

Report on the investigation of
the grounding of UK registered
emergency towing vessel

Anglian Sovereign

near the island of Oxna, in the Shetland Islands

3 September 2005

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**Report No 16/2006
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Extract from
The United Kingdom Merchant Shipping
(Accident Reporting and Investigation)
Regulations 2005 – Regulation 5:

“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

NOTE

This report is not written with litigation in mind and, pursuant to Regulation 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB	-	Able seaman
AIS	-	Automatic identification system
ARPA	-	Automatic radar plotting aid
bhp	-	Brake horse power
BOSS	-	Browser for Operation System Status
CPSO	-	Counter pollution and salvage officer
DAO	-	Duty area officer
DGPS	-	Differential global positioning system
DOC	-	Document of Compliance
DOM	-	District operations manager
DP	-	Designated person
ECDIS	-	Electronic chart display and information system
ECS	-	Electronic chart system
ETA	-	Estimated time of arrival
ETV	-	Emergency towing vessel
FRC	-	Fast rescue craft
GMDSS	-	Global Maritime Distress and Safety System
GPS	-	Global positioning system
HMCG	-	Her Majesty's Coastguard
ISM	-	International Safety Management
kW	-	kiloWatts
MCA	-	Maritime and Coastguard Agency
MHz	-	MegaHertz
ml	-	millilitre

MRCC	-	Maritime Rescue Co-ordination Centre
MSN	-	Merchant Shipping Notice
P&I	-	Protection and Indemnity
RNC	-	Raster navigational chart
RNLI	-	Royal National Lifeboat Institution
SAR	-	Search and rescue
SMS	-	Safety Management System
SOLAS	-	Safety of Life at Sea
SOSREP	-	Secretary of State's Representative
STCW	-	Standards of Training, Certification and Watchkeeping Convention for Seafarers
VDR	-	Voyage data recorder
VHF	-	Very high frequency

SYNOPSIS



(All times are UTC +1)

At about 2137 on 3 September 2005, the emergency towing vessel (ETV) *Anglian Sovereign* ran aground on the small island of Bulta Skerry, 3 miles west of Scalloway, in the Shetland Islands. There were no injuries to the crew, but the vessel was severely damaged and about 84 tonnes of gas oil were lost into the environment.

On the day of the accident, the ETV had been tasked, in one of its secondary roles, to carry out hydrographic survey sea trials in an area between Scalloway and the island of Foula.

The trials finished at 2019, and the master, who was on watch, set course for the entrance to the South Channel for Scalloway harbour. After a short hiatus for a further trial, the master resumed a similar course, although as the final trial had displaced the ETV from its previous track, the vessel was now heading towards the small island of Oxna. It was dark, but there was no lookout posted, so the master was the lone watchkeeper on the bridge. Passing very close to Skelda Ness, the ETV maintained a steady course at 16 knots for 17 minutes until it grounded.

The master reported the grounding to Shetland Coastguard, and requested a rescue helicopter to evacuate all of his crew, who were mustering, in their survival suits and lifejackets, on the after working deck. There was little effort to assess the situation before deciding to evacuate the vessel. Unnoticed by the master, the ETV had floated off where it had grounded, and then drifted some distance before coming to rest in a cleft in one of the islands of the Cheynies.

By 2240, the mustered crew were evacuated by rescue helicopter, leaving the master alone on board. At this stage, the master decided to clutch in the main engines and drive the ETV out of the cleft into the open sea. By 2253, *Anglian Sovereign* was underway, listing about 15° to starboard, trimmed down by the head, and was leaking diesel oil. Subsequently the master momentarily ran aground on another island, before successfully reaching and berthing in Scalloway.

The police boarded the ETV shortly after arrival, and breathalysed the master. Finding him to be 3.4 times over the proscribed limit for alcohol, he was arrested and taken to Lerwick police station.

The following safety issues were identified:

- The master's alcohol consumption was the major causal factor of this accident.
- The master routinely consumed alcohol onboard, despite company policy.
- Other senior officers were aware that the master had been drinking, but took no action.
- The master was alone on watch on the bridge at night in contravention of STCW and MSN 1767.

- Proper navigational practices were not observed onboard.
- After the grounding, there was no effective command and control of the emergency situation onboard.
- Klyne Tugs's Safety Management System and auditing system had proved ineffective on alcohol and navigational practices.
- As charterers, the MCA had an inadequate regime for verification that the ETVs were being operated to an appropriate standard.

Recommendations have been made:

- To Klyne Tugs on its Safety Management System and auditing.
- To the MCA to establish an effective verification regime.

Photograph 1



Anglian Sovereign

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF ANGLIAN SOVEREIGN AND ACCIDENT

Vessel details (Photograph 1)

Registered owner	:	Klyne Tugs (Lowestoft) Ltd
Port of registry	:	Lowestoft
Flag	:	United Kingdom
Type	:	Offshore tug/supply/anchor handling
Built	:	2003 Yantai Raffles Shipyard, China
Classification society	:	Lloyd's Register
Construction	:	Steel
Length overall	:	67.4m
Maximum draught	:	6.2m
Gross tonnage	:	2,258
Engine power and/or type	:	12,000kW from two Wartsila medium speed diesel engines coupled to two controllable pitch propellers, housed in Kort nozzles.
Service speed	:	16 knots
Other relevant info	:	Two bow thrusters and one thruster aft. Two Becker rudders.

Accident details

Time and date	:	2137, 3 September 2005
Location of accident	:	Latitude 60° 07.57'N, longitude 001° 23. 01'W about 3 nautical miles west of Scalloway.
Persons on board	:	14
Injuries/fatalities	:	None
Damage	:	Extensive damage to the hull

1.2 THE ROLE OF A COASTGUARD ETV

The provision of ETVs in those UK areas judged to be at high risk from environmental damage, resulted from a recommendation in Lord Donaldson's report *Safer Ships, Cleaner Seas*, published in 1994.

The primary role of an ETV is the emergency towing of disabled vessels, to prevent pollution damage within UK waters and the UK Pollution Control Zone, which extends 200 nautical miles from the UK shore or out to the international median line.

The ETVs also carry out the following secondary roles:

- search and rescue duties;
- pollution clean up duties;
- guardship duties;
- surveillance and Traffic Separation Scheme identification duties;
- assistance to other Government Departments; and
- provide a platform for salvage operations.

For a number of years, the MCA chartered tugs as ETVs. They were owned by several different companies and were stationed in various locations around the UK, on a seasonal basis only. However, in 2002, offers of tenders were sought by the MCA to provide four ETVs, for all year round duties. Klyne Tugs (Lowestoft) Ltd was successful in its tender, and one of the vessels it provided to service the contract was *Anglian Sovereign* (see Section 1.7).

Under SOLAS Chapter V Regulation 9, the MCA is responsible for, and administers the UK's Civil Hydrography Programme, which is funded by the Department for Transport. *Anglian Sovereign* was designated to undertake hydrographic survey work as an additional secondary role, and survey equipment was fitted in April 2005. The survey work was approved, but it had to be carried out within the ETV's operational area, and emergency situations were always to take precedence.

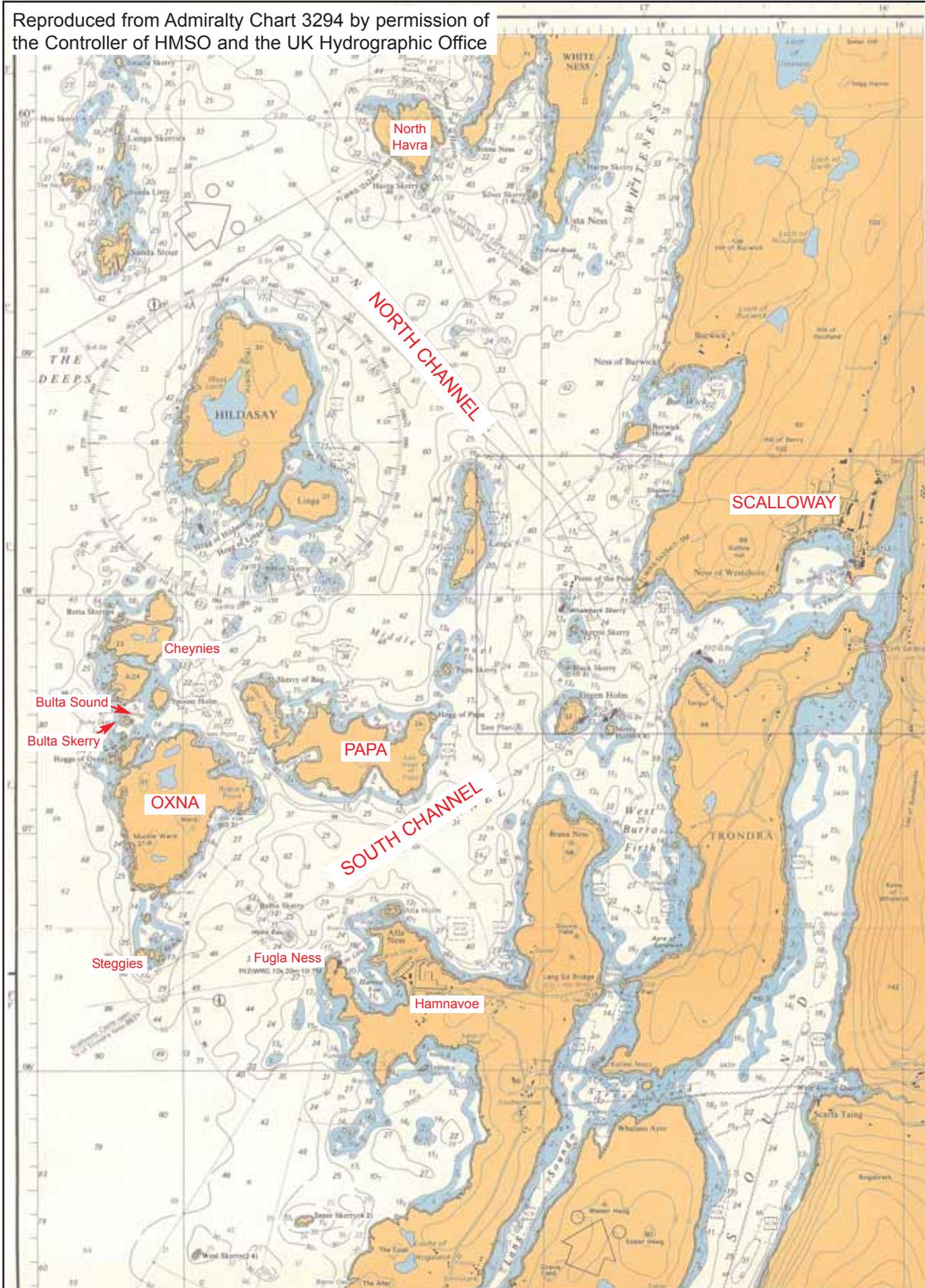
1.3 NARRATIVE

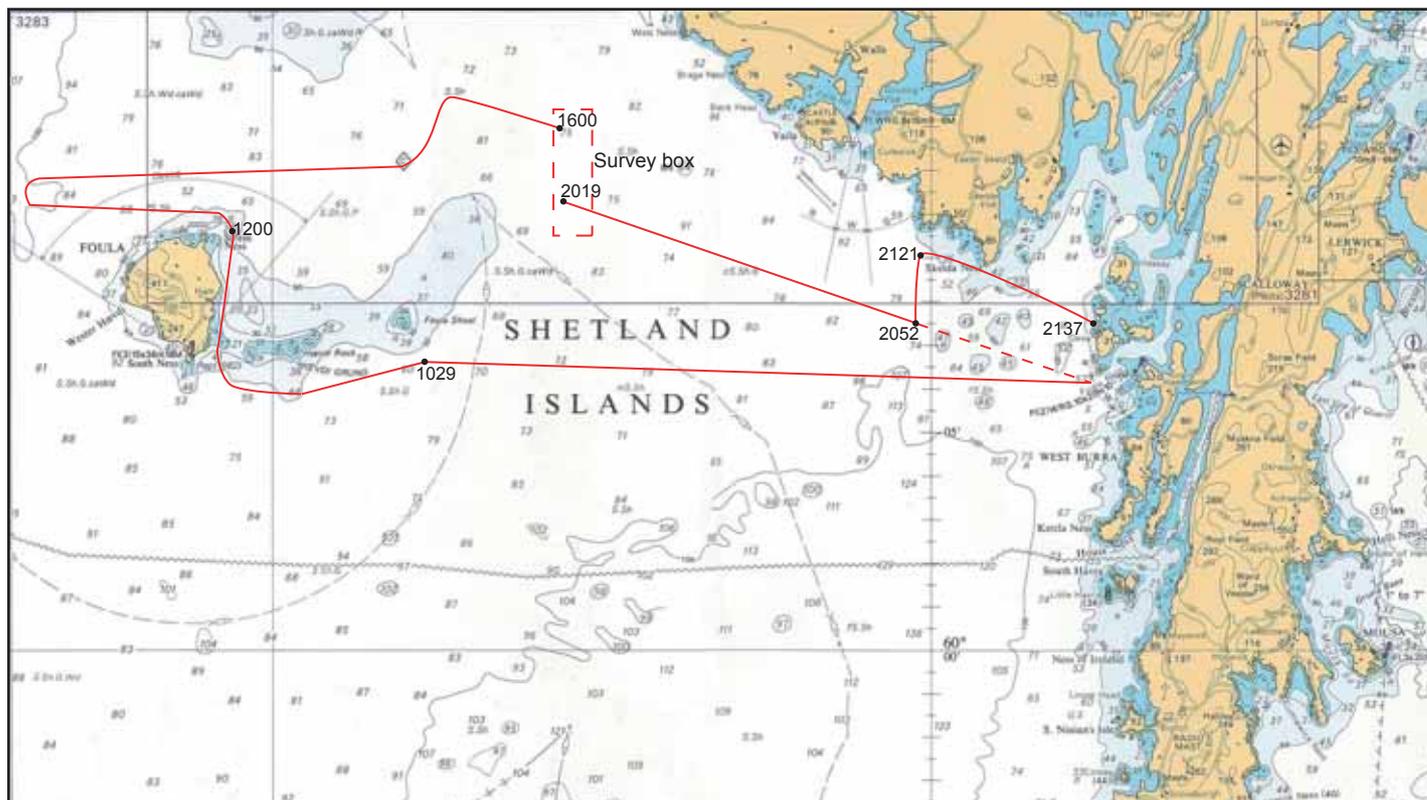
At about 0900, on 2 September 2005, *Anglian Sovereign* arrived at Scalloway to take on board spare parts for the hydrographic survey equipment and to change two of the crew members: the chief officer and an AB.

At about 2000, the master went ashore to a local public house and drank five pints of lager. Having received a lift from an acquaintance, the master arrived back at the ship at about 2330. He was carrying a bottle of rum, a large bottle of cola and eight cans of lager.

Figure 1

Reproduced from Admiralty Chart 3294 by permission of the Controller of HMSO and the UK Hydrographic Office





ECDIS tracks taken by *Anglian Sovereign* on 3 September 2005

At about 0900 the following day, *Anglian Sovereign* left Scalloway harbour. With the new chief officer in attendance, the master piloted the vessel through the South Channel towards the open sea (**Figure 1**). At about 0920, the vessel was clear of the South Channel, and the master set a course towards the island of Foula, which was about 20 miles to the west (**Figure 2**).

The purpose of the voyage was to carry out trials of the vessel's survey equipment, and then perform a hydrographic survey, with the intention of returning to Scalloway harbour by about 1700. There was a team of four hydrographic surveyors on board.

At about 1200, the master handed over the watch to the second officer. At this time, the vessel was just north of Foula, and the survey team was still not ready to begin the survey trials.

At about 1230, the master went to the mess room. He was the last member of the crew to take his lunch and, to the ship's cook, appeared to be behaving rather oddly. The cook suspected that the master was inebriated, even though he could not smell any alcohol on the master's breath. Afterwards, he expressed his concerns about the master's condition to the chief officer. However, the chief officer did not appear to be concerned, and replied that the master would be "all right".

At 1600, *Anglian Sovereign* was about 4 miles west-south-west of Braga Ness, and the second officer handed over the navigational watch to the chief officer. By that time, the hydrographic survey team was ready to commence trials of the equipment.

Anglian Sovereign then began to steam along a number of north and south track lines which were displayed on a monitor mounted on the bridge console, forward of the steering position (**Photograph 2**).

Before the evening meal was served at 1700, the master joined several of the crew in the mess room to watch a video on television. He appeared, to the others - including the cook - to have reverted to his normal happy and sociable self. However, he seemed to be over persistent in trying to persuade the off-duty surveyors to join him in watching a particular programme.

When the chief officer handed over the navigational watch to the master, at about 2000, the survey trials were nearly complete, and the master made the last southerly run. At 2019, when the final run was completed, the master set a course of 112° for the entrance to the South Channel for Scalloway harbour.

At about 2030, the chief engineer went to the bridge, and asked the master what time the vessel would be at the entrance to the channel for Scalloway. (It was normal practice for the chief engineer to go to the engine room when the vessel arrived at the entrance to the channel, to start the thrusters, ready for manoeuvring the vessel alongside the berth in Scalloway.) The master told him the vessel would be at the entrance in about 1 hour's time.

Photograph 2

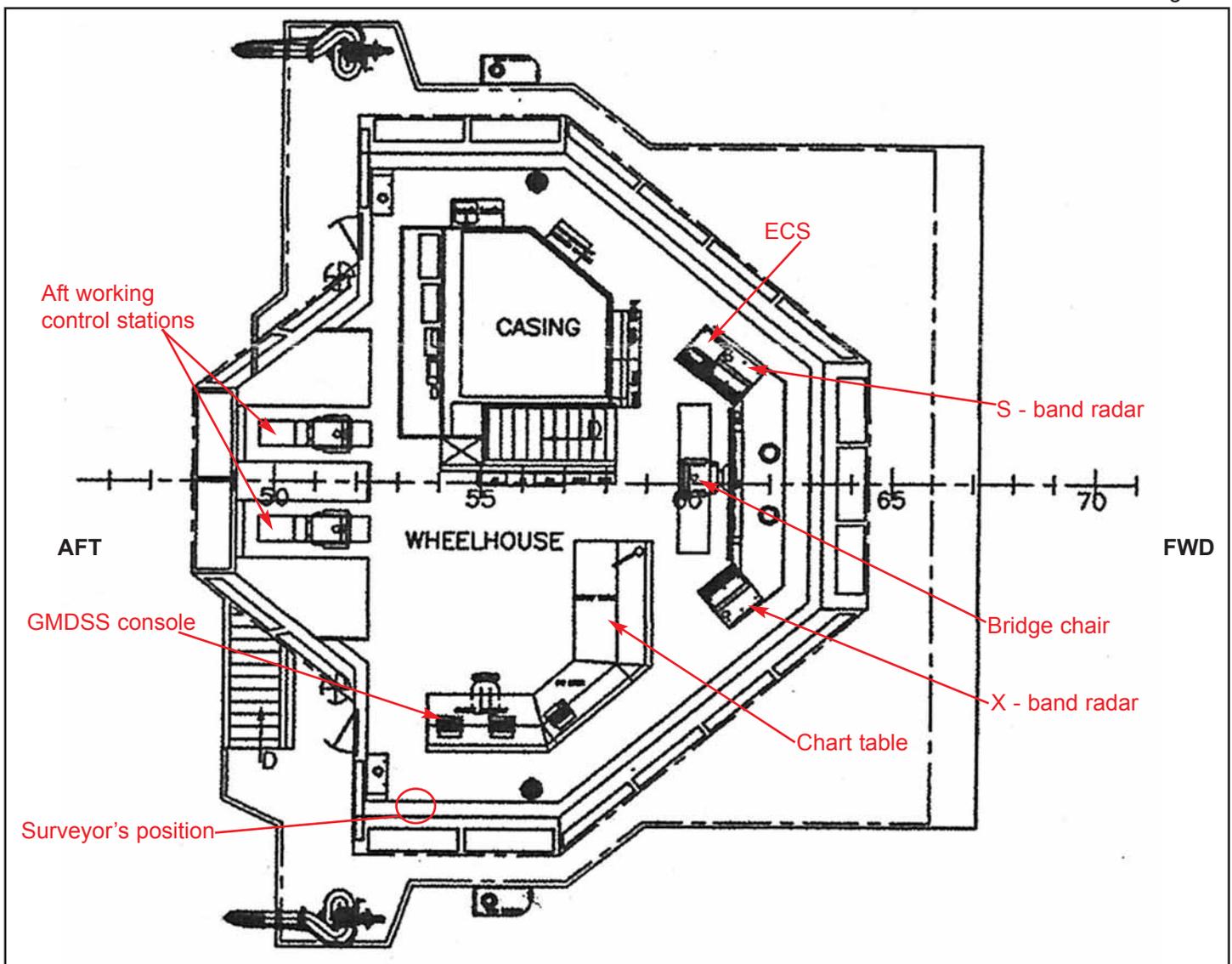


The forward bridge console

During the passage to the South Channel, the survey team decided that they needed to reconfigure the hydrographic navigational systems. At about 2050, they asked the master to stop the vessel, which was now in a position 2 miles south-west of Skelda Ness. This was done, and at 2113, they asked the master to carry out a run to the north. At the end of the run, at 2121, the master altered course to starboard and set a course of 116°, and increased the vessel's speed to about 16 knots.

The course set by the master gave a track line to a point just north of the island of Oxna, which was approximately mid-way between the entrances to the North and South Channels for Scalloway harbour. At about 2135, a surveyor from the hydrographic survey team went to the bridge to make a mobile telephone call. The surveyor greeted the master, who was sitting on the bridge chair near the port radar, and the master replied. The surveyor then went to the rear of the bridge and sat on a ledge by the bridge window outboard of the GMDSS console (Figure 3).

Figure 3



Plan of bridge deck

At 2137 55sec, the hydrographic survey equipment recorded that *Anglian Sovereign* came to a sudden stop as she ran aground on the small island of Bulta Skerry. The grounding caused the hydrographic surveyor to end his mobile telephone call. He stood up and saw the master standing in front of the forward bridge chair. The surveyor then left the bridge.

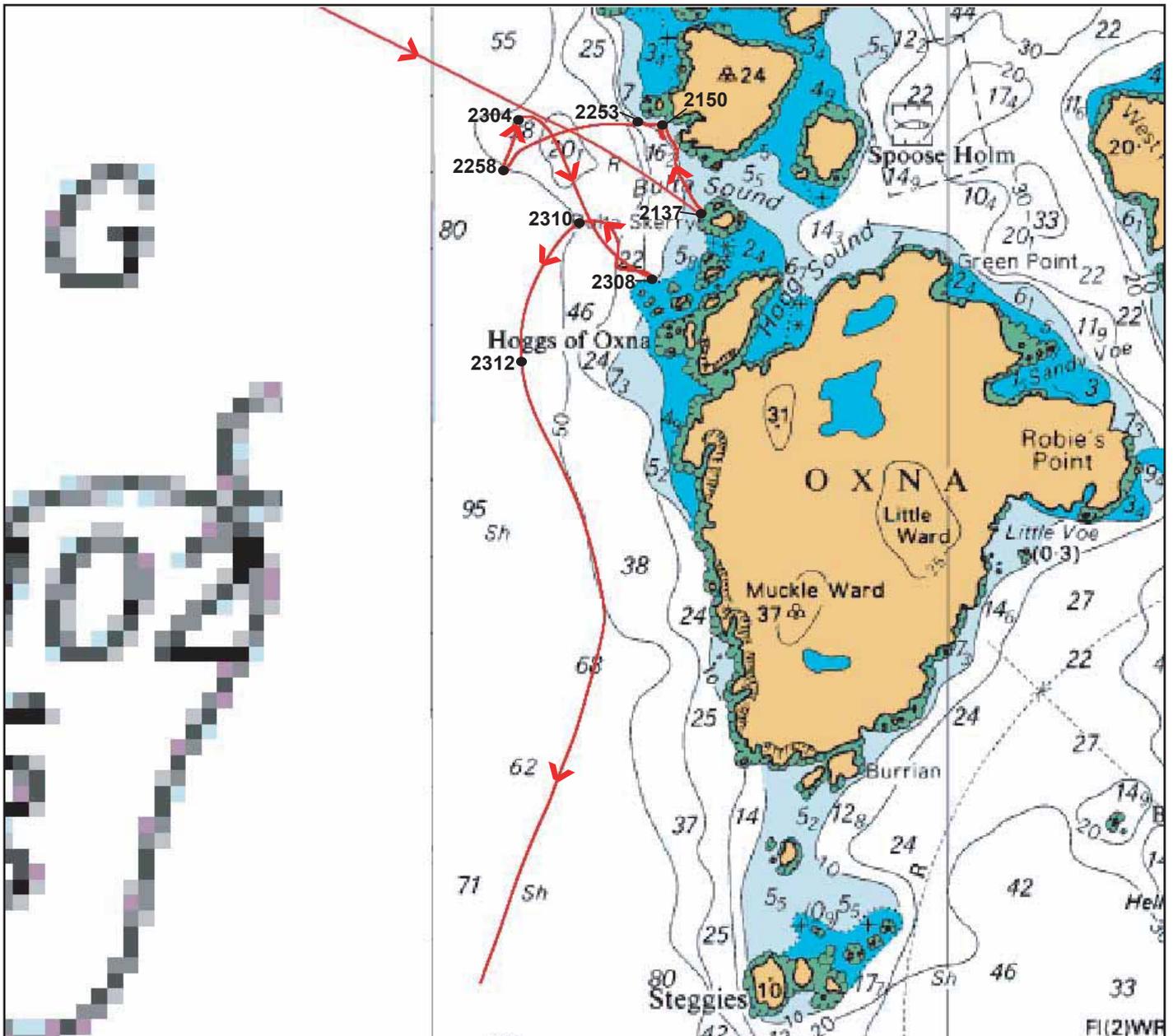
The noise and violence of the impact of *Anglian Sovereign* grounding alerted everyone on board. The chief engineer, who was in his cabin one deck below the bridge, went out into the alleyway. By the time he reached the foot of the stairs to the bridge, the vessel was listing to starboard. When he arrived on the bridge, he saw the master standing at the console, and looking out forward. The chief engineer asked the master what had happened, and he replied that the vessel was aground. The master instructed the chief engineer to sound the tanks and abandon the vessel. The chief engineer returned to his cabin, collected his survival suit and lifejacket, and made his way to the muster station. He went down to the next deck below, and saw that the crew members were out of their cabins and donning their survival suits and lifejackets. He perceived that the crew were aware that a serious emergency situation was taking place, and gave no instructions.

At 2141, some 4 minutes after the grounding, the master called Shetland Coastguard. He told them that his vessel was aground, and asked them to send the rescue helicopter to his vessel to evacuate the crew. The master further confirmed the vessel's position, that he was abandoning ship and that there were 15 people on board, who were mustering on the after working deck. The coastguard replied that a rescue helicopter would be sent from Sumburgh airport. Shortly afterwards, the coastguard instructed the RNLI at Aith to launch its lifeboat and to head for the island of Oxna to assist the casualty.

Following the grounding, the second officer went to bridge and heard the master talking to the coastguard. He collected a VHF hand-held radio set from the bridge, and went to his cabin to collect his survival suit and lifejacket. He then went to the muster station.

The chief officer had been thrown onto his daybed by the impact. He went out of his cabin and into the alleyway, and saw that crew members were donning their survival suits and lifejackets. Someone told him that the vessel had gone aground. The chief officer donned his survival suit, grabbed his lifejacket and went to the bridge. He found the master standing at the after console in his survival suit. The master told him to abandon to the liferafts, and that the coastguard rescue helicopter would be evacuating the crew.

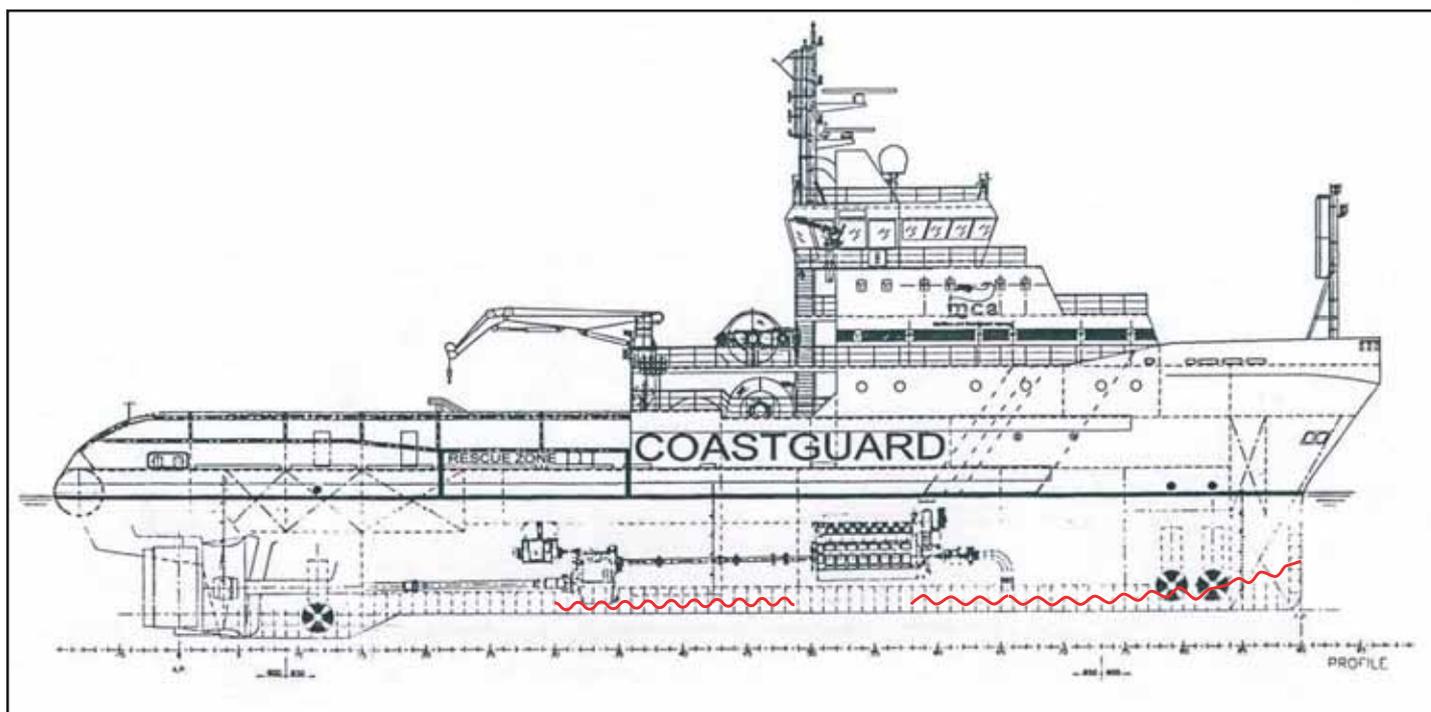
By that time, *Anglian Sovereign* had drifted northwards from the original grounding position on Bulta Skerry, had swung round to starboard, and had come to rest in a cleft in one of the most southern islands of the Cheynies (**Figure 4**). In the resting position, the vessel was facing out towards the open sea, with most of her after working deck area surrounded by rocks and land.



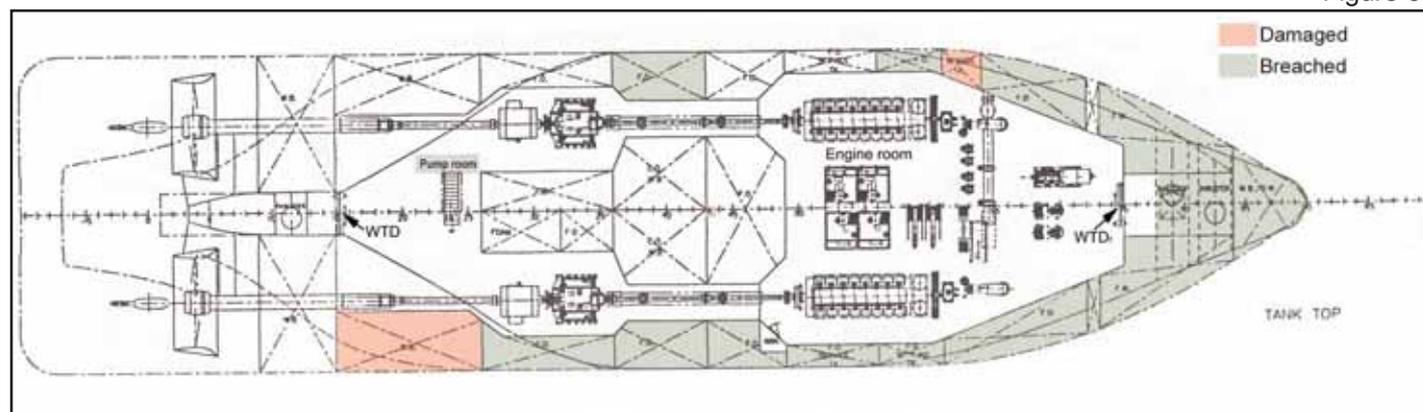
The track of *Anglian Sovereign* between 2137 and 2312

The chief officer went below to the muster point, which was on the port side of the after working deck. He checked that all the crew members were accounted for, and that none of them was injured. The second officer returned to the bridge to report that all the crew were accounted for at the muster station.

The chief engineer and the second engineer went to the engine control room to assess the damage to the vessel. The engines were still running, but had been de-clutched. They started the electronic tank sounding monitoring system for the ballast and diesel fuel tanks. Then they entered the main engine room, where they found no signs of damage and no bilge alarms sounding. This was also the case for the pump room further aft (**Figures 5a and 5b**). They did not enter the bow or stern compartments, because the watertight doors to these were closed.



Profile of *Anglian Sovereign* showing extent of penetration damage on starboard side



Plan of tank top showing breached and damaged tanks including the intact engine room and pump room

On returning to the engine control room, they could see, from the electronic sounding monitoring system, that some of the tanks on the port and starboard sides were filling up, from which they concluded that *Anglian Sovereign's* hull had been breached (**see Section 1.5.4**). Using the internal telephone system, the chief engineer reported their findings to the master, who was still on the bridge. The two engineers decided to start pumping number 2 ballast centre starboard tank, in an attempt to reduce the starboard list. After they had started the pump, they returned to the muster point. The chief engineer then instructed the second engineer to start the emergency generator.

Following a discussion between the chief engineer and the chief officer, it was decided that lightening the vessel, by pumping ballast, could exacerbate the damage to her. The ballast pump was therefore stopped.

Following the master's instruction to abandon ship, the chief officer had instructed some of the crew to move one of *Anglian Sovereign's* liferafts to a better position on the starboard side. However, prior to deploying the raft, it became clear to the chief officer that the situation on board the vessel had stabilised, and therefore no attempt was made by the crew to launch and get into the raft.

By this time, both the chief officer and the second officer were able to monitor the conversation between the master and the Shetland Coastguard, via their hand-held VHF's, and they were aware that the emergency services were proceeding to the vessel.

At 2147, Shetland Coastguard broadcast a "Mayday" relay distress message on behalf of *Anglian Sovereign*. A number of vessels responded to the distress message, including *Triton*, which was carrying out hydrographic survey operations in the North Channel to Scalloway harbour. *Triton* was the closest vessel to *Anglian Sovereign*, and she made her way to the scene, arriving at 2207.

The rescue helicopter was tasked at 2151, and took off from Sumburgh airport at 2205. Once airborne, the pilot reported to Shetland Coastguard that it would take 8 minutes to reach *Anglian Sovereign*.

At 2159, Aith lifeboat's coxswain reported to Shetland Coastguard that he was underway, and that the liferaft would reach *Anglian Sovereign* in 1½ hours' time.

At 2208, the Shetland Coastguard watch manager contacted the Duty Area Officer (DAO) in Stornoway and told him about the emergency situation concerning *Anglian Sovereign* (**see Section 1.8**). The DAO said that he would relay the information about *Anglian Sovereign* to MCA's duty CPSO.

At 2213, Klyne Tugs's duty superintendent called Shetland Coastguard to ask for information on *Anglian Sovereign*. He was given the vessel's current situation, including that she was in a stable position, that there were no injuries to the crew, and that the rescue helicopter would be at the scene shortly to evacuate the crew. The superintendent then contacted the master by telephone, and was told that the vessel was aground and that her crew were abandoning. The master hung up as soon as he had passed the superintendent this information; he answered no further attempts to contact him by telephone.

At 2228, the CPSO called the Secretary of State's Representative (SOSREP), and told him about *Anglian Sovereign's* situation (**see Sections 1.8 and 2.4**).

At 2219, the rescue helicopter arrived on scene (**Photographs 3 and 4**). The crew were lifted off the stricken vessel in pairs, the chief officer being the last one to be evacuated, at 2240 (**Photograph 5**). However, the master remained

Bulta Sound Oxna Initial grounding position Fuel pollution

Photograph 3



An infra-red image from rescue helicopter OC, showing *Anglian Sovereign* in her second grounding position

Photograph 4



Video still from rescue helicopter OC, showing *Anglian Sovereign* in the second grounding position and the vessel listing to starboard



Video still, showing the crew being lifted onto rescue helicopter OC

on board. The rescue helicopter told Shetland Coastguard that 13 crew members had been evacuated. From that point onwards, the coastguard believed there were two people remaining on board *Anglian Sovereign*.

When the rescue helicopter was leaving the casualty for Tingwall airport, the master called Shetland Coastguard and asked for the chief engineer to be returned to the vessel. This request was relayed to the rescue helicopter, which was now travelling towards the airport. The chief engineer was unwilling to return to the vessel, because of the risks involved. The master then asked if they could get the chief engineer to tell him how to clutch in the engines from the bridge controls. Shetland Coastguard replied that the rescue helicopter would soon be arriving at the airport, and that he would tell the ground coastguard auxiliary staff to have the chief engineer's instructions relayed to him.

At 2246, the Shetland Coastguard watch manager asked the master if it was wise to attempt to take *Anglian Sovereign* off the rocks, and whether he had assessed her damage. The master replied that, from the vessel's movement, he thought she was afloat. He added that, if she remained in the present position, the situation would only deteriorate (high water had occurred about 35 minutes before). The watch manager accepted the master's explanation.

After the rescue helicopter had landed at the airport, the winchman relayed to Shetland Coastguard the chief engineer's instructions on how to clutch in the engines. However, before they could be further relayed to the master, *Triton*

reported to Shetland Coastguard, at 2253, that *Anglian Sovereign* was underway. The master confirmed this soon afterwards, and said that he would be taking her to Scalloway. He requested that divers attend his vessel on berthing.

Anglian Sovereign started moving out of the cleft in a westerly direction at about 2252. At 2256, the vessel altered course onto a southerly heading, and slowly travelled in that direction until 2258. At this time, she stopped and drifted back to the north. At 2304, the vessel resumed the southerly course, and increased speed. However, at 2306 *Anglian Sovereign*'s head started turning to the south-east. The master told *Triton* that he intended to pass through Bulta Sound. However, at 2308, the ETV made contact with the rocks lying to the north-west of Oxna. The master then came astern off the rocks, before turning to port, through north, until steadying on 180° at 2312.

By then, the rescue helicopter had taken off from Tingwall airport and had returned to *Anglian Sovereign*. *Triton* was close by the casualty, escorting her towards the entrance to the South Channel. At 2214, the helicopter pilot reported to Shetland Coastguard that *Anglian Sovereign* was being steered erratically. He also observed that oil was leaking from her.

After *Anglian Sovereign* was known to be underway, Shetland Coastguard decided that the four ship's officers should be returned to Scalloway to meet her on arrival. The auxiliary coastguard vehicle took the four officers from Tingwall airport to the harbour. On their arrival at the harbour, they boarded the pilot vessel so that they could be taken out to *Anglian Sovereign* as she made her approach to Scalloway.

The general manager for the ports in the Shetland Islands (except Lerwick), had been told that the casualty was making her way in to Scalloway, and that she was leaking oil. Having decided to allow her to enter the harbour, and to implement the *Scalloway Harbour Contingency Plan*, he requested Sullom Voe oil terminal to mobilise its pollution response equipment to Scalloway.

As *Anglian Sovereign* approached Scalloway harbour, the pilot launch went out to meet her. The four officers boarded the casualty while she was still making way. The chief and second officers went to the bridge and asked after the master's wellbeing. He replied that he was alright. The chief officer saw that the master was piloting the vessel in a reasonable manner. As she approached the berth, the officers left the bridge and went on deck in readiness for berthing and mooring operations.

After boarding the casualty, the two engineer officers had gone below, and had started pumping ballast to bring her upright.

At 0016, the master told Shetland Coastguard that *Anglian Sovereign* was alongside the quay in Scalloway, and that they were making fast. Once this was achieved, the deck officers and the shore pollution response team from Sullom Voe Oil Terminal, began to deploy oil defence booms around the vessel.

Shortly after she had been made fast, the local police boarded the vessel and breathalysed the master. He was found to be above the proscribed alcohol limit and was arrested and taken to Lerwick police station.

The successful clean-up of the oil spill in the harbour was controlled by a management team consisting of a number of interested parties, and carried out by up to 20 persons on the ground.

Diesel fuel was pumped from *Anglian Sovereign*'s ruptured tanks into a nearby storage tank. It was estimated that 84 tonnes of diesel fuel had been lost to the environment during the accident (**Photographs 6 and 7**).

Anglian Sovereign was later towed to a ship yard in Rotterdam for repairs. She returned to service at the Fair Isle station on 22 December 2005, after all the repairs had been completed.

1.4 ENVIRONMENTAL CONDITIONS

The Shetland Coastguard weather forecast for a period of 12 hours from 1800, on 3 September 2005, was as follows:

Wind: South to south-west 5 to 7 gradually veering to west to north-west 3 or 4.

Weather: Cloudy, light rain or drizzle later.

Visibility: Moderate or good.

High water at Scalloway was 2211.

Sunset was at 2005. Civil twilight was at 2050. Nautical twilight was at 2147.

1.5 ANGLIAN SOVEREIGN

1.5.1 The vessel

Anglian Sovereign was built as a multi-purpose anchor-handling tug, supply vessel. On board, she carried specialised salvage equipment, including anti-pollution spray booms, oil containment booms, a salvage hold for pumps and compressors, and a heavy lift crane rated for use with remotely operated underwater vehicles. She had crew accommodation to support extra personnel during lengthy salvage operations. In addition, she had a space designed as a survivor rescue area for 30 persons.

As an ETV, her patrol area was in the seas around the islands of Shetland and Orkney, the Fair Isle Gap and the Pentland Firth. The crew were retained on a continuous alert state of not more than 20 minutes' readiness to proceed, whether berthed alongside or at anchor.



Anglian Sovereign alongside in Scalloway



Note the oil sheen in the harbour

1.5.2 Bridge equipment and layout

The bridge was furnished with the following navigational equipment:

Automatic helm	Anschutz Nautopilot NP 2010
Gyro compass	Anschutz Standard 20 plus (GM)
Radars	Furuno S-Band FAR 2835 S Furuno X-Band FAR 2825
DGPS	Furuno x 2 GP80
Echosounder	Furuno FE700
Speedlog	Furuno DS80
ECS	Furuno GD380

The layout of the equipment is shown in **Photograph 2** and **Figure 3**.

1.5.3 Manning

Crew

The crew comprised the master, chief officer, second officer, chief engineer, second engineer, three ABs and a cook. For near coastal voyages, this complement was in accordance with the vessel's Safe Manning Document, which was issued by the MCA on 11 December 2003. At the time of the accident, there were also four hydrographic surveyors on board. All of the crew and the surveyors were British, except for one Canadian surveyor. All the crew members were on a 28 days on/28 days off duty rota system. Normally, the whole crew changed at the same time.

Navigational watches

The master took the 0800 to 1200 and the 2000 to 2400 navigational watches. The chief officer took the 0400 to 0800 and the 1600 to 2000 navigational watches. The second officer took the 0000 to 0400 and the 1200 to 1600 navigational watches.

Master

The master was 42 years old, and held an STCW '78 (as amended in '95) II/2 certificate of competency. This allowed him to be master of a vessel of less than 3,000gt, operating in the Limited European Area. He was a Shetland islander, and had started his sea-going career on the Lerwick harbour tugs, in 1981. The master had also served on Shetland Island ferries for a period of time. After this term of employment, he then worked for two Merseyside tug companies as master. He returned to the Lerwick tugs in 1999, but in 2000 he served on standby vessels operating for the offshore oil industry, in the north North Sea. He then joined a company operating anchor-handling tugs as master. During

that time, he served on a tug which had been chartered by Klyne Tugs as an ETV for the Fair Isle station, while the Chinese builders were delivering *Anglian Sovereign* to her owners. In March 2004, Klyne Tugs recruited him as master, and he had then served on *Anglian Sovereign* until the accident.

Chief officer

The chief officer was 52 years old, and held an STCW '78 (as amended in '95) II/2 certificate of competency. He had begun his career at sea as a deck cadet, in 1970, serving on general cargo ships trading worldwide. He served with a number of companies, but, eventually, he became employed on board vessels working in the offshore industry. In 1997, he joined a company which operated anchor-handling supply vessels, working in the North Sea and the Irish Sea oil/gas fields. At the end of August 2005, Klyne Tugs employed him in the rank of chief officer, and he joined *Anglian Sovereign* on Friday 2 September at Scalloway.

Chief engineer

The chief engineer was 41 years old and held a STCW '75 (as amended in '98) 111/2 chief engineer's motor certificate. He had started his sea-going career as engineer cadet in 1980, serving on bulk carriers trading worldwide. He worked ashore for about 4 years, but returned to seafaring on board Mersey harbour tugs for about 7 years. He served on a Scottish cruise ship before joining Klyne Tugs. He had served on board *Anglian Sovereign* since she was delivered by the Chinese builders in 2003.

1.5.4 Damage

During the grounding, *Anglian Sovereign* sustained heavy damage to her hull structure, with penetrations below the waterline, resulting in serious flooding to various tanks and compartments. As a result of this forward flooding, the vessel developed a list of about 15° to starboard, and trim by the head. However, the tank top structure remained intact, which prevented flooding to the engine and pump rooms (**see Figures 5a & 5b**).

The penetration damage extended over half the length of the starboard side, and about one third of the length on the port side. The penetrations damaged the hull and breached the (**Photographs 8, 9 and 10**) following tanks and compartments:

- Forepeak;
- No.1 double bottom, wing, port and starboard, fresh water tanks;
- The starboard side of the cofferdam;
- No.2 double bottom, wing, port and starboard fuel tanks;
- No.3 double bottom, wing, port and starboard fuel tanks;
- No.4 double bottom, wing, port and starboard fuel tanks;

Photograph 8



A view of the starboard side looking forward, showing damage to the bow thruster area

Photograph 9



A longitudinal tear in the starboard side shell plating



A closer view of the bow thrusters

- No.5 double bottom, wing, starboard fuel tank;
- No.6 double bottom, wing, starboard fuel tank; and
- The ship's side was punctured in way of the starboard escape hatch.

Anglian Sovereign's port and starboard fuel tanks were about 80% full before the accident. As there was more damage to the starboard tanks, and greater ingress of water than the port side, she listed to starboard. The severe damage in the forepeak and forward double bottom tanks caused her to trim down by the head.

The following damage was identified and reported by the Salvage Association on *Anglian Sovereign's* arrival at the Damen dry dock in Rotterdam:

Hull:

- Hull plating and internal structure at and under bow stem;
- The turn of the bilge and side shell plating port and starboard side variously heavily crushed, torn and/or distorted, extending the full length of the vessel along starboard side and to amidships along port side; and
- Box keel (aft end) locally smoothly indented, just under the aft thruster tube.

Kort nozzle/ rudder assemblies:

- Port and starboard rudder/becker flaps bodily set up into the steering gear and/or buckled – part broken off at base plate;
- Kort nozzles locally and slightly indented at outboard lower quarter; and
- Anodes washed off.

Propeller/tail shaft:

- Minor nicks at port propeller;
- Starboard shaft stern seal leaking oil; and
- Both rudder posts displaced vertically, and steering gear machinery chock fast mountings cracked.

Main propulsion diesel engines:

- Holding down bolts slackened off; and
- Chock fast mountings cracked.

Auxiliary machinery:

- Port shaft generator shifted off mountings; and
- Forward engine fire pump, drive shaft misaligned.

Other:

- Numerous double bottom and side tanks, storage, sludge settling/daily service tanks became common and contaminated.
- Loss of the hydrographic multibeam echosounder transducer array.

1.6 KLYNE TUGS

1.6.1 The company's history

The owner of Klyne Tugs had been a fishing skipper until he was about 40 years old. He had owned nine trawlers, and had also been involved in fish selling and in the chandlery business. With the decline of the fishing industry, the owner founded Klyne Marine Services in 1982, by providing port towage services with a small twin screw 746kW (1,000 bhp) tug. The company soon expanded into the coastal towage and the offshore support industries. In 1985, it bought a larger tug of 40 tonnes bollard pull, which enabled the company to enter the long distance towage market. At that time, Klyne Tugs (Lowestoft) Ltd was formed. From this time onwards, the tugs became involved in salvage operations, a number of which were under Lloyd's Open Form. By the late 1980s, the company was operating tugs of between 60 and 80 tonnes bollard pull.

In 1994, Klyne Tugs signed a formal co-operation agreement with Smit Tak BV of Rotterdam, to work together on salvage operations. Smit Tak had a large stock of salvage equipment, a number of heavy lift barges and a long history in the salvage industry. The agreement was still in place at the time of the accident.

The company bought *Anglian Prince* (built in 1978 with a 180 tonnes bollard pull) after Lord Donaldson's inquiry recommendation mentioned in **Section 1.2**. She has been an ETV since 1998, operating mainly on the Minches station. *Anglian Monarch* (150 tonnes bollard pull) was built in Japan in 1998 to Klyne Tugs's specification as an anchor-handling/tug/supply vessel, and was also chartered as an ETV.

Anglian Princess (175 tonnes bollard pull) was delivered in 2002. Her sister ship, *Anglian Sovereign*, was delivered in 2003.

The company premises are in Lowestoft and there is a support-staff of 10. There are about 120 sea-going staff.

1.6.2 Safety management system

The company's designated person* (DP) had been employed with the owner's (her father's) company since he was in the fish selling and the trawler management businesses. In 1990, she had a career break, but returned to full time employment with Klyne Tugs in 1998.

- * The International Safety Management Code defines the role of a designated person within a company as:

a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution-prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.

The DP had attended courses dealing in Port State Control, International Safety Management, Marine Surveying, Safety Officers' role and Dangerous Goods.

The DP prepared the safety management system (SMS) (**see Section 2.5.1**) for the tugs, which was overseen by Lloyd's Register. Following an audit of Klyne Tugs's safety management, the MCA issued a Document of Compliance (DOC) on 20 November 2001. MCA's auditors undertook the annual verification of the DOC. The Safety Management Certificate for *Anglian Sovereign* was issued by the MCA on 7 October 2003, and it is valid until May 2008.

On 2 February 2005, the DP carried out a company annual audit on *Anglian Sovereign*. There were two non-conformities: one concerned the authentication of a certificate of competence, and the other was the non-recording of a dangerous space drill.

1.6.3 Drug and alcohol policy

The following is the company's drug and alcohol abuse policy:

The Company has a strict policy that non-prescribed drugs and alcohol are BANNED on board.

Any person reporting for duty or found on board to be under the influence of non-prescribed drugs or alcohol will be instantly dismissed.

Any person suspected of being under the influence of non-prescribed drugs or alcohol will be required to take a drug or alcohol test as arranged by the Company. (Annex 3)

This policy document was set in a frame and mounted on the bridge bulkhead in *Anglian Sovereign*.

1.7 MCA CHARTER ARRANGEMENTS

Following the *Sea Empress* disaster, Lord Donaldson produced a review of the provision of ETVs around the UK coast, in 2001, and recommended the establishment of "year round" ETV coverage at four locations. The recommendation was accepted by the UK Government and, as a consequence, the MCA invited competitive tenders from companies who could provide ETVs in the South Western Approaches, the Dover Strait, the Minches and the Fair Isle stations. The tenders were sought on the basis of an MCA Time Charter Party for ETVs and General Conditions of Contract for Services. The contract was for 8 years, with an option to extend for a further 2 years.

Klyne Tugs successfully tendered for the contract, which began on 28 August 2001. Klyne Tugs initially serviced the contract with two of its own tugs, which were already on station at two of the designated locations, and by chartering in two additional tugs. Later, the chartered-in vessels were replaced by *Anglian Princess* and *Anglian Sovereign* after delivery of these vessels from a Chinese yard.

MCA's Contract Manager/Counter Pollution Mariner is responsible for the efficient running of the contract, and liaison with the contractor on policy matters related to emergency towing. District Operations Managers (DOMs), who are based in the coastguard MRCCs, carry out the day-to-day management of the ETV's program.

Relevant clauses of the contract are at **Annex 1**.

1.8 THE ROLES OF HER MAJESTY'S COASTGUARD AND SOSREP

1.8.1 HM Coastguard

HM Coastguard, an integral part of the MCA, is responsible for the initiation and co-ordination of civil maritime search and rescue within the United Kingdom Search and Rescue (SAR) region. This includes the mobilisation, organisation and tasking of adequate resources to respond to, either persons who are in distress at sea, or to persons at risk of injury or death on the cliffs or shoreline of the United Kingdom.

HM Coastguard is responsible for ensuring that every SAR incident is carried through to a successful conclusion, and in particular for:

- Obtaining and evaluating all relevant information from appropriate sources regarding the incident;
- Initiating distress, urgency and other broadcasts as necessary;
- Alerting and tasking appropriate resources to SAR incidents;
- Determining search areas and formulating search plans;
- Tasking resources effectively;
- Where appropriate, appointing an On Scene Co-ordinator to exercise local co-ordination at the scene of the SAR operations, and an Aircraft Co-ordinator to co-ordinate the involvement of multiple aircraft in SAR operations;
- Co-ordinating the actions of the involved units; and
- Deciding when the SAR action can be terminated.

1.8.2 SOSREP

The role of SOSREP came into being following Lord Donaldson's review (Salvage and Intervention, Command and Control) in 1999. SOSREP has ultimate powers to intervene on behalf of the Secretary of State for Transport in any salvage situation, or in a situation where there is a threat of significant pollution. SOSREP's powers are extensive; he may:

- Give directions to a person in control of a ship to take, or refrain from taking, any action of any kind whatsoever;
- Require that a ship is to be moved to, or is to be removed from, a specified area or locality, or from UK waters.

During an incident, the MRCC watch manager and the duty CPSO will take into account a large number of factors to determine whether or not a "trigger" point has been reached. If an incident becomes so hazardous that it has, then SOSREP's powers of intervention will be enacted, together with a regional or national response, and the activation of the MCA's emergency information room in Southampton.

1.9 RECORDED DATA

Anglian Sovereign was neither required to be fitted with, nor was she fitted with, a Voyage Data Recorder (VDR) or telegraph logger.

A record of the vessel's track was retrieved from the ECDIS and analysed by the MAIB. Additionally, the hydrographic surveying equipment fitted was in operation during the grounding and subsequent actions, and this maintained an extremely accurate record of the vessel's position and heading. This data is accurate to +/- 3m, and recorded the position and vessel heading every 0.2 of a second from passing Skelda Ness to the approach to the South Channel entrance at 2320.

1.10 RECONSTRUCTION OF EVENTS

On 2 February 2006, *Anglian Sovereign* was taken to sea, with MAIB inspectors on board, to carry out trials west of Oxná. The aim of the sea trials was to attempt to replicate the sequence of events leading up to the grounding (**see Section 2.3.2**).

The main objectives of the sea trials were to:

- Conduct a reconstruction of the surveyor's visit to the bridge to make the mobile telephone call;
- Verify the noise levels of bridge and GMDSS alarms;
- Monitor the radar picture and visual reference points while approaching the island of Oxná on a heading of 116°; and
- Monitor the radar picture and visual reference points while approaching the South Channel entrance, on a heading of 112°.

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 to prevent similar accidents occurring in the future.

2.2 FATIGUE AND ALCOHOL

2.2.1 Fatigue

Anglian Sovereign's master was about half-way through a 28-day duty period, during which he had been working a 4 hours on - 8 hours off watch cycle. When the vessel was in Scalloway, overnight 2/3 September, the master had turned in just after midnight, after consuming five pints of beer ashore and rum and cola on board. He awoke at about 0700. The after effects of that amount of alcohol, and having received about 6½ hours sleep, would probably have left him in a fatigued state that morning. However, in the afternoon, he had about 1½ hours sleep. Therefore, even if he was not reasonably rested after the previous night's sleep, he should have been rested for his 2000 to 2400 watch. It is therefore unlikely that fatigue, on its own, would have been a causal factor in this accident.

2.2.2 Alcohol

The master habitually drank alcohol on board *Anglian Sovereign*, even though he knew this was not permitted by Klyne Tugs, and that he risked instant dismissal if caught doing so. Before joining Klyne Tugs, the master had worked for companies where the consumption of alcohol on board ship was permitted, and he had continued the habit during his current employment. He routinely drank rum and cola 'as a night cap', and kept a reserve of alcohol for entertaining visiting officials.

During the evening before the accident, he had consumed five pints of beer ashore in a public house. This amount of alcohol would have taken him above the Railways and Transport Safety Act's permitted limit for alcohol. The master was taken back by car to the vessel, and he took with him a bottle of rum, a large bottle of cola and eight cans of lager. The master took a risk in consuming alcohol ashore, and on board during his off-watch period, since, although the vessel was alongside, all of the crew were still on a 20-minute notice to respond to emergencies at sea. Had *Anglian Sovereign* been called out to respond to an emergency, the master's ability to respond in a safe manner would have been compromised, and he could have placed both his vessel and his crew in danger. The fact that the Fair Isle ETV station had a low call-out incidence might have influenced his judgment in this respect.

During the morning of the accident, the chief officer spoke to the master on several occasions, and, at that time, he had no doubts about his sobriety. The master had been the last person in for lunch, and the cook noticed that he was

“arrogant”, and not his usual happy and sociable self. At about 1230, the cook was so concerned about the master that he told the chief officer that he thought the master had been drinking alcohol, although he could not smell any alcohol on his breath. The chief officer responded that the master would be “all right”. The cook’s concerns should have alerted the chief officer that the master was either suffering from the after effects of excessive alcohol consumption, or was actually under the influence of alcohol, which the chief officer would have known was against company policy. Later in the afternoon, after the master had an afternoon sleep and a rum and cola, the cook observed that the master had recovered his usual happy demeanour.

The last time the chief officer saw the master before the grounding, was at 2000 during the watch handover, when he noted the strong smell of mouth wash on the master’s breath. This observation, together with the cook’s concerns made to him earlier in the day, could have alerted the chief officer to the possibility that the master was under the influence of alcohol at the time of handing over the watch. In that case, he should have confronted the master, in accordance with the company’s drug and alcohol abuse policy. However, the chief officer might have been reluctant to confront the master because he was new to the company and the vessel, and was unfamiliar with the master’s personal characteristics.

At 2030, on the day of the accident, the chief engineer had spoken to the master and had sensed that he had been drinking alcohol. However, he believed that the master was not drunk and that he was in control of himself and the vessel.

After the grounding, while waiting for the helicopter, the chief officer and the second officer were listening on their hand-held VHF sets to the master’s conversations with the coastguard. They heard that his speech was slurred, and it seemed to them that he was drunk. When the second officer returned to the bridge to report that the crew had been accounted for, his suspicions were confirmed: the master’s speech was slurred and he had difficulty in forming his words.

There were reports from a number of the crew that the master appeared briefly at the muster station, but he gave them no instructions. The master cannot remember going down on deck. This suggests a confused state of mind, which could have been due to the stress of the situation, or to the effects of alcohol, or both.

After being breathalysed by the police, the master’s explanation for being three times over the limit was that, shortly after taking *Anglian Sovereign* out of the cleft into the open sea, he began to shake, because he was concerned about the fate of the vessel and himself. To calm himself down, he went to his cabin and drank a mug full of rum. This might have occurred during the period the master left the bridge when the vessel drifted to the north between 2258 and 2304 (see **Figure 4**).

When the chief officer re-boarded the vessel at 2350, he noticed the master's speech was very slurred.

After *Anglian Sovereign* returned to Scalloway, police tests showed the master had, in his breath, 118 microgrammes of alcohol in 100 millilitres: 35 microgrammes is the permitted level of alcohol set out in the Railways and Transport Safety Act 2003. He was, therefore, 3.4 times over the permitted level. Although it is not possible to estimate the degree of his inebriation when he came on watch at 2000, it is likely that the master had consumed sufficient alcohol (probably half a bottle of rum and three cans of lager), since boarding the vessel the previous evening in Scalloway, to severely compromise his watchkeeping abilities.

The master's prime responsibilities were to the safety of those on board *Anglian Sovereign*, to represent the owner's interests and to be the custodian of the company's SMS. By keeping and drinking alcohol on board the ship, the master ignored the company's drug and alcohol policy, and placed his ship and crew in considerable danger.

2.3 THE GROUNDING

2.3.1 Reconstruction of passage

The actual movements of *Anglian Sovereign*, given in Section 1.3, are irrefutable, having been reconstructed from both ECDIS and the onboard hydrographic surveying equipment. The following analysis discounts some suggested theories, to identify the only credible explanation for the sequence of events:

On completion of the survey, at 2019, the master set a course of 112°, which was directly for the entrance of the South Channel approach to Scalloway.

At 2050, the surveyors asked the master to suspend *Anglian Sovereign's* passage and to make a short run to the north.

At 2121, after completion of the surveyors' test run, *Anglian Sovereign's* course was altered to 116°, which was directly towards Oxna. The master is unable to recall this part of the proceedings. As this course was very similar to his previous heading, the MAIB considers it likely that the master failed to take account of the leg to the North, and believed that he was still heading towards the South Channel.

The vessel was therefore on a course of 116° heading towards Oxna at about 16 knots. It was dark, but there was no lookout posted and so the master was alone on the bridge. The vessel passed very close to Skelda Ness without altering course, and continued to close Oxna.

The MAIB reconstruction at sea, onboard *Anglian Sovereign*, looked at the sequence of events leading up to the grounding. The reconstruction showed that, on approaching Oxna, the Fugla Ness sector light at the South Channel

entrance was on the starboard bow among the street lights of the village of Hamnavoe. The North Havra sectored light for the North Channel entrance was easily distinguishable because there were no shore lights behind it and it was on the port bow. As the sectored lights for each entrance had different characteristics, it would have been difficult for the master to confuse them, had he been properly attentive to the navigation of his vessel.

There was a suggestion that the master had been distracted by a GMDSS alarm. Shetland Coastguard had no record of any GMDSS alarms at, or around, the time of the grounding. There were also no alarms just before the grounding recorded in the GMDSS memory on board *Anglian Sovereign*.

The surveyor went to the bridge at about 2135 to make a mobile telephone call. As he entered the bridge, he acknowledged the master who was in his seat, and received a quiet response. At this time *Anglian Sovereign* would have been just 8 cables away from the grounding position, still heading towards Oxna at 16 knots. The surveyor went to the aft starboard corner of the bridge and started a call at 2136. He was sitting down, and his view of a greater part of the bridge was obscured, and he was engrossed in conversation on his mobile telephone. The surveyor did not hear a GMDSS alarm, and he did not see the master cancel it on the console, which was only about 1.5 metres away from his sitting position. When he felt the vessel grounding, he hurriedly ended the call at 2138 and, as he made his way to the stairs to go below, he saw the master standing at the forward console.

It is unlikely that the master was significantly fatigued. Evidence indicates he was awake in his chair and there were no significant distractions. Nevertheless, on a clear night, in an area he knew well, the master failed to maintain a proper appreciation of the vessel's position. There is evidence that he had consumed alcohol, which is likely to have affected his awareness and thought process, and, therefore, contributed to his failure to navigate the vessel safely.

2.3.2 Navigational safety issues

This investigation has identified navigational safety issues which relate to the lack of lookout on the bridge, not making and keeping to a passage plan, and not using the available electronic charts.

Lookout

The practice on board *Anglian Sovereign*, of operating with a single watchkeeper on the bridge during the hours of darkness, was in contravention of Chapter A-VIII/2 of STCW, which states:

The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the navigational watch are

responsible for navigating the ship safely during periods of duty, when they will be particularly concerned with collision and stranding.

The officer in charge of the navigational watch may be the sole look-out in daylight...

Although STCW does not explicitly state that there should be a lookout during the hours of darkness, it is clearly implied. Additionally, MCA's MSN 1767 states:

Masters, owners and operators are reminded that the UK does not consider it safe for the officer of the navigational watch to act as sole lookout during periods of darkness or restricted visibility.

In *Anglian Sovereign*, it was normal practice for the master, and the other navigational bridge officers, not to have an AB lookout with them when they were on watch during the hours of darkness. This clearly contravenes MCA's advice, see also 2.5.3. The ABs spent their time on watch cleaning the accommodation, carrying out safety rounds and occasionally visiting the bridge.

Recognising that the vessel was heading towards Oxna, and that the master was not taking action to alter course, a lookout on the bridge could have alerted the master that the vessel was in danger of grounding. Having been alerted, the master could have altered course either to the north or south, and, given the vessel's tight turning circle, thereby prevented her from grounding.

Electronic chart system

Anglian Sovereign was provided with an electronic chart system (ECS), using electronic Raster Navigational Charts (RNC) for the area in which she was being navigated on the day of the accident. Klyne Tugs did have a programme of placing its navigating officers on ECDIS training courses, however, *Anglian Sovereign's* master had not attended one due to the absence of available courses. Being unfamiliar with the operation and functions of the ECS, he chose to ignore it. Instead, he relied on the vessel's radars and GPS to provide him with primary navigational data.

Passage plans can be entered onto an ECS and can be altered easily. If this had been done, and the master had been trained in its use, the enhanced information from the ECS would have given him greater positional awareness, and could have prevented the grounding. Klyne Tugs should ensure that its navigating officers use ECSs to display passage plans.

It is also possible to set up an advance warning alarm on RNCs for an area that the navigator does not wish the vessel to enter. This facility could have been used in this case, and the alarm could have warned the master, in sufficient time, that *Anglian Sovereign* was too close to the group of islands around Oxna.

Passage plan

Guidance on passage planning is contained in Annexes 24 and 25 of SOLAS Chapter V. The annexes contain the key elements of the passage plan, which are:

appraising all relevant information;

planning the intended voyage;

executing the plan taking account of prevailing conditions; and

monitoring the vessel's progress against the plan continuously.

On *Anglian Sovereign*, a passage plan had been made for the outbound passage from Scalloway, using the North Channel, to a position 4.5 miles north-east of Foula. However, the master ignored the plan, and the vessel left Scalloway via the South Channel, after which he took her close to the east coast of Foula. The passage plan for the return passage was simply the reverse of the outbound passage. At the end of the sea trials, the master again ignored the return passage plan, and set a course for the South Channel rather than for the North Channel. The master did not amend the return passage plan or make a new one for the South Channel. After stopping for the additional run to the north, he again made no passage plan, thus losing the opportunity to recognize that he was now heading towards Oxná. He navigated by eye, using no planning, fixing, clearing distances, parallel index lines, radar ranges or the echo sounder. This was against all good navigation and safety procedures.

2.4 POST ACCIDENT EVENTS

2.4.1 Initial movements of the vessel, and events

The hydrographic survey data showed that *Anglian Sovereign* struck the shoal surrounding the small island of Bulta Skerry at 2137 55sec. However, she did not remain there, but started to drift, under the influence of tide and wind, to the north across the entrance to Bulta Sound. The vessel was afloat at this time, with a starboard list and with the engines still running, although de-clutched. Because everyone, including the master, was concentrating on donning survival suits and lifejackets, and mustering on the working deck in preparation to abandon ship, no one made an appraisal of the vessel's position. The master did not consult the ship's GPS and DGPS displays, which would have shown she was drifting and was not aground. If anyone had done so, it would have been realised that she was afloat and, therefore, they could have taken her into deeper water, or lowered the anchor, which was already rigged over the stern, enabling a proper damage assessment to be carried out. She continued to drift to the north, and came into contact with the shoal surrounding the next island at 2144. *Anglian Sovereign* pivoted on the shoal, causing her head to rotate through south. As she drifted further north around the shoal, she went stern-first into a cleft in the island, until she came to rest 13 minutes after the initial grounding. In her resting place, *Anglian Sovereign* was heading out to sea, with

the after working deck surrounded by rocks and land. She remained in the cleft for about 45 minutes, during which time the crew were airlifted off by rescue helicopter.

The general alarm was not sounded on board the vessel at the beginning of the emergency. The alarm, which could be heard throughout the vessel, was a signal for the crew to go to their muster stations. An alarm is also unambiguous, and leaves the crew in no doubt as to what action they should be taking. Earlier in the year, the master had participated in a grounding drill, in which one of the first actions on the checklist was to sound the general alarm. It would seem that, in an emergency, the general alarm was ignored, despite the earlier training.

Once *Anglian Sovereign* had come to rest in the cleft, she was pounded on the rocks by the action of the swell. Nevertheless, the initial reaction to abandon the crew to the helicopter was not reconsidered. The master decided to remain on board *Anglian Sovereign*, but he did not review who should be evacuated, and who should be kept on board to give him assistance. Given the circumstances, it would have been prudent to have evacuated non-essential crew members, and keep key officers on board to assist and advise him in taking whatever actions were necessary to save the vessel.

The sequence of events which occurred after the grounding, indicate that there was no leadership or structured co-ordinated command and control of the emergency situation. In particular:

- On his own initiative, the chief engineer had initially started to pump out a ballast tank to take the list off the vessel. However, after deciding with the chief officer that the de-ballasting could cause further damage to the vessel, the pump was stopped.
- Apart from the chief engineer's inspection of the engine and pump room spaces, no detailed damage assessment was made.
- No soundings were made around the vessel to determine where the deeper or shallower water lay. When the master decided to drive her out of the cleft, he did not know if there were any further navigational dangers in his path and, therefore, did so at great risk to the vessel, to himself and the environment.

2.4.2 Numbers of people on board *Anglian Sovereign*

During the early stages of the accident, Shetland Coastguard tried to establish how many personnel were on board *Anglian Sovereign*. The master informed the coastguard that there were 15 people on board his vessel when, in fact, the correct complement was only 14. Because the master had not maintained an accurate crew list, he was unsure of the exact number of people on board. This was largely because the number of Hydrographic surveyors carried by the vessel varied.

When the rescue helicopter told Shetland Coastguard that it had evacuated 13 people from the vessel, the coastguard watch officers understandably assumed that there were two people left on board – the master and one other. However, the watch officers did not ask who the other person was remaining on board. If *Anglian Sovereign* had subsequently foundered, and the search and rescue mission had to be resumed, the rescuers would have been looking for two people, instead of just the master. The search for a non-existing second person could have taken a prolonged period of time, and taken up many resources.

2.4.3 Moving grounded vessel

At about 2228, the duty CPSO told SOSREP about the grounding of *Anglian Sovereign*. At this point, the crew were still in the process of being evacuated from the vessel by rescue helicopter. It was only at 2242, when the master asked for his chief engineer to be returned to the vessel, that Shetland Coastguard began to realise that he intended to drive the ship out of the cleft. The watch manager questioned the master's intentions, when he asked the master if it was wise for him to take the vessel off her grounded position. The master reassured him that it was. The watch manager took the master's advice, and he did not set off the 'trigger situation', mentioned in **Section 1.8**, to invoke SOSREP's powers of intervention.

The duty CPSO and SOSREP had been referring to the Browser for Operation System Status (BOSS) in their homes. BOSS allowed them to access Shetland Coastguard data input system, and to keep up-to-date with the emergency situation. The only reference on BOSS, to indicate that the master was acting autonomously, was an entry into the system at 2246, which recorded the watch manager's inquiry about the master's intentions to take *Anglian Sovereign* clear of the cleft. However, before anyone had been able to consider the consequences of the master's intended actions, the master took the vessel off at 2253.

In addition to the navigational hazards, the act of driving the ship out of the cleft could have caused even greater damage to her, because of the increased hydrostatic pressure on the damaged structure. This increased the likelihood of further flooding and leakage of diesel fuel.

2.4.4 Company actions

The master had reported the grounding to the coastguard quickly, but he did not report the accident to the owners, or the P&I Club, as required in the company's emergency checklist (**Annex 2**).

The first advice that the owner received of the grounding of *Anglian Sovereign* was when the company's duty superintendent received a telephone call from the wife of the ship's cook. The duty superintendent then made a telephone call to the master of *Anglian Sovereign*, who confirmed that the vessel was aground, but then abruptly ended the call. Further attempts to contact the master were

unsuccessful, so the duty superintendent notified the company's senior manager. From this point on, Klyne Tugs's "office to ship emergency procedures" were activated but, although the company's senior managers were able to obtain information on the status of *Anglian Sovereign* from HM Coastguard, it was not until after the vessel was safely moored alongside at Scalloway, that they received further information from the master about the accident. It is likely that, had the master complied with the company's procedures, and consulted with Klyne Tugs's emergency response team at an early stage during the accident, he would have been advised not to attempt to drive the vessel out of the rock cleft. Further advice could also have been given to ballast the vessel down, to keep her in position, so that salvage resources could be deployed to assist the vessel in a more measured manner.

2.4.5 The return to Scalloway

Once the master had driven *Anglian Sovereign* clear of the cleft, she remained afloat, albeit with a starboard list and trimmed by the head. The speed of his actions circumvented any intervention or advice that could have been given by either SOSREP or the company.

The data from the hydrographic surveying equipment showed that the vessel travelled west, after coming out of the cleft, and turned to port on to a southerly heading. The vessel then stopped and drifted to the north for about 6 minutes. It is believed that, during the time that the vessel was drifting, the master went below to his cabin and drank a mug-full of rum (**see Section 2.2.2**). He then returned to the bridge and resumed the southerly course and increased the vessel's speed.

The master of *Anglian Sovereign* used the VHF to inform the master of *Triton*, which by this time was close to his vessel, that he intended to take the vessel through the very narrow passage of the Balta Sound. From data recovered from *Anglian Sovereign*'s Hydrographic survey equipment and recordings of conversations between the master of *Anglian Sovereign* and the bridge team of *Triton*, it became clear that, in attempting to pass through the Balta Sound, the vessel again grounded briefly at 2308 (**see Figure 4**).

At this point, the master changed his mind and decided to navigate the vessel to Scalloway via the South Channel. This was achieved without further incident and, as the vessel approached Scalloway, the coastguard arranged for *Anglian Sovereign*'s officers to be placed back on board to enable her to be safely berthed.

It was fortuitous that *Anglian Sovereign* was not more seriously damaged during the accident, and did not founder either at the site of the initial grounding or during the subsequent voyage to Scalloway. Had she done so, any subsequent counter pollution or salvage operation would have been very difficult, and the risk from pollution to the local environment would have been significant.

Although some pollution occurred at the site of the grounding, and during the passage into Scalloway, counter pollution resources were readily available to the authorities from the nearby Sullom Voe oil terminal, and these were quickly deployed to contain any further leakage of oil from the vessel once she had been safely berthed.

2.5 KLYNE TUGS'S SAFETY MANAGEMENT SYSTEM

2.5.1 General

Klyne Tugs is a relatively small company, with five tugs under its management. All the supporting shore staff of ten people, including the managing director, take an active part in the running of the vessels, and they are well known to the sea staff through frequent ship visits. Someone from Klyne Tugs's head office always attended every crew change, on each of their vessels. During these visits, the opportunity is taken to conduct emergency drills.

The company's SMS was introduced to the Klyne fleet in 2001 following an extensive programme of consultation with the crews of its fleet to ensure that the procedures were practicable and understood by all. The procedures are generic for all ships within the Klyne Tugs fleet, with ship specific variations covering maintenance routines and schedules.

The SMS defines the master's authority and responsibility as:

The master has complete and overriding authority and responsibility for taking all necessary actions for navigation, operations, management, safety, pollution prevention and the efficient running of his ship. In certain circumstances this may mean deviation from documented procedures.

Before appointment as master to the Klyne Tug fleet, prospective candidates are interviewed by the company's senior managers. Following appointment, new entrant masters attend a 1 week safety management induction course at the company's offices in Lowestoft. On joining his ship, the new entrant master will usually spend a further week understudying the outgoing master before taking over command.

During an internal company audit on 2 February 2005, the master of *Anglian Sovereign* had demonstrated to the DP that he was fully conversant with the company's SMS and his responsibilities as master of the vessel. However, after the accident, it was found that the master had neither completed the logbook, nor kept the crew list or drills up-to-date. It would appear that the master did not like paperwork, and only completed it towards the end of his tour of duty.

The fact that the master of *Anglian Sovereign* seems to have largely ignored the company's SMS procedures raises concerns over the effectiveness of Klyne Tugs's induction process for masters and its internal audit procedures. Given the high profile nature of the work performed by the ETVs, it should be a priority of

both the MCA and Klyne Tugs to ensure that these vessels are operated to the highest standard. In this respect a review of the owner's training and audit procedures should be undertaken with a view to producing the cultural change necessary to ensure the crews of ETVs understand and comply with the requirements of its SMS.

2.5.2 Passage planning

Company instructions on passage planning were contained within the SMS, however, these were restricted to very basic diktats that provided the crew with little or no guidance on the extent to which the principles of passage planning were to be adopted. The instructions on passage planning, as contained within the Klyne Tugs SMS, were as follows:

The 2nd Mate will complete a passage plan for each voyage

All relevant publications will be consulted and listed prior to departure

The master will verify the intended passage plan prior to departure

All completed passage plans will be held on file on board for one year

Klyne Tugs's instructions on passage planning rely heavily on the ability of its deck officers to apply professional knowledge and competence to produce an effective passage plan. More comprehensive guidance would appear to be warranted in order to ensure acceptable levels of passage planning on a consistent basis. In this respect, Klyne Tugs should consider enhancing its existing instructions on passage planning to provide its deck officers the requisite guidance. As a minimum, consideration should be given to providing copies of specialist publications on passage planning, such as the ICS Bridge Procedures Guide, and making reference to this documentation a mandatory requirement within its SMS.

2.5.3 Lookout

The owner's SMS contains the following procedure:

When the vessel is not alongside in port a good look-out will be kept at all times using all available means, visual, listening, electronic and radio

As detailed in Section 2.3.2, the master was navigating the vessel alone, on the bridge at night without the assistance of an additional lookout. MSN 1767 gives guidance on Bridge Watchkeeping and provides clarification on the wording contained within the STCW Code on the use of additional lookouts. MSN 1767 states that the MCA *does not consider it safe for the officer of the navigational watch to act as sole look-out during periods of darkness or restricted visibility.*

The wording of Klyne Tugs's procedure on keeping lookout at sea is too vague and does not adequately reflect the provisions contained within MSN 1767 issued by its customer, the MCA. Again, this procedure would benefit from more detail which would enable ship's staff to comply with the owner's requirements

to a uniform standard that could be properly audited and provide Klyne Tugs and the MCA with some confidence that the ETVs are being operated to the required standard.

2.6 DRUG AND ALCOHOL POLICY

Klyne Tugs has had a zero tolerance drugs and alcohol policy (**Annex 3**) from its inception in 1985. The policy was written before the introduction of the Railway and Transport Safety Act 2003. The charterers also insisted on a zero tolerance to drugs and alcohol on board the tugs. The company policy refers to being “under the influence”, which means that no crew member should have any traces of alcohol in their system. The company tried to dismiss a crew member who had consumed alcohol but was under the limit permitted by law. However, the company lost the case when the crew member took it to an Employment Tribunal court. However, it is also understood from the company that, if a crew member tests positive to a breathalyser test, a further independent test is carried out to determine the level of alcohol in the system. If it is found that the crew member is above the legal limit, that person will be dismissed. The wording of this policy is ambiguous, and, therefore, it is recommended that Klyne Tugs review its drug and alcohol policy to provide clarity for managers and sea going staff, on the acceptable levels of alcohol onboard its vessels.

The SMS policy on drugs and alcohol is an MCA contractual requirement. During whole crew changes for each vessel once a month, shore staff carried out random breathalyser tests on the sea staff. Each vessel carried breathalyser kits and the master could carry out random checks on the crew. Conversely, the chief officer or the chief engineer could carry out checks on the master. The problems with these methods of testing, are that the crew know when the shore staff will be visiting the vessels, and crew members are reluctant to test each other as it could cause animosity between them. Nevertheless, two crew members had been dismissed by the company in the past for consuming alcohol on board.

Despite these measures, the master had kept and consumed alcohol on board. He had also consumed a quantity of alcohol ashore that would have put him over the proscribed limit given in the Railways and Transport Safety Act 2003. This was particularly unwise for a master of an ETV, which was on a 20-minute call out system, and the dangerous nature of salvage operations that these vessels have to carry out at anytime. The non action of the senior officers onboard reflects on the effectiveness of the company’s alcohol policy.

Klyne Tugs should review its drugs and alcohol policy to make sure it is more effective. One element could be random testing of the sea staff by an independent specialist company. Another element could be to impress on the sea staff, through education, that a cultural change in the attitude to alcohol is needed.

2.7 MCA'S ROLE AS CHARTERER

The MCA's contract manager (also known as the "counter pollution mariner") was responsible for dealing with any operational issues that arose relating to the contract with Klyne Tugs to supply the four ETVs. The contract required Klyne Tugs and the MCA to meet on a quarterly basis to discuss any issues, and these meetings were held on board one of the ETVs in rotation. The meetings were usually timed to coincide with routine crew changes to allow the contracts manager to meet with the outgoing and relief master, together with the local MCA DOM and management representative from Klyne Tugs. The visits also enabled the contracts manager to perform spot checks on the various counter pollution and salvage equipment carried by the ETV, and provided him with an opportunity to observe shipboard emergency response drills that were conducted following each crew change. Once a year, the contracts manager would spend a period at sea on board one of the ETVs. These trips were usually timed to coincide with a coastguard exercise designed to test the operational response of the ETV.

The local MCA DOM would normally board *Anglian Sovereign* once a month. These visits were timed to coincide with the regular crew change, and provided the MCA DOM with an opportunity to brief the incoming master on the vessel's future programme and discuss any issues that might have arisen during the previous month's employment with the outgoing master.

Aside from the single voyage undertaken annually by the MCA's contracts manager, the only opportunity available to the MCA, as charterers, to verify that the ETVs were being operated to an acceptable standard, was as part of the monthly and quarterly meetings when the vessels were alongside in port for routine crew changes. Consideration should be given to a formalised regime of charterer's visits to the ETVs when the vessel is in service, at sea, in order to provide the MCA with greater assurance that these vessels are being operated to the appropriate standard.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES

The following safety issues have been identified by the investigation. They are not listed in any order of priority.

1. Alcohol consumption by the master was a major factor in the cause of this accident. [2.2.2, 2.3.1]
2. The master had disobeyed company policy, by consuming and having alcohol on board, and placed his ship and crew in considerable danger. [2.2.2]
3. Other senior officers onboard were aware that the master had been drinking, but took no action. [2.2.2]
4. A lookout was not on the bridge during the hours of darkness, which contravened STCW and the advice in MCA's MSN 1767. [2.3.2]
5. The master never used the ECS, because he was neither trained nor competent in its operation and, therefore, he was not using all the available navigational resources. [2.3.2]
6. The master did not update or monitor the original passage plan. [2.3.2]
7. After the grounding, the master failed to provide effective command and control of the emergency situation on board. [2.4.1]
8. During the act of driving the ship out of the cleft, the master had not taken due account of the navigational hazards and the possibility of further hull damage, which increased the risk to the vessel, himself and pollution of the environment. [2.4.3]
9. The master did not inform Klyne Tugs of the grounding in accordance with the emergency checklist, and, therefore, professional salvage advice was not available to him. [2.4.4]
10. The speed of the master's actions circumvented any intervention that could have been taken by either SOSREP or by the company. [2.4.5]
11. Klyne Tugs's policy on alcohol is ambiguous and in need of clarification and effective implementation. [2.6]
12. Klyne Tugs's auditing process failed to identify non conformities in its drug and alcohol policy, and the use of passage plans, ECDIS and lookouts. [2.5, 2.6]
13. There was an inadequate regime for the MCA, as charterers, to verify that the ETVs were being operated to an appropriate standard. [2.7]

SECTION 4 - ACTION TAKEN

4.1 KLYNE TUGS (LOWESTOFT) LTD HAS TAKEN THE FOLLOWING ACTIONS SINCE THE ACCIDENT:

- Unannounced ship visits are carried out, during which random alcohol testing is undertaken for all the crew;
- Unannounced random telephone instructions are issued by the company staff to masters and officers to test individual crew members at anytime during the day or night;
- Greater emphasis is placed on the requirements of the company's drug and alcohol policy during personnel interviews;
- The drug and alcohol policy has been reinforced onboard the vessels through posters, memo's and safety meetings;
- The safety officer visits each of the vessels to assess the master's, officer's and crew's ability, with emphasis on the masters and officers.

A full review of Klyne Tugs's Safety Management System has been undertaken, and new procedures relating to safe navigation have been introduced.

4.2 MARITIME AND COASTGUARD AGENCY

MCA has published MGN 315(M) Keeping a Safe Navigational Watch on Merchant Vessels. This was published in February 2006 and provides guidance on the application of STCW '95 regarding the keeping of a safe navigational watch.

4.3 PROSECUTING AUTHORITIES

Prosecuting authorities have conducted their own investigation into the master's role in this incident. That investigation has been conducted entirely separately from the MAIB's work.

SECTION 5 - RECOMMENDATIONS

Klyne Tugs (Lowestoft) Ltd is recommended to:

2006/179 Ensure that, post review, its updated SMS system delivers the following:

- clear and unambiguous instructions.
- where appropriate, there is sufficient detail and/or guidance to allow ship's staff to comply with its procedures to an acceptable standard. Particular guidance should be given on the level of passage planning and execution required.
- an enhanced programme of training and audit to ensure full compliance with the requirements of its drug and alcohol policy.

The MCA, in its role as charterer of the ETV fleet, is recommended to:

2006/180 Establish a regime to verify that the ETVs are being operated to an appropriate standard. This should include periods spent at sea under operational conditions to verify acceptable levels of conduct and management are being observed by ship's staff.

**Marine Accident Investigation Branch
June 2006**

Safety recommendations shall in no case create a presumption of blame or liability

Extracts from the contractual and time charter party arrangements

The following are relevant extracts from the *General Conditions of Contract for Services*

DUTY OF CARE

The Contractor shall perform the Services with all reasonable skill, care and diligence and in accordance with the Contract and any legislative and statutory requirements.

CONTRACTOR'S PERFORMANCE

The Contractor shall properly manage the Services and immediately inform the Contract Manager if any aspect of the Contract is not being or is unable to be performed.

The Contractor shall provide all necessary facilities, materials and any other equipment, and personnel of appropriate qualifications and experience to undertake the Services. All personnel deployed on work relating to the Contract shall have appropriate qualifications and competence, be properly managed and supervised and in these and any other aspects be acceptable to the Department.

The following are relevant extracts from the Time charter Party for ETV's:

MASTER AND CREW

The Master shall carry out his duties promptly and the Vessel shall render reasonable services within her capabilities by day and by night and at such times and on such schedules as the DEPARTEMENT may reasonably require..

If the DEPARTMENT have reason to be dissatisfied with the conduct of the Master or any Officer or Crew member, the Contractors, on receiving particulars of the complaint, shall promptly investigate the matter and if the complaint proves to be well founded, the Contractors shall soon as reasonably possible make appropriate changes to the appointment.

The entire operation, navigation and management of the vessel shall be in the exclusive control of the Contractors, their Master, Officers and Crew.

HEALTH AND SAFETY

The Contractors shall ensure that the Master, Officers and Crew are not under the influence of alcohol, drug or other intoxicating substance while engaged on the Vessel's articles during the term of the charter party. No alcohol is allowed on board.

ISM

Contractors will comply with all requirements of the ISM Code as and when applicable.

VESSEL CERTIFICATION

Vessel is to be provided with all National and International certificates for unlimited trading. This is to include full compliance (including Document of Compliance (DOC) and Safety Management Certificate (SMC) for the vessel) with ISM Code.

Klyne Tugs's emergency checklist for stranding or grounding

KLYNE TUGS (LOWESTOFT) LTD

EMERGENCY CHECKLIST

STRANDING OR GROUNDING

Actions to be carried out:

- Stop engines
- Sound general emergency alarm
- Close watertight doors if fitted
- Maintain a VHF watch on Channel 16 and, if appropriate, on Channel 13
- Exhibit lights/shapes and make any appropriate sound signals
- Switch on deck lighting at night
- Check hull for damage
- Sound bilges and tanks
- Ready salvage pumps
- Visually inspect compartments, where possible
- Sound around ship
- Determine which way deep water lies
- Determine nature of seabed
- Obtain information on local currents and tides, particularly details of the rise and Fall of the tide. Obtain weather forecast
- Reduce draft of the ship
- Make ships position available to radio room/GMDSS station, satellite terminal and Other automatic distress transmitters and up date as necessary
- Broadcast DISTRESS ALTER and MESSAGE if the ship is in grave an imminent Danger and immediate assistance is required, otherwise broadcast an URGENCY Message to ships in the vicinity

OTHER ACTIONS:

- INFORMED, OWNER'S, P&I CLUB.
- " CHARTERERS, COASTGUARD.
- " AGENT + ORKNEY HARBOUR'S.

Rev 0
Date 07/02

Klyne Tugs's drug and alcohol abuse policy

KLYNE TUGS (Lowestoft) Ltd

INTERNATIONAL TOWAGE & SALVAGE

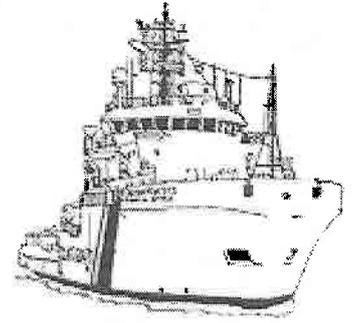
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24 HOUR SERVICE

Vat Reg. No. 688 8845 45

DRUG AND ALCOHOL ABUSE POLICY

The Company has a strict policy that non-prescribed drugs and alcohol are BANNED on board ship.

Any person reporting for duty or found on board to be under the influence of non-prescribed drugs or alcohol will be instantly dismissed.

Any person suspected of being under the influence of non-prescribed drugs or alcohol will be required to take a drug or alcohol test as arranged by the Company.

Carl Beare
Managing Director

Reference: SM 20
Date: 09/2001
Revision: 01