Report on the investigation of

the collision between

the offshore supply vessel

Highland Pioneer

and the *DA* jack-up rig

of the *Douglas* offshore installation

in Liverpool Bay

on 27 January 2000

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Extract from

The Merchant Shipping

(Accident Reporting and Investigation)

Regulations 1999

The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the cause with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ARPA	Automatic radar plotting aid
C	Celsius
CPA	Closest point of approach
DSC	Digital selective calling
ETA	Estimated time of arrival
FRC	Fast rescue craft
GPS	Global positioning system
HRL	Hydrocarbon Resources Limited
IMO	International Maritime Organization
ISM	International Safety Management
m	metre
mb	millibar
MSN	Merchant Shipping Notice
OIM	Offshore installation manager
OSI	Oil storage installation
REWS	Radar early warning station
RNLI	Royal National Lifeboat Institution
Ro-Ro	Roll-on Roll-off
RTMG	Radar Traffic Management Guidelines
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
UKOOA	United Kingdom Offshore Operators Association
UTC	Universal co-ordinated time
VHF	Very high frequency

SYNOPSIS

At about 0623 (UTC) on 27 January 2000, the United Kingdom registered offshore supply vessel *Highland Pioneer*, collided with the *DA* jack-up rig section of the *Douglas* offshore installation, which is situated in Liverpool Bay. Liverpool Coastguard informed the MAIB of the accident at 0907 that day. Captain P Kavanagh carried out the investigation.

At 0255, *Highland Pioneer* left her base in Heysham for the *Douglas* installation. At 0400 the vessel passed Lune Deep buoy and made a direct course for the installation. The chief officer set the propeller pitch controls at 85% to give a speed of about 12 knots. At 0547, he called the *Douglas* control room to tell them that the vessel's ETA was 0620. He was informed that cargo work would start at 0700.

At 0600, the master took over the navigational watch from the chief officer. At that time the vessel was about 4 miles away from the installation, and she was ahead of time. The master thought that he had reduced the vessel's speed, by placing the propeller pitch controls to 60% to give about 8 knots. However, other evidence proved that the vessel's speed was not reduced. The lookout went below to call one of the two second officers and an able seaman, and to prepare for cargo work at the installation. The master busied himself on the bridge, and began to make tidal stream computations at the chart table. From this position he had full view of the radar and the brightly-lit *Douglas* installation.

At about 0622, the master looked up and saw the installation was at very close range. He went to the forward console immediately and moved the propeller pitch control levers to full astern. He moved the tiller to hard-to-starboard and activated the general alarm. However, *Highland Pioneer* collided with the north leg of the *DA* jack-up rig in way of her forward starboard shoulder, causing considerable damage. The vessel reversed from under the jack-up rig and the master sent a "Mayday" message. The vessel was not taking in water, there was no pollution, and two of *Highland Pioneer*'s engineers suffered only minor injuries.

The cause of the accident was that the master allowed *Highland Pioneer*, for a period of time, to approach the *DA* jack-up rig of the *Douglas* offshore installation without properly monitoring her progress, until it was too late to avoid a collision.

The operators of the installation and *Highland Pioneer* have since implemented a number of actions, including a review of the responsibilities of stand-by vessels, revised guidelines on traffic management, the challenging of all vessels approaching the 500m safety zone around the installation, and bridge procedures and passage plans for supply vessels.

The MAIB has no safety recommendations to make at this time.

PARTICULARS OF *HIGHLAND PIONEER* AND INCIDENT

Vessel details (photograph 1)

Owner	:	Gulf Offshore N S Ltd
Port of registry	:	London
Flag	:	United Kingdom
Type	:	Oil offshore supply vessel
Built	:	1983 in Norway
Classification society	:	Lloyd's Register of Shipping
Construction	:	Steel
Length overall	:	68.51m
Gross tonnage	:	2,099
Engine power	:	3,972kW
Service speed	:	14 knots
Other relevant info	:	Two controllable pitch propellers, two thrusters forward and two aft

Accident details

Time and date	:	0623 (UTC) on 27 January 2000
Location of incident	:	Latitude 53o 32.2'N Longitude 003o 34.6'W, which is approximately 16 miles north-east of Great Ormes Head
Persons on board	:	13
Injuries/fatalities	:	Minor injuries to two crew members
Damage	:	Extensive damage to the forward starboard shoulder and to two masts

Photograph 1

Highland Pioneer alongside in Liverpool Docks

SECTION 1 - FACTUAL INFORMATION

1.1 BACKGROUND

In January 2000, BHP Petroleum Limited (BHP), who operated the *Douglas, Lennox, Hamilton* and *Hamilton North* installations in the Liverpool Bay area, chartered *Highland Pioneer* for five years. The vessel's charter was also shared with Hydrocarbon Resources Limited (HRL) to service the six installations in the North and South Morecambe oil fields **(see chart extract opposite)**.

Highland Pioneer serviced all the above oil and gas installations from her base in Heysham. She carried liquid cargoes, such as oil-based mud, potable water and fuel oil; and dry cargoes, mostly in mini-containers, such as general and food stores and technical/working equipment. The vessel also back-loaded mini-containers and other equipment to be sent ashore.

Although not strictly adhered to, there was a schedule, which is summarised as follows:

In Heysham

late Sunday night to Monday lunch time;

late Tuesday night to Wednesday lunch time; and

late Friday afternoon to early hours of Saturday morning.

The rest of the time was spent at the BHP/HRL installations or travelling between the two fields, or to and from Heysham.

For each week the following total hours were scheduled:

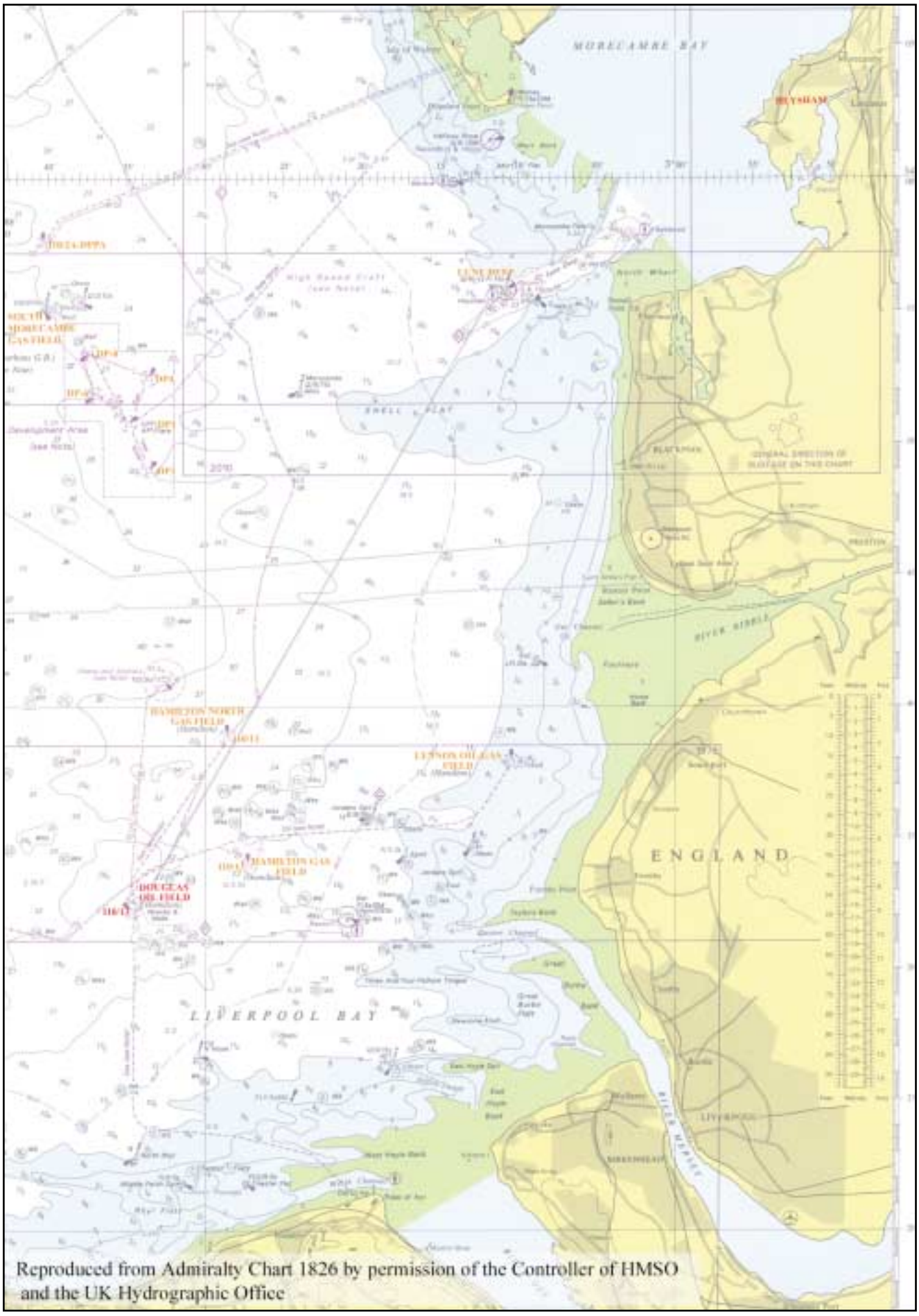
65.5 hours for BHP

40.5 hours for HRL

4.5 hours travelling inter-field

19.5 hours travelling to/from Heysham

38 hours at Heysham.



Gas and oil installations in the North and South Morecambe oil fields

1.2 Narrative

All times are UTC.

1.2.1 Events leading up to the collision

At 0255 on 27 January 2000, *Highland Pioneer* left her base at Heysham for the *Douglas* installation, under the control of the chief officer. Cargo work at the base had finished the day before and would begin, at the installation, when the platform crew turned to at 0700 that morning. The outbound vessel passed Lune Deep buoy at 0400 and set a direct course to the installation. The chief officer set both propeller pitch controls to 85%, which gave a speed of about 12 knots.

After having turned in at 2230 the previous evening, the master was called for his watch at 0545. Two minutes later the chief officer called the *Douglas* installation's control room and gave an ETA of 0620. He was advised that the installation's crew would be ready to begin cargo work at 0700 and *Highland Pioneer* should contact them again at that time. At about 0600, after the chief officer had briefed the master, the latter accepted the navigational watch. An able seaman also relieved one of his colleagues at this time on the bridge. The master intended to approach the installation, stop 1 mile off and then wait for instructions from the installation.

Because the vessel was about 4 miles from the installation, she was ahead of the required time for cargo working, and the master was of the opinion that he reduced speed by moving the propeller pitch control to 60%. The automatic helm was in operation and the radar was on the six-mile range scale. At this time the master set a one-mile radar variable range marker on the installation echo to mark the point at which he required the vessel to stand-by and to be ready for cargo work. He then worked briefly at the ballast control panel at the after end of the bridge, before moving to the chart table to make tidal stream computations for the period which would be spent at the *Douglas* installation. From this position, he had full view of both the brightly-lit installation and the radar **(see photograph 2)**.

At about 0615, in the absence of a fixed communication system to call individual crew members, the able seaman asked the master if he could go below to call one of the two second officers and the other able seaman, to which the master gave his permission. After calling his colleagues, the seaman had preparations to make before arriving at the installation and, unbeknown to the master, he did not intend to return to the bridge.

At about 0622, the master looked up and, through the front bridge windows, saw that the north end of the *DA* jack-up rig **(see diagram 1 at section 1.5)** was in close proximity. He immediately went to the forward control console and moved the pitch propeller control levers to full astern. At the same time, he switched the automatic steering to manual and placed the tiller to hard-to-starboard. He

activated the vessel's general alarm and then moved to the intercom to give a warning to the crew in the messroom.

At about 0623, *Highland Pioneer*'s bow and forward mast went under the barge of the jack-up rig. The mainmast made contact with the body, and the starboard forward shoulder hit the north leg of the rig. The vessel then reversed out from under the rig. While responding to the general alarm, two of the engineers sustained minor injuries, while steadying themselves against the movement of the vessel during the impacts with the installation.

Photograph 2

The master at the chart table

1.2.2 Events after the collision

Down below, the able seaman heard the general alarm initially and then a bang, followed by a louder bang. He ran to the bridge with one of the second officers and, on arrival, he saw the forward mast springing out from underneath the barge of the rig. He ran back down below to make sure everyone was out of their cabins, and to assess the damage.

The vessel continued to move astern until she was outside the 500m safety zone, at which time the propeller pitches were brought to zero.

At 0630, *Highland Pioneer* sent a "Mayday" message on VHF radio channel 16 to say that she had been in collision with the jack-up rig section of the *Douglas* installation. Liverpool Coastguard responded. Then she told the installation's control room of the collision. Two rescue helicopters were despatched to the scene and the Hoylake RNLI lifeboat was launched. Llandudno lifeboat was brought to immediate readiness and the tug *Willowgarth* stood by. The installation's 79 personnel were brought to muster stations. *Grampian Supporter*, the installation's stand-by vessel, went to close stations by the installation and *Highland Pioneer*.

Non-essential personnel were evacuated from the installation by BHP's own chartered helicopters.

It was found that *Highland Pioneer* was not taking in water, there were no injuries and no pollution and at 0640 the "Mayday" was downgraded to "Pan Pan".

At 0718, *Highland Pioneer* left the scene and made for Liverpool, after which the "Pan Pan" was downgraded to "Securité".

Grampian Supporter's FRC examined the leg of the rig and found that there was little apparent damage.

At 0841, Liverpool Coastguard terminated the incident. By 1100 *Highland Pioneer* was alongside in Liverpool docks and the "Securité" message was cancelled.

1.3 ENVIRONMENTAL CONDITIONS

The wind was westerly force 4 and there was a slight sea and low swell. The visibility was good; the atmosp heric pressure was 1024mb and the air temperature was 8^{o}C.

Predicted high water at Liverpool was at 0319 and it was four days after springs. The tidal stream during the incident was in a westerly direction.

It was dark, with sunrise at about 0800.

1.4 *HIGHLAND PIONEER*

1.4.1 The vessel

The vessel is a conventional offshore supply vessel with a capacity to carry pipes. The accommodation superstructure and bridge are forward, with the remainder of her after length taken up by the main cargo deck. She has two controllable pitch propellers.

The vessel had been owned by Lowline Shipping under the name of *Lowland Pioneer*, and traded mostly in the North Sea. She was purchased by Cammell Laird Holdings, who renamed her *Oceanic Pioneer*, and was managed by Gulf Offshore from the summer of 1999. In December 1999, Gulf Offshore purchased her and renamed her *Highland Pioneer*.

The navigational equipment included:

2 Kelvin Hughes radars

1 JRC doppler log

1 Robertson autopilot

1Koden GPS navigator

5 VHF radios (one of which was DSC)

1.4.2 The crew

The master was 53 years old at the time of the accident. He first went to sea in 1964 and, having passed his Master's Foreign-going Certificate of Competency in 1981, took command in 1984. He served on ro-ro vessels and anchor handler/tug/supply vessels as master for several companies and crewing agencies. He joined *Highland Pioneer* most recently on 12 January 2000, serving one month on board and one month on leave; this was his third voyage on the vessel.

The rest of the crew consisted of the chief officer, two second officers, chief, second and third engineers, a visiting electrician, three able seamen, an efficient deckhand and a cook.

The master took the 6 to 12 watch and the mate took the 12 to 6 watch while at sea and while ship-handling alongside the installations during cargo operations. During the latter activity, they were each accompanied by one of the two second officers.

1.4.3 The damage

The foremast was bent and misshapen. The top section of mainmast, sited on top of the monkey island, collapsed aft on to the satellite communications antenna dome. At the starboard side forward shoulder, the side shell was missing over a "V" shaped area from deck edge to the waterline. There was a smaller indentation through the bulwark just aft of the starboard forward mooring fairleads **(see photographs 1 and 3)**.

Photograph 3

Starboard side forward. Side shell missing over a "V" shaped area from deck to waterline. Small opening in bulkwark just aft of fairlead.

1.5 THE *DOUGLAS* INSTALLATION

The *Douglas* installation **(see diagram 1 opposite)** is used as a general gathering and process station for the Liverpool Bay Development area, which includes the satellites of the *Douglas, Lennox, Hamilton* and *Hamilton North* installations. Processing includes gas-liquid separation, gas compression and oil stabilisation under partial vacuum. The combined oil streams are stabilised and exported via pipeline to a buoy-moored oil storage installation (OSI), which lies about 17km north of the *Douglas* installation.

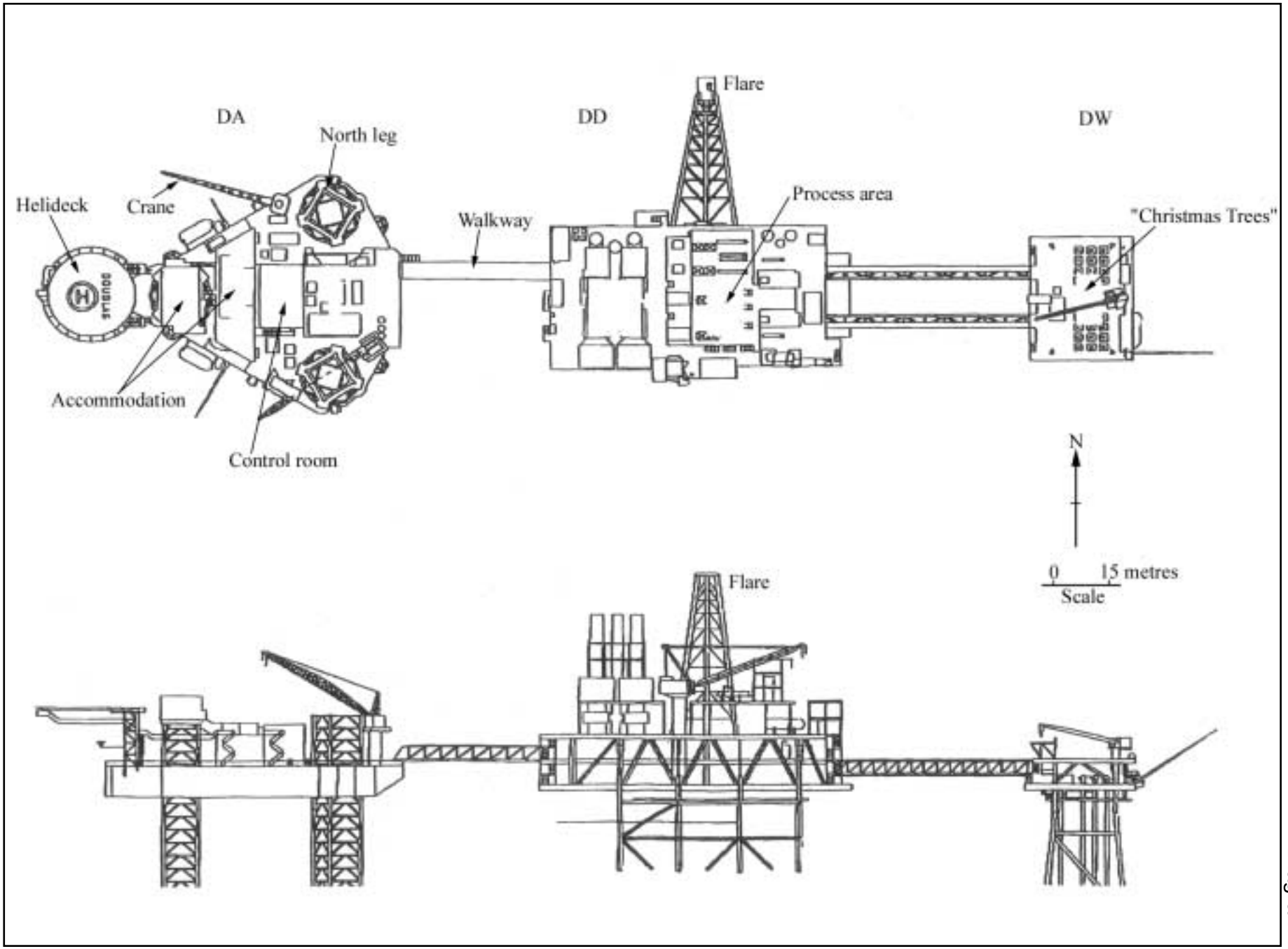


Diagram 1

The *Douglas* Complex

The fixed platforms for the *Douglas* installation are arranged as follows:

a wellhead platform (*DW*) for various types of valves and manifolds;

a production platform (*DD*) for hydrocarbon gathering, processing and export facilities, pipeline interface, hazardous utilities and production control room and non-process utilities; and

an accommodation platform (*DA*) for the living quarters, production control room, the emergency response centre, radio room, muster areas, medical facilities, helicopter administration and helicopter flight deck.

DD and *DW* have conventional steel jacket structures, while *DA* is a converted jack-up rig. The layout separates the production plant and well facilities/activities from the living quarters/control centre.

The three platforms are orientated along an east/west axis, with *DA* to the west. This presents the smallest target to the predominant east/west shipping traffic which minimises the risk of impact from passing ships. The platforms are each linked by walkways which enable personnel to escape, as quickly as possible, from a production hazard such as a fire, explosion or blowout.

There are two radar early-warning stations (REWS) to cover the field, one radar is sited onshore and the other is offshore on the OSI. The radar stations are fully automatic and require no manual watchkeeping. The composite track information is transmitted to the REWS display stations on the *Douglas* installation, on the OSI, the *Irish Sea Pioneer*, BHP office at the Point of Ayr, and on the three stand-by vessels which cover the Liverpool Bay Development. These display stations have been set up to alarm on any echo of a vessel having a closest point of approach (CPA) of 500m to any of the installations, and a time to CPA of 20 minutes.

In addition to the REWS, each stand-by vessel has dual ARPA radars, which are also used as part of the Liverpool Bay radar traffic management system.

BHP transponders were fitted on the three stand-by vessels and, at the time of the incident, on *Highland Pioneer*. The transponders showed on the REWS displays that the echo of *Highland Pioneer* was *friendly*.

1.6 RELEVANT EXTRACTS FROM MSN 1682 (M) *SAFE MANNING, HOURS OF WORK AND WATCHKEEPING* AND IMO'S *STCW 95*

MSN 1682 (M)

2.1.1 maintain a safe bridge watch at sea in accordance with regulation VIII/2 of STCW 95, which includes a general surveillance of the vessel;

STCW 95

13 A proper look-out shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972 and shall have the purpose of:

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other means, with regard to any significant change in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers of navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to navigation.

14 The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken of assigned which could interfere with the task.

16

.4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres.

1.7 RELEVANT EXTRACTS FROM THE UKOOA AND CHAMBER OF SHIPPING'S *GUIDELINES FOR THE SAFE MANAGEMENT AND OPERATION OF OFFSHORE SUPPORT VESSELS* AND BHP'S *SAFE WORKING PRACTICES*

UKOOA

Masters should not use Installation positions as way points in the vessel's GPS or similar navigational system when planning their route.

Consideration should be given to steering an off-set course to the Installation. The course should take into account the prevailing weather and tidal conditions at the Installation so that, should the vessel suffer a blackout it would end up well clear of the Installation and any other Installations in the immediate area.

…….the vessel Master should formally request to enter the Installation's 500 metre zone, this request should be confirmed and the time noted and entered in the vessel's log book.

BHP

Radio communications must be established between the installation and the supply boat before entering the 500m zone. On permission from the OIM, the supply boat may enter the installation zone in accordance with the instructions of the OIM.

1.8 RECOMMENDATIONS MADE SINCE THE INCIDENT

Following the incident the three interested parties, Gulf Offshore, BHP and HRL, made a number of recommendations, which were intended to be put into practice and to prevent such an accident happening again.

1.8.1 Gulf Offshore's recommendations

- Revise procedures to ensure two watchkeepers on the bridge at all times day and night for Liverpool Bay.
- Send out safety flash to all Gulf vessels.
- Fit ARPA radar to *Highland Pioneer*.
- Establish and to take actions on an improvement review team, reporting to the manager of the Liverpool Bay Operations.
- Place all masters and mates on approved supply boat simulator courses to provide training and ensure competency.
- Safety leadership courses to be carried out with selected safety officers.
- Audit *Highland Pioneer* for compliance with the ISM code.

1.8.2 BHP's recommendations

- Review the Radar Traffic Management Guidelines (RTMG) to assume all echoes are *unfriendly* unless authorised to enter the 500m safety zone. Introduce fail safe checks and balances to ensure unauthorised vessels are challenged if they attempt or appear to be attempting to enter the exclusion zone.
- Revise RMTG to make stand-by vessel responsible for all vessels outside the 500m safety zone and the platform responsible for all vessels authorised to enter the zone.
- Produce revised Marine Operations Manual.

1.8.3 Gulf Offshore/BHP's recommendation

- Produce set passage plan procedures with set compulsory gateways.

1.8.4 Gulf Offshore/BHP/HRL's recommendations

- Develop bridging document and management system interface, clearly establishing which procedures will be in force and responsibilities of all persons involved in the operation. Induct new vessels in to the Liverpool Bay Asset operations using bridging document as a basis for advising officers and crews of vessels which procedures and standards will be in force during charter.

- Conduct audit of support vessel ship management system to ensure compliance with agreed bridging plans.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations, if any, with the aim of preventing similar accidents occurring again.

This section will examine why during *Highland Pioneer*'s approach to the *Douglas* installation, in good visibility and weather, she ran directly into the *DA* jack-up rig.

2.2 THE COLLISION

The master said that, at some time after taking the watch, and when the vessel was 4 miles from the installation, he reduced the propeller pitch (from 85%) to 60%, which would give a speed of about 8 knots. However, there are a number of sources of other evidence to give a clearer indication of the actual speed of approach.

The vessel passed Lune Deep buoy at 0400, and there was a distance to run of 27.5 miles to the installation. At 0547, when the vessel had just passed the *Hamilton* platform, the chief officer gave an ETA as 0620. This gave an average speed of 11.8 knots.

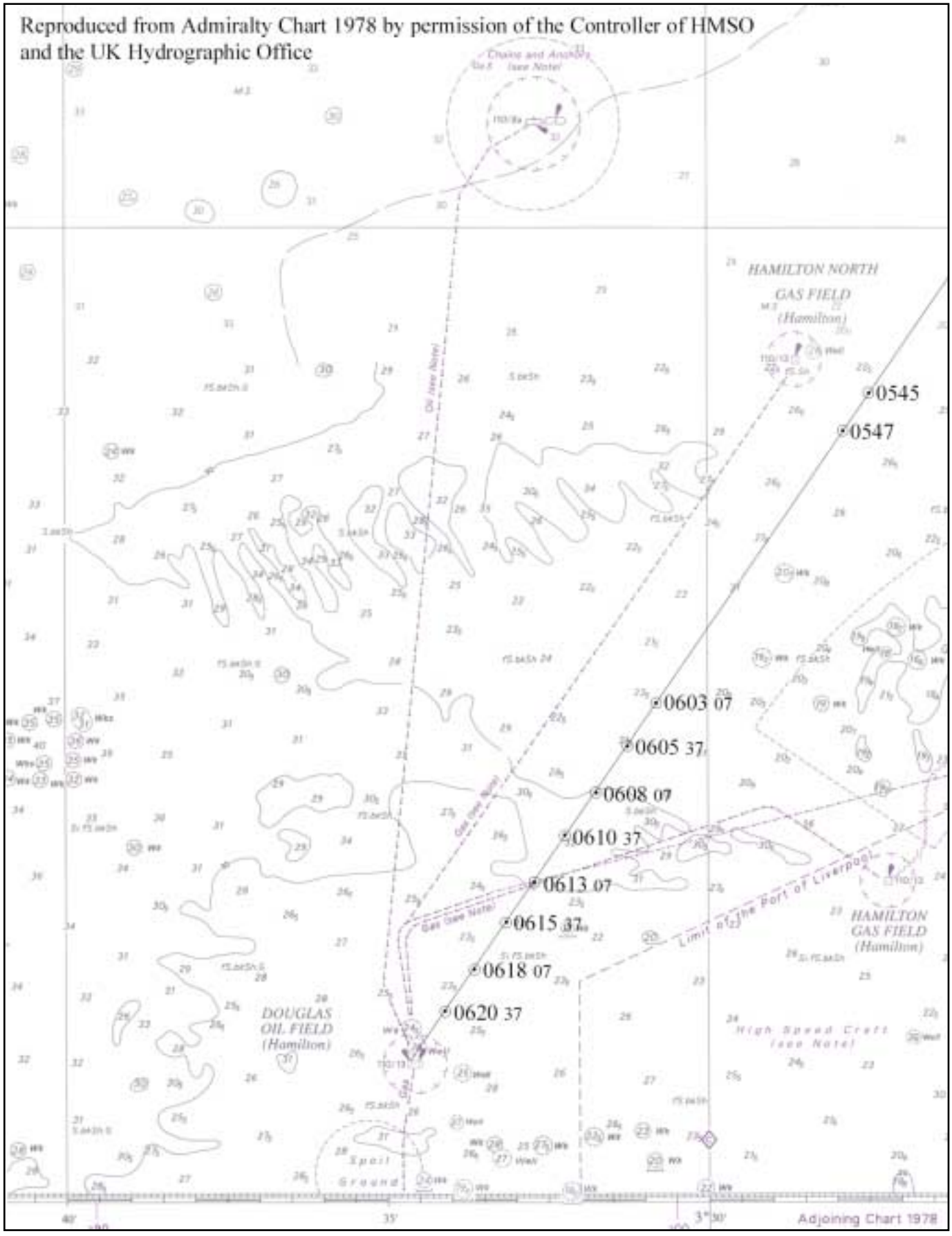
After the accident the REWS database was downloaded, the plot from which is shown in **diagram 2 opposite**. The positions and times are from DGPS, and have a high degree of accuracy.

The plot shows that:

- 0545 the vessel was abeam of the *Hamilton* platform and was **7.53** miles away from the *Douglas* installation;
- 0603, she was **4.05** miles away from the installation, (confirming the master's estimation);
- 0621 she was **5.8** cables away from the installation; and
- collision occurred at 0623.

The distances between 0545 and 0603 and between 0603 and 0621 (18-minute intervals) were the same at **3.48** miles, giving a speed of 11.8 knots.

From 0603 to the impact, the vessel covered the distance in 20 minutes, which gave a speed of 12.15 knots.



Plot derived from REWS database

Therefore, from the above, it is concluded that the speed before and after 0603 did not change until just before the impact, when the master took action to prevent the collision.

If the propeller pitch had been reduced at between 0605 and 0610 to give a speed of 8 knots, it is calculated that the impact would have been at 0631.

It is apparent that, although the master believed he had reduced speed, which would have been a logical action, he did not, in fact, do so. He did not check the speed with the doppler log or the GPS set. Believing the vessel was now proceeding at slow speed, he allowed himself sufficient time to carry out his tasks. Without anyone, or anything, drawing his attention to the close proximity of the rig, he was unaware of the imminent risk of collision. When he finally looked up, the vessel was much closer to the installation than he expected. Although he then took immediate action, he was unable to prevent collision.

2.3 PREVENTION MEASURES

There were two types of prevention measures, internal and external, which did not stop this accident occurring.

1. Internal **(see section 1.6)**

   The master allowed the lookout to leave the bridge to call other crew members. The lookout was not relieved by one of the second officers, because there was an interval from the time of being called and his going up to the bridge to start his duties. Therefore, the master was alone on the bridge to keep a lookout when the vessel was making her approach to the installation. This was unavoidable given the fact that no fixed communication system was in place to call individual crew members.

   Working at the chart table, the master had a clear view of the radar and of the brightly lit installation. The radar had a zone alarm facility, but it was not used. The master did not check the doppler log, the speed reading on the GPS set, or the radar, or look at the installation during this time. Had he done so at any time, he would have been alerted that the vessel was fast approaching the installation. He should not have worked at the chart table unless there was another person on the bridge. Instead he should have monitored the vessel's progress towards the installation. He could have arranged for the tidal stream computations to have been made prior to arrival, or suspended progress and stopped the lookout from leaving the bridge until he had completed them.

   Highland Pioneer had been set on a direct course for the installation. The guidelines quoted in **section 1.7** advise against this practice (ostensibly, in case a ship blacks out), but it could for any unforeseen reason. An offset course would have been advisable, starting at a suitable distance from the installation.

2. External **(see section 1.7)**

The master had no intention of entering the 500m safety zone, but had he done so, under normal conditions, he would have had to, as a matter of routine procedure, ask for permission from the installation's control room. This latter procedure did not happen.

The installation's stand-by vessel, *Grampian Supporter*, was stationed about 4 cables south of the installation, which was on the opposite side from the *Highland Pioneer*'s approach. The watchkeeper had tracked *Highland Pioneer*'s approach on the radar's ARPA, and he must have known that she was destined for the installation. However, he did not challenge *Highland Pioneer* when she had entered the 500m zone without asking permission.

500m equates to 2.7 cables and, travelling at about 12 knots, this distance would have been covered in about 1.5 minutes. If the stand-by vessel had challenged *Highland Pioneer*, there would have been an interval between calling the vessel and being answered. In this case the challenge would have alerted the master, and he could have taken earlier action to avoid collision.

It was neither *Grampian Supporter*'s, nor the installation's control room's task to ascertain if the supply vessel was fully functional before she entered the 500m zone. Neither was it the control room's task to monitor the approach of a supply vessel to the installation. If an REWS alarm was activated by the approach of an *unfriendly* vessel, it was the stand-by vessel's task to investigate that vessel. However, no alarm was activated because of the transponder on board *Highland Pioneer*, and no investigations were made.

Therefore, in this case, there was an ambiguity in the division of responsibilities between the stand-by vessel and the installation's control room, on the approach of a *friendly* vessel.

2.4 INATTENTION

The following factors indicated a lack of attention on the part of the master[1]:

1. *preoccupied with single tasks or elements* - **master worked at chart table without monitoring the vessel's progress**;

2. *reverted to old habits* - **master calculating tidal streams**;

[1] As listed in the Canadian Transportation Safety Board's *A Guide for Investigating for Fatigue*.

3. *focused on a minor problem despite risk of major one* - **master was calculating tidal streams when making a direct approach to the installation**;

4. *did not appreciate gravity of situation* - **master did not appreciate the speed of the vessel, believing that he had reduced speed**;

5. *did not anticipate danger* **- master had mentally set a time to do his tasks when approaching the installation**;

6. *displayed decreased vigilance* **- master did not look up from time to time and check the doppler log and/or GPS to monitor the progress of the vessel**.

From the above it would seem that an explanation for the master's unsafe actions and non-actions could have been caused by a certain degree of fatigue. This might have been caused by disruption from the vessel's schedule **(see section 1.1)** and also the environment. The latter emanates from noise of bow thrusters, which disturb sleep patterns when manoeuvring alongside Heysham and at installations, and from movement of the vessel in the seaway. However, the master might have not been suffering from long-term fatigue, because he had only been on board for two weeks.

Alternatively, the master's inattention might have been due to unintentional complacency caused by the routine nature of the operations.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

1. *Highland Pioneer*'s speed did not change between, before, and after, the chief officer handed over the navigation to the master, until just before the impact with the *DA* jack-up rig section of the *Douglas* installation. [2.2]

2. That speed from 0400 was about 11.8 knots. [2.2.]

3. The latter two findings contradict the master's evidence, because he said that he had reduced speed because the vessel was ahead of schedule to start cargo work at 0700. [2.2]

4. If the master had believed he had reduced the vessel's speed, he would have allowed himself sufficient time to carry out his tasks at the chart table. [2.2]

5. When he did look up from the chart table, the vessel was much closer to the installation than he had anticipated. [2.2]

6. When he became aware of the closeness of the installation, he took immediate action to avoid collision, but in vain. [2.2]

7. The master allowed the lookout to go below without being relieved, leaving him alone on the bridge. This was unavoidable given the fact that no fixed communication system was in place to call individual crew members. [2.3]

8. Unbeknown to the master, the lookout had no intention of returning to the bridge, because he had preparations to make before cargo work at the installation. [2.3]

9. The master had no intention of entering the 500m safety zone but, had he intended to, he was required to ask permission from the installation's control room. [2.3]

10. The master preoccupied himself with tidal stream computations at the chart table, from where he had a full view of the brightly-lit installation and the radar. [2.3]

11. The master did not look at either the doppler log, or the GPS set, to check the vessel's speed. [2.3]

12. *Highland Pioneer* had been set on a direct course from Lune Deep buoy to the installation. [2.3]

13. It would have been advisable to have steered an offset course for the installation, as recommended by the UKOOA. [2.3]

14. The installation's stand-by vessel, *Grampian Supporter*, had tracked *Highland Pioneer* routinely by radar ARPA during her approach. [2.3]

15. *Highland Pioneer* was being tracked by the installation's REWS system but, because she was a *friendly* vessel, the alarm did not activate. [2.3]

16. The stand-by vessel did not challenge *Highland Pioneer* when she entered the 500m zone without asking permission. [2.3]

17. There was ambiguity in the division of responsibilities between the stand-by vessel and the installation's control room in the monitoring and challenging the movements of *friendly* and *unfriendly* vessels. [2.3]

18. A number of factors indicated a lack of attention on the part of the master. [2.4]

19. Appropriate recommendations have been made by Gulf Offshore, BHP and HRL to prevent such an accident happening again.

3.2 CAUSE

The master allowed *Highland Pioneer*, for a period of time, to approach the *DA* jack-up rig section of the *Douglas* offshore installation without properly monitoring her progress until it was too late to avoid a collision.

3.3 CONTRIBUTORY CAUSES

1. The master had allowed a situation in which he was sole watchkeeper on the bridge and the only person available to monitor the progress of the vessel during her approach to the installation. This was unavoidable since there was no fixed communication system in place to call individual crew members. [2.3]

2. Believing he had reduced the speed of the vessel, the master allowed himself enough time to make cargo and tidal computations, with which he became preoccupied. [2.2]

3. The vessel was travelling faster than the master thought, and when he looked up she was much closer to the installation than he had anticipated. [2.2]

4. The master's attention was impaired, giving a low perception of risk and unsafe actions and non-action, which might have been caused by a certain degree of fatigue. [2.4]

5. Watchkeeping on *Highland Pioneer*, and the setting of a direct course for the installation, were not in accordance with established good practice. [2.3]

6. The stand-by vessel did not challenge *Highland Pioneer* on her entering the 500m safety zone. [2.3]

7. Because of *Highland Pioneer*'s transponder, the REWS alarm did not activate. [2.3]

SECTION 4- RECOMMENDATIONS

The MAIB has no safety recommendations to make at this time.

Marine Accident Investigation Branch
April 2001