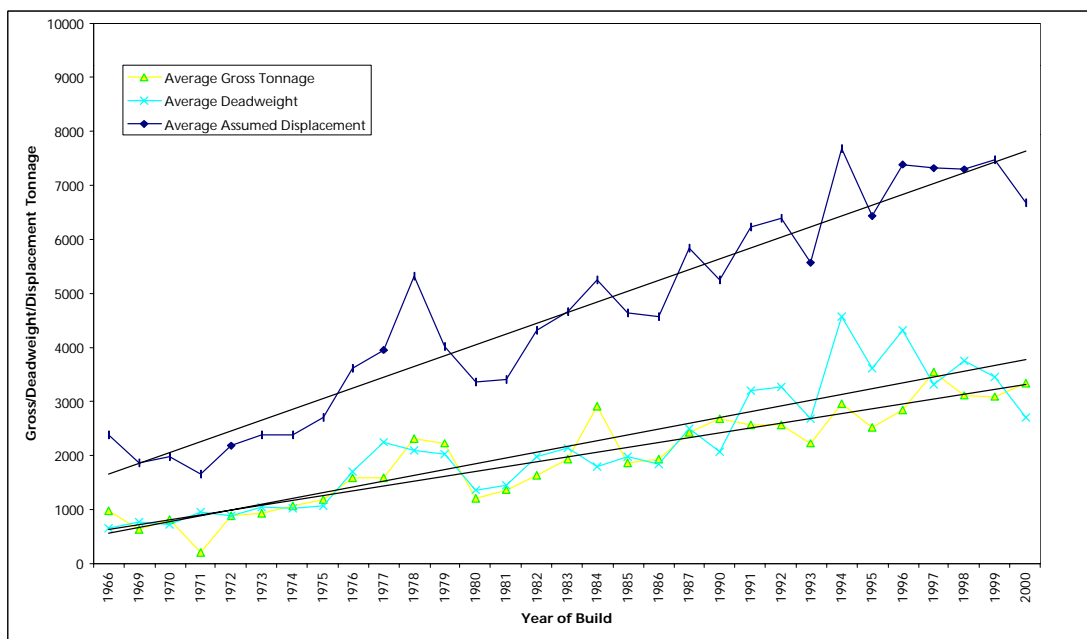


Figure 24: UKCS offshore supply vessels average tonnages over time



NB: The apparent omission of data for 1967 – 1968 and 1988 – 1989 occurred because there were no vessels built in these years operating on the UKCS and reporting cargo through MARSTATS. The inclusion of 'zero' data for these years would have unjustly skewed the average figures and trend lines.

Other information held in the fleet list refers to a vessel's current flag. Using data correct as of 30 June 2001 the entire fleet of 'offshore supply' and those active on the UKCS have been assessed in terms of their flag. For ease of representation all flags have been divided into groups based on the continents, i.e., Europe, Asia, Africa, America and Australia/Oceania and grouped according to the vessels year of build.

It will be noted that the majority of vessels operating on the UKCS appear to be of more recent build than the world fleet average and the majority are registered in European countries. It is perhaps to be expected that vessels operating in European waters would be registered in European countries and no inference should be drawn from this.

Figure 25: All offshore supply vessel flags over time

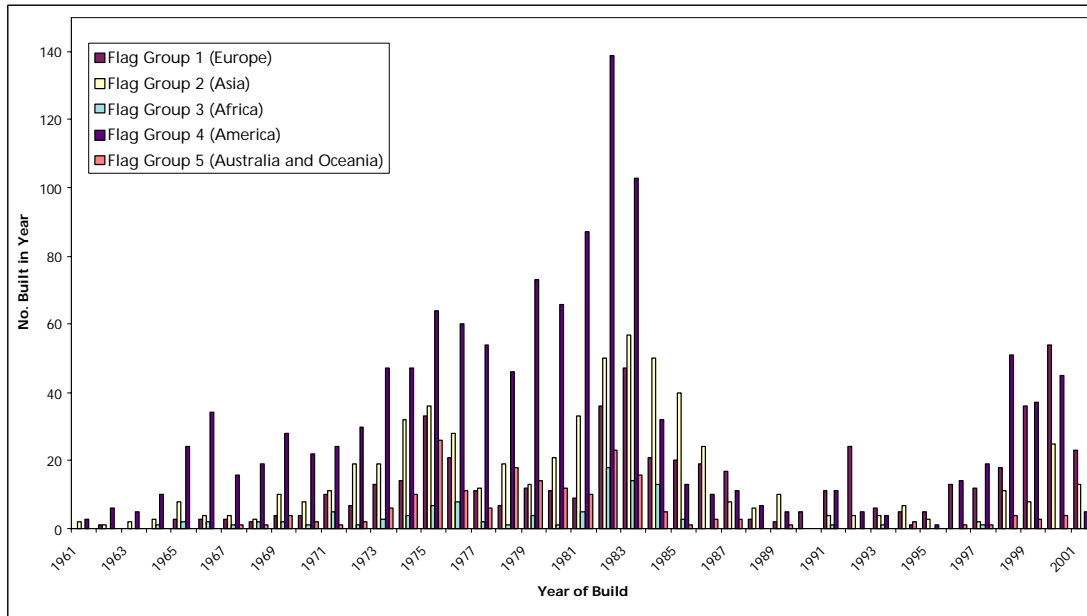
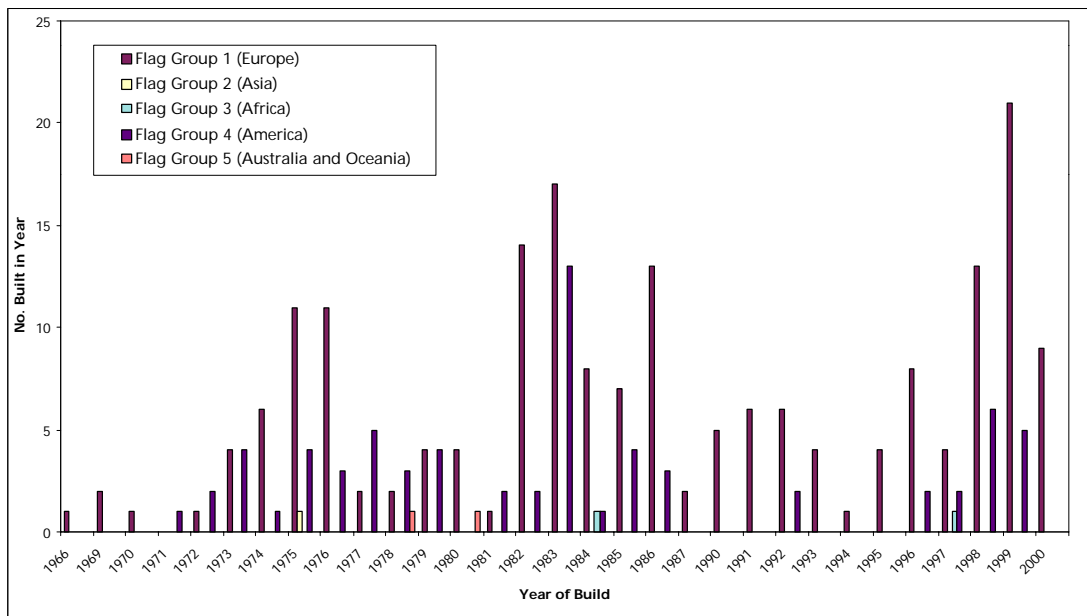


Figure 26: UKCS offshore supply vessel flags over time



NB: The apparent omission of data for 1967 – 1968 and 1988 – 1989 occurred because there were no vessels built in these years operating on the UKCS and reporting cargo through MARSTATS. The inclusion of 'zero' data for these years would have unjustly skewed the average figures and trend lines.

5.3 COMMERCIAL SHIPPING BETWEEN UKCS AND U.K.

In an effort to develop and understanding of the magnitude of commercial vessel traffic between the UKCS and various ports on the U.K. mainland the MARSTATS was requested to provide a breakdown of all vessels where the port of loading/unloading was the UKCS. It was intended that this would capture all voyages where, for instance, cargo or stores were carried out to offshore installations or brought back from them. Further, that all occurrences of shuttle tanker operations between UKCS loading terminals and U.K. ports could be analysed.

As with all other data obtained from MARSTATS it should be borne in mind that the responsibility for reporting rests with the shipping lines or their agents and so the data analysed represents the minimum amount of traffic in and around installations on the UKCS.

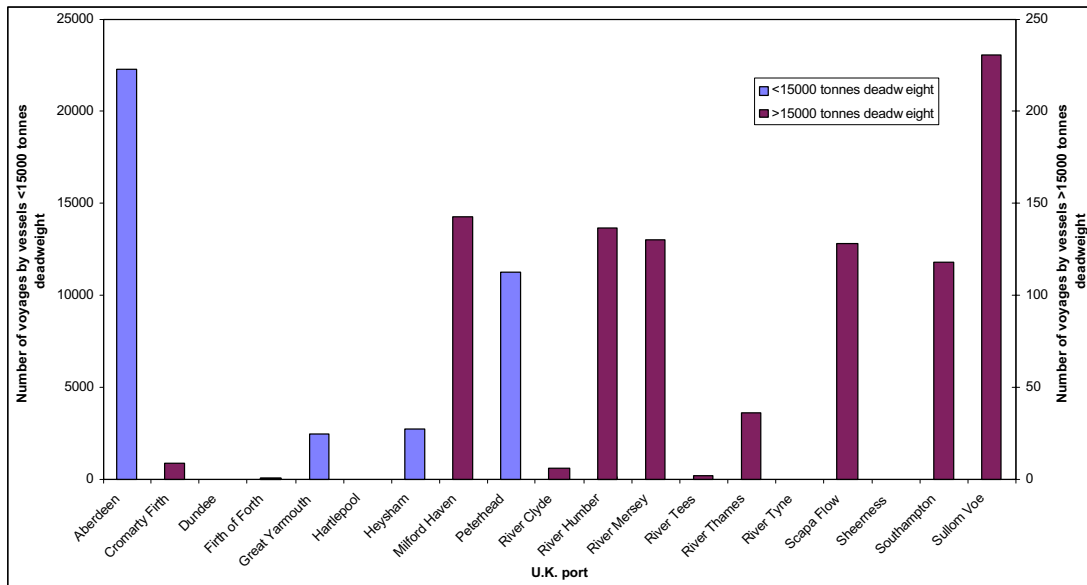
Another limitation is the absence of data on vessels in ballast and also those where although the loading port may have been on the UKCS the discharge port may be outside the U.K. There is no requirement for shipping lines or agents to make statistical returns to MARSTATS when a vessel is not carrying cargo nor when it does not come to a U.K. port.

In conclusion, it is highly likely there are an even greater number of voyages where cargo is being carried not to mention vessels in ballast.

A breakdown of the results, sorted by U.K. port and then year/quarter, is presented in Appendix B. It provides the number of voyages by vessels of various deadweight groupings. The deadweight referred to is the maximum of the vessel, i.e., loaded to the summer loadline, and does not necessarily represent the vessel's deadweight at the time the voyage occurred.

Figure 27, overleaf, is a graphical representation of the total number of voyages where cargo was carried between U.K. ports and the UKCS in the period between 1 January 2000 and 30 June 2001. It demonstrates that Aberdeen is the busiest port in terms of number of voyages followed by Peterhead. However, when the graph is compared with the table in Appendix B it shows that the bulk of the voyages are carried out by relatively small vessels compared to other ports that are used as discharge ports for shuttle tankers, such as the Sullom Voe, Milford Haven, River Humber, River Mersey and Scapa Flow.

Figure 27: Vessels carrying commercial cargo between U.K. ports and UKCS



5.4 EMERGENCY RESPONSE AND RESCUE VESSELS

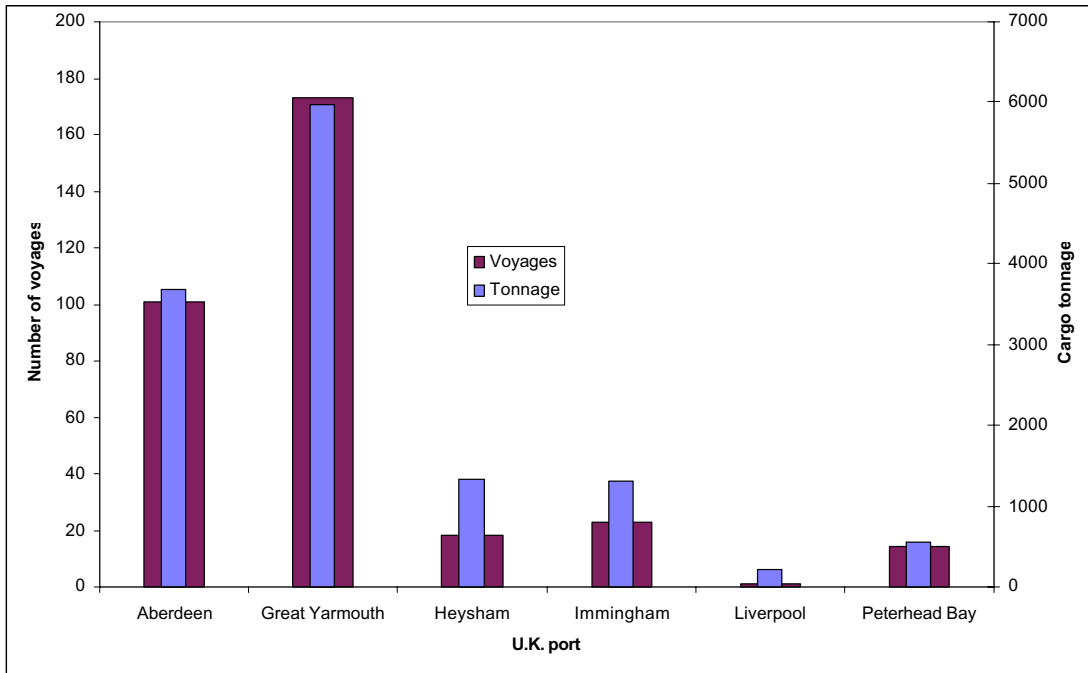
HSE made a further request of the MARSTATS in an attempt to quantify the number and extent of commercial cargo being carried on ERRV.

Shipping lines or agents are required to supply details of the cargo carried to/from U.K. ports by ERRV in just the same manner as for all other vessels and data analysis was undertaken using information about the identity of ERRV provided by HSE. It is understood that ERRV vessel identities, in the form of their LRN, was provided to HSE via a recent research project. MARSTATS was interrogated using the LRN provided by HSE to determine how many of the ERRV had also been reported as carrying commercial cargo to or from the UKCS.

The results of the search produced a total of 17 different vessels having made a total of 154 voyages into a U.K. port from the UKCS and 176 outward voyages. A total of 5703 tonnes of predominantly general cargo was brought into the U.K. and 7382 tonnes was taken out to the UKCS. A listing of these, detailing the number of voyages, the year and quarter when the voyage occurred, the U.K. port where the vessel arrived at or sailed from, whether it was inwards or outwards and the type and tonnage of cargo, is presented in Appendix C.

A graphical representation of the comparison of ports used for ERRV vessels when carrying commercial cargo is presented in Figure 28. This demonstrates that in terms of both the number of voyages and cargo tonnage Great Yarmouth is the most usual port of loading/discharge for ERRV while Aberdeen is the second most usual.

Figure 28: ERRV carrying commercial cargo between U.K. ports and UKCS



6 'Near Miss' Information

6.1 INTRODUCTION

In the 1997 review of the database the view was put forward that a large body of anecdotal evidence exists to suggest that 'near misses' occur frequently in all areas of the UKCS which, in the context of that report, was defined as an infringement of the 500 metre safety zone. At the time it was also concluded that a more comprehensive reporting of such incidents by surface installations would lead to a better understanding of the magnitude of the problem and may well lead to conclusions about the causation factors involved. In this respect, the causation factors for 'near misses' could well be similar to those resulting in a "passing vessel" collision as in many cases it is believed that these occurrences are the result of poor watchkeeping on board the vessel or the failure to recover from a dangerous situation.

In an attempt to develop a better understanding of the 'near miss' situation a number of new initiatives have been implemented in the period between the compilation of the 1997 review and this report:

- HSE 'Orion' system using search keyword "POS COLLISION OFF" (28 incidents – 14 classified as 'near miss' – 14 classified as not 'near miss')
- HSE 'Orion' system SZI section and OIR9A reports (59 incidents – not possible to determine whether 'near miss')
- ERRVA Warning Off Reports (246 incidents – not possible to determine whether 'near miss')

In the period between 1996 and 1999 HSE (OD) Legal and Strategy Team were responsible for Safety Zone Infringement Database (SZI), however since 1999 HSE Inspection Teams have been responsible for collating safety zone infringement information within their jurisdictions.

Furthermore, HSE have recently revisited their definition of the term 'near miss' and determined that only incidents that lead to the activation of any part of the Duty Holder's Emergency Response Plan should be classified as a 'near miss'. This is a better criterion for definition than, for example, one that refers to an approaching vessel's closest point of approach (CPA) because of the different external factors and circumstances prevalent in different areas of the UKCS. The busier waters of the Southern North Sea will lead to many more close approaches by vessels than West of Shetlands where a potentially errant vessel may cause alarm more readily because it is a relatively rare event.

Although the reporting routes outlined above have led to an increasing amount of reports being received by HSE and ERRVA, many of which yield important information about an event, it is somewhat debatable whether all should be classified as a 'near miss' within the confines of the recent definition. Some of the doubt is centred on the inability to determine whether an installation's Emergency Response Plan was activated purely from the information contained within the report; this is particularly true for the ERRVA

Warning Off Reports which it appears are completed and filed by the ERRV without recourse to the installation.

Bearing this in mind, it is therefore not straightforward to compile an accurate overview of the magnitude of the 'near miss' situation when so few of the reports contain information enabling the occurrence to be determined. However, for the purposes of data analysis, it has been decided to assess the records where it was possible to determine if a 'near miss' occurred separately from those where it was not, i.e. data in Section 6.2 was analysed separately from that in Sections 6.3 and 6.4.

6.2 'ORION' USING KEYWORD "POS COLLISION OFF"

So far as being able to determine whether a 'near miss' actually occurred using the new definition, the information gathered by HSE and stored on the 'Orion' system using the keyword "POS COLLISION OFF" forms a better guide. This is because the amount of free text permitted in the report enables a good assessment of whether a 'near miss' actually occurred even though it may not be explicit.

A search produced 28 records that were found to be relevant to the scope of this report, though several others were produced that were considered beyond the scope, for example reports of helicopter collisions offshore. From the reports it was possible to determine that 14 incidents had occurred where part of the Duty Holder's Emergency Response Plan would have been activated.

A more extensive analysis of this data is contained in Section 6.5. A complete list of the data from the 28 records of the 'near miss' database, beginning on 17 June 1996 and ending on 15 October 2001, is contained in Appendix D.

6.3 'ORION' SZI SECTION AND OIR9A REPORTS

Information from these sources, particularly the OIR9A forms are submitted by installations and are primarily a factual account of an event that may be used for follow up enforcement activities. Data in the SZI section of 'Orion' appears to come from the OIR9A forms however the narrative section of the entry is somewhat limited. However, by inspection of the relevant original OIR9A form it is possible to develop a full understanding of events.

Analysis of this data is contained in Section 6.6. A list of the data from the 59 records of the SZI section of 'Orion' and the OIR9A reports, beginning on 29 December 1995 and ending on 24 February 2000, is contained in Appendix E.

6.4 ERRVA WARNING OFF REPORTS

Although the ERRVA Warning Off Reports appear to be less helpful in assessing 'near misses', they do offer some important information about other factors that perhaps is beyond the scope of their original intention. Primarily, data may be developed about the

efficiency of ERRV radar under different environmental conditions as the data provides the range of first detection of an approaching vessel.

The absence of qualitative data concerning the whether an incident was a 'near miss' within the HSE definition should not be seen as a criticism of the ERRVA members or their vessel crews, rather than of the Warning Off Report forms they complete. Apart from a short section about what prompted the warning off action, whether on the vessel's own initiative or at an OIM's request, there is very little information about EERV/platform interaction prior to, during, or after an event.

A further area in which the ERRVA Warning Off Report may be used to provide meaningful data is if information about the range from the installation at which an approaching vessel took avoiding action. Such information would be useful to both Duty Holders and the HSE in their development of procedure to manage collision risk.

Analysis of this data is contained in Section 6.6. A list of the data from the 246 records of the EERVA Warning Off Reports, beginning on 17 April 2001 and ending on 6 January 2002, is contained in Appendix F.

6.5 ANALYSIS OF 'NEAR MISS' DATA (POS COLLISION OFF)

The relatively small number of incidents under this heading has resulted in the data being presented in tabular format.

Table 25: 'Near Miss' Data Analysis

Number of reports		'Near Miss'		'Not 'Near Miss'	
		14		14	
Sector	Northern North Sea	2	14.29%	3	21.43%
	Central North Sea	2	14.29%	4	28.57%
	Southern North Sea	5	35.71%	4	28.57%
	Morecambe Bay	1	7.14%	0	0.00%
	West of Shetlands	0	0.00%	1	7.14%
	Unspecified	4	28.57%	2	14.29%
Threatening vessel type	Anchor Handler	0	0.00%	1	7.14%
	Barge	2	14.29%	0	0.00%
	Cargo	1	7.14%	0	0.00%
	Diver Support	0	0.00%	2	14.29%
	Fishing	3	21.43%	1	7.14%
	Research	0	0.00%	1	7.14%
	Stand By	0	0.00%	3	21.43%
	Supply	1	7.14%	3	21.43%
	Tanker	3	21.43%	3	21.43%
Unspecified	4	28.57%	0	0.00%	
Threatening vessel size	Less than 500	2	14.29%	1	7.14%
	500 - 1500	2	14.29%	3	21.43%
	1500 - 5000	0	0.00%	5	35.71%
	5000 - 15000	1	7.14%	0	0.00%
	15000 - 50000	2	14.29%	0	0.00%
	Over 50000	0	0.00%	2	14.29%
Unspecified	7	50.00%	3	21.43%	
Time of incident	00:00 to 04:00	1	7.14%	1	7.14%
	04:00 to 08:00	3	21.43%	2	14.29%
	08:00 to 12:00	3	21.43%	2	14.29%
	12:00 to 16:00	3	21.43%	2	14.29%
	16:00 to 20:00	0	0.00%	4	28.57%
	20:00 to 24:00	4	28.57%	3	21.43%
Unspecified	0	0.00%	0	0.00%	

6.6 ANALYSIS OF SZI AND ERRVA DATA

6.6.1 Number of reports

- Total reports from SZI/OIR9A 59 records
- Total reports from ERRVA 246 records

6.6.2 Number of ERRV reporting (ERRVA data only)

- Total ERRV in UKCS fleet 146 vessels
- Total ERRVA reporting 32 vessels

The UKCS EERV fleet has been determined from the output from the HSE's recently completed DC Deployment Database project. The actual number of vessels in use at any time will probably differ from this total because of vessel lay-ups, out of service for repairs, scrapping or sale and removal from the UKCS. An accurate number for the UKCS fleet and hence the percentage of vessels reporting can be obtained from ERRVA.

6.6.3 Number of serious warnings (ERRVA data only)

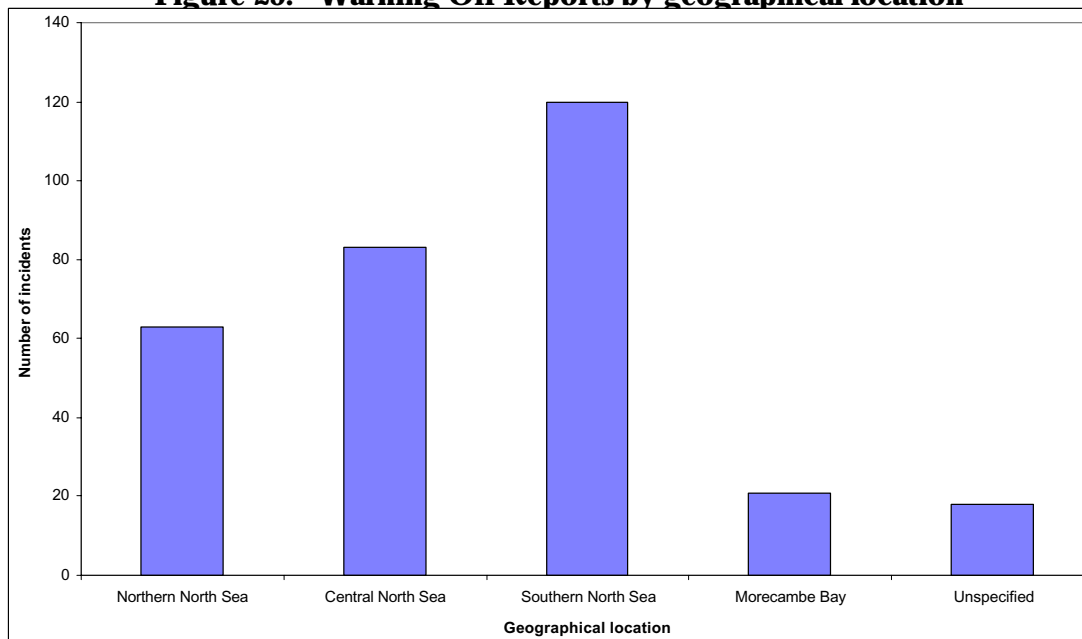
- The criterion for this is where no communications were established 8 records

The inclusion of this data is somewhat subjective. With the current format of ERRVA warning off reporting there is little to rank what should be considered a 'serious' incident compared to other events.

6.6.4 Reports by geographical location (combined data)

- Northern North Sea 63 records
- Central North Sea 83 records
- Southern North Sea 120 records
- Morecambe Bay 21 records
- Unspecified 18 records

Figure 29: Warning Off Reports by geographical location



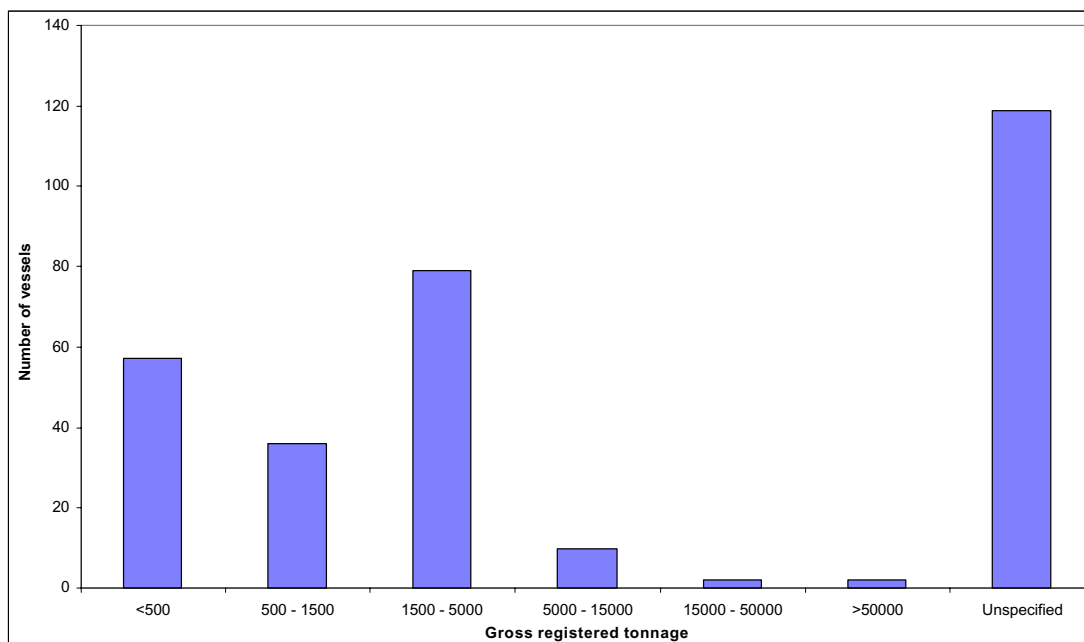
6.6.5 Type classification of threatening vessel (combined data)

- Total reports of Cargo vessels 89 records
- Total reports of Derrick Barges 1 record
- Total reports of Diver Support vessels 2 records
- Total reports of Drilling vessels 1 record
- Total reports of Fishery Protection vessels 1 record
- Total reports of Fishing vessels 141 records
- Total reports of Passenger vessels 1 record
- Total reports of Research vessels 1 record
- Total reports of Sail Training vessels 3 records
- Total reports of Stand By vessels 2 records
- Total reports of Supply vessels 24 records
- Total reports of Tankers 14 records
- Total reports of Tugs 2 records
- Total reports of Yachts 13 records
- Total reports of Unspecified vessels 10 records

6.6.6 Gross registered tonnage of threatening vessels (combined data)

- Gross tonnage less than 500 g.r.t. 57 records
- Gross tonnage between 500 – 1500 g.r.t. 36 records
- Gross tonnage between 1500 – 5000 g.r.t. 79 records
- Gross tonnage between 5000 – 15000 g.r.t. 10 records
- Gross tonnage between 15000 – 50000 g.r.t. 2 records
- Gross tonnage greater than 50000 g.r.t. 2 records
- Unspecified gross tonnage 119 records

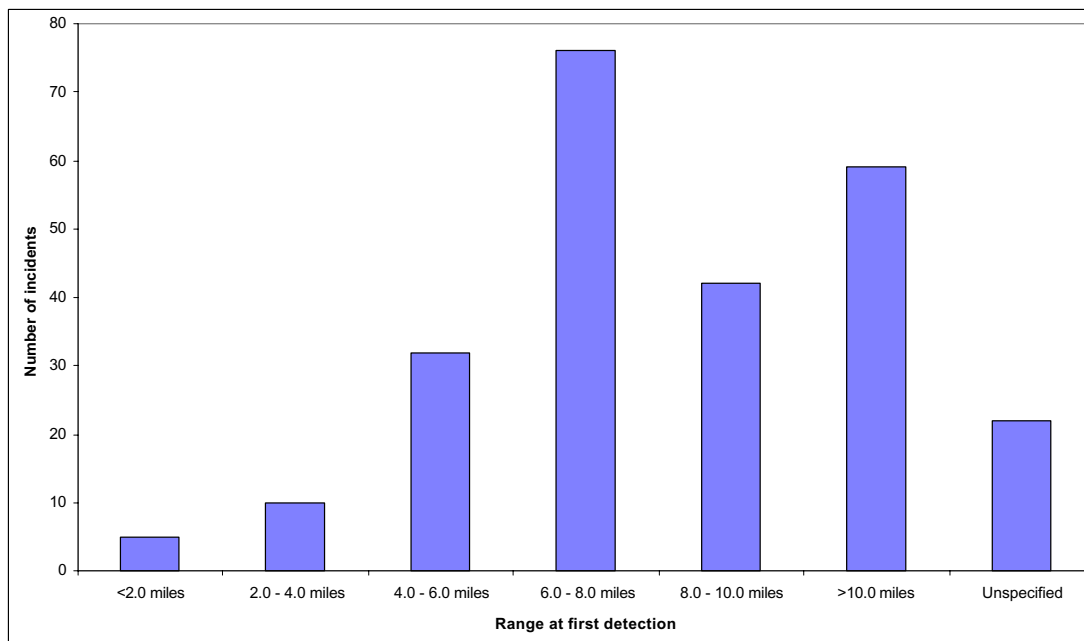
Figure 30: Gross registered tonnage of threatening vessel



6.6.7 Radar range at first detection (ERRVA data only)

- First detection at less than 2.0 miles 5 records
- First detection between 2.0 to 4.0 miles 10 records
- First detection between 4.0 to 6.0 miles 32 records
- First detection between 6.0 to 8.0 miles 76 records
- First detection between 8.0 to 10.0 miles 42 records
- First detection at greater than 10.0 miles 59 records
- Unspecified range of first detection 22 records

Figure 31: Radar range at first detection

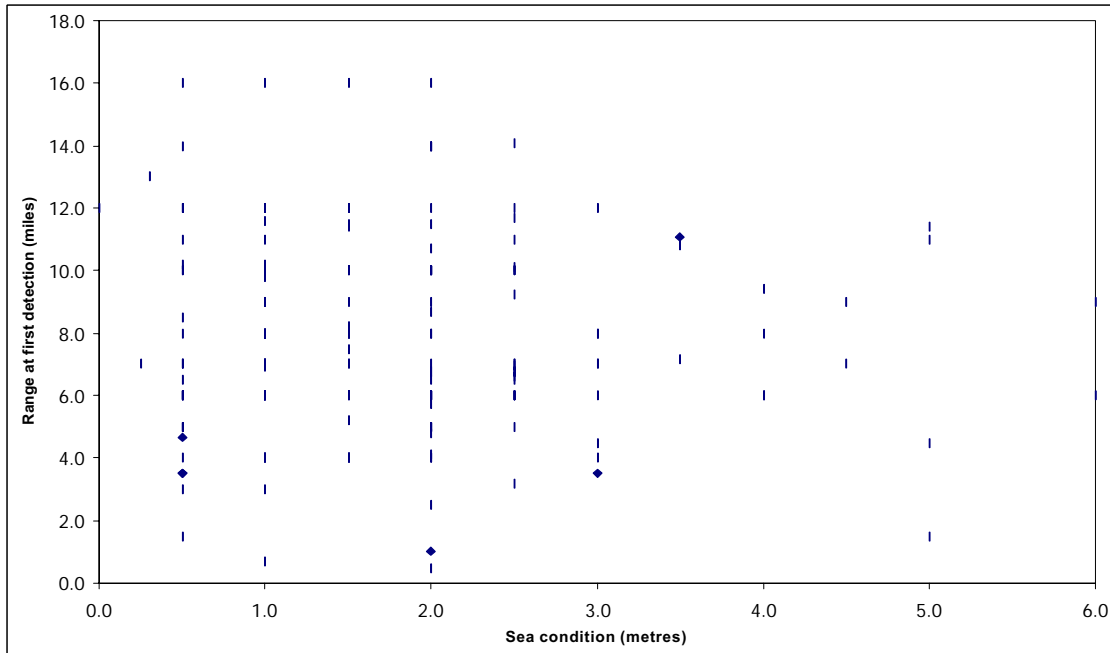


6.6.8 Radar range at first detection in prevailing sea condition (ERRVA data only)

Data in Figure 32 appears as it does because of the normal seagoing practice of reporting the sea condition to the nearest 0.5 metre of wave height. Indeed, it is considered extremely difficult to be even more precise when attempting to determine the wave height from a vessel's deck or bridge when the vessel is rolling/pitching in a seaway.

Bearing the foregoing in mind, there appears not to be a clearly discernible trend from an analysis of this data. Radar detection range was in most cases good regardless of the prevailing sea condition although if further analysis was undertaken, particularly with respect to the size, type, construction material and aspect of the target vessel, better information may be available. For example, the detection of large, angular, steel vessels, such as car carriers or container vessels will inevitably be better at longer ranges and in worse weather conditions than the detection of smaller fibreglass or wooden fishing vessels at shorter ranges and in less severe weather.

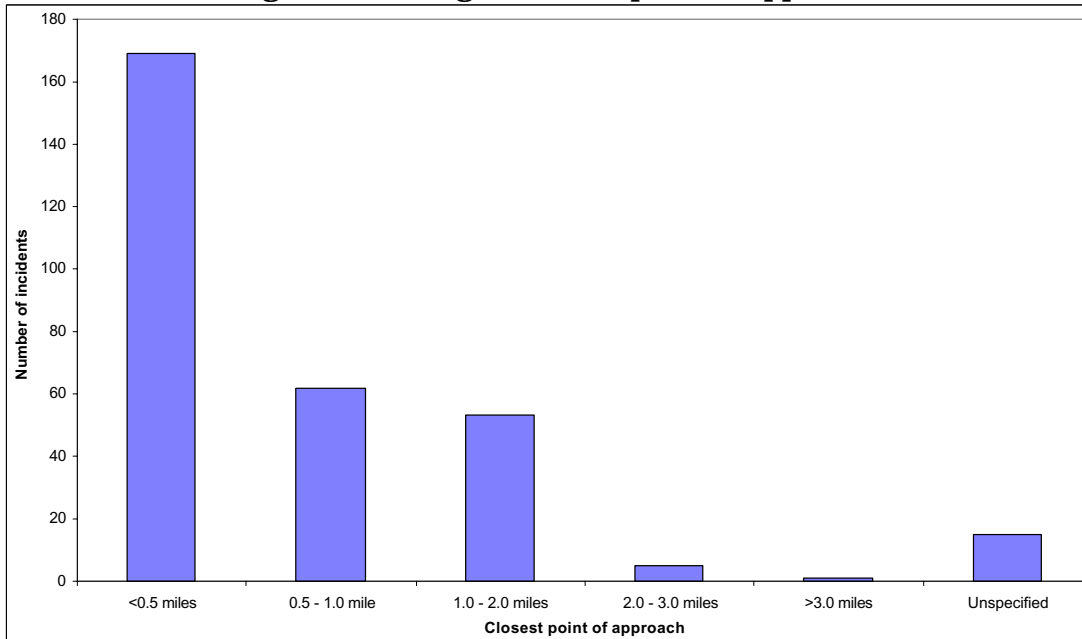
Figure 32: Radar range at first detection in prevailing sea condition



6.6.9 Range at closest point of approach (combined data)

- CPA less than 0.5 mile 169 records
- CPA between 0.5 - 1.0 mile 62 records
- CPA between 1.0 - 2.0 miles 53 records
- CPA between 2.0 - 3.0 miles 5 records
- CPA greater 3.0 miles 1 record
- Unspecified CPA 15 records

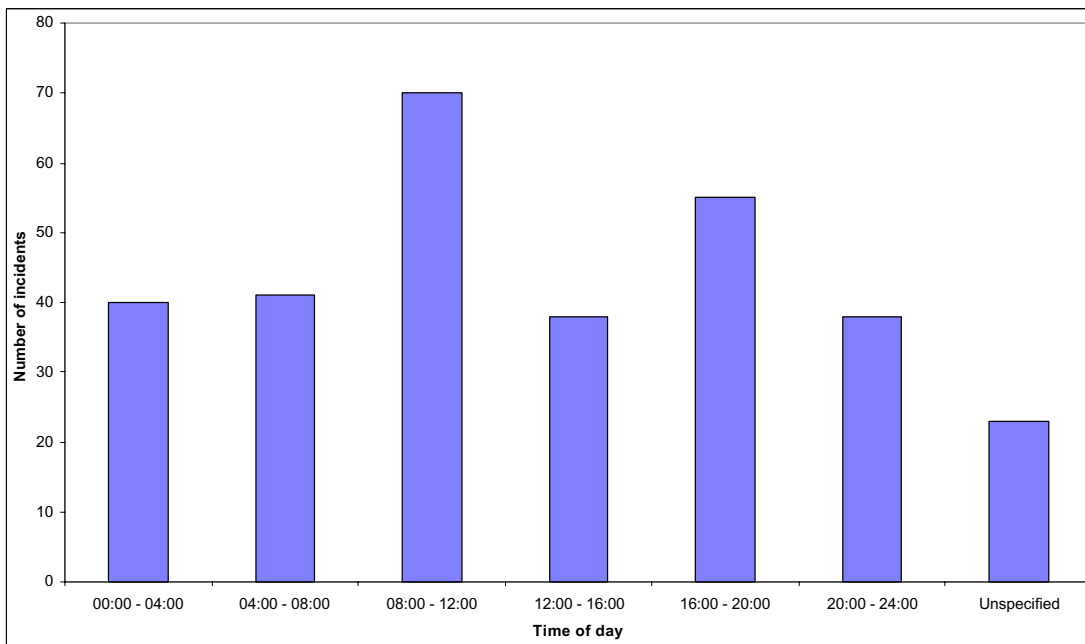
Figure 33: Range at closest point of approach



6.6.10 Time of day of incident (combined data)

- Total incidents between 00:00 - 04:00 40 records
- Total incidents between 04:00 - 08:00 41 records
- Total incidents between 08:00 - 12:00 70 records
- Total incidents between 12:00 - 16:00 38 records
- Total incidents between 16:00 - 20:00 55 records
- Total incidents between 20:00 - 24:00 38 records
- Unspecified time of incident 23 records

Figure 34: Time of day of incidents



7 Conclusion

The database contains a compilation of ship/platform collision data from several widely differing sources and as such probably represents the most complete record of collision incidents on the UKCS.

Data interpretation should be carried out with caution as it is highly likely that some degree of under reporting of incidents has occurred. Primarily this is thought to be of those incidents where little or no damage resulted to the installation, however, may also include more serious incidents to normally unattended installations.

Bearing in mind the likely confidence with which the database should be viewed, it is important to stress that it represents the “best case” so far as the frequency of incidents is concerned. In reality it is likely that the frequency of incidents which result in less serious damage should be higher than indicated in this report. In more recent years it is believed that a much higher degree of accuracy has been achieved, particularly for more serious incidents, such that it provides a useful starting point from which to address the issue of vessel collision and its mitigation.

Due to their increasing usage over the last decade and as the data set has expanded an analysis of accidents involving FPSO and FSU was carried out. Although only 10 incidents have been reported, oil transfer to a shuttle tanker was the operating circumstance on 3 occasions. The point of note with these incidents was the potential for seriousness. Shuttle tankers are predominantly large vessels and even a slow speed collision can have very serious consequences because of the kinetic energy involved. In mitigation, it is believed that shuttle tankers have a high degree of sophistication in their manoeuvring and propulsion equipment and properly trained, experienced and certified crew therefore the likelihood of an incident may be less than for other vessels that routinely approach FPSO and FSU.

At HSE’s request a number of other analyses have been undertaken. These have utilised data from the Maritime Statistics Collection Agency (MARSTATS) and primarily dealt with the number and size of commercial cargo carrying vessels that may have caused to be in and around offshore installations on the UKCS. While it is likely that the figures presented are an understatement of the actual number, they do go some way in at least beginning to quantify the population of vessels that UKCS installations may encounter.

Separately, but using the same MARSTATS data source, information was developed about the extent of cargo carrying activities on EERV between U.K. ports and the UKCS. While not strictly within the scope of the update to the ship/platform collision database as the vessels could be expected to be in the vicinity of the installations, it will give HSE some information about how widespread this newly adopted and growing activity has become when before all that existed was anecdotal evidence.

One of the conclusions of the 1997 report suggested that “A more comprehensive reporting of ‘near misses’ by surface installations would lead to a better understanding of the magnitude of the problem, and may well lead to conclusions about the causation

factors involved.” Since the last update of the ship/platform collision incident database a larger data set of ‘near miss’ incidents has been collated by both the HSE and, since April 2001, by ERRVA. The latter source of data should more properly be considered as ‘warning off’ because it contains little to independently support the new definition of a ‘near miss’, i.e., when any part of an installation’s emergency response plan is activated. Notwithstanding this, the ‘warning off’ data is still valuable in it’s own right as it helps to:

- Quantify the amount of potentially errant traffic.
- Provide information on the range at which approaching vessels may take avoiding actions.
- Outline the effectiveness of radio contact or other means to warn of installation’s presence.

This report has addressed the issue of near misses in more detail than in previous issues and concluded that the data set of such incidents is increasing. Even though the definition of a ‘near miss’ has been made clearer there were still 14 such events. These ranged in severity from a precautionary mustering of personnel to an actual downmanning of an installation.

Data from other sources such as the Canadian and United States Coast Guards that were included in the previous version of the database have been removed. Unfortunately, when the database was last updated differences in the method of presentation and in the amount and diversity of data prevented a full analysis so it was decided to not include it in the report on this occasion.

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Appendix A
Ship/Platform Collision Incident Database
Passing Vessel Collisions

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Vessel Speed (knots)	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Damage	Plate Dents	Installation Damage Class	
PASSING VESSEL COLLISIONS																		
1	D/En	26/06/85	1985	June	Southern	Fixed Steel	Supply	Bow	Calm	13	Passing Supply Vessel	Peer/Operation Neglected	Diagonal Brace	Bent and Dents	-	Yes	Severe	
2	D/En	23/06/88	1988	June	Southern	Jack-Up	Merchant Cargo	Bow	-	-	Passing Cargo Vessel	Peer/Operation Neglected	Leg Chord	Severed	Yes	Yes	Severe	
3	D/En	21/07/81	1981	July	Southern	Fixed Steel	Fishing	Bow	1	5	Passing Fishing Vessel	Peer/Operation Neglected	Landing Station	Dent	-	No	Minor	
4	D/En	05/07/83	1983	July	Southern	Fixed Steel	Merchant Cargo	Side	Calm	10	Passing Cargo Vessel	Peer/Operation Neglected	Other Strk. Side	Minor	-	-	Minor	
5	D/En	26/08/84	1984	August	Southern	Fixed Steel	Fishing	Bow	-	-	Passing Fishing Vessel	Peer/Operation Neglected	Fender	Fender	-	-	Minor	
6	HSE	15/01/95	1995	January	Southern	Fixed Steel	Fishing	-	3.5	-	Passing Fishing Vessel	Peer/Operation Neglected	Leg B2	Minor	No	No	Minor	
7	D/En	16/02/84	1984	February	Southern	Jack-Up	Fishing	Bow	-	-	Passing Fishing Vessel	Peer/Operation Neglected	Leg Rigging	None	No	No	None	
8	D/En	20/03/88	1988	March	Southern	Jack-Up	Fishing	-	-	-	Passing Fishing Vessel	Peer/Operation Neglected	Leg Chord	None	No	No	None	

Consec. No.	Installation Damage Details		Repair Details		Vessel Damage Class		Vessel Damage Details		Other Source Confirms	
	PASSING VESSEL COLLISIONS									
1	Impacted horizontal and vertical cross brace on row 2 between legs A2 and B2, severe bend (up to 20°) in brace member at -18° to -27 levels and slight bend (7°) to horizontal brace at +27. Minor dents in way.	Yes	Complete replacement of upper half vertical cross brace on row 2. Box plating of dented areas.	Severe	Severe damage to starboard side of bow (crushing of plating/frames). Proceeded to port for repairs.	HSE, LIMS, OTN 02/238 & BOMEL				
2	Severe damage to a 5.5m section of 1 leg rendered helideck unsafe and personnel had to be evacuated.	Yes	70 tonnes steelwork renewed.	Severe	Forecastle above waterline, windlass destroyed and 1 anchor lost.	HSE, WOAD & LIMS				
3	Vertical member of boat landing gage bent 0.9 m out over 1.2 - 1.5 m.	-	-	Severe	Bows stove in.	HSE				
4	Slight damage.	-	-	Minor	Aft port side at 5m above waterline.	HSE & LIMS				
5	Boat fender ripped off north-west leg, damage to collar deck drain line, torn mooring rope.	-	-	Minor	Dent in trawler.	HSE				
6	5" paint scraped off leg B2.	-	-	Moderate	Unspecified hull damage including leaks in starboard diesel tank.	WOAD				
7	-	No	-	Severe	Wooden bows caved-in, sinking in water.	HSE				
8	Impact at +55m level, no damage.	No	-	None	-	-				

Appendix A
Ship/Platform Collision Incident Database
Attendant Vessel Collisions

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Damage	Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS																
9	DEn	20/08/75	1975	August	Central	Fixed Steel	Supply	Bow	1.5	Approaching Installation	Port Operation Neglected	Diagonal Brace	Severed and Bent	No	Yes	Severe
10	DEn	12/04/77	1977	April	Southern	Fixed Steel	Anchor Handler	-	-	-	Misjudgement	Diagonal Brace	Severed and Tear	No	No	Severe
11	DEn	05/11/77	1977	November	Southern	Semi-Submersible Accommodation	Supply	Stern	-	Cargo Transfer	Weather Conditions	Diagonal Brace	Severed and Crack	No	Yes	Severe
12	OTN 92.235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	-	Fender	Severed and Weld Crack	No	No	Severe
13	WOAD	15/05/80	1980	May	Central	Semi-Submersible Production	Supply	-	-	Cargo Unloading	-	Column	-	No	No	Severe
14	DEn	02/06/80	1980	June	Southern	Fixed Steel	Supply	Stern	1.0	Approaching Installation	Clutch Failure	Diagonal Brace	Severed and Weld Crack	No	No	Severe
15	WOAD	18/12/80	1980	December	-	Semi-Submersible Drilling	Supply	-	5.0	Cargo Transfer	Steering Failure	Column S-2	Bent with Tear	Yes	Yes	Severe
16	DEn	03/10/81	1981	October	Central	Semi-Submersible Drilling	Supply	-	4.0	Cargo Transfer	-	Diagonal Brace C3	Dent	No	Yes	Severe
17	DEn	16/07/83	1983	July	Southern	Fixed Steel	Supply	Bow	-	Approaching Installation	Engine Control Failure	Diagonal Brace	Bent with Hole	No	Yes	Severe
18	DEn	05/01/85	1985	January	Central	Semi-Submersible Drilling	Supply	Stern	-	Cargo Unloading	D.P. Operator Error	Column/Sibal. Centre	Dent with Crack	Yes	Yes	Severe
19	DEn	10/01/85	1985	January	Southern	Fixed Steel	Supply	Stern	2.0	Cargo Unloading	Weather Conditions	Diagonal Brace	Dent with Weld Crack	No	No	Severe
20	DEn	26/09/85	1985	September	Central	Semi-Submersible Mobile Support	Supply	-	-	Approaching Installation	Misjudgement by Poor Visibility	Column PA	Dent	Yes	Yes	Severe
21	DEn	12/10/90	1990	October	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	-	Column CPC4	Dent with Hole	No	Yes	Severe
22	DEn	05/01/91	1991	January	Southern	Fixed Steel	Stand-By	Sibal. Side	3.0	Approaching Installation	Misjudgement	Diagonal Brace	Severed and Crack	Yes	Yes	Severe
23	DEn	19/04/92	1992	April	-	Semi-Submersible Drilling	Supply	-	-	Anchor Handling	Misjudgement	-	Unspecified	No	No	Severe
24	OTN 92.235	1975	1975	-	Southern	Fixed Steel	-	-	-	-	-	-	Bent with Weld Crack	No	No	Moderate
25	OTN 92.235	1975	1975	-	Southern	Fixed Steel	-	-	-	-	-	Horizontal Brace	Bent with Weld Crack	No	No	Moderate
26	OTN 92.235	1975	1975	-	Southern	Fixed Steel	-	-	-	-	-	-	Weld Crack	No	No	Moderate
27	DEn	20/09/75	1975	September	Central	Jack-Up	Supply	-	-	-	-	-	Dent with Crack	Yes	Yes	Moderate
28	NMI	1976	1976	November	Southern	Fixed Steel	Survey	Side	3.0	-	Engine Control Failure	-	Unspecified	No	No	Moderate
29	DEn	14/08/76	1976	August	Northern	Semi-Submersible Drilling	Supply	Bow	-	-	Misjudgement	Column P2/3	Dent with Hole	Yes	Yes	Moderate
30	OTN 92.235	1977	1977	-	Southern	Fixed Steel	-	-	-	-	-	-	Severed	No	No	Moderate
31	OTN 92.235	1977	1977	-	Southern	Fixed Steel	-	-	-	-	-	-	Bent with Weld Crack	No	No	Moderate
32	OTN 92.235	1977	1977	-	Southern	Fixed Steel	-	-	-	-	-	-	Weld Crack	No	No	Moderate
33	DEn	11/02/77	1977	February	Northern	Semi-Submersible Accommodation	Supply	-	-	-	-	-	Lifeboat	No	No	Moderate
34	DEn	18/02/77	1977	February	-	Semi-Submersible Accommodation	Supply	Stern	4.5	Cargo Unloading	Engine Control Failure	Column PC2	Dent with Hole	Yes	Yes	Moderate
35	DEn	19/04/77	1977	April	Southern	Fixed Steel	Stand-By	-	-	Approaching Installation	Misjudgement	Diagonal Brace	Bend	No	No	Moderate
36	DEn	23/04/77	1977	April	Northern	Semi-Submersible Drilling	Stand-By	Stern	3.3	Approaching Installation	Misjudgement	Column C1	Bend and Dent	Yes	Yes	Moderate
37	NMI	1978	1978	December	Central	Semi-Submersible Drilling	Supply	Bow	-	-	Autopilot Failure	-	Unspecified	No	No	Moderate
38	NMI	1978	1978	December	Northern	Fixed Steel	Supply	Stern	3.5	Cargo Transfer	-	-	Unspecified	No	No	Moderate
39	OTN 92.235	1978	1978	-	Southern	Fixed Steel	-	-	-	-	-	Cross Brace	Weld Crack	No	No	Moderate
40	DEn	10/01/78	1978	January	-	Semi-Submersible Drilling	Supply	Stern	3.3	Approaching Installation	Misjudgement	Column SA	Dent with Hole	Yes	Yes	Moderate
41	DEn	05/02/78	1978	February	Southern	Fixed Steel	Supply	-	-	Personnel Transfer	Misjudgement	Riser	Dent	No	Yes	Moderate
42	DEn	16/06/78	1978	June	Northern	Semi-Submersible Drilling	Supply	Stern	3.5	Cargo Unloading	Mooring Failure	Column 3/4	Dent with Hole	No	Yes	Moderate
43	DEn	05/08/78	1978	August	Central	Semi-Submersible Production	Supply	-	-	Cargo Unloading	-	Column No 25	Dent with Weld Crack	Yes	Yes	Moderate
44	NMI	1979	1979	October	Central	Semi-Submersible Drilling	Supply	-	3.5	Approaching Installation	Misjudgement	Column C	Dent	Yes	No	Moderate
45	BOMEL	1979	1979	-	Southern	Fixed Steel	-	-	-	-	-	Diagonal Brace	Bent and Dent	No	Yes	Moderate
46	DEn	28/06/79	1979	June	Southern	Fixed Steel	Supply	Bow	1.0	Approaching Installation	Electrical Failure	Diagonal Brace	Bent and Dent	No	Yes	Moderate

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Damage Class	Vessel Damage Details	Other Source Confirms
ATTENDANT VESSEL COLLISIONS						
9	Two braces damaged (18" x 0.5" and 20" x 0.5"). 36" brace bent. 2 braces detached (24" x 0.5" and 12" x 0.5") and bent towards centre of jacket. 36" x 1.375" diagonal torn away. Damage between 20" - 35" levels. Non redundant member.	Yes	Extensive repair needed. Brace between rows 3 and 4 replaced in 1978.	Minor	-	WOAD, OTN 92 235 & BOMEL
10	Cross bracing on row A at elevation +17 severed at A1 and fell off to seabed. Redundant member. 450mm long tear in leg A1 in way of weld to brace. Non redundant member. At 11'.	Yes	Brace replaced in 1978.	-	-	OTN 92 235 & BOMEL
11	One end of leg member virtually severed other end had 2 x 13mm cracks in cross member at 11'.	Yes	Damaged member removed.	-	-	-
12	Horizontal barge bumper support torn out of leg A1 at +9 elevation causing weld crack of total 800mm length. Non redundant member.	Yes	Leg reinforcing plate fitted in 1981.	-	-	-
13	Unspecified severe damage.	Yes	Towed to yard for repair.	-	-	-
14	Vertical diagonal and horizontal brace on row B between legs B3 and B4 severed at leg B3 at +20 elevation. Hole 450mm x 190mm (H x D). Cracks in welds on underwater nodes of leg B3 between 16" and 20" elevation. 14 bolts x 6" gash in 5-2 columns at B4 elevation. Ring frame in way bent. Lifebent smashed. davit and deck under lifebent bent.	Yes	Member replaced and repair clamped in 1980.	-	-	OTN 92 235 & BOMEL
15	Dent to 2.44 in brace C3. 1.83m x 5.49m x 0.46m (H x W x D). LRS case 1/1.024.	Yes	Urgent repairs needed. Decided brace damage had effective total loss of comp strength, wall shut-in and rig evacuated.	Severe	Unspecified heavy damage.	-
17	Brace between legs B2 and B3 at +16 elevation close to leg B3. Members bent inwards and downwards by 4" and flattened, torn and distorted bracing. Holed at 16" level.	Yes	Underwater inspection required plus MPI of node welds. Temporary repair followed by permanent repair in 1983/84.	-	-	HSE
18	Dent 7" x 8" x 12" (H x W x D) at 65" level. 4 internal stiffeners twisted. Ring girder buckled and fractured. Bulkhead buckled over 20".	Yes	Renewal of plating, stiffeners and fractured bulkhead.	-	-	HSE
19	Brace between legs A3 & A4 indented 0.15m x 0.15m (H x W x D) Brace bent by 15". Weld cracks found.	Yes	Bracing repaired in 1983. MPI inspection of node welds.	-	-	OTN 92 235, BOMEL & HSE
20	Dent of column plating 3.75m x 4.5m x 0.35m (H x W x D). 3 vertical stiffeners buckled, 4 damaged. 1 ring stiffener severely damaged.	Yes	Temporary repairs undertaken pending repair of both plating and stiffeners.	Moderate	Damage to breast plate, deck plates at low forepeak hatch and to foremast.	-
21	38" gash in shell plating. 18" - 24" indent in side shell.	-	-	-	-	HSE
22	Horizontal brace on row A between legs A2 - A3 severed at A3 and leaving hole. Indented 900mm x 650mm x 120mm (H x W x D). bowed 80mm. 3 others damaged. Fractured welds on leg A3; horizontal brace sheared, knee joint dented and sheared. Redundant member. Unspecified severe damage. Structure at Great Yarmouth awaiting tow when incident occurred.	Yes	Member removed leaving a 1.5m stub at leg A2. Repair plate installed over hole in 1991.	Severe	4" - 5" gash above wateline in bow section. Towed to Withernsea by "Brydon Eider" for temporary repairs and later to Lowestoft.	OTN 92 235, WOAD & LMIS
23	Welds of horizontal brace between legs B4 and B5 cracked at both ends B4 for 45% circumference. B5 for 75% circumference) at +11' elevation. Brace bent 9".	Yes	Member replaced in 1974.	-	-	MAIB
24	600mm long x 6mm deep weld crack on horizontal brace on row 1 between legs A1 and B1 at +7.5 elevation. Member buckled by 2". Redundant member.	Yes	Replaced by new member with redesigned end connections in 1974.	-	-	-
25	11" long weld crack at joint on horizontal brace member on row A between legs A3 and A4 at 2.5 elevation.	Yes	Replacement insert piece in 1981.	-	-	BOMEL
26	Collision with vertical column No. 22, dent 36" x 1 x 2" (L x W x D). 6" long fracture on ring stiffener.	-	-	-	-	-
27	Unspecified damage.	Yes	-	-	-	-
28	Dent and internal damage to centre port column. Plating penetrated in port centre column.	-	-	-	-	-
29	Horizontal brace member on row B between leg B6 and B7 at B7 pulled out of leg can at +11' elevation. Redundant member.	Yes	Member replaced with redesigned joint in 1978.	-	-	BOMEL
30	14" long weld crack and 4" - 6" bend on diagonal brace member on row A between legs A3 and A4 at +38.5 elevation.	Yes	Brace replaced in 1980.	-	-	-
31	18" long weld crack on horizontal brace on row 1 between legs A1 and B1 at +7.5 elevation. Redundant member.	Yes	Cracks rewelded and split sleeve installed in 1977.	-	-	-
32	Damage to deck and lifebent below deck.	-	-	-	-	-
33	Dent 3.65m x 3.95m x 0.3m (H x W x D) between 4' - 6' above wateline. 3 horizontal stiffeners 1 in and displaced. Plating fractured 30 mm at horizontal stiffener.	-	-	-	-	-
34	Cross member 10' above waterline bent, distortion of spider-deck.	-	-	-	-	-
35	Plating dented 0.84m x 0.41m x 0.025 m (H x W x D). Stiffener ring bent 50mm upwards and broken away from plating.	Yes	-	Minor	Not serious, repaired during annual inspection.	-
36	Unspecified damage.	Yes	-	-	-	-
37	Unspecified damage.	Yes	-	-	-	-
38	Significant crack on vertical cross brace on row A between legs A4 (+21' elevation) and A3 (+22' elevation).	Yes	Split sleeve installed in 1979.	-	-	BOMEL
39	Stiffener buckled and partially torn over 5'. Ring stiffener at 90° buckled between stiffeners 6 and 7. 8 mm hole in plating.	-	-	-	-	-
40	Dent in 24" OD x 0.688" WT riser 0.350m x 0.25m x 0.037m (H x W x D).	Yes	Riser operated at downrated pressure pending metallurgical report.	-	-	-
41	Indent of aft side of column 3 and fore side of column 4. Plating penetrated.	Yes	-	Moderate	Temporary repairs effected, ship yard repairs required.	-
42	Vertical stiffener twisted and 4" dent on column No. 25. 3" dent on column No. 24.	Yes	Sleeve welded in place in 1980.	-	-	BOMEL
43	Dent 1.75m x 1.75m x 0.17m (H x W x D) between ring stiffeners 3 and 4. Welds on stiffeners bulged, no cracks.	Yes	-	-	-	-
44	Vertical diagonal brace on row A between legs A1 and A2 indented 16" x 10" x 3" (H x W x D) and bent inwards by 3".	Yes	Sleeve welded in place in 1980.	-	-	OTN 92 235
45	Horizontal brace on row 4 between legs C4 and D4 cracked, bent and indented, damage to spider deck.	Yes	Requested by LRS. Brace replaced in 1979.	-	-	OTN 92 235

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
47	DEn	06/11/79	1979	November	-	Semi-Submersible Drilling	Supply	Stem	4.0	Cargo Unloading	Weather Conditions	Column CSC4	Dent	Yes	Moderate
48	DEn	14/11/79	1979	November	Channel	Semi-Submersible Drilling	Stand-By	Stem	2.5	Approaching Installation	Propeller Failure	Column B4	Dent	Yes	Moderate
49	NMI	19/11/79	1979	November	Central	Semi-Submersible Drilling	Anchor Handler	Stem	3.5	-	-	-	Unspecified	No	Moderate
50	NMI	1980	1980	May	Central	Semi-Submersible Drilling	Supply	Stem	2.5	Cargo Transfer	Misjudgement	Column C	Dent	Yes	Moderate
51	NMI	1980	1980	October	Northern	Semi-Submersible Drilling	Supply	Side	6.2	Cargo Transfer	-	-	Unspecified	No	Moderate
52	OTN 92 235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	-	-	Dent with Weld Crack	No	Moderate
53	OTN 92 235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	Weather Conditions	-	Bend	No	Moderate
54	BOMEL	1980	1980	-	Southern	Fixed Steel	-	-	-	-	Weather Conditions	-	Bend with Crack	No	Moderate
55	OTN 92 235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	-	-	Bend and Dent	No	Moderate
56	DEn	05/05/80	1980	May	-	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	-	Column P1	Dent	Yes	Moderate
57	DEn	20/10/80	1980	October	Northern	Fixed Concrete	Supply	Stem	7.0	Approaching Installation	Misjudgement	Leg C4	Cracked Concrete	No	Moderate
58	DEn	10/11/80	1980	November	Northern	Fixed Concrete	Supply	-	2.7	Cargo Unloading	Mooring Failure	Leg C4	Cracked Concrete	No	Moderate
59	OTN 92 235	1981	1981	-	Southern	Fixed Steel	-	-	-	-	-	-	Hole	No	Moderate
60	BOMEL	1981	1981	-	Southern	Fixed Steel	-	-	-	-	-	Leg	Dent	No	Moderate
61	DEn	10/02/81	1981	February	Central	Semi-Submersible Drilling	Supply	-	3.0	Cargo Unloading	Engine Control Failure	Column SC2	Dent with Hole	Yes	Moderate
62	BOMEL	1982	1982	-	Southern	Fixed Steel	Supply	-	-	-	-	Leg	Dent with Hole	No	Moderate
63	OTN 92 235	1982	1982	-	Southern	Fixed Steel	-	-	-	-	-	Cross Brace	Weld Crack	No	Moderate
64	OTN 92 235	1982	1982	-	Southern	Fixed Steel	-	-	-	-	-	-	Dent with Hole	No	Moderate
65	DEn	25/03/82	1982	March	Northern	Fixed Steel	Supply	-	2.75	Cargo Transfer	Misjudgement	A4 Leg	Fender	No	Moderate
66	NMI	09/07/82	1982	July	Southern	Fixed Steel	Stand-By	-	-	Cross Support	-	Platform	Unspecified	No	Moderate
67	DEn	18/07/82	1982	July	Northern	Semi-Submersible Drilling	Supply	-	-	Bunkering Operations	Misjudgement	Diagonal Brace	Severed and Dent	No	Moderate
68	DEn	18/10/82	1982	October	Southern	Fixed Steel	Supply	Stem	1.0	Approaching Installation	Anchor Dragged	Leg Diagonal Brace	Bend and Dent	No	Moderate
69	BOMEL	1983	1983	-	Central	Fixed Steel	Diver Support	-	-	-	-	Leg	Dent with Hole	No	Moderate
70	DEn	10/03/83	1983	March	Central	Semi-Submersible Drilling	Supply	Side	2.25	Cargo Unloading Containers	D.P. Thruster Failure	Column C/D	Dent	No	Moderate
71	DEn	09/11/83	1983	November	Northern	Semi-Submersible Drilling	Supply	Stem	-	Approaching Installation	Misjudgement	Column SC4	Hole	No	Moderate
72	DEn	10/05/84	1984	May	Northern	Semi-Submersible Drilling	Diver Support	Bow	-	Diving Operations	D.P. Electrical Failure	Column SF	Dent	No	Moderate
73	DEn	28/08/84	1984	August	Northern	Semi-Submersible Drilling	Supply	Side	1.3	Approaching Installation	Engine Power Failure	Column P3	Dent	Yes	Moderate
74	DEn	10/11/84	1984	November	Southern	Jack-Up	Diver Support	-	2.75	Approaching Installation	D.P. Failure	Other Stbd. Side	Hole	No	Moderate
75	DEn	16/11/84	1984	November	Northern	Single Buoy Mooring	Merchant Tanker	Bow	4.4	Approaching Installation	Engine Control Failure	Buoy	Dent	Yes	Moderate
76	DEn	30/11/84	1984	November	Central	Semi-Submersible Drilling	Supply	-	4.0	Cargo Unloading	Misjudgement	Column 5	Dent with Crack	Yes	Moderate
77	DEn	17/01/85	1985	January	Northern	Semi-Submersible Drilling	Supply	Stem	-	Cargo Unloading	Engine Control Failure	Column B4	Dent	Yes	Moderate
78	BOMEL	1986	1986	-	Southern	Fixed Steel	-	-	-	-	-	Brace	Weld Crack	No	Moderate
79	OTN 92 235	1986	1986	-	Central	Fixed Steel	-	-	-	-	-	-	Severed and Dent	No	Moderate
80	DEn	22/01/86	1986	January	-	Semi-Submersible Drilling	Supply	-	-	-	-	Diagonal Brace C3	Dent	Yes	Moderate
81	DEn	17/04/86	1986	April	Central	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	Misjudgement by Poor Visibility	Column 2	Dent	Yes	Moderate
82	DEn	28/08/89	1989	August	Central	Semi-Submersible Drilling	Supply	Side	-	Cargo Unloading	Misjudgement	Column C	Dent	Yes	Moderate
83	BOMEL	1990	1990	-	Northern	Fixed Steel	-	-	-	-	-	-	Bend	No	Moderate

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Damage Class	Vessel Damage Details	Other Source Confirms
ATTENDANT VESSEL COLLISIONS						
47	2 dents, 1.52m x 1.22m x 0.025m and 2m x 0.1m x 3m (H x W x D). Transverse stringer set in 25 mm.	Yes	Within 6 months.	-	-	-
48	Ring stiffener at 80° level over 7 damaged. 3 vertical stiffeners below and above ring also damaged.	-	-	-	-	-
49	Unspecified damage.	Yes	-	-	-	-
50	Dent 1.3m x 2m x 0.17m (H x W x D). 2 stiffeners bulged.	Yes	-	-	-	-
51	Unspecified damage.	Yes	-	-	-	-
52	5mm wide void crack on vertical diagonal brace on row B from leg B3 to B4 at intersection with gusset plate at approx. +12 elevation. Brace indented 12" x 16" x 2" (L x W x D) at +15 elevation.	Yes	Saddle plate added, gusset plates cut back and welded split sleeve in 1981.	-	-	BOMEL
53	Horizontal brace on row A between legs A1 and A2 at -6° elevation bent 12" upwards and 8" inwards.	Yes	Additional brace installed in 1981.	-	-	BOMEL
54	Horizontal brace bent and cracked.	Yes	Crack rewelded in 1981.	-	-	OTN 92 235
55	Horizontal brace on row B from leg B2 to B3 at +15° elevation indented 18" x 12" x 6" (L x W x D) and bent 12" upwards. Horizontal brace on row B between legs B1 and B2 at +15° elevation bent 6" downwards.	Yes	Additional member installed in 1981.	-	-	-
56	Dent 1.22m x 1.22m x 0.15m (H x W x D).	Yes	Crop plating, renew both plating and associated stiffener.	-	-	-
57	Crack in concrete 3m above mean sea level. Leakage of water through crack at dry shaft, 5 litres/minute.	Yes	Temporary and permanent repairs made consisting of concrete replacement in 1980.	-	-	WOAD & BOMEL
58	Concrete spalled off 1m x 0.25m x 0.025m (H x W x D). Slight ingress of water from previous damage.	-	-	-	-	WOAD
59	Boat tender support member on leg A4 sheared off/leaving a hole in jacket leg. Non redundant member.	Yes	Plate inserted in hole in 1982.	-	-	-
60	Unspecified dent in leg.	Yes	Grouted and clamped in 1982.	-	-	-
61	Shell indented 0.76m x 0.76m x 0.075 mm (H x W x D) close to waterline - slight ingress of water. Stiffener ring frame at 75° level buckled. Plating 125 mm tear.	Yes	Temporary repair, cement box fitted.	-	-	HSE
62	Unspecified dent with hole in leg.	Yes	Patch plate welded over.	-	-	-
63	1.6mm wide crack on vertical cross brace on row B between legs B1 (-21° elevation) and B2	Yes	Split sleeve installed in 1982.	-	-	BOMEL
64	2 dents on horizontal brace on row 1 between legs C1 and D1 at -7.5° elevation. Larger indent with 2.0mm tear in centre and member bowed by 75mm.	Yes	Tear rewelded in 1984.	-	-	-
65	Extensive damage to boat bumper, centre support sheared off at connection to lower can support.	Yes	Replacement of affected boat bumper.	-	-	HSE
66	Unspecified damage to hanging floghorn platform.	Yes	-	-	-	-
67	35° diagonal member between 2 caissons badly set in 4.57m x 1.52m (H x W x D). Member severed and weld damage at connection between top plate of diagonal and lower hull connection.	Yes	Towed to Peterhead for repairs.	-	-	HSE & WOAD
68	100 mm indentation to port stem leg, 3 vertical diagonal and horizontal braces on row 1 near legs A1 and B1 and between legs A1 and B1 bowed 10-15 degrees. Minor dents and cracking. Redundant members. Landing stage damaged.	Yes	"K" Brace replaced by new diagonal in 1983.	-	-	OTN 92 235, BOMEL & HSE
69	Unspecified dent with hole in leg.	Yes	Patch plate welded over in 1983.	-	-	-
70	Column 'D' damaged at 28m level, Column 'C' damaged in 3 places, 2 at 28m, 1 at 27m levels.	Yes	Temporary repair undertaken.	Minor	-	-
71	Plating holed at 62' mark.	Yes	Temporary patch applied.	-	-	HSE
72	Dent 1.83m x 0.1m (H x D). Flare boom cut in half, bumper bars damaged.	Yes	Flare boom repair.	Moderate	Damage to funnel and helideck supports.	HSE
73	4 vertical frames displaced +50mm.	Yes	-	-	-	HSE
74	150mm gash in shell of platform above waterline.	Yes	-	-	-	HSE
75	Dent over two levels approx. 12" depth, weld crack over 6", 7 stiffeners buckled at 18°.	Yes	Taken out of service, stiffened against ship collision.	-	-	HSE
76	Steel plating of caisson set in 1.52m x 1.83m (H x W x D). 16" crack at 61.5 level, 2 vertical stiffeners buckled.	Yes	Temporary repair carried out pending permanent repairs.	-	-	HSE
77	Dent 0.92m x 0.92m x 0.036m (H x W x D). 2 stiffeners bent smoothly over 1.5m. 5 wooden fenders broken and lost.	Yes	Replace 1.2m x 1.2m of plating and angle of stiffeners.	-	-	HSE
78	Unspecified weld crack in diagonal member.	Yes	Sleeve welded in 1986.	-	-	-
79	Vertical diagonal brace on rows 3 at rows E to row B. Complete severance at butt weld 3' above waterline. 38° elevation. Brace indented 30" x 12" x 2" (L x W x D) just above water-line. Redundant member.	Yes	Member replaced.	-	-	BOMEL
80	Indent in brace C3 between columns C and D. Ring stiffeners distorted, webs torn.	Yes	-	-	-	-
81	Damage to vertical and horizontal stiffeners. Stiffeners bent inwards over an area 18" x 12" at 65° - 70° level.	Yes	-	-	-	HSE
82	Dent in C8 tank 5' 7" x 10" (H x W x D). C3 longitudinal stiffener indented 3". Plating damage 4' x 2' at 22.0m level relative to keel. Ring stiffeners 4 and 5 indented on No. 6 ring.	-	-	-	-	-
83	Unspecified bend in horizontal member.	Yes	Patch plate welded over in 1992.	-	-	-

Consec.	Information	Date				Vessel Type	Impact	Sea	Operating		Damage	Dents	Installation Class		
ATTENDANT VESSEL COLLISIONS															
84	DEn	29/05/90	1990	May	Central	Semi-Submersible Drilling	Supply	Stem	-	Anchor Handling	Misjudgement	Hole	No	Yes	Moderate
85	DEn	22/07/90	1990	July	Southern	Fixed Steel	Supply	Bow	1.4	Cargo Unloading	Misjudgement	Minor	No	No	Moderate
86	DEn	10/02/91	1991	February	Central	Semi-Submersible Drilling	Supply	Stbd. Quarter	2.0	Cargo Unloading	Misjudgement	Dent	Yes	Yes	Moderate
87	DEn	11/10/91	1991	October	Central	Semi-Submersible Drilling	Supply	Wing							
93	OTN 92.235	1975	1975	-	Southern	Fixed Steel	-	-	-	-	-	Bend and Dent	No	Yes	Minor
94	DEn	16/01/75	1975	January	Central	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	Misjudgement	Dent	No	Yes	Minor
95	DEn	17/01/75	1975	January	-	Semi-Submersible Drilling	Supply	Stem	-	Approaching Installation	Mooring Failure	Dent	No	Yes	Minor
96	DEn	08/03/75	1975	March	-	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	Steering Failure	Dent	No	Yes	Minor
97	DEn	19/06/75	1975	June	Central	Semi-Submersible Drilling	Supply	Stem	-	Personnel Transfer	Misjudgement	Dent with Crack	Yes	Yes	Minor
98	DEn	25/10/75	1975	October	Bay										
99	NMI	1976	1976	May	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	-	Minor	No	No	Minor
100	NMI	1976	1976	June	Central	Jack-Up	Supply	-	1.5	Approaching Installation	Weather Conditions	Fender	No	No	Minor
101	NMI	1976	1976	July	Central	Semi-Submersible Drilling	Supply	Stem	0.5	Disconnecting Towing					
102	DEn	25/02/76	1976	February	-	Semi-Submersible Drilling	Supply	-	-	Cargo Unloading	Misjudgement	Dent	Yes	Yes	Minor
103	DEn	25/02/76	1976	February	-	Semi-Submersible Drilling	Supply	-	-	Cargo Unloading	Misjudgement	Dent with Crack	Yes	Yes	Minor
104	DEn	17/03/76	1976	March	-	Semi-Submersible Drilling	Supply	-	3.7	Cargo Unloading	Anchor Chain Broke	Dent	Yes	Yes	Minor
105	DEn	08/04/76	1976	April	-	Semi-Submersible Drilling	Maintenance	-	-	-	-	Dent	No	Yes	Minor
106	DEn	11/04/76	1976	April	Central	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	Misjudgement	Dent	No	Yes	Minor
107	DEn	12/04/76	1976	April	Northern	Semi-Submersible Drilling	Supply	-	-	Departing Installation	Mooring Failure	Dent	No	Yes	Minor
108	DEn	18/09/76	1976	September	Northern	Semi-Submersible Drilling	Supply	Bow	-	Cargo Transfer	-	Dent	No	Yes	Minor
109	DEn	17/10/76	1976	October	Northern	Fixed Steel	Supply	Side	3.0	Cargo Unloading	Weather Conditions	Minor	No	No	Minor
110	DEn	25/10/76	1976	October	Central	Semi-Submersible Drilling	Supply	-	2.5	Approaching Installation	Engine Control Failure	Dent	No	Yes	Minor
111	NMI	1977	1977	January	Northern	Fixed Steel	Supply	Side	-	Cargo Transfer	-	Minor	No	No	Minor
112	NMI	1977	1977	February	Northern	Fixed Steel	Supply	Side	3.5	Cargo Transfer	-	Minor	No	No	Minor
113	NMI	1977	1977	March	Central	Semi-Submersible Drilling	Supply	Stem	1.0	Approaching Installation	Misjudgement	Minor	No	No	Minor
114	NMI	1977	1977	May	Central	Semi-Submersible Drilling	Supply	Stem	2.5	Cargo Transfer	Total Power Loss	Minor	No	No	Minor
115	NMI	1977	1977	September	Southern	Jack-Up	Barge	-	1.0	Cargo Transfer	-	Minor	No	No	Minor
116	OTN 92.235	1977	1977	-	Southern	Fixed Steel	-	-	-	-	-	Bend	No	No	Minor
117	NMI	14/01/77	1977	January	-	Semi-Submersible Drilling	Stand-By	Bow	2.0	Man Overboard Drill	-	Minor	No	No	Minor
118	DEn	21/03/77	1977	March	Northern	Semi-Submersible Drilling	Supply	Bow	3.0	Cargo Transfer	-	Dent	Yes	Yes	Minor
119	DEn	06/05/77	1977	May	Northern	Fixed Concrete	Diver Support	-	-	Diving Operations	Anchor Dragged	Minor	No	No	Minor
120	DEn	07/05/77	1977	May	Northern	Fixed Steel	Supply	Stem	2.0	Cargo Unloading	Post/Operation Neglected	Dent	No	Yes	Minor
121	DEn	07/10/77	1977	October	Northern	Fixed Concrete	Supply	-	-	-	-	Fender	No	No	Minor
122	DEn	22/11/77	1977	November	Southern	Fixed Steel	Supply	-	5.0	Cargo Unloading	Anchor Dragged	Minor	No	No	Minor

Conseq. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
84	1" diameter hole in hull plate. Leak rate of 3 tons/hour. Damage to drill water tank. No damage to compressor platform. 1 tubular support on bridge between AP and AC platforms flattened. Damage to pipeline riser guard, stairway between main and cellar deck; platform decking and grating, ladders, 10" fire main ruptured. Halon activated. Indentation in starboard forward leg. 1m x 2m x 0.3m (H x W x D). Associated frames and floor buckled. watertight integrity intact.	-	-	Minor	Vessel's superstructure, rigging and starboard funnel were in contact with collar deck and connecting bridge.
85	Port flare boom twisted and crushed.	-	-	Minor	Small hole in port funnel and slight damage to bridge wing.
86	Damage to flare boom.	Yes	Complete refurbishment of boom section.	Moderate	Bent funnel, radar damage, mast damage.
87	Wrecked lifeboat.	-	-	-	-
88	Indentation 18" x 26" x 18" (D x H x W) area. Split 26" x 2" (L x W) at 75' level. Internal stiffeners in way bent and cracked.	-	Unknown.	-	-
89	Two indentations in shell of Column 2 and distortion of internal vertical stiffeners in way.	-	-	-	-
90	Column shell plating indented 12' x 8' x 10" at approx. 6' above water line. Several vertical and one horizontal internal stiffeners in way are distorted.	-	-	-	-
91	Horizontal brace on row 1 between legs A1 and B1 at +20' elevation indented 150mm and 100mm deep and bent 8".	No	-	-	-
92	Shell plating dented 1.22m x 1.83m x 0.1m (H x W x D) just above waterline.	-	-	-	-
93	Dent 0.61m x 0.61m x 0.15m (H x W x D).	-	-	-	-
94	Dent 1.52m x 0.91m x 0.15m (H x W x D) at bulkhead between locker and pump room.	-	-	-	-
95	Dent 0.91m x 0.61m x 0.18m (H x W x D) at 50' draught. 2 vertical ribs bent. Weld cracks.	-	-	-	-
96	Superficial damage to leg chord.	-	-	Severe	Extensive damage to bow, new bow required.
97	Unspecified minor damage.	-	-	Minor	Slight damage to vessel rubbing strake.
98	Boat landing destroyed.	Yes	-	-	-
99	Unspecified minor damage.	-	-	-	-
100	V-shaped dent in plating 1.22 m horizontally. Vertical stiffener set back 250mm 175mm x 100mm x 9.5mm (H x W x D). Circumference stiffeners buckled 550mm either side.	-	-	-	-
101	V-shaped dent in plating 2.44 m horizontally. Vertical stiffener set back 300 mm. 3 vertical stiffeners dented 175mm x 100mm x 9.5mm (H x W x D). Weld crack.	-	-	-	-
102	Superficial damage to 18" dia. 3m diameter column. 1 horizontal and 4 vertical frames damaged. Leg remained under light.	-	-	-	-
103	Denting of column.	-	-	-	-
104	Plating dented 0.3m x 0.3m x 0.05m (H x W x D) at 74' elevation.	-	-	-	-
105	Dent in diagonal member 0.91m x 0.91m x 0.15m (H x W x D).	-	-	-	-
106	Dent at deck 5 level. 3.5m x 4m x 0.42m (H x W x D). Damage to boat mooring pad eye and its stiffening web backing L. puncture 0.08m x 0.20m.	-	-	-	-
107	Unspecified minor damage.	-	-	Severe	Holed causing significant flooding.
108	Collided twice. 1st. no damage to boat bumper. Dent on second collision between first and second ring frames at 85' draft. 0.91m x 1.07m x 0.061 m (H x W x D).	-	-	-	-
109	Unspecified minor damage.	-	-	-	-
110	Unspecified minor damage.	-	-	-	-
111	Unspecified minor damage.	-	-	-	-
112	Unspecified minor damage.	-	-	-	-
113	Unspecified minor damage.	No	-	-	-
114	Unspecified minor damage.	-	-	-	-
115	4 collisions, barge being pushed by a tug.	-	-	-	-
116	Vertical diagonal brace on row B from leg B2 to diagonal brace between legs B1 and B2 bent 6".	No	-	-	-
117	Unspecified minor damage.	-	-	-	-
118	? Dent, one 1.24m x 2.48m x 0.1m (H x W x D) 1m above waterline. stiffener set down 75mm over 3.1m length.	-	-	-	-
119	Damage to five main, foam main and handrails.	No	-	-	-
120	Dent in sleeve 0.8m x 0.8m x 0.1m (H x W x D) at 1m above waterline.	-	-	-	-
121	Htt north leg causing damage to bumpers.	-	-	-	-
122	Minor damage to both platforms only superficial.	-	-	Minor	Minor damage to starboard hull plating, superstructure and mast.

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
123	NMI	17/12/77	1977	December	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Misjudgement	Diagonal Brace	Minor	No	Minor
124	NMI	1978	1978	March	Central	Semi-Submersible Drilling	Supply	Stem	1.0	Approaching Installation	Misjudgement	-	Minor	No	Minor
125	NMI	1978	1978	June	Central	Semi-Submersible Drilling	Supply	Stem	2.5	Cargo Transfer	Misjudgement	Diagonal Brace	Minor	No	Minor
126	NMI	1978	1978	July	Central	Semi-Submersible Drilling	Supply	-	1.5	-	Engine Control Failure	-	Minor	No	Minor
127	NMI	1978	1978	July	Central	Semi-Submersible Drilling	Supply	Side	2.0	Cargo Transfer	-	-	Minor	No	Minor
128	NMI	1978	1978	December	Central	Jack-Up	Supply	Side	3.66	Cargo Transfer	-	-	Dent	No	Minor
129	DEn	04/01/78	1978	January	Central	Semi-Submersible Drilling	Supply	Stem	3.0	Approaching Installation	Misjudgement	Column SC4	Dent	No	Minor
130	DEn	02/02/78	1978	February	Northern	Fixed Steel	Supply	-	3.0	Approaching Installation	Weather Conditions	Fender	Fender	No	Minor
131	DEn	02/02/78	1978	February	Central	Semi-Submersible Drilling	Supply	-	3.0	Cargo Unloading	Weather Conditions	Column SC4	Dent	Yes	Minor
132	NMI	13/02/78	1978	February	Central	Semi-Submersible Drilling	Supply	-	1.5	-	Misjudgement	Diagonal Brace	Dent	No	Minor
133	NMI	14/02/78	1978	February	Central	Semi-Submersible Drilling	Supply	-	-	-	-	Storage Tank	Dent	No	Minor
134	NMI	31/03/78	1978	March	Central	Semi-Submersible Drilling	Supply	-	1.5	Cargo Transfer	-	Storage Tank	Dent	No	Minor
135	DEn	16/08/78	1978	August	Central	Semi-Submersible Drilling	Supply	Stem	-	Approaching Installation	Misjudgement	Column SC4	Dent	Yes	Minor
136	DEn	01/01/79	1979	January	Southern	Fixed Steel	Stand-By	-	-	Cargo Unloading	Weather Conditions	Landing Station	Minor	No	Minor
137	DEn	1979	1979	February	Northern	Fixed Steel	Supply	Stem	2.0	Cargo Transfer	Weather Conditions	Deck	Minor	No	Minor
138	NMI	1979	1979	March	Central	Semi-Submersible Drilling	Supply	Stem	3.0	Approaching Installation	Misjudgement	-	Minor	No	Minor
139	NMI	1979	1979	May	Northern	Fixed Steel	Supply	Side	3.5	Cargo Transfer	Weather Conditions	-	Minor	No	Minor
140	NMI	1979	1979	September	Central	Semi-Submersible Drilling	Supply	Stem	1.5	Cargo Transfer	-	-	Minor	No	Minor
141	NMI	1979	1979	November	Central	Semi-Submersible Drilling	Supply	Stem	2.0	Cargo Transfer	Engine Control Failure	-	Minor	No	Minor
142	NMI	16/01/79	1979	January	Central	Semi-Submersible Drilling	Anchor Handler	Stem	3.0	Approaching Installation	Engine Failure	-	Minor	No	Minor
143	DEn	03/02/79	1979	February	Northern	Fixed Steel	Supply	Side	4.5	Cargo Transfer	Weather Conditions	Fender	Fender	No	Minor
144	NMI	11/03/79	1979	March	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Misjudgement	Diagonal Brace	Dent	No	Minor
145	DEn	17/03/79	1979	March	Southern	Fixed Steel	Supply	Side	2.0	Approaching Installation	Mooring Failure	Riser	Dent	No	Minor
146	DEn	02/05/79	1979	May	Northern	Fixed Steel	Stand-By	-	-	-	-	G2 Leg	Dent	Yes	Minor
147	DEn	11/05/79	1979	May	Central	Semi-Submersible Accommodation	Diver Support	Side	-	Diving Operations	D.P. Thruster Failure	Leg SW	Minor	No	Minor
148	DEn	07/09/79	1979	September	Northern	Fixed Concrete	Diver Support	Side	-	Approaching Installation	D.P. Failure	Leg 3	Minor	No	Minor
149	NMI	11/09/79	1979	September	Northern	Semi-Submersible Drilling	Supply	-	5.0	Cargo Transfer	-	Storage Tank	Dent	No	Minor
150	DEn	16/10/79	1979	October	Southern	Fixed Steel	Stand-By	Side	-	Approaching Installation	Misjudgement	Riser	Bend	No	Minor
151	DEn	23/10/79	1979	October	Central	Fixed Steel	Stand-By	-	-	Close Support	Weather Conditions	Deck	Dent	No	Minor
152	NMI	27/11/79	1979	November	Northern	Semi-Submersible Drilling	Stand-By	Bow	3.0	Man Overboard Drill	Engine Power Failure	-	Minor	No	Minor
153	DEn	07/12/79	1979	December	Southern	Fixed Steel	Supply	Stem	1.0	Departing Installation	Manoeuvring Misjudgement	Landing Station	Fender	No	Minor
154	NMI	21/12/79	1979	December	Central	Semi-Submersible Drilling	Anchor Handler	Stem	2.5	Approaching Installation	-	Column	Minor	No	Minor
155	NMI	1980	1980	July	Central	Fixed Steel	Diver Support	Side	-	Diving Operations	D.P. Failure	-	Minor	No	Minor
156	NMI	1980	1980	November	Central	Fixed Steel	Supply	Side	5.5	Cargo Transfer	-	-	Minor	No	Minor
157	NMI	1980	1980	December	Central	Fixed Steel	Supply	-	2.75	Cargo Transfer	-	-	Minor	No	Minor
158	OTN 92 235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	-	Leg D2	Dent	No	Minor
159	OTN 92 235	1980	1980	-	Southern	Fixed Steel	-	-	-	-	-	-	Dent	No	Minor
160	NMI	07/01/80	1980	January	Northern	Semi-Submersible Drilling	Supply	-	1.5	Cargo Transfer	Misjudgement	Diagonal Brace	Dent	No	Minor
161	DEn	18/04/80	1980	April	Northern	Fixed Steel	Supply	-	6.0	Cargo Unloading	Weather Conditions	-	Minor	No	Minor

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
			ATTENDANT VESSEL COLLISIONS		
123	Paint scraped.	-	-	-	-
124	Unspecified minor damage.	-	-	-	-
125	Wave lifted stern into the diagonal, boat had moved too far back. *****	-	-	-	-
126	Unspecified minor damage.	-	-	-	-
127	Unspecified minor damage.	-	-	-	-
128	-	-	-	-	-
129	2 dents 1.32m x 0.88m x 0.025m and 0.76m x 0.46m x 0.019m (H x W x D) at 76" height from keel. Minor damage to boat bumper.	-	-	-	-
130	Severe damage to boat bumper.	-	-	-	-
131	Two dents 1.65m x 1.22m x 0.18m and 0.74m x 0.41m x 0.07m (H x W x D). 2nd ring frame dented 558mm x 203mm x 50mm.	-	-	-	-
132	Dent 0.3m x 0.3m x 0.03m (H x W x D) to diagonal.	-	-	-	-
133	Dent 1.6m x 1.6m x 0.2m (H x W x D) in brine tank 24m above keel.	-	-	-	-
134	Dent 1.1m x 0.2m x 0.65m (H x W x D) to 9 tank 23.5m above keel.	-	-	-	-
135	2 dents 1.17m x 0.76m x 0.1m and 2.13m x 1.83m x 7m (H x W x D). 2 frames stiffeners damaged with 305mm x 25mm dents.	-	-	-	-
136	Paint scraped from 4 vertical members.	No	-	Moderate	Damaged deck plates and internal leakage.
137	Unspecified minor damage.	-	-	-	-
138	Unspecified minor damage.	-	-	-	-
139	Unspecified minor damage.	-	-	-	-
140	Unspecified minor damage.	-	-	-	-
141	Bridge of vessel appeared to be unmanned when collision occurred. *****	-	-	-	-
142	Unspecified minor damage.	-	-	-	-
143	Damage to boat bumper including tearing of doubler plate, no damage to structural members.	-	-	Severe	1m gosh in hull, lost communications antennae.
144	Dent 0.3m x 0.3m x 0.03m (H x W x D) to 2 diagonals at 24.5m above keel.	-	-	-	-
145	75mm dents in diagonal bracing at spider level, riser bent 100mm out of line.	-	-	-	-
146	Dented pile guide.	-	-	-	-
147	Handrail section damaged.	-	-	Minor	Vessel lost radio aerial.
148	Slight scoring of platform.	-	-	-	-
149	Dent 2m x 0.3m (H x W) in C-9 tank 24m above keel.	-	-	-	-
150	Gas riser displaced by 225 mm.	-	Operator intends to fit riser guard.	-	-
151	External plating of package slightly buckled, no contact with structural members.	No	Careful inspection of all plating in affected area.	-	-
152	Unspecified minor damage.	-	-	-	-
153	6" crack in weld at top of one vertical metal fender.	Yes	-	-	-
154	Unspecified minor damage.	-	-	-	-
155	Unspecified minor damage.	-	-	-	-
156	Unspecified minor damage.	-	-	-	-
157	Unspecified minor damage.	-	-	-	-
158	Leg indented 18" x 6" x 2" (L x W x D) at sea level.	No	-	-	-
159	Indent 150mm x 50mm (L x D) on vertical diagonal brace between legs B1 and A1.	No	-	-	-
160	Dent to C-3 diagonal 27 m above keel.	-	-	-	-
161	Trivial damage to handrail only.	-	-	None	No damage.

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
162	NMI	21/05/80	1980	May	Northern	Fixed Steel	Diver Support	-	-	-	-	Leg B4	Minor	No	Minor
163	DEn	23/05/80	1980	May	-	Semi-Submersible Drilling	Supply	Side	3.5	Cargo Unloading	Misjudgement	Column SC4	Dent	No	Minor
164	DEn	28/05/80	1980	May	Northern	Fixed Steel	Diver Support	Side	-	Diving Operations	D.P. Failure	Leg B2	Minor	No	Minor
165	DEn	23/07/80	1980	July	-	Drill Ship	Supply	-	-	-	-	Fender	Fender	No	Minor
166	DEn	26/10/80	1980	October	-	Semi-Submersible Accommodation	Supply	Stern	2.0	Cargo Unloading Containers	Engine Power Failure	-	Dent	No	Minor
167	DEn	25/11/80	1980	November	Central	Fixed Steel	Supply	Side	-	Cargo Unloading	Weather Conditions	Fender	Fender	No	Minor
168	DEn	1981	1981	January	Southern	Fixed Steel	Supply	-	2.0	-	Anchor Dragged	Leg A4	Minor	No	Minor
169	DEn	1981	1981	January	Southern	Fixed Steel	Supply	-	-	Cargo Unloading	Anchor Dragged	Leg	Minor	No	Minor
170	DEn	1981	1981	April	Central	Fixed Steel	Stand-By	-	-	Approaching Installation	Weather Conditions	Deck	Minor	No	Minor
171	DEn	1981	1981	May	Northern	Fixed Steel	Supply	-	-	-	-	-	Minor	No	Minor
172	NMI	1981	1981	August	Central	Semi-Submersible Drilling	Supply	Stern	-	Cargo Transfer	-	-	Minor	No	Minor
173	DEn	1981	1981	September	Northern	Fixed Steel	Supply	Stern	-	-	Thruster Failure	-	Minor	No	Minor
174	DEn	1981	1981	October	Northern	Fixed Steel	Diver Support	Side	-	Diving Operations	D.P. Failure	-	Minor	No	Minor
175	OTN 82 235	1981	1981	-	Southern	Fixed Steel	-	-	-	-	-	K Brace	Dent	No	Minor
176	NMI	15/01/81	1981	January	Northern	Semi-Submersible Drilling	Supply	-	5.0	Cargo Transfer	Misjudgement	Storage Tank	Dent	No	Minor
177	DEn	16/01/81	1981	January	Southern	Fixed Steel	Supply	Side	2.0	Cargo Transfer	Mooring Failure	Leg	Minor	No	Minor
178	NMI	12/02/81	1981	February	Northern	Semi-Submersible Drilling	Supply	-	6.0	Cargo Transfer	Weather Conditions	Storage Tank	Dent	No	Minor
179	DEn	15/02/81	1981	February	Central	Semi-Submersible Drilling	Supply	Stern	2.5	Cargo Unloading	Error in Mooring Procedure	Column C2	Dent	No	Minor
180	DEn	16/02/81	1981	February	Southern	Fixed Steel	Supply	-	-	Approaching Installation	Misjudgement	Riser	Dent with Crack	No	Minor
181	DEn	01/03/81	1981	March	Northern	Fixed Steel	Diver Support	Bow	3.5	Diving Operations	D.P. Thruster Failure	Leg B9	Minor	No	Minor
182	DEn	19/03/81	1981	March	Northern	Fixed Steel	Stand-By	Stern	2.5	Cargo Unloading Containers	Misjudgement	Diagonal Brace	Bend	No	Minor
183	DEn	10/04/81	1981	April	Central	Fixed Steel	Supply	Stern	1.0	Cargo Loading	Engine Power Failure	Fender	Fender	No	Minor
184	DEn	25/05/81	1981	May	Central	Fixed Steel	Diver Support	Side	-	Diving Operations	Mooring Failure	-	Lifeline	No	Minor
185	NMI	13/07/81	1981	July	Northern	Fixed Steel	Supply	Stern	3.0	Cargo Transfer	Engine Control Failure	Leg E1	Minor	No	Minor
186	DEn	04/08/81	1981	August	Central	Fixed Steel	Supply	-	-	Approaching Installation	Anchor Dragged	Leg B5	None	No	Minor
187	NMI	20/09/81	1981	September	Southern	Fixed Steel	Stand-By	Stern	-	-	-	-	Minor	No	Minor
188	NMI	27/09/81	1981	September	Southern	Fixed Steel	Supply	Stern	-	Cargo Transfer	-	-	Minor	No	Minor
189	DEn	02/10/81	1981	October	Northern	Fixed Steel	Diver Support	-	5.5	Approaching Installation	Weather Conditions	Leg A2	Fender	No	Minor
190	DEn	06/10/81	1981	October	Northern	Semi-Submersible Drilling	Supply	Stern	5.0	Anchor Handling	Engine Power Failure	Diagonal Brace C3	Dent with Crack	No	Minor
191	DEn	02/11/81	1981	November	Northern	Fixed Steel	Supply	Side	2.0	Cargo Unloading	-	No. 3 Leg	Fender	No	Minor
192	NMI	12/11/81	1981	November	-	Semi-Submersible Drilling	Supply	-	4.0	Cargo Transfer	Misjudgement	Storage Tank	Minor	No	Minor
193	DEn	24/12/81	1981	December	Central	Fixed Steel	Supply	Stern	2.0	Cargo Loading	Misjudgement	Diagonal Brace	Dent	No	Minor
194	DEn	1982	1982	-	-	Fixed Steel	Supply	Side	1.0	Approaching Installation	Engine Control Failure	Diagonal Brace	Dent	No	Minor
195	DEn	08/02/82	1982	February	Northern	Fixed Steel	Supply	-	4.0	Cargo Unloading Containers	Crane Failure	Riser	Bend	No	Minor
196	DEn	24/02/82	1982	February	Northern	Fixed Steel	Diver Support	Bow	4.0	Diving Operations	D.P. Computer Failure	Leg B2	Dent	No	Minor
197	NMI	27/02/82	1982	February	Northern	Semi-Submersible Drilling	Supply	Stern	4.0	Cargo Transfer	Weather Conditions	-	Minor	No	Minor
198	NMI	06/04/82	1982	April	Northern	Fixed Steel	Supply	Stern	2.0	Approaching Installation	Misjudgement	Leg K7	Minor	No	Minor
199	DEn	06/05/82	1982	May	Northern	Fixed Steel	Diver Support	Bow	3.0	Diving Operations	D.P. Failure	Leg B4	Minor	No	Minor
200	DEn	13/05/82	1982	May	-	Semi-Submersible Drilling	Stand-By	Bow	-	Approaching Installation	Engine Failure	Column 1	Dent and Lifeline	No	Minor

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
162	Unspecified minor damage.	-	-	-	-
163	Dent 1.83m x 1.28m x 0.1m (H x W x D) between 2nd. and 3rd. ring frames at 79' draft.	-	-	-	-
164	Paint scrape only visible damage.	No	-	-	-
165	Heavy contact whilst moored alongside (substantial damage).	-	-	-	-
166	3' - 5' above waterline. Collar deck catwalk torn. 24" slip-point dented with 6" indent.	-	-	-	-
167	Partial tearing of boat bumper.	-	-	-	-
168	Scoring to leg.	-	-	-	-
169	Removal of coating on piping.	-	-	-	-
170	Unspecified minor damage.	-	-	Minor	-
171	Unspecified minor damage.	-	-	Severe	Vessel heeled above waterline in way of No. 5 fresh water tank.
172	Unspecified minor damage.	-	-	-	-
173	Unspecified minor damage.	-	-	-	-
174	Unspecified minor damage.	-	-	-	-
175	Brace indented 30" x 17" x 3" (L x W x D) at 9' elevation.	Yes	Following further damage member was replaced in 1982.	-	-
176	Dent 2m x 2.2m x 0.1m (H x W x D) in C-9 tank at 23m.	-	-	-	-
177	Damage to spider deck stairway support/movement of rope stock absorber clamp.	-	-	-	-
178	Dents in B-9 tank at 24 m level 1m x 1m x 0.05m and 0.8 x 0.7m x 0.08m (H x W x D).	-	-	-	-
179	Dent 0.8m x 0.7m x 0.06m (H x W x D) at 25 m draft (location tank 208).	-	-	-	HSE
180	24" riser pipe in moored sheath dented. Cracks in clamp welds at collar deck level.	-	-	Minor	Unspecified minor damage.
181	Navigation light and part of platform demolished.	-	-	-	HSE
182	Bent 0.10m - 0.15m.	-	-	-	HSE
183	Timber fenders and holders damaged.	-	-	-	-
184	Damage to hull of West No. 1 lifeboat.	No	-	Moderate	Loss of 3m mast.
185	Torn moored cladding and damage to cruciform strut on E1 leg.	-	-	-	-
186	Impact caused platform to shake.	No	-	-	HSE
187	Unspecified minor damage.	-	-	-	-
188	Unspecified minor damage.	-	-	-	-
189	Displacement of upper can leg A2 boat bumper. damage to stairway support.	-	-	-	HSE
190	Brace C3 indented 0.45m x 0.45m x 0.063m (H x W x D). Cracks in 5 places between hull and stiffener.	-	-	Minor	-
191	Bottom can of bumper indented and top can displaced.	-	-	-	HSE
192	Paints scraped off C-9 tank.	-	-	-	-
193	Elliptical dent. 250mm x 150mm x 7mm without skin penetration.	-	-	Minor	Fender dented, stern plating set in 0.07m over 0.9m.
194	Small indentation on cross member C1 - D1.	-	-	None	No damage.
195	Riser bent 12" - 18" at 10' above waterline. G2 pile guide also affected.	-	-	Severe	Vessel hull pierced by pile follower in two places and loss of boat aerials.
196	15' above waterline.	-	-	Minor	Slight crush damage to bow plating.
197	Unspecified minor damage.	-	-	-	-
198	Unspecified minor damage.	-	-	-	-
199	Denting of redundant conduit attached to leg.	-	D.P. operational procedures altered as a result of incident.	Minor	Scraping of paint.
200	Unspecified dents to diagonal brace and main deck supports. 2 lifeboat damaged.	Yes	Repaired at Rotterdam.	Severe	Thruing in water. Taken to Lowestoft for repairs.

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
201	DEn	22/05/82	1982	May	Northern	Fixed Steel	Supply	Stem	-	Cargo Unloading	Misjudgement	Diagonal Brace	Minor	No	Minor
202	DEn	10/07/82	1982	July	Southern	Fixed Steel	Stand-By	-	-	Approaching Installation	Weather Conditions	Riser Guard	Minor	No	Minor
203	DEn	19/07/82	1982	July	Northern	Fixed Steel	Supply	-	3.75	Cargo Unloading	Misjudgement	Leg B1	Fender	No	Minor
204	NMI	17/09/82	1982	September	Central	Semi-Submersible Drilling	Supply	Stem	1.0	Cargo Transfer	Weather Conditions	-	Minor	No	Minor
205	DEn	24/09/82	1982	September	Central	Fixed Steel	Supply	Stem	-	Cargo Unloading	Misjudgement	Diagonal Brace	Fender	No	Minor
206	HSE	13/12/82	1982	December	Northern	Fixed Steel	Supply	-	-	Cargo Transfer	-	-	Dent	No	Minor
207	DEn	28/12/82	1982	December	Central	Semi-Submersible Drilling	Supply	Side	2.5	Approaching Installation	Misjudgement	Column D	Dent	Yes	Minor
208	OTN 92 235	1983	1983	-	Southern	Fixed Steel	-	-	-	-	-	-	Dent	No	Minor
209	NMI	21/01/83	1983	January	Northern	Tension Leg	Supply	-	5.6	-	-	Column 3	None	No	Minor
210	DEn	24/01/83	1983	January	Central	Semi-Submersible Drilling	Supply	Port Side	-	Cargo Unloading Containers	Weather Conditions	Column SC2	Dent	No	Minor
211	DEn	02/02/83	1983	February	Southern	Jack-Up	Supply	Side	-	Cargo Unloading	Mooring Failure	Bow Leg Diagonal Brace	Dent	No	Minor
212	DEn	05/02/83	1983	February	Central	Fixed Steel	Supply	Stem	3.0	Departing Installation	Weather Conditions	Leg B3	Unspecified	No	Minor
213	DEn	24/02/83	1983	March	Channel	Jack-Up	Supply	Stem	-	Rock Dumping	Weather Conditions	Diagonal Brace	Minor	No	Minor
214	DEn	28/02/83	1983	May	Northern	Semi-Submersible Drilling	Supply	-	3.5	Cargo Unloading Containers	Anchor Dragged Due Weather	Diagonal Brace	Dent	No	Minor
215	DEn	30/02/83	1983	May	Central	Semi-Submersible Drilling	Supply	Stbd. Quarter	1.0	Cargo Unloading	D.P. Failure	Column SC4	Fender	No	Minor
216	DEn	15/07/83	1983	July	Northern	Fixed Steel	Supply	-	-	Cargo Loading	Weather Conditions	Diagonal Brace A1	Minor	No	Minor
217	DEn	17/07/83	1983	July	Southern	Fixed Steel	Diver Support	-	-	Departing Installation	Weather Conditions	Diagonal Brace	Minor	No	Minor
218	DEn	10/08/83	1983	August	Central	Fixed Steel	Diver Support	Stem	-	Driving Operations	D.P. Electrical Failure	Leg B1	Minor	No	Minor
219	DEn	16/08/83	1983	August	Central	Semi-Submersible Drilling	Supply	Side	1.75	Cargo Unloading	Error in Mooring Procedure	Column SC2	Dent	Yes	Minor
220	DEn	03/10/83	1983	October	Central	Fixed Steel	Diver Support	Side	-	Personal Transfer	Weather Conditions	Leg SW	Fender	No	Minor
221	DEn	26/10/83	1983	October	Central	Semi-Submersible Drilling	Supply	Stem	-	Anchor Handling	Misjudgement	Column PF	Dent	No	Minor
222	DEn	18/11/83	1983	November	Central	Semi-Submersible Drilling	Supply	-	3.0	Approaching Installation	D.P. Failure	Column D	Dent	Yes	Minor
223	DEn	12/01/84	1984	January	Northern	Fixed Steel	Supply	Bow	-	Cargo Unloading	Engine Control Failure	Leg Diagonal Brace	Minor	No	Minor
224	DEn	19/01/84	1984	January	Southern	Fixed Steel	Supply	-	1.5	Approaching Installation	-	Fender	Fender	No	Minor
225	DEn	21/04/84	1984	April	Central	Fixed Steel	Diver Support	Stem	-	Driving Operations	D.P. Failure	Leg A3	Dent	No	Minor
226	DEn	23/05/84	1984	May	Central	Semi-Submersible Drilling	Stand-By	-	-	Approaching Installation	Misjudgement	Column 1/2	Minor	No	Minor
227	DEn	30/05/84	1984	May	Northern	Fixed Steel	Stand-By	Stem	1.5	Approaching Installation	Rudder Misaligned	Leg A4	Minor	No	Minor
228	DEn	14/07/84	1984	July	Central	Semi-Submersible Drilling	Supply	Side	-	Cargo Unloading	Total Power Loss	Diagonal Brace	Dent	No	Minor
229	DEn	08/10/84	1984	October	Central	Semi-Submersible Production	Anchor Handler	Stem	2.0	Anchor Handling	Misjudgement	Leg E	Dent	Yes	Minor
230	DEn	21/11/84	1984	November	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Unloading	Misjudgement	Column SC2	Dent	No	Minor
231	DEn	13/01/85	1985	January	Southern	Fixed Steel	Stand-By	-	-	Close Support	D.P. Electrical Failure	Diagonal Brace	Minor	No	Minor
232	DEn	29/03/85	1985	March	Southern	Jack-Up	Supply	-	-	Cargo Unloading	-	Leg No. 3	Weld Damage	No	Minor
233	DEn	04/05/85	1985	May	Southern	Fixed Steel	Diver Support	-	-	Approaching Installation	Anchor Dragged	Diagonal Brace	Dent	Yes	Minor
234	DEn	11/05/85	1985	May	Northern	Fixed Steel	Diver Support	-	-	Driving Operations	Total Power Loss	Leg B9	Minor	No	Minor
235	DEn	04/06/85	1985	June	Southern	Fixed Steel	Diver Support	-	-	-	Unhanging Nets	Landing Station	Dent	No	Minor
236	DEn	11/07/85	1985	July	Northern	Fixed Steel	Stand-By	Side	Calm	Departing Installation	Misjudgement	Leg E2	Bend	No	Minor
237	DEn	04/08/85	1985	August	Southern	Jack-Up	Supply	Stem	3.0	Cargo Unloading Containers	Misjudgement	Leg	Minor	Yes	Minor
238	DEn	10/08/85	1985	August	Central	Fixed Steel	Stand-By	-	-	Approaching Installation	Power/Operation Neglected	Leg B	Dent	No	Minor
239	DEn	15/09/85	1985	September	Southern	Fixed Steel	Supply	Stem	-	Cargo Unloading	D.P. Failure	Landing Station	Fender	No	Minor

Conseq. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
201	Superficial damage to member coating/paintwork.	-	-	-	HSE
202	Paint removed.	-	-	-	HSE
203	Slight dent in steel can around types of B1 leg boat bumper at 3' from waterline.	-	-	None	HSE
204	Unspecified minor damage.	-	-	-	-
205	Timber fender splayed, minor damage to fender shear plate.	-	-	-	HSE
206	Severe buckling to lower can boat bumper. Gusset plate between stabbings guide tubular and leg double plate torn off. Slight denting to leg.	-	-	-	-
207	Damage at 2m level on column. Dent 0.3m x 1.22m x 0.05m (H x W x D). 2 deck beams 5.4mtrs on horizontal between legs A1 and B1 at +7.5 elevation. Worst indent 250mm x 205mm x 50mm (L x W x D) with local creasing. Redundant member.	No	-	-	HSE
209	No damage.	No	Internal examination of column wall by O.I.M.	Moderate	Vessel's boat bumper badly buckled above waterline.
210	Denting 2m x 2m x 0.05m (H x W x D). 80' draft on column SC2 aft.	No	-	-	HSE
211	Horizontal member damaged by 4" - 6" at 175' level together with diagonal members attached to underside of fl.	-	-	-	HSE
212	No report on damage. Occurred just above waterline.	-	-	-	-
213	Minimal damage to diagonal bracing between B4 - 74 level.	-	-	-	HSE
214	Bracing column B to deck node 2 indented 0.01m x 0.01m x 0.1m (H x W x D) at 1m above waterline.	-	-	-	HSE
215	Slight scuffing and indentation of boat bumper.	No	-	Minor	Scuffed paintwork.
216	Impact on leg A1 brace, spider deck walkway and deck plating on MSF.	-	-	-	HSE
217	Paint removed.	-	-	-	HSE
218	Breakdown of structural coating/removal of marine fouling.	-	-	-	-
219	Dent 1.0m x 0.85m x 0.08m (H x W x D) at 23.5m draft. Stiffener No. 6 pushed in 40 mm.	-	-	-	-
220	No structural damage, dent in SW mooring fender.	-	-	Moderate	Plating dented 0.1m - 0.125m between frames over a 1.5m length.
221	Dent 0.48m x 0.91m x 0.025m (H x W x D). 80' level port forward column.	-	-	-	HSE
222	Dent 1.52m x 1.52m x 0.13m (H x W x D) at 24m mark. Dent in ring stiffener.	-	-	None	No damage.
223	Some paint loss.	No	-	Severe	Severe damage to bow, fractured welds and damaged stiffeners.
224	Boat bumper disconnected at top, suspected bolt sheared on impact and wave action shock bumper free.	-	-	-	HSE
225	Indentation of jacket leg, minor paint scuff to leg.	-	-	Minor	Dent on vessel stem.
226	Walkways damaged, loss of access ladder and scoring on PC2 stability blister.	No	-	Moderate	Main mast strapped off.
227	Superficial damage to leg attachments (ladder/torn fender brackets).	-	-	Moderate	2 punctures in stern plating above waterline.
228	150 - 250mm deep dent in diagonal brace between bottom of No. 6 caisson and top of No. 5 caisson...	-	-	-	HSE
229	Dent 1.82m x 3.0m x 0.2m (H x W x D). 3' of 7' internal ribs dented in E9 dry tank.	-	-	-	HSE
230	75mm deep dent at 87' draught, over circular area 0.3m diameter.	-	-	-	HSE
231	Protective coating removed.	-	-	-	HSE
232	Unspecified weld damage.	-	-	-	HSE
233	Dent 0.25m x 0.15m x 0.05m (H x W x D) at sea level.	-	-	-	HSE
234	Loss of navigation light on leg and damage to mountings.	No	-	Minor	Trivial damage to helideck fencing.
235	Indentation at waterline.	-	-	-	-
236	2 diagonal walkway supports bent at ~5m level; timber fender at ~3m damaged and fender rotating metal ring access ladder to sea at +2.5m damaged.	-	-	-	HSE
237	Slight set to gusset plate between horizontal and diagonal bracing.	-	-	Minor	Dented rubbing strake.
238	Dent 0.5m x 0.3m x 0.1m (H x W x D). Slight indent of vertical bracing member.	-	-	-	HSE
239	Minor dent to fender and some paint removal.	-	-	-	HSE

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
240	DEn	18/09/85	1985	September	Northern	Fixed Steel	Stand-By	-	2.75	Close Support	Engine Power Failure	Leg EB	Minor	No	Minor
241	DEn	22/10/85	1985	October	Central	Fixed Steel	Diver Support	Side	-	Diving Operations	D.P. Computer Failure	Deck SW Corner	Minor	No	Minor
242	OTN 92.235	1986	-	-	Southern	Fixed Steel	-	-	-	-	-	-	Weld Crack	No	Minor
243	OTN 92.235	1986	-	-	Southern	Fixed Steel	-	-	-	-	-	-	Dent	No	Minor
244	NMI	1986	1986	May	Southern	Fixed Steel	Supply	Stem	1.0	Approaching Installation	Misjudgement	-	Minor	No	Minor
245	DEn	05/01/86	1986	January	Central	Jack-Up	Supply	-	-	-	Weather Conditions	Boom	Minor	No	Minor
246	DEn	08/06/86	1986	June	Northern	Fixed Steel	Supply	Stem	2.0	Cargo Unloading	Thruster Electrical Failure	Diagonal Brace	Bend and Dent	No	Minor
247	DEn	08/10/86	1986	October	Central	Fixed Steel	Diver Support	Side	-	Approaching Installation	D.P. Failure	Leg B4/D4	Minor	No	Minor
248	DEn	11/10/86	1986	October	Southern	Fixed Steel	Supply	Side	-	Approaching Installation	Misjudgement	Riser	Dent	No	Minor
249	DEn	12/12/86	1986	December	Central	Fixed Steel	Supply	Stem	3.0	Cargo Unloading	Weather Conditions	Fender	Fender	No	Minor
250	DEn	13/12/86	1986	December	Northern	Fixed Steel	Supply	-	-	Cargo Unloading Containers	Misjudgement	Leg Diagonal Brace	Fender	No	Minor
251	DEn	28/07/87	1987	July	Central	Fixed Steel	Supply	Stem	1.9	Cargo Unloading	Misjudgement	Leg	Fender	No	Minor
252	DEn	08/08/87	1987	August	Central	Fixed Steel	Stand-By	Bow	-	Close Support	Thruster Failure	South Leg	Minor	No	Minor
253	DEn	17/08/87	1987	August	Southern	Semi-Submersible Accommodation	Stand-By	Stem	-	Close Support	Weather Conditions	Leg SW	Dent	No	Minor
254	DEn	06/09/87	1987	September	Northern	Fixed Steel	Supply	Side	1.2	Diving Operations	D.P. Failure	Leg A1	Dent	Yes	Minor
255	DEn	02/10/87	1987	October	Northern	Fixed Concrete	Stand-By	-	1.6	Close Support	Total Power Loss	Fender	Fender	No	Minor
256	DEn	05/10/87	1987	October	Central	Fixed Steel	Stand-By	Bow	-	Personnel Transfer	Autopilot Failure	Leg	Minor	No	Minor
257	DEn	11/01/88	1988	January	Northern	Semi-Submersible Accommodation	Stand-By	-	-	Approaching Installation	Steering Failure	Column	Dent	No	Minor
258	DEn	20/05/88	1988	May	Central	Semi-Submersible Drilling	Supply	-	-	-	-	Column	Dent	No	Minor
259	DEn	12/07/88	1988	July	Southern	Jack-Up	Supply	Bow/Stem	-	Approaching Installation	Misjudgement by Poor Weather	Leg Chord	Dent	No	Minor
260	DEn	31/08/88	1988	August	Southern	Jack-Up	Supply	Side	2.0	Approaching Installation	Misjudgement	Leg	Minor	No	Minor
261	DEn	05/09/88	1988	September	Southern	Jack-Up	Supply	-	0.8	-	Misjudgement	Other Sltd. Side	Dent	No	Minor
262	DEn	13/11/88	1988	November	Channel	Jack-Up	Stand-By	-	-	Surveying	Misjudgement	Other Port Side	Minor	No	Minor
263	DEn	18/11/88	1988	November	Northern	Fixed Steel	Merchant Tanker	-	-	-	-	-	None	No	Minor
264	DEn	01/01/89	1989	January	Southern	Jack-Up	Supply	Bow	0.5	Approaching Installation	Misjudgement	Leg 2	Minor	No	Minor
265	DEn	1989	1989	-	Southern	Fixed Steel	Stand-By	-	-	-	-	-	Minor	No	Minor
266	DEn	1989	1989	-	Southern	Fixed Steel	Stand-By	-	-	-	-	-	Minor	No	Minor
267	DEn	03/02/89	1989	February	Southern	Jack-Up	Supply	-	3.0	Cargo Unloading	Misjudgement	Other Underside	Dent	No	Minor
268	DEn	08/04/89	1989	April	Morecambe Bay	Jack-Up	Anchor Handler	-	-	-	Engine Power Failure	Other Underside	None	No	Minor
269	DEn	08/04/89	1989	April	Central	Fixed Steel	Supply	Stem	1.5	Cargo Unloading	Misjudgement	Diagonal Brace	Minor	No	Minor
270	DEn	23/04/89	1989	April	Northern	Tension Leg	Supply	Bow/Stem	2.9	Cargo Unloading	Thruster Failure	Column C5/C1	Dent	No	Minor
271	DEn	01/05/89	1989	May	Central	Semi-Submersible Emergency Support	Stand-By	Stem	1.25	Approaching Installation	Misjudgement	Sponson	Dent	Yes	Minor
272	DEn	11/05/89	1989	May	Northern	Single Point Mooring	Merchant Tanker	Side	1.25	Approaching Installation	Misjudgement	-	Minor	No	Minor
273	DEn	20/05/89	1989	May	Southern	Jack-Up	Supply	Stem	1.0	Cargo Unloading Containers	Misjudgement	Leg 3	Minor	No	Minor
274	DEn	15/06/89	1989	June	Northern	Semi-Submersible Accommodation	Supply	Stem	-	Anchor Handling	Misjudgement	Other Fairlead	Minor	No	Minor
275	DEn	03/08/89	1989	August	Northern	Fixed Steel	Supply	-	-	Departing Installation	Weather Conditions	Minor	Minor	No	Minor
276	DEn	01/09/89	1989	September	Southern	Fixed Steel	Stand-By	Side	-	Approaching Installation	Anchor Dragged	Minor	Minor	No	Minor
277	DEn	12/09/89	1989	September	-	Semi-Submersible Drilling	Supply	-	-	-	-	-	Dent	No	Minor
278	DEn	18/09/89	1989	September	Central	Fixed Steel	Survey	-	-	Surveying	D.P. Failure	-	Minor	No	Minor

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
240	Fracture of biocide injection line/valve.	-	-	Minor	Damaged railing amidships.
241	Only minor damage to hand rails.	No	-	Moderate	Starboard radar mast broken.
242	5" long weld crack on joint between vertical diagonal brace on row 2 adjacent to leg D2 and horizontal member at +20' elevation.	-	-	-	-
243	Indent 600mm x 400mm x 100mm (L x W x D) on diagonal brace on row 3. 150mm below joint at leg A3 at +18' elevation.	No	-	-	-
244	Superficial scratches on a platform member.	No	Member inspected, no repair needed.	-	-
245	Port burner boom/EMD exhaust lines.	-	-	-	-
246	Brace between legs B8 and D6 bowed by 120mm and dented.	-	-	Minor	Paint damage.
247	Impacted leg DA at 9m level, joint damage only. Impacted leg BA, damage to Nos. 2 and 3 ladders.	-	-	Minor	0.20m indentation on port side. Damage to port side fuel tank No. 22.
248	Essee protection indented by 1". Struck 24" deepswell protection frame causing dent 0.25m x 0.2m x 0.6m (H x W x D).	-	-	-	-
249	Damage to fender on SW leg.	-	-	Minor	Slight indentation to vessel rubbing band.
250	A2 boat bumper severely buckled. 150mm tear in horizontal gusset plate. Slight denting of leg brace.	-	-	-	-
251	Indentation to fender protecting NW leg.	-	-	Minor	Dent on stem.
252	Vessel impacted between legs B5 and C5. Damage to paintwork and structure coating.	-	-	Minor	Damage to the forepeak lights and foremast.
253	Scaffolding took full brunt of collision. Dent in SW leg 3.5' x 0.5' x 0.188" (H x W x D). Minor gouges on upper- and lower- 8" diam horizontal and vertical pile guide stiffener at +4m elevation. Lower ladder on leg A1 destroyed.	-	-	-	-
254	Collision with fender on No. 5 leg, no damage to platform.	No	-	Minor	Holed above waterline & from bows.
255	Impact between legs D2 and DA. Walkways and hand rails at -9m level severely damaged.	-	-	Moderate	Top mast bent, navigation lights smashed. Extensive damage sustained by bridge including damage to main engine controls and loss of steering.
257	Dent over and under ring span No. 20. 1.2m x 0.5m x 0.12m (H x W x D).	-	-	-	-
258	Damage to No. 3 port column steel plating 3m x 3m x 0.1m (H x W x D). Boat bumper (set in R - 127) and access stayaway from main deck to platform damaged.	-	-	-	-
259	Dent on bow leg chord 6" diameter x 0.5' at +149' level. 2' below point where horizontal brace meets leg chord.	-	-	Minor	Details unknown, sustained damage above waterline at bow, stem undamaged.
260	Slight damage to cradle of davit launched liferaft.	-	-	Minor	-
261	Impact starboard air, dent 0.61m x 0.61m x 0.1m (H x W x D).	-	-	Minor	-
262	Vessel became entangled in service boxes, 2 x 5' & 1 x 4' hoses torn. 1 x 5" gate valve damaged.	-	-	Minor	Bent aft mast.
263	No damage observed.	No	-	Minor	Vessel damaged, details unknown.
264	Edge broken off tooth at level 7 on leg No. 2, front rack.	-	-	-	-
265	Minor damage to platform.	-	-	None	No damage.
266	Platform damage undetermined.	-	-	Minor	Minor dent to stem.
267	Small dent and scratch marks on rig bottom plating.	-	-	Minor	Unspecified.
268	No damage reported.	No	-	None	No details, assumed to be no damage.
269	Coating damage to a 2' square area on diagonal cross brace at sea level.	-	-	Minor	Stern roller sustained a 2' x 2" dent.
270	Elliptical damage to C5 10' x 2' x 2" (H x W x D). 36" x 16" removal of surface coating. 3" square flattening of radius on C1. 2' - 3' above LAT.	-	-	Minor	Damage to rubbing strake.
271	0.5" indentation of shell plating 6m above water line. Superficial joint damage.	-	-	None	No damage.
272	No damage to SPM body. Walkway and handrails bent and twisted.	-	-	-	-
273	Sacrificial anode above waterline dislodged from leg No.3.	No	-	Severe	Damage to stem and No. 11 ballast water tank pierced.
274	Tug lht No.7 fairlead heavily.	No	-	None	No damage.
275	Small walkway took impact and parted at supports at 6m.	-	-	Minor	No details.
276	Paint removed from platform bracing.	-	-	Minor	Superficial damage occurred to diver's landing stage.
277	Crossed indents.	-	-	-	-
278	No details, any damage appears to be superficial.	No	-	-	-

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
279	DEn	21/09/89	1989	September	Central	Semi-Submersible Drilling	Stand-By	Bow	-	Approaching Installation	Misjudgement	Sponson	Dent	Yes	Minor
280	DEn	14/10/89	1989	October	Central	Fixed Steel	Supply	-	-	Approaching Installation	Misjudgement	Hose	Minor	No	Minor
281	DEn	28/10/89	1989	October	Central	Semi-Submersible Drilling	Stand-By	-	-	Close Support	Misjudgement	Column E	Dent and Lifeboat	No	Minor
282	DEn	14/01/90	1990	January	Southern	Fixed Steel	Stand-By	Bow	1.0	Approaching Installation	Misjudgement	Landing Station	Dent	No	Minor
283	DEn	25/02/90	1990	February	Southern	Fixed Steel	Stand-By	Side	2.25	Close Support	Weather Conditions	SW Leg	Minor	No	Minor
284	DEn	14/03/90	1990	March	Central	Semi-Submersible Drilling	Anchor Handler	-	-	Anchor Handling	-	Pontoon	Dent	No	Minor
285	DEn	21/03/90	1990	March	Morecambe Bay	Jack-Up	Supply	Stbl. Stern	-	Approaching Installation	Misjudgement	Cord A Port Leg	Minor	No	Minor
286	DEn	22/04/90	1990	April	Northern	Fixed Steel	Stand-By	-	-	-	-	-	Minor	No	Minor
287	DEn	29/04/90	1990	April	Northern	Fixed Steel	Supply	Stern	-	-	Engine Control Failure	Other N Side	Fender	No	Minor
288	DEn	25/05/90	1990	May	Central	Fixed Steel	Supply	Stern	2.2	Cargo Unloading	Misjudgement	North-West Leg	Fender	No	Minor
289	DEn	28/06/90	1990	June	Northern	Fixed Concrete	Supply	Stern	-	Cargo Unloading	Misjudgement	Leg	Minor	No	Minor
290	DEn	23/07/90	1990	July	Northern	Semi-Submersible Accommodation	Supply	Bow	1.7	Close Support	-	Forward Anchor Assembly Leg 1	Dent	No	Minor
291	HSE	24/07/90	1990	July	Southern	Fixed Steel	Stand-By	-	-	-	-	South-West Leg	Dent	No	Minor
292	DEn	11/09/90	1990	September	Central	Fixed Steel	Stand-By	-	-	Close Support	Operator Error	R3 Leg	Minor	No	Minor
293	DEn	11/10/90	1990	October	Central	Semi-Submersible Emergency Support	Supply	Side	-	Cargo Transfer	Operator Error	Port Centre Column	Dent	Yes	Minor
294	DEn	18/10/90	1990	October	Central	Semi-Submersible Drilling	Stand-By	Side	1.0	Cargo Loading	Weather Conditions	Column 4	Minor	No	Minor
295	DEn	22/10/90	1990	October	Central	Fixed Steel	Supply	-	-	-	-	-	Minor	No	Minor
296	HSE	16/11/90	1990	November	-	Jack-Up	Stand-By	-	-	Cargo Transfer	D.F. Control Failure	Leg	Minor	No	Minor
297	DEn	03/12/90	1990	December	Southern	Fixed Concrete	Stand-By	-	-	Cargo Transfer	-	-	Minor	No	Minor
298	DEn	07/12/90	1990	December	Central	Fixed Steel	Supply	Stern	3.0	Cargo Unloading Containers	Engine Control Failure	Leg J Fender	Fender	No	Minor
299	DEn	09/12/90	1990	December	Central	Fixed Steel	Supply	Stern	4.0	Cargo Unloading	Misjudgement	Leg B3	Minor	No	Minor
300	DEn	31/12/90	1990	December	Northern	Semi-Submersible Drilling	Supply	-	4.25	Cargo Transfer	Weather Conditions	Diagonal Brace	Dent	No	Minor
301	DEn	01/01/91	1991	January	Morecambe Bay	Jack-Up	Supply	Bow	2.75	Cargo Loading	Misjudgement	Leg	Minor	No	Minor
302	DEn	03/01/91	1991	January	Central	Semi-Submersible Drilling	Anchor Handler	Stern	-	Anchor Handling	Total Power Loss	Diagonal Brace No. 1	Minor	No	Minor
303	DEn	03/01/91	1991	January	Southern	Jack-Up	Supply	-	-	-	-	-	None	No	Minor
304	DEn	21/01/91	1991	January	Central	Semi-Submersible Drilling	Supply	-	3.0	Cargo Transfer	Power Failure	Fender on Leg 3	Fender	No	Minor
305	DEn	04/03/91	1991	March	Morecambe Bay	Jack-Up	Supply	-	2.0	-	-	Port Leg	Minor	No	Minor
306	DEn	09/03/91	1991	March	Central	Semi-Submersible Drilling	Supply	Stern	-	Cargo Loading	Engine Control Failure	Port Centre Column	Dent	No	Minor
307	DEn	18/03/91	1991	March	Central	Semi-Submersible Drilling	Supply	-	3.0	Cargo Transfer	-	C Column	Dent	No	Minor
308	DEn	28/04/91	1991	April	Southern	Fixed Steel	Stand-By	Side	3.0	Close Support	Manoeuvring Misjudgement	Rster	Minor	No	Minor
309	DEn	22/08/91	1991	August	Southern	Fixed Steel	Supply	-	-	-	-	Diagonal Brace	Bend and Dent	No	Minor
310	DEn	31/08/91	1991	August	Northern	Fixed Concrete	Supply	-	-	Cargo Transfer	-	Cell 3	Minor	No	Minor
311	DEn	04/09/91	1991	September	Southern	Fixed Steel	Supply	-	-	-	-	SW Leg	Unspecified	No	Minor
312	DEn	21/10/91	1991	October	Central	Semi-Submersible Production	Supply	Side	4.0	Close Support	Misjudgement	Leg C	Dent	Yes	Minor
313	DEn	07/11/91	1991	November	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Misjudgement	No. 2 Stbl. Caisson	Minor	No	Minor
314	DEn	18/11/91	1991	November	Southern	Jack-Up	Supply	-	-	-	Misjudgement	-	Dent	No	Minor
315	DEn	27/11/91	1991	November	Northern	Semi-Submersible Drilling	Supply	Stern	-	Cargo Transfer	Misjudgement	No. 2 Stbl. Centre Caisson	Dent	Yes	Minor
316	DEn	21/01/92	1992	January	Central	Semi-Submersible Drilling	Supply	Stern	4.0	Cargo Transfer	Misjudgement	Stbl. Column	Minor	No	Minor
317	DEn	31/01/92	1992	January	Central	Semi-Submersible Drilling	Supply	Stern	-	Cargo Transfer	Misjudgement	C Column	Dent	No	Minor

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
279	During 0.02m x 0.1m x 0.02m (H x W x D) 2m - 3m above sea level. Damage to diagonal brace.	-	-	Minor	-
280	Damage to bulk loading boxes and to scaffolding.	-	-	Minor	Damage to ship's aerial.
281	Slight dent on E9 void tank 12' x 43' x 0.25' (H x W x D) at +22.2m level. Lifeboat holed with two 1.5m cracks in starboard forward section.	-	-	-	-
282	Top horizontal bracing on boat landing significantly dented. Slight damage to cellar deck handrail.	-	-	-	HSE
283	Paint damage to leg and damage to spider deck grating.	-	-	Moderate	Damage to port side including a crack amidships. Radio aerials and navigation lights damaged.
284	Plating damage on sunboard pootoon.	-	-	-	-
285	Paint deposited on leg.	-	-	-	HSE
286	Unspecified minor damage.	-	-	-	-
287	Surface damage to fender.	-	-	-	HSE
288	2 of the 8 boat fenders were dented just above sea level and possible damage to coating.	-	-	-	HSE
289	Slight damage to handrail and paint marks on leg.	-	-	Minor	Dent in stern of vessel.
290	Damage in area of port anchor assembly 1m x 6m (H x W) on leg No. 1 on port side.	-	-	-	-
291	Leg access ladder dented. 4" water bunkering hose severed.	-	-	Severe	Hole in bow just below waterline. Bow mast bent backwards. 2 tanks believed to be ruptured.
292	Superficial damage approx 10' above sea level on leg at south-east corner.	-	-	Moderate	Central mast severely damaged.
293	Plating rounded, forward corner indented 1m x 1m x 0.15m (H x W x D). Internal vertical stiffener displaced.	-	-	Minor	WOAD
294	Minor damage to boat bumper frame. One section of hose damaged but no spillage.	-	-	None	HSE
295	Unspecified minor damage.	-	-	Minor	Unspecified minor damage.
296	Mark on leg at 1.5m above sea level.	-	-	Minor	3 long hull dent.
297	Lost escape ladder. Life rail and sustained superficial damage.	-	-	Minor	Minimal damage to vessel funnel.
298	Boat bumper ring bent upwards. Paint damage to leg.	-	-	-	HSE
299	Twisting of access ladder.	-	-	Minor	Superficial damage.
300	Deformation damage to bracing structure but no loss of structural integrity.	-	-	None	No damage.
301	Paint damage to leg. Forward port anchor dislodged from cradle. 0.025" steel chaser attached to the forward mooring broken.	-	-	Minor	Damage to mast and bow starboard bulwark.
302	Minor damage to horizontal brace.	-	-	-	HSE & MAIB
303	No damage sustained to rig.	-	-	-	HSE & MAIB
304	Large dent in steel cover of lye fender protecting leg 3.	-	-	-	-
305	Htt port leg causing superficial damage.	-	-	-	HSE
306	Unspecified dent.	-	-	-	HSE & MAIB
307	Indentation 0.7m? x 1.2m x 1.4m (D x W x H) in column. *****	-	-	-	HSE
308	Glancing blow to production platform riser guard then passed beneath bridge linking production & drilling platforms.	-	-	-	HSE
309	Vertical diagonal member on row B between elevations -3' and +20' bowed by 90mm and indented 10mm.	-	-	-	HSE & CFTN 92 235
310	No serious damage.	-	-	-	HSE
311	Unspecified minor damage.	-	-	-	-
312	Dent at 20m above water 2.5m x 1.2m x 0.1m (H x W x D). Damage to internal tank stiffener. Walkways/handrails damaged.	-	-	Minor	Port bridge wing, lights, funnel damaged. Hull plates buckled. Holed at deck/hull plate area.
313	Access ladder/platform buckled and brackets pulled from column.	-	-	-	HSE
314	Slight damage to jack-up - not serious.	-	-	-	-
315	Indent in leg caisson shell plating in way of No. 9 caisson stiffener ring at vertical stiffener No. 5.	-	-	-	HSE
316	Vessel nudged No. 2 anchor chain and hit starboard column.	-	-	Minor	HSE & MAIB
317	Indentation at 22m draft level on starboard side.	-	-	-	HSE

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
318	DEn	05/02/92	1992	February	Northern	Fixed Steel	Supply	-	-	Cargo Transfer	Misjudgement	-	Minor	No	Minor
319	DEn	05/02/92	1992	February	Northern	Fixed Steel	Supply	Side	5.0	Cargo Unloading	Misjudgement	Leg A1	Minor	No	Minor
320	DEn	11/02/92	1992	February	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Misjudgement	-	Minor	No	Minor
321	DEn	27/02/92	1992	February	Northern	Fixed Steel	Supply	-	-	-	Misjudgement	-	Minor	No	Minor
322	HSE	07/04/92	1992	April	-	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	-	Port Forward Column	Dent	Yes	Minor
323	DEn	23/04/92	1992	April	Central	Semi-Submersible Mobile Support	Supply	-	-	Anchor Handling	Misjudgement	-	Minor	No	Minor
324	DEn	04/05/92	1992	May	Southern	Fixed Steel	Supply	Mast	-	Approaching Installation	Engine Control Failure	Cellar Deck	Minor	No	Minor
325	DEn	07/05/92	1992	May	Central	Semi-Submersible Drilling	Supply	-	-	Anchor Handling	Misjudgement	-	Minor	No	Minor
326	DEn	15/05/92	1992	May	Central	Semi-Submersible Drilling	Supply	Stem	3.0	Anchor Handling	Misjudgement	Column	Dent	No	Minor
327	DEn	21/05/92	1992	May	Southern	Fixed Steel	Supply	Stem	1.0	Approaching Installation	Misjudgement	Leg	Minor	No	Minor
328	DEn	27/05/92	1992	May	Northern	Semi-Submersible Drilling	Supply	Port Stem	3.0	Cargo Transfer	Misjudgement	No. 2 Port Column	Fender	No	Minor
329	DEn	31/05/92	1992	May	Southern	Jack-Up	Supply	Side	1.0	-	Misjudgement	Column	Dent	No	Minor
330	DEn	14/06/92	1992	June	Southern	Jack-Up	Stand-By	-	-	-	Misjudgement	Stbd. Leg	Minor	No	Minor
331	DEn	19/06/92	1992	June	-	Semi-Submersible Accommodation	Supply	-	-	Anchor Handling	Misjudgement	-	Dent	No	Minor
332	DEn	04/07/92	1992	July	Northern	Single Point Mooring	Supply	Stem	-	Cargo Transfer	Weather Conditions	Collision Bumpers	Minor	No	Minor
333	DEn	04/08/92	1992	August	Southern	Jack-Up	Stand-By	-	-	-	Misjudgement	Leg ST3	Minor	No	Minor
334	DEn	20/08/92	1992	September	Central	Floating Production & Storage	Supply	Stem	-	Anchor Handling	Misjudgement	Port Quarter	Minor	No	Minor
335	HSE	20/08/92	1992	September	Central	Single Buoys Mooring	Merchant Tanker	-	-	Loading Crude Oil	D.P. Control Failure	Fender	Fender	No	Minor
336	DEn	02/10/92	1992	October	Southern	Fixed Steel	Research	Beam	-	Surveying	D.P. Failure	-	Minor	No	Minor
337	DEn	25/10/92	1992	October	Moroccan Bay	Jack-Up	Supply	-	-	-	-	Leg	Minor	No	Minor
338	DEn	16/11/92	1992	November	Southern	Jack-Up	Stand-By	-	-	-	Misjudgement	Bow Leg Chord	Minor	No	Minor
339	HSE	22/11/92	1992	November	Central	Fixed Steel	Stand-By	Stem	-	Close Support	Engine Failure	West Legs	Minor	No	Minor
340	DEn	06/12/92	1992	December	Central	Fixed Steel	Supply	-	2.0	Approaching Installation	Power Failure	-	Minor	No	Minor
341	DEn	11/12/92	1992	December	Celtic Sea	Semi-Submersible Drilling	Supply	Stem	-	Cargo Transfer	Misjudgement	Column	Dent	No	Minor
342	DEn	16/12/92	1992	December	Central	Semi-Submersible Drilling	Supply	-	-	-	-	Fender	Fender	No	Minor
343	DEn	23/12/92	1992	December	Southern	Fixed Steel	Stand-By	-	2.0	-	-	Riser Platform Frame	Minor	No	Minor
344	DEn	11/01/93	1993	January	Southern	Fixed Steel	Supply	Funnel	2.0	Bunkering Operations	Weather Conditions	Cellar Deck	Minor	No	Minor
345	DEn	14/01/93	1993	January	Northern	Semi-Submersible Drilling	Supply	Stem	-	Cargo Transfer	Weather Conditions	Caisson 1-5	Fender	No	Minor
346	HSE	16/01/93	1993	January	Southern	Fixed Steel	Stand-By	-	2.0	Cargo Transfer	-	C Spiler Deck	Bend and Dent	No	Minor
347	HSE	02/02/93	1993	February	Central	Semi-Submersible Drilling	Supply	Port Quarter	-	Cargo Transfer	Misjudgement	Column	Dent	No	Minor
348	DEn	04/02/93	1993	February	Central	Semi-Submersible Drilling	Supply	Port Side	-	-	-	-	Minor	No	Minor
349	HSE	06/02/93	1993	February	-	Floating Production & Storage	Supply	Port Side	-	Bunkering Operations	D.P. Control Failure	Port Side	Fender	No	Minor
350	DEn	25/02/93	1993	March	Central	Semi-Submersible Drilling	Supply	-	-	-	-	-	Minor	No	Minor
351	HSE	27/02/93	1993	March	Northern	Floating Storage	Supply	Stem	3.5	Cargo Transfer	Weather Conditions	Bracing Node	Minor	No	Minor
352	HSE	28/02/93	1993	March	Central	Semi-Submersible Mobile Support	Stand-By	Stbd. Bow	7.0	Close Support	Engine Control Failure	Stbd. Fwd. Intermediate Col.	Split	No	Minor
353	DEn	01/07/93	1993	July	Central	Floating Production & Storage	Supply	Port Side	-	Cargo Transfer	Bowthruster Failure	Stbd. Bow	Dent	No	Minor
354	DEn	27/07/93	1993	July	Southern	Jack-Up	Stand-By	-	2.0	Personnel Transfer	-	Port Fwd. Leg	Minor	No	Minor
355	HSE	07/08/93	1993	September	-	Semi-Submersible Emergency Support	Supply	-	-	Cargo Transfer	Steering Failure	Stbd. Centre Column	Minor	No	Minor

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
			ATTENDANT VESSEL COLLISIONS		
318	Unspecified minor damage.	-	-	-	HSE
319	Vessel bumped SW leg (A1) of installation. No damage seen. Insignificant impact to pile guide (not in use).	-	-	None	HSE
320	Floor inside Nos. 3 and 4 anchor winch house (on slid. fwd. 30 column), walkway around and aft frame support beam all forced upwards. 3 indentations on inside of column plating at 1st. ring stiffener. Column integrity intact.	-	-	-	HSE
321	Superficial damage caused to platform.	-	-	-	MARB
322	vertical stiffeners in same area set in by same amount.				
323					
324	A4 and B4.				
325					
326	Contact with forward port column. Indentation to shell plating. Nos. 1 & 2 anchor house				
327					
328					
329					
330					
331					
332					
333					
334					
335					
336	Collided with FTP platform legs C1, B1, H1, and boat bumpers and landing. No immediate				
337					
338					
339					
340	Damage to No. 2 lifeboat and davits; escape ladder on south-west leg; 2 diagonal bracings on				
341					
342					
343					HSE, WOAD &
344					
345					
346					
347					
348					
349					
350					
351					
352					
353					
354					
355	Unspecified damage to forward corner of sponson on starboard centre column at height of				

Source	Date					Vessel Type	Impact	Sea	Operating		Damage	Dents	Installation Class	
ATTENDANT VESSEL COLLISIONS														
356	HSE	29/10/93	1993	October	Southern	Fixed Steel	Supply	-	2.0	Approaching Installation	Misjudgement	Minor	No	Minor
357	HSE	10/12/93	1993	December	Southern	Fixed Steel	Diver Support	Crane Jib	2.5	Diving Operations	Operator Error			
358	HSE	17/01/94	1994	January	Southern	Jack-Up	Supply	-	2.5	Cargo Transfer	-	Minor	No	Minor
359	HSE	11/03/94	1994	March	Northern	Fixed Concrete	Supply	-	5.0	Cargo Transfer	-	Minor	No	Minor
360	HSE	14/03/94	1994	March	Northern	Fixed Concrete	Supply	Stbd. Quarter	4.2	Awaiting Cargo Transfer	Misjudgement			
361	HSE	10/04/94	1994	April	Central	Fixed Steel	Supply	-	-	Close Support	Misjudgement	Minor	No	Minor
362	HSE	01/07/94	1994	July	By									
363	HSE	09/07/94	1994	July	Northern	Fixed Steel	Supply	Port Quarter	2.9	Cargo Transfer	Engine Power Failure			
364	HSE	19/08/94	1994	August	Central	Fixed Steel	Stand-By	Bow	-	-	-			
365	HSE	06/11/94	1994	November	-	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Weather Conditions	Bend and Dent	Yes	Minor
366	HSE	01/12/94	1994	December	Central	Fixed Steel	Diver Support	Crane	2.5	Cargo Transfer	Misjudgement	Dent	Yes	Minor
367	HSE	11/12/94	1994	December	Northern	Fixed Steel	Supply	-	3.0	Approaching Installation	-	Minor	No	Minor
368	HSE	11/09/95	1995	September	-	Jack-Up	Handler	Forward						
369	HSE	17/11/95	1995	November	-	Jack-Up	Supply	Bow	4.5	Cargo Transfer	Operator Error	Superficial	No	Minor
370	HSE	23/12/95	1995	December	-	Semi-Submersible Drilling	Supply	Stbd. Quarter	2.4	Cargo Transfer	Obscured Vision			
371	HSE	03/05/96	1996	May	Northern	Fixed Steel	Supply	-	-	Approaching Installation	-	Superficial	No	Minor
372	HSE	05/06/96	1996	June	Central	Fixed Steel	Supply	Port Quarter	1.5	Cargo Transfer	D.P. Control Failure	Paint Scuffs	No	Minor
373	HSE	05/07/96	1996	July	Southern	Fixed Steel	Supply	-	-	-	Misjudgement	Flter	No	Minor
374	HSE	09/08/96	1996	August	Central	Fixed Steel	Supply	-	-	Cargo Transfer	D.P. Control Failure	Minor	No	Minor
375	HSE	20/08/96	1996	August	-	Semi-Submersible Drilling	Stand-By	Stbd. FRC						
376	HSE	19/10/96	1996	October	Southern	Fixed Steel	-	-	-	-	-	Bent Fender	No	Minor
377	MAIB	31/01/97	1997	January	Central	Semi-Submersible Drilling	Stand-By	Stem	-	Close Support	Operator Error	Paint Damage	No	Minor
378	HSE	14/02/97	1997	February	Southern	Fixed Steel	-	Quarter	-	Cargo Transfer	-	-	No	Minor
379	HSE	02/04/97	1997	April	Northern	Floating Production & Storage	Supply	-	3.0	Cargo Transfer	Weather Conditions			
380	HSE	31/05/97	1997	May	Northern	Fixed Steel	Stand-By	Bow	0.0	Close Support	Engine Power Failure			
381	HSE	26/07/97	1997	July	Northern	Floating Production & Storage	Tanker							
382	HSE	27/07/97	1997	July	-	Semi-Submersible Accommodation	Stand-By	Stbd. Funnel	-	Cargo Transfer	Operator Error			
383	HSE	12/09/97	1997	September	Northern	Fixed Steel	Supply	Stem	3.0	Cargo Transfer	Weather Conditions	Paint Scuffs	No	Minor
384	HSE	20/09/97	1997	September	Central	Articulated Loading Column	Supply	Stem	1.5	Maintenance	Weather Conditions	Dent and Scrapes	No	Minor
385	HSE	10/12/97	1997	December	-	Jack-Up	-	-	-	-	-	Scratches	No	Minor
386	HSE	14/02/98	1998	February	Central	Floating Production & Storage	Stand-By	Port Quarter	4.0	Cargo Transfer	-			
387	HSE	07/04/98	1998	April	-	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	-	Minor	No	Minor
388	HSE	05/06/98	1998	June	Southern	Fixed Steel	-	-	-	-	-			
389	HSE	05/07/98	1998	July	-	Semi-Submersible Drilling	Handler							
390	HSE	15/07/98	1998	July	-	Jack-Up	Handler							
391	HSE	31/07/98	1998	July	Northern	Fixed Concrete	Supply	-	-	Approaching Installation	Boothmaster Failure			
392	HSE	25/09/98	1998	September	West of		Merchant							
393	HSE	01/01/99	1999	January	-	Semi-Submersible Drilling	Supply	Stem	3.0	Cargo Transfer	Operator Error			

No.	ATTENDANT VESSEL COLLISIONS		Damage Class	Vessel Damage Details	Confirms
356	-	-	Severe	Vessel holed by leg "foot plate".	-
357	-	-	Minor	None.	-
358	-	-	-	-	-
359	-	-	-	-	-
360	-	-	None	None.	-
361	-	-	Minor	Unspecified dent.	-
362	-	-	Minor	Mast damaged.	-
363	-	-	Minor	Coating damage.	-
364	-	-	Minor	Unspecified damage to bow and railings.	-
365	-	Unknown.	None	None.	-
366	-	-	Minor	Bent and buckled at crane sheave cheek plate.	-
367	-	-	-	-	-
368	-	-	Minor	Damage to cowl on top of port funnel.	-
369	-	-	-	-	-
370	-	-	None	No damage.	-
371	-	-	Minor	-	-
372	-	-	-	-	-
373	-	-	-	-	MAB
374	-	-	Minor	New joystick fitted. Software adjustments made to system, resulting in improved reaction times to command instruction. Azimuthing thruster reaction increased to match transverse thruster time so both act in tandem and not against each other. Other adjust.	-
375	-	-	Moderate	Stbd. FCC and davit badly damaged from contact with anchor chasing pennants.	-
376	-	-	Minor	Bent fender and split weld.	-
377	-	-	Minor	Paint damaged.	-
378	-	-	-	-	-
379	-	-	-	-	-
380	-	-	-	-	-
381	-	-	-	-	-
382	-	-	-	Some unspecified structural damage.	-
383	-	-	-	-	-
384	-	-	-	-	-
385	-	-	-	-	-
386	-	-	-	Hole in vessel "bush rail".	-
387	-	-	-	-	-
388	-	-	-	-	-
389	-	-	-	-	-
390	-	-	Minor	Two small punctures on port quarter.	-
391	-	-	-	-	-
392	-	-	-	Damaged pipework on bow.	-
393	-	-	-	-	-

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
394	HSE	11/02/99	1999	March	-	Semi-Submersible Drilling	Supply	-	-	Approaching Installation	-	Shd. Legs 3 & 4	Dents	No	Minor
395	HSE	10/06/99	1999	June	Northern	Fixed Steel	Supply	-	-	Cargo Transfer	Operator Error	Diagonal Brace	Paint Scruffs	No	Minor
396	HSE	27/10/99	1999	October	-	Jack-Up	Supply	Port Side	1.5	Cargo Loading	Thruster Failure	Port Leg Chord K	Marks on Teeth	No	Minor
397	HSE	12/12/99	1999	December	-	Semi-Submersible Drilling	Supply	Stern	-	Cargo Loading	-	Column B4	Bent Frames	Yes	Minor
398	HSE	16/12/99	1999	December	Northern	Fixed Steel	Supply	-	2.0	Cargo Loading	Thruster Control Failure	A5 Boat Bumper	Dent	No	Minor
399	HSE	19/12/99	1999	December	Central	Fixed Steel	Supply	-	-	Cargo Loading	-	No. 4 Lifeboat	Portable Water Hose	No	Minor
400	HSE	12/01/00	2000	January	Central	Fixed Steel	Supply	Stern	-	Cargo Loading	Operator Error	Lifeboat	Lifeboat	No	Minor
401	HSE	23/01/00	2000	January	Northern	Fixed Steel	Diver Support	Crane Iib	-	Diving Operations	Weather Conditions	No. 2 Lifeboat	Lifeboat	No	Minor
402	HSE	05/02/00	2000	February	Central	Fixed Steel	Supply	Mast	3.5	Cargo Unloading	-	SW Corner of Cellar Deck	Cable Tray Support	No	Minor
403	HSE	17/04/00	2000	April	-	Semi-Submersible Drilling	Anchor Handler	-	2.0	Anchor Handling	D.P. Control Failure	Shd. At Cabson	Dents	Yes	Minor
404	HSE	02/08/00	2000	August	Northern	Fixed Steel	Supply	Bow	-	Approaching Installation	Operator Error	East Side	Paint Scruffs	No	Minor
405	HSE	06/09/00	2000	September	Central	Semi-Submersible Production	Stand-By	Bridge	-	Approaching Installation	-	A1 Sbd. Fwd. Cabson	Fender and Ladder	No	Minor
406	HSE	18/11/00	2000	November	Northern	Fixed Steel	Supply	-	4.0	Approaching Installation	Thruster Control Failure	Liferaft Platform	Platforms	No	Minor
407	HSE	28/11/00	2000	November	Central	Fixed Steel	Supply	-	-	Approaching Installation	Engine Power Failure	Leg B1 NW Corner	Pipework	No	Minor
408	HSE	09/02/01	2001	March	-	Jack-Up	Stand-By	Port Quarter Fender	-	Cargo Transfer	Weather Conditions	Port Aft Leg	Dent	No	Minor
409	HSE	21/06/01	2001	June	Central	Fixed Steel	Diver Support	-	-	-	-	Cross Member	Paint Scruffs	No	Minor
410	HSE	15/07/01	2001	July	Southern	Fixed Steel	Stand-By	Bow	-	-	-	SW Leg	-	No	Minor
411	NMI	1976	1976	December	Central	Fixed Steel	Supply	Side	1.0	Approaching Installation	-	-	None	No	None
412	DEn	23/03/78	1978	March	Northern	Fixed Concrete	Stand-By	Side	1.25	Close Support	Electrical Failure	Leg B7	None	No	None
413	NMI	1978	1978	October	Southern	Jack-Up	Supply	-	3.0	Cargo Transfer	Mooring Failure	Leg Bow Side	None	No	None
414	NMI	1979	1979	June	Central	Fixed Steel	Supply	-	2.0	Cargo Transfer	-	-	None	No	None
415	DEn	1979	1979	September	Northern	Fixed Steel	Diver Support	Side	-	Diving Operations	Misjudgement	-	None	No	None
416	DEn	1979	1979	-	Central	Fixed Steel	Stand-By	Stern	-	Approaching Installation	Steering Control Failure	Leg A5	None	No	None
417	DEn	08/04/79	1979	April	-	Semi-Submersible Drilling	Supply	-	-	-	-	-	None	No	None
418	DEn	07/07/79	1979	July	Northern	Fixed Steel	Diver Support	Side	-	Diving Operations	Misjudgement	Leg A	None	No	None
419	NMI	1980	1980	January	Central	Semi-Submersible Mobile Support	Supply	Stern	4.0	Cargo Transfer	-	-	None	No	None
420	NMI	08/05/80	1980	May	Central	Semi-Submersible Drilling	Supply	-	2.75	Cargo Transfer	Misjudgement	Pontoon	None	No	None
421	DEn	12/11/80	1980	November	Central	Fixed Steel	Supply	Stern	1.0	Cargo Unloading	Misjudgement	Leg A3	None	No	None
422	NMI	19/11/80	1980	November	Central	Semi-Submersible Accommodation	Supply	Stern	4.0	Cargo Transfer	-	Leg SE	None	No	None
423	NMI	1981	1981	February	Central	Semi-Submersible Drilling	Supply	Stern	3.0	Cargo Transfer	-	-	None	No	None
424	NMI	1981	1981	September	Central	Fixed Steel	Supply	Side	-	Cargo Unloading	-	-	None	No	None
425	NMI	1981	1981	September	Central	Semi-Submersible Drilling	Supply	Stern	2.0	Cargo Transfer	-	-	None	No	None
426	NMI	1981	1981	November	Central	Semi-Submersible Drilling	Supply	Stern	2.75	Cargo Transfer	-	-	None	No	None
427	DEn	05/01/81	1981	January	Central	Fixed Steel	Supply	Stern	-	Cargo Unloading	Misjudgement	Leg A3	None	No	None
428	NMI	20/07/81	1981	July	Southern	Fixed Steel	Stand-By	-	-	-	-	Scaffolding	None	No	None
429	NMI	1982	1982	September	Central	Semi-Submersible Drilling	Supply	Stern	-	Cargo Transfer	-	-	None	No	None
430	DEn	1982	1982	December	Southern	Fixed Steel	Supply	Side	2.0	Cargo Transfer	-	Fender	Fender	No	None
431	NMI	10/02/82	1982	February	Central	Fixed Steel	Supply	-	3.0	Cargo Transfer	Weather Conditions	Leg	None	No	None
432	DEn	11/03/82	1982	March	Southern	Jack-Up	Stand-By	-	-	Cargo Unloading	Anchor Dragged Due Weather	Leg Port	None	No	None

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
394	Indentation of the shell plating resulting in no penetration of the plating.	-	-	-	-
395	Superficial paint scratches on the diagonal brace.	-	-	-	-
396	White metal marks and some shaved off metal from vessel on one side of the teeth.	-	-	Minor	-
397	Damage to five timber fenders and distorted frames and stiffeners.	-	-	-	Unspecified hull damage.
398	Boat bumper dented and top support pipe slightly kinked on the top side.	-	-	-	-
399	Potable water hose parted and damage to No. 4 lifeboat.	-	-	-	-
400	Serious damage to lifeboat.	-	-	-	-
401	Outer skin of No. 2 lifeboat punctured and mooring pins wrenched from the side of the boat. The stiffener is also distorted on the lifeboat land area support frame.	-	-	-	-
402	Minor structural damage to the support frame of cable trays on the south-west corner of the Cellar Deck.	-	-	Minor	Minor damage to the mat and aerials.
403	Damage to stringers and vertical stiffeners and setting in of the shell plating at the 70ft draft level.	-	-	None	No damage.
404	Paint scraped off.	-	-	Minor	Damage on the vessel's bow and bulwarks.
405	Slight superficial damage to the column fender and also an access ladder on No. 2 winch.	-	-	Minor	Damage to the bridge and also damaged the launch davit of the port FRC.
406	Damage to escape platform for the liferafts, lifeguard guide wires and bunkering boxes.	-	-	-	-
407	Damage to fire water main. Mitigation measures in place.	-	-	-	-
408	Two score marks and a small indentation in leg.	-	-	-	-
409	Paint removed.	-	-	Minor	Some damage to instruments and to the ROV launch structure on the side of the vessel.
410	Superficial damage of the platform leg.	-	-	Minor	Damage to the focalc.
411	No damage.	No	-	-	-
412	No damage.	-	-	Minor	Superficial damage, hole in bulwark and some damage to bridge.
413	No damage.	No	-	-	-
414	No damage.	No	-	-	-
415	No damage.	No	-	-	-
416	No damage.	No	-	Minor	Tear in vessel rubbing band 9" x 5" wide.
417	No damage.	-	-	-	-
418	No damage.	No	-	-	-
419	No damage.	No	-	-	-
420	No damage.	No	-	-	-
421	No damage.	No	-	Minor	Indentation on stern of vessel.
422	No damage.	No	-	Minor	Damage to vessel frames and plating.
423	No damage.	-	-	-	-
424	No damage.	No	-	-	-
425	No damage.	No	-	-	-
426	No damage.	-	-	-	-
427	Impact sustained by wooden block of launch number.	No	-	-	-
428	Hit outriggered scaffolding.	No	-	-	-
429	No damage.	-	-	-	-
430	No damage reported.	-	-	-	-
431	No damage.	No	-	None	No damage.
432	No damage.	No	-	Moderate	Small hole in hull above waterline.
					FSE

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
433	NMI	09/04/82	1982	April	Central	Fixed Steel	Supply	Stem	3.0	Cargo Transfer	Engine Control Failure	Leg	None	No	None
434	DEn	19/08/82	1982	August	Central	Semi-Submersible Crane Barge	Supply	Stem	-	Cargo Unloading	Weather Conditions	Leg Sbd. Side	None	No	None
435	DEn	29/08/82	1982	August	Southern	Jack-Up	Supply	Stem	3.0	Approaching Installation	Weather Conditions	Leg Port	None	No	None
436	DEn	11/09/82	1982	September	Morecambe Bay	Semi-Submersible Accommodation	Supply	-	-	Approaching Installation	Misjudgement	Leg Bow Side	None	No	None
437	DEn	21/01/83	1983	January	Northern	Fixed Concrete	Supply	-	3.5	Cargo Transfer	Weather Conditions	Breakwater Wall	None	No	None
438	DEn	22/01/83	1983	January	Central	Semi-Submersible Drilling	Supply	-	-	Cargo Unloading	Engine Power Failure	Columns CP4 & PC2	None	No	None
439	DEn	28/02/83	1983	February	Central	Fixed Steel	Supply	Side	3.0	Approaching Installation	Thruster Failure	Fender	None	No	None
440	DEn	22/03/83	1983	March	Central	Semi-Submersible Drilling	Supply	-	3.5	Approaching Installation	Misjudgement	Column CP4	None	No	None
441	DEn	27/06/83	1983	June	Northern	Fixed Steel	Supply	-	-	Personel Transfer	Weather Conditions	Fender	None	No	None
442	DEn	29/06/83	1983	June	Southern	Jack-Up	Stand-By	Side	-	Approaching Installation	Misjudgement	Leg Rack	None	No	None
443	DEn	23/09/83	1983	September	Northern	Fixed Steel	Diver Support	-	-	Diving Operations	D.P. Remote Control Failure	Leg B2	None	No	None
444	DEn	22/10/83	1983	October	Central	Semi-Submersible Drilling	Supply	-	-	Anchor Handling	Misjudgement	No. 8 Anchor Chain	None	No	None
445	DEn	02/02/84	1984	February	Morecambe Bay	Jack-Up	Supply	Side	3.0	Cargo Unloading Containers	Weather Conditions	Leg	None	No	None
446	DEn	09/05/84	1984	May	Central	Semi-Submersible Mobile Support	Supply	Side	3.0	Cargo Unloading	Thruster Failure	Column PF	None	No	None
447	DEn	06/10/84	1984	October	Morecambe Bay	Jack-Up	Supply	-	-	-	Weather Conditions	Leg	None	No	None
448	DEn	22/02/85	1985	February	Northern	Fixed Concrete	Research	Stem	-	Cargo Unloading	Poor Visibility	Breakwater Wall	None	No	None
449	DEn	06/04/85	1985	April	-	Jack-Up	Supply	Stem	-	Cargo Unloading	Misjudgement	Leg Chard	None	No	None
450	DEn	27/07/85	1985	July	Southern	Fixed Steel	Diver Support	Side	1.5	Approaching Installation	Misjudgement	Leg B4	Minor	No	None
451	HSE	18/09/85	1985	September	Southern	Fixed Steel	Supply	-	-	Approaching Installation	-	Boat Landing Stage	None	No	None
452	DEn	31/01/86	1986	January	Central	Fixed Steel	Supply	Stem	3.5	Cargo Unloading	Misjudgement	SW Landing Fender	None	No	None
453	DEn	21/02/86	1986	February	Southern	Fixed Steel	Supply	-	-	Cargo Unloading	Misjudgement	-	None	No	None
454	HSE	03/03/86	1986	March	Southern	Fixed Steel	Supply	Mat	-	-	-	Flare Boom	None	No	None
455	DEn	22/04/86	1986	April	Central	Fixed Steel	Supply	-	-	Approaching Installation	Weather Conditions	Deck	None	No	None
456	DEn	24/04/86	1986	April	Southern	Fixed Steel	Stand-By	-	-	Diving Operations	Anchor Dragged	Spider Deck	Minor	No	None
457	DEn	28/04/87	1987	April	-	Jack-Up	Supply	Side	-	Cargo Transfer	Anchor Dragged	-	None	No	None
458	DEn	31/01/88	1988	January	-	Jack-Up	Supply	Stem	3.75	Cargo Unloading	Weather Conditions	Leg Port	None	No	None
459	DEn	13/10/89	1989	October	Southern	Jack-Up	Supply	-	-	Cargo Transfer	Engine Control Failure	Leg 3	Minor	No	None
460	DEn	22/10/89	1989	October	Northern	Fixed Concrete	Supply	-	-	Cargo Transfer	Engine Control Failure	Shaft	None	No	None
461	DEn	22/02/90	1990	February	Southern	Jack-Up	Supply	Side	2.0	Cargo Transfer	Weather Conditions	Leg Rack	None	No	None
462	DEn	11/09/90	1990	September	Central	Fixed Steel	Stand-By	-	-	-	-	-	None	No	None
463	DEn	13/11/90	1990	November	Northern	Fixed Concrete	Stand-By	-	-	Close Support	Misjudgement	Leg NW	None	No	None
464	DEn	22/12/90	1990	December	-	Jack-Up	Supply	-	-	-	-	-	None	No	None
465	DEn	22/12/90	1990	December	Central	Semi-Submersible Accommodation	Supply	-	-	-	-	-	None	No	None
466	DEn	18/04/91	1991	April	Southern	Jack-Up	Supply	-	-	-	-	-	None	No	None
467	DEn	06/06/91	1991	June	Central	Semi-Submersible Drilling	Supply	Port Quarter	-	Cargo Transfer	Power Failure	Bow Leg Sbd. Boat Bumper	None	No	None
468	DEn	16/08/91	1991	August	Central	Jack-Up	Stand-By	-	-	Close Support	Engine Control Failure	Sbd. Leg	None	No	None
469	DEn	27/08/91	1991	August	Southern	Semi-Submersible Drilling	Supply	Stbd. Side	-	Cargo Transfer	-	Forward Leg	None	No	None
470	DEn	14/10/91	1991	October	Southern	Fixed Concrete	Supply	-	-	-	-	West Leg	None	No	None
471	DEn	21/10/91	1991	October	Central	Semi-Submersible Drilling	Supply	-	-	-	-	-	None	No	None

Consec. No.		Installation Damage Details		Repair Details		Vessel Class		Other Source	
ATTENDANT VESSEL COLLISIONS									
433	No damage.		No	-	-	-	-	-	-
434	No damage.		No	-	-	Severe	Hole in tank.	HSE	HSE
435	Struck by 4 lines without damaging it.		No	-	-	Minor	Trivial damage to stern rubber trailing.	HSE	HSE
436	No damage.		No	-	-	Minor	Trivial dent in vessel rubbing bar.	HSE	HSE
437	Vessel struck breakwater.		No	-	-	Moderate	Loss of aerial, bend of main mast through 50 degrees.	-	-
438	No damage.		-	-	-	-	-	HSE	HSE
439	No damage.		No	-	-	-	-	-	-
440	No damage.		-	-	-	Severe	Holed diesel tank which leaked.	-	-
441	No damage.		No	-	-	-	-	-	-
442	No damage.		No	-	-	Sunk	Holed by rack teeth and sinking hence sunk by Navy in position 55 20.37N, 007 55.36W.	LMS	LMS
443									
444									
445									
446									
447									
448									
449									
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466									
467									
468									
469									
470									
471							diesel oil into Inverigton Sound.	WOAD, MAIB	WOAD, MAIB

Source	Date			Vessel Type	Impact	Sea	Operating		Damage	Dents	Installation Class				
ATTENDANT VESSEL COLLISIONS															
472	DEn	29/02/92	1992	February	Southern	Fixed Steel	Research	-	-	Surveying	Misjudgement	-	None	No	None
473	DEn	10/07/92	1992	July	Southern	Jack-Up	Stand-By	-	0.0	-	Misjudgement	Bow Leg	None	No	None
474	DEn	31/08/92	1992	August	Southern	Jack-Up	Supply	Stbd. Quarter	2.0	-	Electrical Failure	Port Leg	None	No	None
475	DEn	02/09/92	1992	September	Southern	Jack-Up	Supply	-	3.0	Cargo Transfer	Weather Conditions	Bow Leg	None	No	None
476	HSE	20/12/92	1992	December	Central	Semi-Submersible Drilling	Stand-By	-	-	Close Support	Thruaster Control Failure	Stbd. Fwd. 18'	-	-	-
477	HSE	06/02/93	1993	February	-	Unspecified	Supply	-	-	Banking Operations	-	Port Side	Fender	No	None
478	DEn	24/03/93	1993	March	Southern	Jack-Up	Supply	Stbd. Side	3.0	Cargo Transfer	Weather Conditions	Port Fwd. Leg	None	No	None
479	MAIB	21/07/93	1993	July	Southern	Semi-Submersible Crane Barge	Stand-By	Port Side	-	Close Support	Operator Error	Stbd. Side	None	No	None
480	HSE	16/09/93	1993	September	Bay	-	-	-	-	-	-	-	-	-	-
481	HSE	23/12/93	1993	December	Southern	Jack-Up	Supply	Stem	-	Cargo Transfer	Weather Conditions	Port Leg	None	No	None
482	HSE	24/02/94	1994	February	Central	Fixed Steel	Stand-By	-	-	Close Support	Post/Operation Neglected	Structural Support	None	No	None
483	WCAD	03/04/94	1994	April	Southern	Jack-Up	Supply	Stbd. Side	4.0	Approaching Installation	-	Leg	None	No	None
484	HSE	18/04/94	1994	April	-	Jack-Up	Stand-By	Stbd. Side	-	Cargo Transfer	Misjudgement	Port Bow Leg	None	No	None
485	HSE	04/06/94	1994	June	Southern	Jack-Up	Supply	Port Quarter	-	Cargo Transfer	-	Fwd. Corner of	None	-	-
486	HSE	19/09/94	1994	September	-	Semi-Submersible Drilling	Stand-By	-	-	Cargo Transfer	Engine Control Failure	Anchor Wire	None	No	None
487	HSE	20/12/94	1994	December	-	Semi-Submersible Drilling	Supply	Port Quarter	-	Cargo Transfer	-	Fairlead	-	-	-
488	HSE	08/08/95	1995	June	Central	Fixed Steel	Stand-By	-	-	Close Support	Post/Operation Neglected	North-East Leg	None	No	None
489	HSE	22/07/95	1995	July	Central	Fixed Steel	Diver Support	Aerials	3.5	Diving Operations	D.P. Failure	Below Lifeboats	None	No	None
490	HSE	06/09/95	1995	September	Central	Fixed Steel	Stand-By	Aerials	-	Approaching Installation	-	Bridge Between Platforms	-	-	-
491	HSE	29/12/95	1995	December	Northern	Single Point Mooring	Tanker Supply	-	-	Cargo Transfer	-	Stbd. Aft	-	-	-
492	HSE	16/07/96	1996	July	Southern	Fixed Steel	Supply	-	-	Cargo Transfer	-	-	-	-	-
493	MAIB	03/11/96	1996	November	Southern	Fixed Steel	Supply	-	-	Cargo Transfer	Weather Conditions	Cross Member	Weed Removed	No	None
494	HSE	29/03/97	1997	March	Northern	Fixed Steel	Supply	-	-	Cargo Transfer	Thruaster Failure	B7 Leg	10 ft Below Waterline	No	None
495	HSE	06/01/99	1999	January	Bay	-	-	-	-	-	-	-	-	-	-
496	HSE	23/03/99	1999	March	-	Jack-Up	Supply	Stbd. Quarter	-	Approaching Installation	-	Chord c' Bow	-	-	-
497	HSE	23/07/99	1999	July	Southern	Fixed Steel	Stand-By	-	-	Approaching Installation	-	Race	None	No	None
498	HSE	04/09/99	1999	September	Central	Fixed Steel	Supply	Mast	0.8	Cargo Transfer	Weather Conditions	Walkway	-	-	-
499	HSE	30/10/99	1999	October	-	Jack-Up	Stand-By	FRC	-	Cargo Transfer	Weather Conditions	Port Fwd. Leg	None	No	None
500	HSE	27/01/00	2000	January	Bay	-	-	-	-	-	-	-	-	-	-
501	HSE	28/10/01	2001	October	Southern	Fixed Steel	Stand-By	-	1.0	Cargo Transfer	-	-	-	No	None
502	LMS	17/11/79	1979	November	Central	Semi-Submersible Drilling	Supply	-	-	-	Weather Conditions	-	-	No	Unspecified
503	HSE	01/01/80	1980	January	Southern	Fixed Steel	Diver Support	-	-	Approaching Installation	Engine Control Failure	-	-	No	Unspecified
504	HSE	04/05/81	1981	May	Southern	Fixed Steel	Supply	-	-	-	Anchor Dragged	Stbd. Stern Leg	-	No	Unspecified
505	HSE	06/10/84	1984	October	Bay	-	-	-	-	-	-	-	-	-	-
506	HSE	05/01/85	1985	January	-	Jack-Up	-	-	-	-	Weather Conditions	-	-	No	Unspecified
507	HSE	10/09/85	1985	September	Central	Fixed Steel	Stand-By	-	-	-	-	-	-	No	Unspecified
508	HSE	23/02/86	1986	February	-	Jack-Up	Tug	-	-	-	-	Port Aft	-	No	Unspecified
509	HSE	20/12/87	1987	December	-	Semi-Submersible Drilling	Supply	-	-	-	-	-	-	No	Unspecified

Consec. No.	Installation Damage Details	Repaired	Repair Details		Vessel Class	Other Source
			ATTENDANT VESSEL COLLISIONS			
472	No structural damage.	-	-	-	-	HSE
473	No visual damage.	-	-	Unspecified minor damage.	Minor	HSE & MAIB
474	No damage to structure.	-	-	3" spill sustained by vessel's stbd. quarter rubbing strake.	Minor	HSE
475	No visual damage to leg.	-	-	Minor damage to fender.	Minor	HSE
476	No visible signs of damage.	-	-	-	-	-
477	No damage reported.	-	-	-	-	-
478	No damage.	-	-	Slight damage to stbd. rubbing strake.	Minor	HSE
479	No damage.	-	-	FRC damaged.	Moderate	-
480	None apparent.	-	-	Unspecified hole in hull above waterline.	Moderate	MAIB
481	No damage.	No	-	Superficial damage and slight teeth marks to stern.	Minor	-
482	None apparent.	-	-	Extensive damage to starboard rails around monkey island, radar scanner and navigation/radio aerials.	Moderate	-
483	After investigations no damage reported.	-	-	Extensive unspecified damage to starboard side.	Severe	MAIB & NSL
484	No damage.	No	-	Small indentation in hull.	Minor	-
485	No damage.	No	-	-	-	MAIB
486	None specified.	-	-	-	-	-
487	None apparent.	-	-	Hole in hull in way of potable water tank.	Severe	-
488	None apparent.	-	-	Unspecified minor damage.	Minor	-
489	None apparent.	-	-	Damage to aerials. Recalled to Aberdeen.	Minor	-
490	None apparent.	-	-	Minor damage to aerials.	Minor	-
491	None apparent.	-	-	-	-	-
492	Contact did not occur. Potable water hose burst as vessel pulled clear.	-	-	-	-	-
493	No damage reported.	-	-	Stbd. rudder damage. Vessel returned to port.	Moderate	-
494	No apparent damage at 6.5m level.	-	-	Minor plate indentation on port bow approx 20 ft from the vessel stem.	Minor	MAIB
495	Contact did not occur. Potable water hose burst as vessel drifted clear.	-	-	-	-	-
496	No damage to the leg chord.	-	-	-	-	-
497	None apparent.	-	-	Damage to ballast tank.	Moderate	-
498	None apparent.	-	-	Navigation light broken and after mast bent by approximately 10°.	Minor	-
499	No damage reported.	-	-	FRC was sent to pick up mail in marginal weather and in doing so the craft came into contact with installation. Craft sustained some damage, which required onshore repair.	Moderate	-
500	No apparent damage.	-	-	Vessel proceeded to Liverpool.	Moderate	-
501	No obvious damage.	-	-	No damage.	None	-
502	-	-	-	Towed to Haugeland for repairs. Sustained hole in hull and list.	Severe	-
503	-	-	-	-	-	-
504	-	-	-	-	-	-
505	-	-	-	-	-	-
506	-	-	-	-	-	-
507	-	-	-	-	-	-
508	-	-	-	-	-	-
509	-	-	-	-	-	-

Consec. No.	Information Source	Date (dd/mm/yr)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Plate Damage	Installation Damage Class
ATTENDANT VESSEL COLLISIONS															
510	HSE	21/09/89	1989	September	-	Semi-Submersible Accommodation	Stand-By	-	-	-	-	-	-	No	Unspecified
511	HSE	25/12/90	1990	December	Southern	Jack-Up	Supply	Stbd. Side	3.5	Cargo Transfer	Weather Conditions	Port Leg	-	No	Unspecified
512	HSE	04/01/91	1991	January	Central	-	Stand-By	-	-	-	-	West Face	-	No	Unspecified
513	MAIB	31/01/91	1991	January	-	Semi-Submersible Drilling	Anchor Handler	-	-	-	-	-	-	No	Unspecified
514	MAIB	29/08/91	1991	August	Central	Semi-Submersible Drilling	Supply	-	-	-	-	-	-	No	Unspecified
515	HSE	15/05/92	1992	May	-	Semi-Submersible Drilling	Supply	-	-	Cargo Transfer	Engine Power Failure	Fwd. Post Column	-	No	Unspecified
516	MAIB	13/08/92	1992	August	Northern	Fixed Steel	Supply	-	-	-	-	-	-	No	Unspecified
517	HSE	30/08/92	1992	August	-	-	Supply	-	-	-	-	Bow Leg	-	No	Unspecified
518	HSE	28/01/93	1993	January	Central	Semi-Submersible Drilling	Supply	Funnel	-	Approaching Installation	-	Anchor Winch Cab Platform	-	No	Unspecified
519	HSE	16/08/93	1993	August	Northern	Fixed Concrete	Supply	-	2.0	Cargo Transfer	-	-	-	No	Unspecified
520	HSE	17/02/94	1994	February	Central	Semi-Submersible Production	Supply	-	-	-	-	Port Fwd. Column	-	No	Unspecified
521	MAIB	15/04/94	1994	April	Morecambe Bay	Barge	Anchor Handler	-	-	-	-	-	-	No	Unspecified
522	HSE	14/08/94	1994	August	Southern	Jack-Up	Supply	-	-	-	Total Power Loss	Fwd. and Stbd. Legs	-	No	Unspecified
523	MAIB	21/09/94	1994	September	Celtic Sea	Semi-Submersible Drilling	Stand-By	-	-	-	Operator Error	-	-	No	Unspecified
524	HSE	12/12/94	1994	December	Morecambe Bay	Fixed Steel	Supply	-	1.5	Cargo Transfer	Misjudgement	No. 1 Lifboat Station	-	No	Unspecified
525	HSE	03/01/95	1995	January	Southern	Jack-Up	Supply	-	-	-	-	-	-	No	Unspecified
526	HSE	28/01/95	1995	January	Northern	Fixed Steel	Supply	-	-	Approaching Installation	-	East Central Structure	-	No	Unspecified
527	HSE	29/01/95	1995	January	Southern	Fixed Steel	Supply	-	2.0	Cargo Transfer	-	Spider Deck	-	No	Unspecified
528	LMIS	05/07/95	1995	July	Southern	Fixed Steel	Diver Support	-	-	-	-	-	-	No	Unspecified
529	MAIB	12/10/95	1995	October	Central	Fixed Steel	Supply	Stbd. Quarter	-	Approaching Installation	Misjudgement	Leg Fender	-	No	Unspecified
530	HSE	07/11/95	1995	November	Southern	Fixed Steel	Anchor Handler	-	-	-	-	-	-	No	Unspecified
531	HSE	10/11/96	1996	November	Southern	Fixed Steel	Supply	-	-	Cargo Transfer	-	B1 Leg	-	No	Unspecified
532	HSE	16/01/97	1997	January	-	Jack-Up	-	-	-	Cargo Transfer	Operator Error	-	-	No	Unspecified
533	MAIB	23/02/97	1997	February	Central	Floating Production & Storage	Supply	Vent Pipe	-	Cargo Transfer	Operator Error	Crane Hook	-	No	Unspecified
534	HSE	03/03/97	1997	March	-	Jack-Up	-	-	-	-	-	-	-	No	Unspecified
535	HSE	28/07/97	1997	July	Morecambe Bay	Fixed Steel	Diver Support	Stbd. Quarter	-	Diving Operations	Engine Control Failure	Leg and Riser	-	No	Unspecified
536	HSE	12/08/97	1997	August	Central	Floating Production & Storage	Merchant Tanker	Stbd. Quarter	-	Loading Crude Oil	D.P. Failure	Stern	-	No	Unspecified
537	HSE	25/10/97	1997	October	Central	Fixed Steel	Supply	Stem	2.5	Cargo Transfer	D.P. Control Failure	SW Leg	-	No	Unspecified
538	HSE	03/12/97	1997	December	Southern	Fixed Steel	Supply	-	-	-	-	Leg	-	No	Unspecified
539	HSE	09/02/98	1998	February	-	Semi-Submersible Drilling	Supply	Port Quarter	4.0	Cargo Transfer	-	Port Forward and Centre Columns	-	No	Unspecified
540	HSE	03/03/98	1998	March	-	Jack-Up	Supply	-	-	-	-	Drilling Conductor	-	No	Unspecified
541	HSE	26/04/98	1998	April	West of Shetlands	Floating Production & Storage	Anchor Handler	-	-	Anchor Handling	-	Shell Plating	-	No	Unspecified
542	HSE	30/04/98	1998	April	-	Jack-Up	Supply	Stem	-	-	Operator Error	Port Aft Leg	-	No	Unspecified
543	HSE	14/05/98	1998	May	-	Jack-Up	Supply	-	-	-	-	Port Leg	-	No	Unspecified
544	HSE	25/06/98	1998	June	Northern	Fixed Concrete	Supply	-	-	Cargo Transfer	-	NW Leg - Column 1	-	No	Unspecified
545	HSE	15/08/98	1998	August	Central	Single Buoy Mooring	Merchant Tanker	Port Bow	-	Loading Crude Oil	D.P. Thruster Failure	Outer Skirt	-	No	Unspecified
546	HSE	22/11/98	1998	November	Southern	Fixed Steel	Supply	-	-	Cargo Transfer	-	NE Leg	-	No	Unspecified
547	HSE	16/12/98	1998	December	-	Semi-Submersible Drilling	Supply	-	-	-	-	Leg	-	No	Unspecified
548	HSE	24/12/98	1998	December	-	Jack-Up	Supply	-	-	Approaching Installation	Engine Control Failure	Stbd. Chord Inner Leg	-	No	Unspecified

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
			ATTENDANT VESSEL COLLISIONS		
510	-	-	-	-	-
511	Superficial damage.	-	-	Sunk	Vessel holed in starboard side just aft of funnel leading to power loss and eventual foundering in position 53° 02' 76N; 08° 01' 92E at 1213 hrs. on same day with 200 m ³ of diesel oil on board.
512	-	-	-	-	WOMD & LMS
513	-	-	Installation at Company Frith.	-	-
514	-	-	-	-	-
515	-	-	-	-	-
516	-	-	-	-	-
517	-	-	-	-	MAIB
518	-	-	-	-	-
519	-	-	-	Moderate	Damage to bridge and steering. Towed to Investigation.
520	-	-	-	-	LMS
521	-	-	-	Minor	-
522	-	-	-	Moderate	Hole in No. 5 ballast tank.
523	-	-	-	-	MAIB & WOMD
524	-	-	-	-	-
525	-	-	-	-	-
526	-	-	-	-	MAIB
527	-	-	-	-	-
528	-	-	-	Severe	Vessel holed on waterline in way of fuel tank. Taken to South Shields for repair.
529	-	-	-	-	-
530	Damage not significant. Structural assessment carried out.	-	-	-	-
531	-	-	-	-	-
532	-	-	-	-	-
533	-	-	-	Moderate	Fuel tank vent pipe tipped off.
534	-	-	-	-	-
535	-	-	-	-	-
536	-	-	-	-	-
537	-	-	-	-	-
538	-	-	-	-	-
539	-	-	-	Moderate	Holed on port aft quarter. Proceeded to Aberdeen for repairs.
540	-	-	-	-	-
541	-	-	-	-	-
542	-	-	-	-	-
543	-	-	-	Moderate	Presumably holed. Proceeded to port.
544	-	-	-	-	-
545	-	-	-	Minor	Deep scuffing along 25 meters on port bow.
546	-	-	-	-	-
547	-	-	-	-	-
548	-	-	-	-	-

Consec. No.	Information Source	Date (dd/mm/yy)	Year	Month	Location	Installation Type	Impact Vessel Type	Impact Orientation	Sea Condition	Operating Circumstances	Primary Cause	Impact Point	Installation Damage	Stiffener Damage	Plate Dents	Installation Damage Class
ATTENDANT VESSEL COLLISIONS																
549	HSE	01/03/99	1999	March	Southern	Fixed Steel	Supply	Port Quarter	-	-	-	SE Leg	-	No	No	Unspecified
550	HSE	29/04/99	1999	April	-	Semi-Submersible Drilling	Supply	-	-	Anchor Handling	Weather Conditions	Anchor	-	No	No	Unspecified
551	HSE	08/05/99	1999	May	-	Jack-Up	Tug	-	-	Towing	-	Crane Pedestal	-	No	No	Unspecified
552	HSE	30/01/00	2000	January	Southern	Fixed Steel	Supply	Stbd. Quarter	-	Approaching Installation	-	SW Leg	-	No	No	Unspecified
553	HSE	20/04/00	2000	April	-	Semi-Submersible Drilling	Supply	Stern	-	Approaching Installation	Weather Conditions	Column C4	-	No	No	Unspecified
554	HSE	19/07/00	2000	July	-	Jack-Up	Anchor Handler	-	-	Anchor Handling	Thruster Failure	-	-	No	No	Unspecified
555	HSE	04/02/01	2001	February	-	Semi-Submersible Drilling	Supply	-	-	-	-	Legs	-	No	No	Unspecified
556	HSE	02/05/01	2001	May	-	Semi-Submersible Drilling	Stand-By	-	-	Close Support	Operator Error	Stbd. Aft Diagonal Brace and Column	-	No	No	Unspecified
557	DEn	23/11/90	1990	November	Central	Semi-Submersible Drilling	Stand-By	-	-	-	-	Buoy	None	No	No	Not Applicable

Consec. No.	Installation Damage Details	Repaired	Repair Details	Vessel Class	Other Source
ATTENDANT VESSEL COLLISIONS					
549	Vessel made glancing contact.	-	-	-	-
550	-	-	-	Moderate	Rig's anchor punctured a hole in one of the ballast tanks.
551	Minimal damage to crane pedestal and helideck supports.	-	-	-	-
552	-	-	-	-	-
553	Unspecified damage reported.	-	-	None	No damage.
554	Unspecified damage reported in the area of preload tanks Nos. 20 and 22.	-	-	-	-
555	-	-	-	-	-
556	-	-	-	-	-
557	Struck anchor buoy *****	-	-	-	-

Appendix B

Commercial Shipping Between UKCS and U.K.

Year	Quarter	Reporting Port	Maximum Vessel Deadweight (tonnes)				Total Voyages
			0 - 5000	5001 - 15000	15001 - 50000	>50000	
2000	1	Aberdeen	3519	23			3542
2000	2	Aberdeen	5310	18			5328
2000	3	Aberdeen	4517	42			4559
2000	4	Aberdeen	4200	41			4241
2001	1	Aberdeen	3694	28			3722
2001	2	Aberdeen	846	3			849
2000	1	Cromarty Firth	4				4
2000	2	Cromarty Firth	2		1	1	4
2000	3	Cromarty Firth	9	1		3	13
2000	4	Cromarty Firth	8			3	11
2001	1	Cromarty Firth	5				5
2001	2	Cromarty Firth	12			1	13
2000	1	Dundee	2				2
2000	2	Dundee	5				5
2000	3	Dundee	8				8
2000	4	Dundee	1				1
2000	1	Firth of Forth	3				3
2000	2	Firth of Forth	12	1			13
2000	3	Firth of Forth	2	16	1		19
2000	4	Firth of Forth	8	8			16
2001	1	Firth of Forth	5				5
2001	2	Firth of Forth	2				2
2000	1	Great Yarmouth	391				391
2000	2	Great Yarmouth	533				533
2000	3	Great Yarmouth	655				655
2000	4	Great Yarmouth	515				515
2001	1	Great Yarmouth	338				338
2001	2	Great Yarmouth	28				28
2000	1	Hartlepool	3				3
2000	2	Hartlepool	4				4
2000	1	Heysham	222				222
2000	2	Heysham	228				228
2000	3	Heysham	498				498
2000	4	Heysham	537				537
2001	1	Heysham	588				588
2001	2	Heysham	661				661
2000	1	Milford Haven				21	21
2000	2	Milford Haven			1	24	25
2000	3	Milford Haven				35	35
2000	4	Milford Haven				21	21
2001	1	Milford Haven				20	20
2001	2	Milford Haven				21	21
2000	1	Peterhead	1380	4			1384
2000	2	Peterhead	1738				1738
2000	3	Peterhead	1799	3			1802
2000	4	Peterhead	1675	5			1680
2001	1	Peterhead	2538				1538
2001	2	Peterhead	2099	6			2105
2000	1	River Clyde				1	1
2000	2	River Clyde				1	1
2000	3	River Clyde				2	2
2000	4	River Clyde				2	2
2000	1	River Humber	8			24	32
2000	2	River Humber	10	1		24	35
2000	3	River Humber	12			26	38
2000	4	River Humber	43	4		29	76
2001	1	River Humber	44			22	66
2001	2	River Humber	19			12	31
2000	1	River Mersey	4			27	31
2000	2	River Mersey	8			32	40
2000	3	River Mersey	5			17	22
2000	4	River Mersey				25	25
2001	1	River Mersey				14	14

Year	Quarter	Reporting Port	Maximum Vessel Deadweight (tonnes)				Total Voyages
			0 - 5000	5001 - 15000	15001 - 50000	>50000	
2001	2	River Mersey	2			15	17
2000	1	River Tees	1	3			4
2000	3	River Tees		4		1	5
2000	4	River Tees			1		1
2000	1	River Thames				5	5
2000	2	River Thames		1		3	4
2000	3	River Thames	1			3	4
2000	4	River Thames				7	7
2001	1	River Thames				6	6
2001	2	River Thames				12	12
2000	1	River Tyne	1	2			3
2000	2	River Tyne	5	3			8
2000	3	River Tyne	1				1
2001	1	River Tyne	1				1
2000	1	Scapa Flow				19	19
2000	2	Scapa Flow				27	27
2000	3	Scapa Flow				24	24
2000	4	Scapa Flow				21	21
2001	1	Scapa Flow				22	22
2001	2	Scapa Flow				15	15
2000	3	Sheerness	1				1
2000	1	Southampton				14	14
2000	2	Southampton				17	17
2000	3	Southampton				19	19
2000	4	Southampton				26	26
2001	1	Southampton				20	20
2001	2	Southampton	1	1		22	24
2000	1	Sullom Voe				58	58
2000	2	Sullom Voe				41	41
2000	3	Sullom Voe				20	20
2000	4	Sullom Voe				53	53
2001	1	Sullom Voe				47	47
2001	2	Sullom Voe				12	12

Appendix C

Commercial Cargo on ERRV

Year	Quarter	Reporting Port	Direction	Voyages	Cargo Type	Cargo Weight (t)
2000	4	Great Yarmouth	Outwards to UKCS	4	Other General Cargo and Containers less than 20'	137
2000	4	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	75
2000	4	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	97
2000	4	Great Yarmouth	Inwards from UKCS	4	Other General Cargo and Containers less than 20'	159
2000	4	Great Yarmouth	Inwards from UKCS	6	Other General Cargo and Containers less than 20'	193
2000	4	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	102
2000	4	Great Yarmouth	Outwards to UKCS	4	Other General Cargo and Containers less than 20'	51
2000	4	Great Yarmouth	Outwards to UKCS	6	Other General Cargo and Containers less than 20'	367
2001	1	Great Yarmouth	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	23
2001	1	Great Yarmouth	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	19
2001	1	Great Yarmouth	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	22
2001	1	Great Yarmouth	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	19
2001	1	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	74
2001	1	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	56
2001	1	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	80
2001	1	Great Yarmouth	Inwards from UKCS	3	Other General Cargo and Containers less than 20'	90
2001	1	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	65
2001	1	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	98
2001	1	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	66
2001	1	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	86
2001	1	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	96
2001	2	Great Yarmouth	Inwards from UKCS	3	Other General Cargo and Containers less than 20'	51
2001	2	Great Yarmouth	Outwards to UKCS	3	Other General Cargo and Containers less than 20'	57
2001	2	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	92
2001	2	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	74
2001	2	Great Yarmouth	Inwards from UKCS	4	Other General Cargo and Containers less than 20'	137
2001	2	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	89
2001	2	Great Yarmouth	Outwards to UKCS	3	Other General Cargo and Containers less than 20'	114
2001	2	Great Yarmouth	Outwards to UKCS	4	Other General Cargo and Containers less than 20'	184
2001	3	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	89
2001	3	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	109
2001	3	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	72
2001	3	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	85
2001	3	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	168
2001	3	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	89
2001	4	Great Yarmouth	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	98
2001	4	Great Yarmouth	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	99
2000	1	Heysham	Inwards from UKCS	6	Other General Cargo and Containers less than 20'	85
2000	1	Heysham	Outwards to UKCS	6	Other Liquid Bulk Products	1163
2000	1	Heysham	Outwards to UKCS	6	Other General Cargo and Containers less than 20'	85
2001	1	Immingham	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	21
2001	1	Immingham	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	10
2001	1	Immingham	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	150
2001	1	Immingham	Outwards to UKCS	5	Other General Cargo and Containers less than 20'	96
2001	1	Immingham	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	190
2001	2	Immingham	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	12
2001	2	Immingham	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	17
2001	2	Immingham	Inwards from UKCS	4	Other General Cargo and Containers less than 20'	290
2001	2	Immingham	Outwards to UKCS	4	Other General Cargo and Containers less than 20'	250
2001	3	Immingham	Inwards from UKCS	3	Other General Cargo and Containers less than 20'	276
2000	1	Liverpool	Outwards to UKCS	1	Other Liquid Bulk Products	220
2000	1	Peterhead Bay	Outwards to UKCS	1	Other Liquid Bulk Products	50
2000	2	Peterhead Bay	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	52
2000	2	Peterhead Bay	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	72
2000	2	Peterhead Bay	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	12
2000	2	Peterhead Bay	Outwards to UKCS	1	Other Liquid Bulk Products	56
2000	2	Peterhead Bay	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	40
2000	3	Peterhead Bay	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	15
2000	3	Peterhead Bay	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	54
2000	3	Peterhead Bay	Inwards from UKCS	2	Other General Cargo and Containers less than 20'	73
2000	3	Peterhead Bay	Outwards to UKCS	2	Other General Cargo and Containers less than 20'	44
2000	3	Peterhead Bay	Inwards from UKCS	1	Other General Cargo and Containers less than 20'	62
2000	3	Peterhead Bay	Outwards to UKCS	1	Other General Cargo and Containers less than 20'	27

Appendix D

'Near Miss' Database

Consec. No.	'Near Miss'	Information Source	Date (dd/mm/yr)	Time	Year	Month	Location	Installation Type	Vessel Type	Sea Condition
1	Yes	HSE	17/06/96	12:15	1996	June	-	Semi-Submersible Drilling	Cargo	-
2	No	HSE	06/03/97	19:40	1997	March	-	Semi-Submersible Drilling	Stand By	-
3	No	HSE	03/06/97	20:05	1997	June	Southern	Fixed Steel	Tanker	-
4	No	HSE	16/06/97	07:15	1997	June	Southern	Fixed Steel	Anchor Handler	-
5	No	HSE	06/08/97	14:40	1997	August	-	Semi-Submersible Accommodation	Supply	-
6	Yes	HSE	30/10/97	07:57	1997	October	Central	Floating Production, Storage & Offloading	Tanker	-
7	No	HSE	24/11/97	16:36	1997	November	Northern	Fixed Steel	Supply	3.0
8	No	HSE	23/03/98	23:57	1998	March	Central	Fixed Steel	Stand By	8.0
9	No	HSE	02/04/98	08:40	1998	April	Southern	Fixed Steel	Fishing	-
10	Yes	HSE	10/06/98	23:30	1998	June	-	Semi-Submersible Drilling	-	-
11	Yes	HSE	09/09/98	04:30	1998	September	Northern	Fixed Steel	Fishing	3.0
12	Yes	HSE	24/12/98	22:48	1998	December	Northern	Floating Storage	Tanker	-

Consec. No.	Operating Circumstances	Primary Cause	Other Source Confirms
1	Cargo vessel lost power and was drifting towards the rig. Drilling operations suspended and down manning took place. Local vessels gave assistance to get a tow line attached and pull the vessel clear of the rig.	Total Power Loss	
2	Vessel reported engine failure while positioned up wind of drilling rig. Relative bearing observation indicated vessel would drift past close but not collide with rig. Monitoring continued. Stand by vessel proceeded with attempts to place tow line onto vessel. Tow was secured and CPA was increased to in excess of 100 yards. Tug arrived on scene and secured tow line on vessel. Tow line had parting shortly after being secured. Vessel later recovered power.	Engine Failure	Appendix E (see Consec. No. 18)
3	Tanker was passing installation on SW corner. Closest point to installation was 1.5 nautical miles. Tanker lost all engine power when due west of installation and started to drift directly towards it. 10 minutes after power had been lost engine power was regained.	Engine Failure	
4	Tanker's closest point to installation during this power loss was 1.08 nautical miles.	Total Power Loss	
5	Whilst preparing for rig move of jack up drilling rig - anchor handling vessel suffered total loss of power. Vessel started drifting and narrowly missed colliding with platform. Supply vessel was in a position at the stern of the rig with a potable water hose connected transferring potable water and off-loading containerised deck cargo. Vessel was positioned on a northerly heading and in attempting to reposition encountered manoeuvring difficulties and made contact with rig's No. 5 anchor wire on port aft side. Rig was de-ballasted to transit draught for wire inspection. Some strand damage was evident on No. 5 anchor wire.	Manoeuvring Misjudgement	
6	Shuttle tanker secured to FPSO and GPS signals were poor and both DARPS and DGPS were deselected from DP console. Shuttle maintained position using Artemis only but this failed for a short period and DP system reverted to 'model control'. Due to software problem this caused shuttle tanker to manoeuvre astern causing mooring hawser to be tensioned. The off-position alarm sounded and control of shuttle established by using DGPS absolute system. This caused shuttle to manoeuvre ahead and stabilise in normal offloading position.	D.P. Control Failure	
7	During crane operations with the supply vessel a 1 tonne container was knocked over on the vessel deck due to sudden vessel movement. During operations to regain control the vessel then moved close to the riser access tower. Wind speed - 27 knots. Direction - 144 degrees. Wave height - 3 metres. Visibility - fine and clear.	Manoeuvring Misjudgement	
8	Engine failure of one engine on stand by vessel. Weather conditions 7-8 metres seas 45 knot winds. Vessel unable to carry out stand by duties and had to hold station.	Engine Failure	
9	Beam trawler entered 500 metres safety zone while fishing.	Post/Operation Neglected	
10	Vessel 6 nautical miles away. Coastguard alerted. Helicopter available for precautionary downmanning. Supply vessel in field prepared to take undertow.	-	
11	Standby vessel contacted installation control room and informed them that a trawler had no engine power and was drifting toward installation and current position was 2 miles from north east side of installation. Wind 145 degrees, 25/30 knots, 2/3 metre seas, visibility poor in mist, down to 200 metres in places, cloud cover 8 oktas. Another fishing vessel was on location but unable to offer any assistance. Installation OIM was called out and platform emergency procedures for collision activated. Stand by vessel launched it's FRC and the crew transferred a headline from accompanying vessel to the drifting vessel so that a 3" wire tow line could be connected between the vessels. Accompanying vessel took up slack on wire tow rope and vessel was towed past on installation's north face at 750 metres.	Engine Failure	
12	Incident occurred during normal crude oil export transfer operations between the FSU and shuttle tanker. Shuttle tanker suffered loss of propeller pitch control, the propeller failing to zero pitch with the resultant loss of thrust. Shuttle tanker later re-established pitch control and initiated a pump shutdown by breaking the telemetry link.	Thruster Control Failure	

Consec. No.	'Near Miss'	Information Source	Date (dd/mm/yr)	Time	Year	Month	Location	Installation Type	Vessel Type	Sea Condition
13	No	HSE	03/01/99	15:58	1999	January	Northern	Fixed Steel	Stand By	-
14	No	HSE	29/04/99	05:30	1999	April	Central	Fixed Steel	Diver Support	-
15	Yes	HSE	16/05/99	06:40	1999	May	Southern	Fixed Steel	Tanker	-
16	Yes	HSE	25/06/99	20:32	1999	June	Central	Fixed Steel	Supply	-
17	No	HSE	18/08/99	19:14	1999	August	Central	Floating Production	Supply	-
18	No	HSE	27/08/99	03:30	1999	August	Southern	Fixed Steel	Diver Support	-
19	Yes	HSE	02/09/99	01:50	1999	September	Southern	Fixed Steel	-	-
20	No	HSE	17/09/99	21:20	1999	September	West of Shetlands	Floating Production, Storage & Offloading	Tanker	2.6
21	Yes	HSE	26/10/99	14:00	1999	October	Morecambe Bay	Jack-Up	Fishing	-

Consec. No.	Operating Circumstances	Primary Cause	Other Source Confirms
13	Installation's standby vessel was observed from the platform not displaying any navigational lights. The platform was advised that the standby vessel had lost all power and was drifting towards the platform. The OIM initiated emergency procedures onboard the platform and notified HM Coastguard. A nearby installation's standby vessel transferred to the scene and attended the drifting vessel. Vessel drifted north of the installation and later reported that all power and main engines had been restored. Drifting vessel reported that the loss of power was due to a generator tripping causing all load to be transferred to another generator which then shutdown due to overload causing total loss of electrical and consequential loss of main engines.	Total Power Loss	
14	Whilst moving the vessel from the southern side to the eastern side of the platform there was a failure of the ship's starboard 'taut wire boom' causing the vessel to swing starboard. At the time the vessel was engaged in ROV work at platform.	D.P. Control Failure	
15	Oil tanker was on a collision course with installation. All radio calls went unheeded and 10 persons evacuated from the installation. When the tanker changed course distance from installation was half a mile.	Post/Operation Neglected	
16	Standby vessel reported that a supply vessel was heading towards the platform on a possible collision course and they had been unable to contact the vessel. Platform GPA and muster initiated and emergency response plan implemented. Contact was established approx 20 minutes before the closest point of approach and the vessel altered course.	Post/Operation Neglected	
17	Supply vessel was working cargo at an installation when an alarm sounded on the bridge. Control of the vessel's port main engine (PME) was lost and vessel's Master took manual control of the vessel and communicated with the Chief Engineer. A further alarm on the joystick desk indicating a thruster failure and the Master made the decision to pull clear of the installation. The platform deck crew was warned by the vessel to stand clear of the potable water hose that subsequently parted. The vessel cleared the installation to outside the 500 metres zone to effect repairs.	Engine Control Failure	
18	ROV support vessel was using platform as way mark on auto pilot. Auto pilot not switched off until vessel 10 to 60 metres from installation.	Post/Operation Neglected	
19	Having failed to make contact with an approaching vessel, the standby vessel launched the their fast rescue boat. The FRC came alongside the approaching vessel.	Post/Operation Neglected	Appendix E (see Consec. No. 45)
20	After an oil export the shuttle tanker and FPSO assumed fixed headings close to their weather vaning headings and began disconnection operation. During disconnection the ESD2 automatic disconnect facility was inhibited while crew reconnected messenger lines and paid these out. During recovery of oil export hose FPSO experienced reduction in electrical power availability; thrusters automatically tripped and power to oil export hose reel reduced increasing time taken to recover hose. Whilst hawser and messengers were being recovered, FPSO heading changed rapidly: 55 degrees in about 2 minutes. Shuttle tanker Master took manual control of tanker and manoeuvred it, using minimum power, to safe position ending disconnect operation with ship stopped 10 - 30 metres away from FPSO at 90 degrees difference in heading. Wind SE, force 3-4. Slight/mod sea state. Sea/swell Ht sig 2.6 metres, max 4.6 metres, period 8 secs. Swell predom westerly.	Power Failure	
21	Fishing boat infringed the installation's safety zone when it came as close as 40 metres from the SW corner of the installation. Installation was evacuated but the vessel could not be raised on the radio by the standby vessel.	Post/Operation Neglected	

Consec. No.	'Near Miss'	Information Source	Date (dd/mm/yr)	Time	Year	Month	Location	Installation Type	Vessel Type	Sea Condition
22	No	HSE	28/11/99	17:52	1999	November	Northern	Floating Production, Storage & Offloading	Tanker	-
23	Yes	HSE	04/01/00	15:00	2000	January	Southern	Fixed Steel	Barge	-
24	Yes	HSE	09/01/00	22:00	2000	January	Southern	Fixed Steel	-	-
25	No	HSE	23/06/00	10:05	2000	June	Central	Fixed Steel	Research	-
26	Yes	HSE	05/09/00	10:45	2000	September	-	-	Barge	-
27	Yes	HSE	15/07/01	11:55	2001	July	Southern	Fixed Steel	-	-
28	Yes	HSE	15/10/01	08:50	2001	October	-	Semi-Submersible Drilling	Fishing	-

Consec. No.	Operating Circumstances	Primary Cause	Other Source Confirms
22	Shuttle tanker was making its approach in preparation for cargo offloading. At a distance of approximately 200 metres shuttle tanker experienced failure of main propeller pitch control. This initiated a sequence of events which resulted in a 100% ahead pitch demand from the DP system. The vessel started to move ahead and manual control was selected. The vessel was steered to starboard and arrested 120 metres from the FPSO's stern at approximately 90 degrees.	D.P. Computer Failure	
23	A large object was sighted on a potential collision course with platform. Investigation found object to be an RAF target pontoon 19m x 4m x 2.5m (20 tonnes). Pontoon taken in tow by standby vessel until salvage vessel took control.	Post/Operation Neglected	
24	Drilling rig was moving from the NW bell location to the standoff location. When it became free at the NW bell location, it unexpectedly moved towards the wellhead. The footprint of the jack-up port leg overlapped the footprint of the protection frame on the wellhead. Well and pipeline were shut in and depressurised.	-	
25	Research vessel suffered a loss of steering whilst inside the platform 500 metres zone. The vessel pulled away under reverse power and using remote steering. Closest approach to the platform was 150 metres.	Steering Failure	
26	An 800 feet dumb barge being towed by two tugs came into contact with the dive station and detached it from its moorings while a diver was operating inside cell 1 attached to the dive station by an umbilical line. The diver was not injured but was immediately removed from the water and diving operations suspended.	-	
27	Flotel was at the stand off position and was also retrieving two of the last four anchors. An unexpected squall came through the area from a direction of 200 degrees causing the flotel to pivot in a direction towards the installation. With the backup resources at hand, e.g. the vessel's propulsion and the four anchor handling vessels, the flotel was brought back under full control in a timely manner. The air gap between the flotel and the installation was reduced. During this situation the installation's OIM was informed and they decided to go into alert and shutdown their platform.	Weather Conditions	
28	Standby vessel reported unidentified vessel approaching the rig. speed 6-8 knots, CPA 0.2 nautical miles. Weather was thick fog with south easterly x 30 knot wind. Rig was moored to 8 anchors and drilling 12 1/4" hole with water based mud. Unidentified vessel had passed within 0.5 nautical miles of nearby installation and her standby vessel had been unable to raise vessel on VHF or see it for identification. Standby vessel tried unsuccessfully to contact on VHF. Drilling operations were suspended and anchor winches all clutched out in preparation to move off location. Aberdeen Coastguard informed that approaching vessel was 1.8 nautical miles from the rig CPA 0.12 nautical miles. OIM instructed standby vessel to fire flares across approaching vessel's bow to warn vessel. Abandon rig alarm sounded. Muster at aft boats. Men positioned port fwd. column with flares. Radio contact established and all hands stood down.	Post/Operation Neglected	Appendix F (see Consec. No. 198)

Appendix E

Safety Zone Infringement List

Consec. No.	Date	Time	Wind Speed	Wind Direction	Sea Height	Sea Condition	Tide Rate	Tide Direction	Weather	Visibility	Nautical Twilight	Vessel Course	Vessel Speed	CPA	How Measured	Intruder Type
1	29/12/95	0817	12	230	0.9	Calm	0.4	227	Partly Cloudy	>10	17:08	120	2.3	390m	Radar	Fishing
2	16/01/96	2320	14-16	180	1.5	Calm	-	-	Rain/Mist Patches	2-3	16:00	160	-	50m	Visual	Fishing
3	08/02/96	0000	5	065	1.5-2	Moderate	1.5	164	Overcast	3-4	07:22	335	11.0	370m	Radar	Fishing
4	21/03/96	0845	15	090	3.0	Moderate	1.7	161	Overcast/Drizzle	0.5	06:00	Stationary	0.0	410m	Radar	Fishing
5	31/03/96	1501	15	315	1.5	Moderate	1.5	153	-	8	-	330	0.5	370m	Radar	Fishing
6	13/04/96	1900	10-15	090	1.0	Slight	1.1	337	Clear	6-8	-	325	10.0	185m	Radar	General Cargo
7	25/04/96	2055	26	253	2.5-3	Moderate	-	-	Clear	8	-	Stationary	0.0	0	Radar	Fishing
8	30/04/96	1725	Lt Airs	Variable	1.0	Calm	1.1	139	Overcast/Hazy	3-4	18:52	135	8.0	40m	Visual	Fishing
9	27/05/96	1630	16	330	1.7-2.5	Moderate	-	-	Partly Cloudy	>20	-	170	6.0	0	Radar	Fishing
10	04/08/96	1425	12	195	<1	Calm	-	-	Fine	>12	-	135	-	300m	Radar	Fishing
11	27/08/96	2144	-	-	-	-	-	-	-	-	-	Stationary	0.0	400m	Radar	Fishing
12	23/09/96	1100	25	180	1.0	Calm	-	-	Clear	10	-	Stationary	0.0	0	Radar	Fishing
13	25/09/96	0706	15	168	1.0	Moderate	0.2	147	Clear/Moderate	3	Full Daylight	145	11.0	450m	Radar	Fishing
14	20/11/96	1025	30	000	3-4	Moderate	0.3	285	Overcast/Snow Showers	8	Daylight	012	3.0	475m	Radar	Fishing
15	21/11/96	1615	8-10	320	1.0	Moderate	-	-	Clear	10	-	020	3.0	0	Radar	Fishing
16	20/12/96	0930	15-18	120	2.0	Moderate	0.5	190	Partly Cloudy/Clear	8-10	-	150	8.0	250m	Visual	Fishing
17	26/12/96	1005	10	170	1.0	Calm	0.5	167	Partly Cloudy	>10	-	Stationary	0.0	100m	Visual	Derrick Barge
18	06/03/97	1949	39	186	3.5	Moderate	-	-	Partly Cloudy	10	-	020	2.0	100m	Visual	Stand By
19	10/03/97	0615	25	190	3-4	Moderate	2.0	010	Cloudy/Drizzle	5-6	06:00	Stationary	0.0	0	Visual	Fishing
20	25/03/97	2050	20	240	2.0	Moderate	1.4	097	Cloudy	12	-	184	8.5	600m	Radar	General Cargo
21	30/04/97	1000	13	213	0.5	Calm	0.3	000	Fine/Clear	>10	-	290	11.0	450m	Radar	Fishing
22	08/05/97	1655	13	270	1.0	Moderate	0.9	273	Cloudy/Fine/Clear	12	-	Stationary	0.0	740m	Radar	Sail Training

Consec. No.	Date	Time	Wind Speed	Wind Direction	Sea Height	Sea Condition	Tide Rate	Tide Direction	Weather	Visibility	Nautical Twilight	Vessel Course	Vessel Speed	CPA	How Measured	Intruder Type
23	14/06/97	0630	Lt Airs	Variable	2.3	Calm	-	-	Mist/Fog Patches	0.6-0.8	-	Various	Various	500m	-	Fishing
24	26/07/97	0625	14	200	1.5	Slight	1.0	270	Cloudy/Fine	>12	02:29	000	1.0	170m	Radar	Fishing
25	25/08/97	1406	2	270	0.1	Slight	1.2	096	Cloudy/Fine/Clear	>10	-	Stationary	0.0	500m	Radar	Fishing
26	05/09/97	1150	20	235	1.5	Moderate	0.2	040	Cloudy	>10	04:32	245	1.0	30m	Visual	Fishing
27	11/09/97	1337	20	270	3.0	Confused	0.2	052	Cloudy	8	-	009	3.5	425m	Radar	Fishing
28	21/10/97	0838	15-20	068	2.0	Moderate	1.3	329	Scattered Cloud	>10	17:30	150	10.0	100m	Visual	Fishing
29	23/10/97	1202	15	010	1.5	Moderate	1.0	127	Cloudy	10	18:02	122	11.4	277m	Radar	Fishing
30	23/10/97	1327	15	300	1.5	Calm	1.5	146	Partly Cloudy	>10	18:15	125	5.0	310m	Radar	Fishing
31	23/11/97	0010	7-10	113	1.0	Moderate	0.8	128	Clear	10	16:30	Various	-	100m	Radar	Fishing
32	17/03/98	0800	18	248	2.0	Low	0.4	002	Light Cloud/Clear	>10	04:43	Stationary	0.0	0	Radar	Fishing
33	24/03/98	1915	15-20	240	4.5-5	Moderate	1.0	160	Overcast/Fine	10-12	19:15	270	9.0	0	Radar	Fishing
34	04/04/98	0725	16	120	1-1.5	Moderate	1.1	273	Rain/Drizzle	4	04:03	008	-	320m	Radar	Fishing
35	19/06/98	0230	22	270	3.5	Moderate	0.3	052	Clear	>10	-	090	0.8	350m	Radar	Fishing
36	23/08/98	1320	9	010	2.5	Good	0.3	190	Rain Showers	>10	-	Stationary	0.0	0	Radar	Fishing
37	11/12/98	1415	18	168	2.0	Good	0.1	027	Overcast/Rain Showers	8	-	Stationary	0.0	0	Radar	Fishing
38	25/01/99	2215	40	250	4.0	Rough	0.5	308	Cloudy	8	14:50	090	10.0	30m	Radar	Supply
39	18/02/99	1550	12-15	270	1.5	Moderate	1.5	182	Cloud	-	18:07	255	13.6	435m	Radar	General Cargo
40	18/02/99	1605	12-15	270	1.5	Moderate	1.5	182	Cloud	-	18:07	255	13.6	370m	Radar	General Cargo
41	17/05/99	1900	10	110	1.0	Calm	0.7	000	Fine/Clear	10	-	070	9.5	200m	Radar	Fishing
42	19/06/99	0630	15	250	1.5	Slight	0.0	000	Fine/Clear	>10	-	Stationary	0.0	0	Visual	Fishing
43	16/07/99	0440	6	230	1.0	Moderate	0.6	310	Cloudy/Overcast/Dull	10	-	115	6.5	400m	Radar	-
44	06/08/99	0915	11	035	1.5	Calm	-	-	Scattered Clouds	10	08:50	306	10.0	400m	Radar	Diver Support

Consec. No.	Date	Time	Wind Speed	Wind Direction	Sea Height	Sea Condition	Tide Rate	Tide Direction	Weather	Visibility	Nautical Twilight	Vessel Course	Vessel Speed	CPA	How Measured	Intruder Type
45	02/09/99	0150	8	240	0.5	Slight	1.9	000	Clear	6	05:28	065	9.2	50m	Visual	Fishing
46	06/09/99	2017	Lt. Airs	Variable	Slight	Calm	1.1	352	Poor Visibility	4-5	04:37	236	9.0	185m	Radar	Fishing
47	13/09/99	1951	5	Variable	1.0	Slight	0.7	000	Cloudy/Fine/Clear	10	19:00	036	8.2	211m	Radar	Fishing
48	05/10/99	1815	12	340	2.0	-	0.2	116	Few Clouds/Dry/Clear	20	-	Stationary	0.0	182m	Radar	Fishing
49	06/10/99	1343	10	200	1.0	Calm	0.5	040	Cloud	>12	18:13	150	5.0	0	Radar	Fishing
50	18/10/99	0730	10	060	1.5	Slight	0.2	250	Partly Cloudy	10	-	-	4.5	481m	Radar	Fishing
51	27/10/99	2313	28-30	200	2.5	Rough	1.9	000	Clear	6-8	-	100	10.7	450m	Radar	Bulk Carrier
52	13/11/99	1210	13	-	0.5	Moderate	1.0	171	Cloudy	6	17:28	350	4.0	300m	Radar	Fishing
53	29/01/00	1637	55-60	270	10.0	Mountainous	0.2	150	Overcast/Showers	1.5	17:53	135	-	460m	Radar	Tanker
54	04/02/00	0530	-	248	4-5	-	-	-	Drizzle	2-3	-	-	-	0	-	-
55	24/02/00	0625	24	283	2.1	Moderate	-	-	Partly Cloudy	12	06:30	Stationary	0.0	400m	Visual	Diver Support

Appendix F

ERRVA Warning Off Reports

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
1	17/04/01	09:15	15	292	1	292	2.5	292	General cargo	Aalborg	6	280	Northern	109	14.3	0.5	6	-
2	20/04/01	16:25	7	000	1	000	1.5	000	Fishing	Bremnerhaven	-	-	Northern	110	13.4	1.5	8	-
3	21/04/01	22:00	30	180	1	180	2	180	Fishing	Fishing Grounds	6	344	Northern	164	7.4	0.1	6	-
4	22/04/01	20:00	22	157	1	157	1.5	157	Fishing	Fishing Grounds	-	-	Northern	340	2.2	0.5	4	-
5	23/04/01	22:00	10	112	0.5	112	1	158	Fishing	Fishing Grounds	-	-	Northern	340	2.2	-	4	-
6	13/05/01	15:00	10	022	1.5	000	1	000	General cargo	Unknown	8	090	Northern	271	10.7	0.48	6	-
7	16/05/01	08:30	10	270	0.5	338	0.5	315	Unknown	Ireland	6	090	Northern	273	10.4	1	6	-
8	27/05/01	10:00	10	200	1	200	1	200	Specialised carrier	Denmark	-	-	Northern	106	13	1	8	-
9	27/05/01	11:30	10	225	1	000	0.5	000	General cargo	-	-	-	Northern	095	13	1	6	-
10	28/05/01	04:00	20	225	0.5	225	0.5	225	Fishing	Fishing Grounds	-	-	Northern	038	8	0.2	6	-
11	28/05/01	21:45	15	202	1	202	1	202	Fishing	Claymore	-	-	Northern	047	7	0.5	6	-
12	29/05/01	08:00	27	247	3.5	225	4	225	General cargo	-	6	270	Northern	088	8.5	0.8	6	-
13	29/05/01	12:20	20	315	3	270	-	-	General cargo	Aberdeen	-	-	Northern	220	8.3	0.3	8	-
14	29/05/01	22:30	17	280	1	280	1	280	Fishing	Claymore	-	-	Northern	010	8	0.5	6	-
15	01/06/01	16:00	22	225	1	225	1.5	225	Offshore supply	Frigg Field	-	-	Northern	037	12.8	0.5	7.5	-
16	02/06/01	07:45	35	315	1.5	315	2.5	315	Fishing	Faroes	-	-	Northern	318	8	0.5	7	-
17	02/06/01	09:30	30	338	5	000	-	338	General cargo	Londonderry	-	-	Northern	288	5.5	0.3	6	-
18	02/06/01	13:00	30	340	4.5	340	4.5	340	Fishing	Fraserburgh	-	-	Northern	240	7.5	0	7	-
19	02/06/01	13:15	35	338	4	-	-	-	Stand By	Aberdeen	-	-	Northern	210	10.4	0.1	8	-
20	04/06/01	06:00	24	270	1	270	1.5	248	Fishing	Fishing Grounds	-	-	Northern	054	8.9	0.4	7	-
21	04/06/01	16:30	20	270	1	270	2	270	General cargo	-	-	-	Northern	272	7	0.2	6	-
22	05/06/01	18:15	2	999	0.5	270	0.5	270	Fishing	-	-	-	Northern	037	10.2	0.2	11	-
23	05/06/01	23:00	12	202	-	-	-	-	Unknown	-	-	-	Northern	271	10	0.25	6	-
24	05/06/01	-	14	230	1	230	0	-	General cargo	Denmark	-	-	Northern	088	8.6	0.1	12	-
25	06/06/01	00:50	10	270	0.5	270	1	270	General cargo	Pontland Firth	-	-	Northern	276	10	0.5	8	-
26	06/06/01	18:30	2	999	0.25	270	0.25	270	Fishing	-	-	-	Northern	221	9.4	0.2	7	-
27	08/06/01	15:15	20	315	1	315	2	315	General cargo	-	-	-	Northern	099	12	0.5	10	-
28	09/06/01	19:05	2	999	0	-	1	315	General cargo	Poland	-	-	Northern	110	12.4	0.2	10.2	-
29	10/06/01	17:00	2	999	0	-	1	315	General cargo	Talin	-	-	Northern	100	11.3	0.25	8	-
30	11/06/01	04:15	15	225	0.5	225	1	225	Tug	Tartan A	-	-	Northern	288	5.2	0.2	6	-
31	12/06/01	08:15	2	999	1	000	1	000	Fishing	Peterhead	-	-	Northern	219	9	0.5	6	-
32	14/06/01	18:35	2	999	0	-	1	315	Fishing	Fraserburgh	-	-	Northern	217	8.5	0.5	7	-

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
33	16/06/01	01:00	10	000	0.5	000	1	000	General cargo	Liverpool	-	-	Northern	275	11	0.3	10	-
34	18/06/01	06:00	24	338	1	338	2	000	Fishing	Fishing Grounds	-	-	Northern	032	9.1	0.2	6	-
35	19/06/01	19:30	30	169	1.5	169	2	169	Yacht	-	-	-	Northern	217	7.2	0.3	6	-
36	20/06/01	12:45	37	270	6	270	6	270	Fishing	Fishing Grounds	-	-	Northern	045	8	-	6	-
37	26/06/01	16:30	15	124	1	124	1	-	Fishing	-	-	-	Southern	303	5.8	0.15	8	-
38	30/06/01	02:30	16	203	2	-	-	-	Fishing	Fishing Grounds	5	270	Northern	090	3.5	0	6	-
39	01/07/01	01:00	10	315	1	-	-	-	Fishing	Fishing Grounds	5	280	Northern	100	4	0	6	-
40	02/07/01	05:00	10	999	1.5	-	-	-	Fishing	Fishing Grounds	5	255	Northern	075	7	0	6	-
41	03/07/01	10:30	5	999	0.5	270	0.5	270	Offshore supply	-	-	-	Liverpool Bay	270	15	1.5	5	-
42	03/07/01	10:45	14	135	1.5	135	-	-	General cargo	-	-	-	Southern	309	12.6	-	-	-
43	03/07/01	13:15	10	304	0.5	304	0.5	304	Yacht	-	3.5	025	Unknown	205	6	0	3.5	-
44	03/07/01	19:30	15	180	1.5	-	-	-	Fishing	Fishing Grounds	3	000	Northern	180	3	-	6	-
45	04/07/01	12:00	18	090	1.5	090	2	090	Fishing	Fishing Grounds	5.7	156	Unknown	357	6.5	0.72	5.7	-
46	05/07/01	00:00	10	202	1	-	-	-	General cargo	Lerwick	6	090	Northern	270	9	0	6	-
47	05/07/01	08:10	0	-	-	-	1	180	Yacht	Floro	3	135	Northern	045	5	0.3	4	-
48	06/07/01	01:20	0	-	-	-	-	-	Fishing	Fishing Grounds	6	270	Northern	000	3.6	0	6	-
49	06/07/01	07:05	10	090	1.5	135	0.5	135	General cargo	Newcastle	-	-	Northern	200	12	0.7	6	-
50	08/07/01	09:00	15	011	1.5	-	-	-	General cargo	-	8	270	Northern	095	9.6	0.6	8	-
51	08/07/01	10:30	25	236	2	236	2	236	Tanker	-	-	-	Liverpool Bay	321	9	0.25	2.5	-
52	08/07/01	-	16	045	3	-	-	-	Fishing	Fishing Grounds	-	-	Northern	-	3.5	0.5	-	-
53	09/07/01	20:35	10	203	1	180	1.5	180	Fishing	Fishing Grounds	-	-	Southern	305	6	0.4	5.2	-
54	10/07/01	22:25	15	180	1.5	180	-	-	Fishing	Grimsby	-	-	Southern	247	7.2	0	9	-
55	10/07/01	23:00	10	135	2	135	2	135	Yacht	Stavanger	-	-	Northern	077	5	0.5	4	-
56	11/07/01	-	20	202	3	202	2	202	Sail Training	Norway	7	185	Unknown	355	10	-	7	-
57	12/07/01	09:00	20	315	3	999	2	180	Fishing	Fishing Grounds	-	-	Northern	100	3	0.2	5	-
58	13/07/01	00:07	12	247	1.5	247	-	-	General cargo	Hull	-	-	Southern	242	8.5	0	12.55	-
59	13/07/01	07:00	18	338	2.5	338	2.5	338	Fishing	-	-	-	Northern	190	2.4	0.3	7	-
60	15/07/01	07:00	18	304	1.5	270	-	-	Yacht	-	7	135	Southern	315	5	0.25	7	-
61	15/07/01	-	5	999	0	-	2.5	-	Fishing	-	4	045	Northern	225	8	0	-	-
62	16/07/01	13:15	10	112	0.5	112	0.5	022	Fishing	Fishing Grounds	-	-	Northern	301	10	0.2	3	-
63	16/07/01	19:35	10	112	1	112	-	-	Container	-	3.5	235	Southern	055	15	0.2	3.5	-
64	19/07/01	06:00	27	000	3.5	000	3	000	Fishing	Fishing Grounds	2.9	097	Northern	190	3.4	1.2	-	-

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
65	19/07/01	06:00	27	000	3.5	000	3	000	Fishing	Fishing Grounds	-	-	Northern	025	3.2	1.3	-	-
66	19/07/01	08:40	15	326	2	326	2	326	General cargo	-	-	-	Southern	146	11.2	0.6	4	-
67	19/07/01	15:00	22	315	2	315	2	315	Yacht	-	1	135	Unknown	315	5	0	1	-
68	20/07/01	11:50	13	000	2	000	2	000	Fishing	-	-	-	Southern	078	8.9	0.36	5	-
69	24/07/01	00:15	9	135	0.5	135	0.5	135	General cargo	-	-	-	Southern	132	7.7	0.25	-	-
70	24/07/01	-	0	-	-	-	-	-	Yacht	Pleasure	-	-	Unknown	-	-	0.2	3.5	-
71	25/07/01	18:00	10	225	0.5	225	0.5	225	Fishing	-	-	-	Northern	040	9	0.4	7	-
72	26/07/01	10:06	12	202	1	202	1	202	Fishing	-	-	-	Southern	260	9.4	0.1	11.6	-
73	26/07/01	17:30	6	999	0.5	-	-	-	Fishing	UK	10	040	Unknown	220	8.5	0.2	10	-
74	26/07/01	18:30	-	-	-	-	-	-	Fishing	-	-	045	Unknown	225	8	0	12	-
75	26/07/01	19:20	3	999	-	-	1	315	Fishing	Fishing Grounds	-	-	Southern	130	6.3	0.3	6.9	-
76	27/07/01	17:30	2	022	-	-	-	-	Fishing	Fishing Grounds	-	-	Northern	195	8.3	0	8	-
77	28/07/01	17:20	5	135	0.5	135	-	-	General cargo	Blyth	5	136	Southern	316	9	0.2	5	-
78	29/07/01	12:15	5	225	0.5	225	0.5	225	General cargo	Hull	-	-	Southern	270	14.2	0.25	-	-
79	30/07/01	00:35	30	247	2	225	2	225	Fishing	-	-	-	Northern	035	10	0.4	6.5	-
80	30/07/01	11:15	22	236	4	236	-	-	Fishing	-	5	330	Northern	150	3.4	0.6	5	-
81	31/07/01	00:10	14	270	1.5	270	0.5	270	Fishing	Fishing Grounds	-	-	Northern	109	2.4	0.5	5	-
82	31/07/01	04:50	14	247	1.5	270	-	270	Fishing	-	-	-	Northern	040	9	0.5	7	-
83	31/07/01	05:30	12	247	1.5	270	-	270	Fishing	-	-	-	Northern	032	9	0.5	8	No reply to VHF.
84	31/07/01	10:15	20	315	2.5	304	-	-	Fishing	Buolgre	6.5	003	Northern	179	13.4	0.8	6.5	-
85	01/08/01	19:30	16	202	1.5	202	-	-	General cargo	-	3	320	Southern	140	9	0.2	3	-
86	02/08/01	02:30	15	180	1	180	1	180	Yacht	West Sole	-	-	Southern	086	6	-	4	-
87	03/08/01	00:25	6	000	0	-	0.5	000	Fishing	Grimsby	-	-	Southern	244	8.8	0.15	1.5	-
88	04/08/01	00:01	15	270	3.5	315	-	-	Fishing	Fishing Grounds	7	260	Northern	075	10.3	0.75	7	-
89	04/08/01	22:15	10	270	0.2	270	0.5	270	Offshore supply	Nelson Field	-	-	Northern	326	13.9	1.2	10.2	-
90	06/08/01	22:45	8	236	-	-	-	-	Fishing	-	-	-	Northern	160	3	1	5.2	-
91	07/08/01	23:20	20	247	2	247	1.5	247	Fishing	Fishing Grounds	-	-	Southern	304	12.4	0.9	12	-
92	07/08/01	-	15	090	2.5	135	-	-	Fishing	Fishing Grounds	-	-	Northern	300	2.5	0.28	-	-
93	07/08/01	-	8	045	-	-	-	-	Fishing	-	-	-	Northern	180	2.2	0.25	5	-
94	08/08/01	06:45	25	247	2.5	247	2	247	Yacht	-	-	-	Northern	030	5	0.1	5	-
95	08/08/01	08:10	26	045	2	045	2	045	Fishing	-	-	-	Northern	220	2.2	0.7	4.8	-
96	08/08/01	13:20	27	270	3.5	236	3	236	Offshore supply	Imuiden	-	-	Southern	124	9.4	1	8	-

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
97	09/08/01	01:07	15	292	2	292	1.5	292	Fishing	Fishing Grounds	-	-	Southern	071	7.6	0.49	7	-
98	09/08/01	02:30	12	338	2	338	1.5	338	General cargo	Immingham	-	-	Southern	240	14.5	1.29	10	-
99	09/08/01	06:30	15	326	2	326	2	326	Sail Training	Hull	-	-	Southern	229	2.4	0.4	-	-
100	09/08/01	-	15	326	2	326	2	326	Fishing	Fishing Grounds	-	-	Southern	284	7.1	0.4	-	-
101	11/08/01	00:15	10	202	1	202	1.5	202	General cargo	-	6	141	Southern	325	11.8	0.4	-	-
102	11/08/01	00:35	10	202	1	202	1.5	202	Yacht	Hull	-	-	Southern	272	4.4	0.5	-	-
103	11/08/01	-	10	999	1	000	-	-	Fishing	Fishing Grounds	-	-	Northern	350	8.5	0.25	-	-
104	11/08/01	-	10	225	1	270	1	270	Yacht	-	-	-	Northern	155	2.5	0.5	4	No reply to VHF.
105	13/08/01	20:10	18	225	2.5	225	-	-	Fishing	Manstholm	8	300	Northern	118	10.3	0.25	10	-
106	15/08/01	-	10	180	0.5	180	-	-	Fishing	Fraserburgh	6	045	Northern	210	9	0.5	6	-
107	16/08/01	07:06	5	999	1	135	1.5	090	Fishing	-	-	-	Northern	345	12.6	1	9	-
108	16/08/01	08:10	20	202	1.5	225	1.5	225	Fishing	Fishing Grounds	3.2	225	Unknown	999	999	-	-	-
109	17/08/01	02:45	12	214	1	214	1	214	Fishing	-	-	-	Southern	300	7.7	0.5	6	-
110	17/08/01	19:55	5	225	0.5	225	0.5	225	Fishing	Fishing Grounds	-	-	Southern	014	11	1	5	-
111	18/08/01	03:10	15	202	1.5	202	1.5	202	Tanker	Teuey	-	-	Northern	186	11.5	2	11.5	-
112	18/08/01	11:00	14	214	1.5	214	2	214	Fishery Protection	-	-	-	Northern	181	10	1	10	-
113	18/08/01	13:15	5	214	0.5	214	0.5	214	Fishing	Fishing Grounds	-	-	Northern	190	2.5	0.3	4	-
114	18/08/01	18:00	15	112	2	112	1.5	112	General cargo	Awaiting Orders	-	-	Southern	145	8.5	0.27	8.2	-
115	19/08/01	09:35	30	112	5	112	5	112	Ro-Ro other cargo	Norway	-	-	Northern	057	15	0.5	11.4	-
116	19/08/01	11:22	8	135	2	135	1	135	General cargo	Immingham	-	-	Southern	254	13	0.99	-	-
117	19/08/01	19:30	20	225	2	180	2	180	General cargo	-	-	-	Southern	265	7.5	0.25	6.8	-
118	19/08/01	23:59	15	090	1.5	090	1.5	090	General cargo	-	-	-	Southern	268	8.5	0	8	-
119	20/08/01	22:30	15	214	1	214	0.5	214	Passenger	Humber	-	-	Southern	258	4.3	0.99	8.5	-
120	21/08/01	17:20	10	135	1	135	0.5	135	Research	-	-	-	Southern	357	13.5	0.77	7	-
121	21/08/01	-	20	146	1	999	1	135	Fishing	Fishing Grounds	-	-	Southern	010	5.3	0.4	-	-
122	21/08/01	-	12	180	1	180	1	180	Fishing	Fishing Grounds	-	-	Southern	254	8	0.25	-	-
123	22/08/01	07:50	8	999	-	214	0.5	214	Yacht	Dover	-	-	Southern	130	9	0.2	4.64	-
124	22/08/01	08:15	5	214	0.5	214	0.5	214	Tanker	Humber Anchorage	-	-	Southern	251	12.2	0.4	12	-
125	22/08/01	19:10	6	135	0	-	0.5	135	General cargo	Howden Dyke	-	-	Southern	255	11.5	0.25	16	-
126	23/08/01	05:20	8	135	1	180	1	180	General cargo	-	8	250	Northern	075	12.5	0.5	8	Fog.
127	23/08/01	08:30	12	135	1	135	0.5	135	General cargo	Humber	-	-	Southern	274	10	0.45	6.5	-
128	23/08/01	11:50	5	146	1	146	1	146	General cargo	-	-	-	Northern	108	10	1.25	0.7	Fog - VHF contact on 6th attempt.

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
129	24/08/01	01:00	9	180	1	180	0.5	180	General cargo	Holland	-	-	Southern	090	12	1.1	12	-
130	27/08/01	09:00	16	315	3	315	3	315	Yacht	-	-	-	Liverpool Bay	100	4.5	0.5	7	-
131	28/08/01	06:30	20	304	4	304	4	304	Offshore supply	Dushovik	-	-	Northern	060	12.7	0.4	9.4	-
132	28/08/01	-	2	247	1.5	315	-	-	General cargo	Inningham	6	080	Southern	272	9	0.67	6	Vessel altered course after being called by name. Very poor English.
133	29/08/01	20:00	-	-	-	-	-	-	General cargo	-	-	-	Liverpool Bay	-	-	-	8	-
134	29/08/01	21:15	15	146	1.5	146	1	146	General cargo	Bremen	-	-	Southern	080	10.6	1.3	16	-
135	30/08/01	12:00	4	999	0	-	0.3	214	General cargo	Antwerp	-	-	Southern	146	9.5	1.21	13	-
136	01/09/01	08:00	16	338	2	338	2.5	338	Fishing	Denmark	-	-	Northern	125	9.3	1	11.7	-
137	01/09/01	22:00	20	202	2.5	202	2.5	202	Fishing	Fishing Grounds	6	000	Unknown	180	3	0.5	6	-
138	02/09/01	09:45	17	270	2.5	270	2.5	270	Fishing	Fishing Grounds	-	-	Northern	345	7	0.2	3.2	-
139	05/09/01	08:30	12	338	2	315	-	-	General cargo	Continent	6	276	Southern	999	9.5	0.6	6.5	-
140	07/09/01	19:45	36	270	3	270	-	-	General cargo	Bilbao	-	-	Southern	148	11	1.9	8	-
141	07/09/01	21:30	23	338	2.5	338	3	338	Fishing	-	-	-	Northern	008	3.7	1	-	-
142	08/09/01	20:00	34	338	6	338	6	338	Offshore supply	P. B. Loyd Jr.	-	-	Northern	185	12	0.1	9.02	-
143	11/09/01	11:15	20	292	2	292	2	292	Fishing	-	-	-	Southern	090	1	1	8	No registration marks.
144	12/09/01	-	17	180	1	180	2	180	General cargo	-	-	-	Northern	117	12.5	2	10	-
145	14/09/01	08:20	18	326	2	326	2.5	326	Fishing	-	-	-	Northern	211	7	1.7	11	-
146	14/09/01	10:28	12	326	2	326	2.5	326	Offshore supply	P. B. Loyd Jr.	-	-	Northern	056	12.9	0.2	10.1	-
147	16/09/01	06:20	30	315	1	315	3	315	Bulk carrier	-	-	-	Southern	010	8.5	0.4	4	-
148	20/09/01	00:35	18	135	1	135	1	135	General cargo	-	-	-	Liverpool Bay	178	13	0.2	8	-
149	20/09/01	20:15	10	000	1	000	1	000	Tug	-	-	-	Liverpool Bay	060	5.5	0.5	9	-
150	20/09/01	22:30	10	000	1	000	1	000	General cargo	-	-	-	Liverpool Bay	005	9	0.25	7	-
151	22/09/01	10:00	8	000	0.5	000	1	-	Fishing	Belfast	-	-	Northern	269	10.7	0.25	9	-
152	23/09/01	09:10	15	000	2	000	1.5	000	General cargo	Warren Point	8	090	Northern	277	11.5	1.45	8	-
153	24/09/01	09:50	13	045	1.5	000	-	-	General cargo	Liverpool	6	090	Northern	276	11	0.65	6	-
154	25/09/01	09:30	15	135	1.5	135	2	135	General cargo	Gdansk	10	270	Northern	100	11.2	1.25	10	-
155	25/09/01	10:30	10	135	1	135	2	135	Container	Aalborg	9	270	Northern	096	12.6	1.7	9	-
156	26/09/01	08:15	10	090	1	090	1	090	Bulk carrier	Malborg	9	315	Northern	096	12	1.5	9.77	-
157	26/09/01	14:30	18	090	1.5	090	-	-	Offshore supply	Bergen	-	-	Northern	054	13.6	1	8	-
158	27/09/01	00:05	10	157	1.5	-	-	-	General cargo	-	-	-	Northern	080	11.6	1.8	7	-
159	27/09/01	01:00	10	157	1.5	-	-	-	Fishing	Fishing Grounds	-	-	Northern	073	8.5	1.8	8	-
160	30/09/01	04:15	15	202	1	202	0.5	202	Fishing	Grimsby	-	-	Southern	253	7.4	0.68	6	-

Consec. No.	Date	Time of First Detection	Wind Speed (knots)	Wind Direction	Sea Wave Height (m)	Sea Direction	Swell Height (m)	Swell Direction	Intruder Type	Intruder Destination	First Detection Range (miles)	First Detection Bearing	Sector	Estimated Course	Estimated Speed (knots)	CFA to Installation (miles)	Range (miles)	Remarks
161	30/09/01	13:09	25	180	2.5	180	2	180	Tanker	Tees	-	-	Southern	330	13.1	1.1	10	-
162	01/10/01	02:35	39	225	3	225	2.5	225	General cargo	-	-	-	Southern	333	9.7	1.3	6.5	-
163	03/10/01	04:10	27	225	3	225	2	225	General cargo	Sgaham	-	-	Southern	336	6.2	1.05	16	-
164	03/10/01	17:15	21	225	2.5	225	2	225	General cargo	Peterhead	-	-	Southern	315	7.1	1.01	4.1	-
165	03/10/01	23:20	25	225	2.5	225	2	225	Fishing	Fishing Grounds	-	-	Southern	068	8	1.25	14	-
166	04/10/01	01:15	25	236	2	236	1.5	236	General cargo	Elbe	-	-	Southern	072	9.7	1	12	-
167	04/10/01	12:54	18	236	1.5	236	1	236	Tanker	Thames	-	-	Southern	135	9	1.45	7	-
168	04/10/01	13:30	17	236	0.5	236	1.5	236	Fishing	Fishing Grounds	-	-	Southern	185	11.5	0.25	4	-
169	04/10/01	-	15	236	2	247	2	247	Fishing	-	-	-	Southern	170	13	0.25	6	-
170	05/10/01	05:00	20	180	2	180	1.5	180	Unknown	-	-	-	Southern	307	9.3	3	6	-
171	05/10/01	10:25	25	180	2.5	180	2	180	Tanker	-	-	-	Southern	141	7.8	0.75	11.5	-
172	05/10/01	16:15	25	203	2.5	225	2.5	225	General cargo	Ramsay I.O.M.	-	-	Liverpool Bay	283	9.8	0.23	6	-
173	05/10/01	16:34	18	157	1.5	157	1	157	General cargo	Grimsby	-	-	Southern	298	18.1	0.58	12	-
174	06/10/01	04:30	20	202	2.5	202	2	202	Tanker	Inningham	-	-	Southern	260	13	1.2	14	-
175	06/10/01	14:45	18	180	1.5	180	1	180	General cargo	Inningham	-	-	Southern	315	6.2	1.61	8	-
176	06/10/01	22:45	20	214	2	214	2.5	214	Tanker	Humber	-	-	Southern	270	13	0.2	6.6	-
177	07/10/01	03:10	28	180	0.5	180	1.5	180	General cargo	Grimsby	-	-	Southern	090	15	0.299	6	-
178	07/10/01	18:10	16	157	3	157	-	-	Fishing	Fishing Grounds	-	-	Northern	062	3	0.25	6	-
179	08/10/01	03:45	50	202	6	202	4.5	202	Container	Rotterdam	-	-	Southern	154	14.9	1.55	9	-
180	08/10/01	08:05	37	202	4	202	5	202	Fishing	-	-	-	Southern	310	12	0.2	4.5	-
181	08/10/01	16:45	25	202	3.5	202	3	202	Tanker	Antwerp	-	-	Northern	127	10.6	1.09	12	-
182	09/10/01	05:00	30	214	3	214	2.5	214	Offshore supply	-	-	-	Southern	314	11	0.75	10	-
183	09/10/01	17:45	27	270	2.5	270	2	270	General cargo	Antwerp	-	-	Southern	148	9.9	0.66	10	-
184	09/10/01	17:50	27	270	2.5	270	2	270	Drilling	Hoton	-	-	Southern	074	9.6	0.64	8.7	-
185	09/10/01	18:30	25	247	2.5	247	2.5	247	Offshore supply	Rotterdam	-	-	Southern	162	9	0.1	6	-
186	09/10/01	20:25	10	330	1.5	165	2.5	165	Offshore supply	P. B. Loyd Jr.	-	-	Northern	159	7.1	0.3	6.8	-
187	10/10/01	07:00	25	200	2.5	200	2.5	200	Offshore supply	P. B. Loyd Jr.	-	-	Northern	050	11	0.1	10	-
188	11/10/01	09:46	18	202	1	202	1	202	Container	-	-	-	Southern	253	12.5	0.1	7	-
189	11/10/01	10:10	20	180	2	180	1	180	Tanker	-	-	-	Southern	179	12.8	1.16	12	-
190	11/10/01	16:00	18	191	2	191	1.5	191	General cargo	Haltingen	-	-	Southern	095	13.5	0.99	12	Late reply to communications.
191	11/10/01	19:45	26	215	2.5	210	3	210	Fishing	-	-	-	Northern	191	3.8	0.1	7.02	-
192	12/10/01	01:30	35	214	4	202	4	202	General cargo	-	-	-	Liverpool Bay	318	9	0.2	8	-

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193	12/10/01	09:00	18	280	4	230	5	230	Bulk carrier	Denmark	-	-	Northern	123	12.5	1.3	11	-
194	12/10/01	10:40	15	180	1.5	180	1	180	Fishing	Grimsby	-	-	Southern	255	8.5	0.3	8	-
195	13/10/01	09:30	-	-	-	-	-	-	Offshore supply	P. B. Loyd Jr.	-	-	Northern	155	7.7	0.1	7.1	-
196	13/10/01	-	10	135	1	135	0.5	135	Tanker	Humber	-	-	Southern	265	10	0.55	10	-
197	14/10/01	09:30	15	190	1.5	210	1.5	210	Offshore supply	-	-	-	Northern	184	13.4	0.9	11.4	-
198	15/10/01	08:00	23	135	2.5	135	2.5	135	Fishing	Fishing Grounds	12	255	Northern	077	7.8	0.2	12	-
199	15/10/01	13:20	20	157	2	157	2	157	General cargo	Wisbech	-	-	Southern	243	9.3	0.18	5	-
200	15/10/01	17:00	24	157	4.5	157	3	157	Fishing	Fishing Grounds	-	-	Northern	999	2	1.9	4.5	-
201	15/10/01	-	20	191	2	191	2	191	General cargo	Humber	-	-	Southern	270	10	0.2	8	-
202	16/10/01	01:10	17	225	2	225	1.5	225	Fishing	Fishing Grounds	-	-	Southern	119	11	1.3	12	Late reply to communications.
203	16/10/01	09:25	18	214	1.5	214	0.5	214	Tanker	-	-	-	Southern	080	9.7	1.3	14	-
204	16/10/01	14:36	15	214	0.5	214	-	-	General cargo	-	-	-	Southern	014	13	0.1	8.5	-
205	16/10/01	15:00	12	230	2	230	2.5	230	Offshore supply	P. B. Loyd Jr.	-	-	Northern	158	7	0.1	6.96	-
206	16/10/01	19:00	18	165	2	165	2.5	170	Offshore supply	P. B. Loyd Jr.	-	-	Northern	152	11.3	0.2	6.76	-
207	17/10/01	16:20	18	124	1.5	157	-	-	Fishing	Fishing Grounds	-	-	Northern	999	2.4	0.6	-	-
208	18/10/01	14:06	28	130	3	120	4	120	General cargo	-	-	-	Northern	290	10	2	-	-
209	18/10/01	16:20	10	203	1.5	090	1.5	090	Fishing	France	-	-	Southern	152	14	0.77	10	-
210	19/10/01	21:00	22	112	3.5	112	3	112	Fishing	Fishing Grounds	-	-	Northern	025	2.6	0.25	-	-
211	20/10/01	08:35	14	135	1.5	135	1.5	135	General cargo	Cuxhaven	-	-	Southern	092	7.3	-	4	-
212	20/10/01	06:00	21	135	2	090	1.5	090	General cargo	Tyne	-	-	Southern	333	8.1	0.6	16	-
213	20/10/01	19:47	17	135	2	090	1.5	090	Tanker	Inningham	-	-	Southern	304	11	1.7	12	-
214	21/10/01	14:30	15	045	1.5	090	1.5	090	Container	Bremen	-	-	Southern	102	7.7	1.24	10	-
215	22/10/01	01:30	18	022	1	022	1	022	Fishing	Fishing Grounds	-	-	Southern	080	7	1.3	3	-
216	22/10/01	08:00	12	330	1.5	-	-	-	Fishing	Fishing Grounds	0.6	350	Southern	174	7.4	0.276	8	-
217	22/10/01	08:15	8	140	1.5	120	2	120	Offshore supply	P. B. Loyd Jr.	-	-	Northern	046	11.5	0.6	10.7	-
218	24/10/01	01:15	20	225	2.5	225	-	-	General cargo	-	-	-	Southern	278	10.6	0.2	7	-
219	24/10/01	22:10	20	170	3	140	3.5	140	Offshore supply	P. B. Loyd Jr.	-	-	Northern	007	12.3	2.3	11.1	-
220	24/10/01	23:38	20	170	3	140	3.5	140	Offshore supply	P. B. Loyd Jr.	-	-	Northern	140	11.8	1.7	7.17	-
221	27/10/01	11:00	30	220	3	220	3.5	220	Offshore supply	P. B. Loyd Jr.	-	-	Northern	049	13.6	0.3	10.8	-
222	27/10/01	14:10	20	191	2	191	-	-	General cargo	Felktoewe	-	-	Southern	215	11.2	0.3	5	-
223	03/11/01	10:15	-	012	-	002	-	-	Fishing	-	-	-	Liverpool Bay	348	5.5	0.9	6	Would have passed inside 500 metres zone.
224	13/11/01	08:30	-	-	-	-	5	360	Fishing	Fishing Grounds	-	-	Northern	350	3	0.1	1.5	-

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225	22/11/01	09:25	30	300	3	300	3	300	Fishing	Fishing Grounds	-	-	Liverpool Bay	353	8.5	0.2	3.5	Vessel altered course and passed 0.5 mile west of platform without problem.
226	24/11/01	18:40	14	220	1.5	270	1	270	Offshore supply	Indefatigable 23C	-	-	Southern	127	10	0.5	-	-
227	28/11/01	05:37	20	270	4	270	3	270	Fishing	-	-	-	Northern	188	11	0.1	8	-
228	28/11/01	05:57	27	260	3	260	2.5	260	General cargo	Germany	-	-	Southern	090	11.5	1.05	14.1	-
229	29/11/01	06:00	25	220	2.5	220	2	220	Fishing	Fishing Grounds	-	-	Southern	058	8	0.95	6.75	-
230	29/11/01	13:10	12	220	2	220	2	220	Fishing	Grimsby	-	-	Southern	261	8	0.44	0.45	-
231	29/11/01	15:00	20	240	2	220	-	-	General cargo	Ipswich	-	-	Unknown	206	8.3	0.3	8	-
232	30/11/01	07:10	14	160	1	160	0.5	160	Fishing	France	-	-	Southern	141	9.2	0.82	8	Vessel was called several times with no response. FRC crew stood by but did not launch. Vessel eventually answered to calls on VHF Ch. 16.
233	30/11/01	09:25	15	190	1.5	190	0.5	190	General cargo	-	-	-	Southern	072	14.8	0.96	10	Vessel altered course as contacted.
234	30/11/01	16:00	16	190	1.5	190	1	190	General cargo	Hull	-	-	Southern	260	9.4	0.74	11	-
235	02/12/01	11:00	-	-	-	-	-	-	Fishing	Fishing Grounds	-	-	Southern	058	8	1.01	10	-
236	02/12/01	17:30	10	090	1	330	1	330	Offshore supply	Great Yarmouth	-	-	Southern	142	12	0	7	-
237	04/12/01	02:05	30	180	2.5	180	2.5	180	Dredger	Humber	-	-	Southern	280	11	1	5	-
238	09/12/01	02:30	17	200	2	200	2	200	Fishing	Fishing Grounds	6	100	Unknown	999	6.5	0.75	6	Advised to give 1 mile clearance when fishing and readily agreed.
239	12/12/01	20:00	8	190	2	230	2.5	230	Offshore supply	Harding	-	-	Northern	011	10.2	2	9.21	-
240	12/12/01	23:10	18	050	2	045	2	045	Unknown	-	-	-	Southern	192	11	-	12	-
241	15/12/01	01:10	12	090	1	090	-	-	General cargo	-	-	-	Southern	190	12	0.3	12	-
242	19/12/01	00:05	35	300	4	300	4	300	Fishing	Fishing Grounds	2	045	Unknown	190	8	0.5	6	Advised to give 1 mile clearance from rigs when fishing.
243	19/12/01	22:35	35	020	4	020	2	020	Bulk carrier	Brazil	-	-	Southern	090	12.8	0.62	14	-
244	06/01/02	08:15	16	120	-	-	0.5	-	Fishing	-	-	-	Liverpool Bay	000	7	0.4	3.5	This situation was in dense fog.
245	-	04:30	32	155	4.5	160	3	160	Fishing	-	-	-	Northern	-	-	-	6	This vessel was not an intruder. Will stay clear of 500 metres. Knows the area.
246	-	-	20	250	2	250	1.5	250	General cargo	-	-	-	Liverpool Bay	360	4.5	0.2	4	Radar contact was lost at 6 miles.



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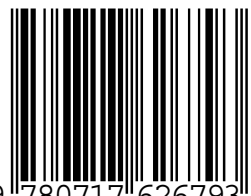
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