

**SHERIFFDOM OF GRAMPIAN, HIGHLANDS AND ISLANDS
AT Kirkwall**

**UNDER THE FATAL ACCIDENTS
AND SUDDEN DEATHS INQUIRY
(SCOTLAND) ACT 1976**

DETERMINATION

BY

**SHERIFF DESMOND JOHN LESLIE
ESQ,**

in respect of

FATAL ACCIDENT INQUIRY

into the deaths of

**HARJIVAN BHIKHABHAI
KHARVA AND RAVINDRA
SHAVIRANG BAGAL**

KIRKWALL 17 JUNE 2009

The sheriff having resumed consideration of the cause determines in terms of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976:

- (a) That able bodied seaman Harjivan Bhikhabhai Kharva, born 12 June 1967 and who resided at Dharvi Block Number 11 R Number 16 Mumbai, India and Ravindra Shavirang Bagal, born 20 June 1975, who resided at 57 Sing Street, Kanivilli, Mumbai – 101 India, died on 11 November 2006 as a result of an accident at sea occurring on the forward area of the deck of the FR8 Venture in the Pentland Firth, Scotland at an

approximate position 58°.45.0 North, 003°, 11.3 West at approximately 12.20 hours GMT. The time of the death of the said AB Kharva was approximately 12.20 GMT and the death of the said AB Bagal at approximately 15.00 hours GMT.

(b) That the cause of the death of AB Kharva was blunt force neck injury inflicted by one or two large waves shipped over the bow of the FR8 Venture propelling him at force for a distance of approximately 30 metres into the fixed metal deck structures. The cause of the death of AB Bagal was multiple injuries sustained as a result of the shipping of one or two large waves over the bow of the FR8 Venture propelling him into the fixed metal deck structures. Both deaths were resultant upon a maritime industrial accident.

(c) That it would have been reasonable for the master of the vessel to have taken full conciseness of the prevailing weather conditions and anticipated sea state within the limits of the Orkney Harbour Authority in and beyond the Scapa Flow Orkney and the convergence of the waters delimited by the Orkney Harbour limits with the Pentland Firth so as to assess the risk to member of the crew completing tasks in the foreword area of the vessel to secure the vessel for sea and plan the security and steadfastness of the ship appropriately having regard to firstly the extent and complexity of the task required and secondly the time available between weighing anchor in harbour and reaching open water.

(d) That there was a failure by the Master to ensure that the requirements of storage of mooring ropes, fire extinguishing apparatus, the security of the manifolds, and the securing of the vessel's port and starboard anchors, was completed within the shelter and safety of the Orkney Harbour area and in

particularly within the safety of the Scapa Flow and within the deeper waters beyond the Scapa Flow within the Orkney Harbour limits, and that there was a pre-considered plan for such operations to be completed prior to encountering heavy seas on the vessel's exits into the Pentland Firth.

(e) That there are facts which are pertinent to the circumstances of the deaths of both able bodied seaman which are relevant in the public interest, namely (a) that pilotage advice and directions provided by the Orkney Harbour authority to masters of vessels should be clear and unambiguous and should distinguish between requirements for entry to and exit from the Orkney Harbour area and (b) that the Orkney Harbour Authority should consider the extent to which it should prescribe the making ready of anchors within all or part of Orkney Harbour waters.

THE FACTS

[1] The FR8 Venture is a crude oil tanker operated by FR8 Ship Management PTE Limited registered in Singapore and flying the Singaporean flag. The vessel has a length of 228.6 metres, a gross tonnage of 42,010 tonnes and at dead weight (weight when fully loaded) of 74,065 tonnes. At the service speed of the vessel is 15.5 knots. The freeboards of the vessel (height from sea level to deck) is 6.6 metres. At the bow of the ship there is a bulwark which is 1.4 metres in height.

[2] On 8 November 2006 the FR8 Venture entered Orkney Harbour waters from Hamburg for onward passage to Houston, Texas, USA. It entered Orkney Harbour waters under ballast to be loaded with crude oil by way of ship to ship transfer within the Scapa Flow from a similar vessel known as "The Perseverance". The ship to ship transfer was completed at 05.36 hours on the morning of the 11 November 2006.

[3] For a ship to ship oil transfer to be affected both vessels require mooring lines between them to hold and retain the ships side by side. Fenders, known as Yokohama Fenders are positioned between the ships. Both ships are anchored. The mooring lines provided by The Perseverance. Springs (additional unattached mooring lines) were available on the deck of the FR8 Venture. The manifolds were unsecured for the loading of the crude oil. Fire fighting apparatus was laid out on deck.

[4] On completion of the ship to ship transfer the FR8 Venture was to be made ready to sail from the Scapa Flow into the Pentland Firth and westwards across the North Atlantic to the USA. The Perseverance was known to be heading eastwards into the Pentland Firth into the direction of the North Sea.

[5] The FR8 Venture had a complement of 28 persons, all Indian nationals. The deck crew comprised the Master, Chief Officer, Second Officer, Third Officer, Deck Cadet, Bosun and three able bodied seamen and one ordinary seaman. The master was 37 years of age and had joined the ship in August 2006. This voyage on board the FR8 Venture was his first voyage as Master. He had previous experience of the Pentland Firth and Scapa Flow but not as Master.

[6] On or around 09.30am, Graham Smith and Peter Bentley, pilot and training pilot respectively from the Orkney Harbour Authority, boarded the FR8 Venture to guide the vessel's departure from the Scapa Flow and to advise appropriately. Two tugs were in attendance, one attached aft of the FR8 Venture to act as an active escort to the vessel and the other unattached to provide passive escort.

[7] The port anchor was away at 10.54am, 11 November 2006. The ship set sail southwards out of the Scapa Flow in the direction of the exit from Scapa Flow at Nevi Skerry.

[8] On weighing anchor, the deckcrew had not completed the removal and storage of mooring lines fire equipment nor had they secured the manifolds mid-ship.

[9] The port anchor was to be secured but the starboard anchor was left unsecured whilst the vessel negotiated Orkney Harbour Authority waters.

[10] The pilots disembarked in the area known as the Sound of Hoxa with the instruction to the Master to bring the speed of the vessel up to level which would allow the vessel to make way against wind and tide which would be experienced on exiting westwards from the limits of the Orkney Harbour Authority area into the Pentland Firth. Wind and tide were running in the same direction, namely easterly.

[11] Between the Sound of Hoxa and the limits of the Orkney Harbour Authority area, the deckcrew continued with storage of fire equipment, hoses and mooring ropes. At or adjacent to the delimiting line of the Orkney Harbour Authority area, the Master instructed AB Bagal to join AB Kharva at the starboard anchor windlass and assist with the securing of the starboard anchor. The ordinary seaman and the Bosun were also assisting in securing the forward area of the deck. On exiting the Orkney Harbour area, the FR8 Venture shipped a wave of approximately 8 metres in height over its bow sweeping over the four personnel working on the bow at or around the area of the starboard anchor. The Bosun was able to secure himself against a pillion bow of the vessel whilst AB Kharva and AB Bagal were swept approximately 30 metres aft and sustained fatal injury and collision with deck structures. The ordinary seaman was swept aft and sustained serious but non-fatal injury. The force of the wave cause damage to the suez light davit and the windless gear wheel guards (the protective covering to the mechanism which contain the gearing for release of the anchor chains). A second wave of similar height and ferocity followed as the vessel pitched into the trough in the wake of the first wave.

[12] The prevailing wind was westerly and blowing in the direction of a westerly flood tide. The FR8 Venture was sailing against wind and tide and required speed to make way.

[13] At mid-day on the 11 November 2006 the sea state in the Pentland Firth was rough. It was consistent with conditions expected at that time of year. A large swell had been building from the previous day. The weather was poor. Observation from the MV Hamnavoe (the Orkney/Mainland Ferry) saw spray breaking on the bow of the FR8 Venture. As a result of prevailing conditions, the MV Hamnavoe had altered its routes between Scrabstar and the Scottish Mainland and Stromness in Orkney to divert its passage from a westward course to travel easterly then northwards into the Orkney Harbour areas and through the Scapa Flow towards Stromness to take advantage of more sheltered waters and reduce the exposure to rough seas which would otherwise have been experienced in the non-sheltered waters of the Pentland Firth.

[14] Waves of 8 metres are not uncommon in the Pentland Firth and are not unforeseeable. Radar returns at 11.57 on the 11 November 2006 indicated consistent wave heights in serried parallel line flowing in the path of the FR8 Venture. The ship would experience 4 metre troughs between these waves. Wind was forecast at Force 7 (29 to 33 knots) increasing to Force 8 (35 knots) and accompanying sea states were very rough (5.1 to 5.8 metres to high seas, 5.8 metres to 6.4 metres).

[15] The weather conditions and sea state were within the sea going potential of the FR8 Venture.

[16] No pre-departure plan was discussed by deck crew or available to crew. There were no pre-considered procedures or timetabling for securing the ship for sea and for the deck crew to be free of the deck prior to departure from sheltered waters.

[17] A pilot age plan prepared for use within Orkney Harbour Authority waters provided that “anchor equipment should be unsecured and ready for use while the vessel is proceeding in the pilot age area”.

[18] The securing of the deck should take 1½ hours to 2 hours and securing of the anchor should take no more than ½ hour. A master has the unfettered responsibility for the control, movement and direction of the vessel.

NOTE:

This inquiry was in consequence of the deaths of two merchant seamen in the Pentland Firth on the 11 November 2006. Both the seamen were from Mumbai and were part of the deck crew aboard a Singaporean registered oil cargo tanker called the FR8 Venture. The vessel was of significant size and well equipped and capable of sailing in all global sea conditions. The Master of the ship was Captain Vikas Nayar who returned from India to give evidence to the inquiry.

Evidence and submissions were heard over six days. The Master of the vessel, Captain Nayar and the owners of the vessel FR8 Ship Management Company PTE Limited were represented by Mr Bruce Craig. The Procurator Fiscal was Miss Sue Ford. I am grateful to parties for their thorough and thoughtful presentation of the evidence and due regard which was made to the consequences of the marine accident and to the families of the deceased seamen. Those families living in Mumbai were unable to attend the inquiry. Evidence was heard from Captain Paul Kavanagh of the Marine Accident Investigation Branch, Captain Vikas Nayar, Master of the FR8 Venture, Doctor Christine Bradshaw of the Health Centre, Hoy and Walls, Orkney, Mr Mike Deaming, formerly Marine Surveyor with the Maritime Coastguard Agency and now with Det Norske Veritas, Captain James Winterburn, Master of the

MV Hamnavoe, operated by P& O Ferries, Mr William Sclater, Orkney Harbour Authority Scapa Orkney, DC Robert McKenzie, Retired, formerly Northern Constabulary, Kirkwall, Captain Graham Roy Smith, Marine Pilot, Orkney Harbour Authority, Captain Peter Bentley, Maritime Pilot, Orkney Harbour Authority, Captain Gordon James Ivol, Retired, Orkney Harbour Authority, and Captain Alan Marsh, the Marine Coastguard Agency. In addition affidavits were lodged from Mr Kevin Kirkpatrick, Coxswain, The Longhope Lifeboat, Orkney, Mr Neil Cummings, Watch manager, Marine and Coastguard Agency, Shetland, DC Raymond Lawlor, Grampian Police, Aberdeen and Miss Rosaline Rankin, Consultant Pathologist, Raigmore Hospital, Inverness. Harjivan Bhikhabhai Kharva and Rauindra Shavirang Bagal, were Able Bodied Seamen aboard the FR8 Venture, an ocean going, double skinned, crude oil tanker. They formed part of an Asian crew which had replaced a predominantly full European crew several months prior to the accident which caused their death. They were part of the deck crew which had responsibility for deck operations which included the laying out and the storage of equipment for the loading of cargo and the securing of the deck on completion of that operation. They also had responsibility for the vessel being made ready for sail and the weighing of anchors, generally all work relevant to the deck operations required on an ocean going, crude oil tanker. They were subject to direction of the ship management and the chain of command from the Master to the Bosun. The Master of the vessel, Captain Naylor, was on his first voyage as Master. He was an experienced seaman who had been understudy master of the FR8 Venture for several months prior to assuming full responsibility as Master. As a First Officer on other vessels, he had navigated the waters of the Pentland Firth and Scapa Flow on several occasions and

was therefore familiar with the postal conditions which might be encountered in the area of the Pentland Firth and its converges with the North Sea and the North Atlantic.

The FR8 Venture has sailed from Hamburg unbalanced to the Flotta Terminal in Scapa Flow where she was to pick up a cargo of crude oil for delivery to Houston, Texas. The transfer was made from a vessel known as The Perseverance by an accepted procedure of ship to ship transfers. The transfer took place whilst both vessels were moored on the 10 November and in the early hours of the 11 November. Thereafter both ships disengaged and made ready for their respective passages. In the case of The Perseverance this was to be eastwards to the North Sea and for the FR8 Venture westwards towards the Atlantic and onwards to the USA. There was no evidence of what preparations for sea were made by The Perseverance. She left Scapa Flow at approximately 8am in the direction already stated. The FR8 Venture intended its journey into the Pentland Firth by southwalls and Hoy and into the Atlantic. In harbour the vessel had been secured by the port anchor which was weighed at approximately 10.50 hours and the ship set sail under the direction of the Pilot and Trainee Pilot and not from the Orkney Harbour Authority. The passage from Scapa Flow was assisted by an attached tug to the vessel. There was also a standoff or passive tug sitting at Stanger Head, a promontory lying southeast of Hoxa, on the south-eastern most parts of the Sound of Hoxa which forms the narrow shipping channel affording access to the harbourage of Scapa Flow. Both pilots disembarked the FR8 Venture on the pilots' launch within the Sound of Hoxa. From there the shipping channel provides deep water to the limits of the Orkney Harbour area where the more open waters of the Pentland Firth are then experienced. The attached tug is disengaged at around the point where the pilots disembark. Advice is then given by the pilots to the Master to bring up the ship's speed from dead slow to

full service speed. This was standard advice. The vessel would be sailing against wind and tide and would therefore require speed to make way through the water.

The port anchor was made secure prior to the vessel leaving the Sound of Hoxa. The starboard anchor remained ready for use in the event of engine or steerage failure whilst the vessel remains within the designated waters of the Orkney Harbour Authority. That area was clearly delineated on the sea chart to the Pentland Firth and approaches by a line from Brims Ness on the most southerly point of Hoy to Skepi Skerry on the southern tip on the Island of Swona. The deep water route from Scapa Flow leaves the Orkney Harbour Authority and enters the Pentland Firth at approximately 58° latitude, 45° north.

On the 11 November 2006 at approximately midday the FR8 Venture left the waters of Orkney Harbour. The sea was rough; spray was being taken on board. Wind was gusting up to gale force 9. Preparations for securing the ship had not been completed. In particular the starboard anchor remained insecure until the ship departed the Orkney Harbour Authorities. On the instruction of the Master, four deck crew were told to make fast the starboard anchor. Captain Nayar's understanding was that all deck procedures would be completed and all deck apparatus would be secured before the vessel encountered the anticipated turbulence of a stretch of water known as the Merry Men of Mey, a tidal race which runs North/South between southwest Hoy and the Scottish mainland east of Dunnet Head. It was the Master's understanding that this was a stretch of water which could provide violent conditions even for a vessel the size of the FR8 Venture. It was noted at the time that the wind was westerly and the tide was a flow tide running in the same direction as the wind. The tide was at a point two days before neaps and was therefore not a tide running at its highest or fastest.

It was the understanding of Captain Nayar that whilst his vessel remained within the delineated waters of the Orkney Harbour Authority he should have an anchor at ready in the event of an eventuality requiring the vessel to be brought to a halt. He had obvious concerns that were the vessel to lose steering or power and was swept landward then there could be significant ecological ramifications were the vessel to be punctured and the cargo spilled. He did not consider that he had any discretion in securing the anchor prior to exiting the Harbour waters. Immediately in crossing the Harbour delineation he instructed the securing of the starboard anchor. This is a process which can take up to half an hour.

The securing of the anchor is a relatively complex procedure. The chain is raised, secured by what is known as a “Y” stop. There is then an apparatus known as a guillotine which is brought over the chain before the hawse pipe which is the channel by which the anchor chain is dropped through into the forward area of the vessel when not in use. The anchor is then secured by its break and taken out of gear and a wire is put through the chain preventing the chain running loose and the anchor dropping. Once the chain is secure in the chain locker at the foot of the hawse pipe, plates are then placed on top of the open area and the pipe is then sealed by cement to prevent any ingress of water into the chamber which could destabilise the vessel.

At 12.20 in the course of securing the starboard anchor and within a very brief time of exiting Orkney Harbour waters, the FR8 Venture shipped two large waves over its bow. The first wave swept over the bow of the ship where the four crewmen were working. The ship then pitched into the trough created by this wave and caught a second wave which are equal if not greater velocity than the first because of the ship’s tilted position. The Bosun was able to secure himself by holding a fixed ladder. The three seamen with him however, were swept aft. AB Bagal and

AB Kharva were impaled on the structures forming the flying bridge, a raised metal walkway running four to aft along the deck of the vessel. It is a structure which allows crew movement along the deck of the ship in the form of a raised walkway. The seaman who survived the accident was swept to a point in the deck to the starboard side of the flying bridge. The Bosun radioed the bridge and emergency procedures were then put in place. The Orkney Harbour Authority were alerted to the accident. The vessel changed direction at 11.29, turning 180° to head easterly in the direction of the wind and tide and placing the vessel in the lee of the wind. At 12.37 the Master handed the control of the vessel to the third officer and went out on deck to see the injured men. He returned to the bridge 5 minutes later having confirmed the extent of the three crew members' injuries and confirmed that no one had been swept overboard as was originally thought.

At 12.43, the FR8 Venture called Shetland Coastguard to advise that medical assistance was required as the accident had resulted in a possible fatality and serious injury to two other men.

Shortly afterwards, Orkney Harbour Control informed Shetland Coastguard that an attempt would be made to embark a pilot onto the FR8 Venture and bring the ship back into Scapa Flow. They noted that it would take an hour for the pilot launch to reach the ship, which they had then understood would make its way from its easterly direction back westerly and into Scapa Flow.

At 12.46, the Coastguard Rescue Helicopter MU was scrambled from Stornoway and preceded towards the FR8 Venture. At 12.52 the Shetland Coastguard arranged a radio link between the Master and a doctor at Aberdeen Royal Infirmary.

At 12.58 the Shetland Coastguard used a pager to contact the Longhope Lifeboat. The deputy launch manager responded and was given the details of the

emergency and was asked if there was a local doctor who could be taken to the FR8 Venture. At 13.57 hours when the FR8 Venture was passing between the islands of Stroma and Swona, the pilot launch entered the Pentland Firth to meet her. However, it was assessed that due to rough seas, it was unsafe for the pilot to board the ship from the launch. The pilot launch therefore returned to Flotta. At 14.10 the coastguard rescue helicopter transferred Doctor Christine Bradshaw and her medical equipment from the Longhope Lifeboat to the vessel. The doctor and her equipment were landed on the ship's port quarter deck together with the helicopter winch man. The helicopter then left the scene and flew to Wick for refuelling.

Once aboard the FR8 Venture the doctor had determined that both AB Bagal and AB Kharva had died. The ordinary seaman was then strapped onto the helicopter stretchers with a view to being evacuated from the ship.

At 15.23 the helicopter had returned to the area. It picked up the pilot and thereafter the helicopter took off and made its way back to the FR8 Venture. By this point the FR8 Venture was 4 miles southwest of Tor Ness.

At 15.38 the helicopter winched the pilot onto the deck of the FR8 Venture. The injured ordinary seaman, the doctor and her equipment were winched up into the helicopter which then went to Aberdeen Royal Infirmary.

At 16.24 the FR8 Venture entered the Orkney Harbour limits and at 1757 she anchored in a northerly part of Scapa Flow.

At 20.00 hours the police boarded the ship and the Master was tested for alcohol which proved negative.

At 23.15 the bodies of AB Bagal and AB Kharva were taken ashore.

The FR8 Venture remained in Scapa Flow until the evening of 13 November 2006, when she recommenced her passage to Houston with three replacement crew members of board.

It is evident from the narrative of events that sea conditions were such that neither the lifeboat nor pilot boat were able to provide assistance to the FR8 Venture. Doctor Bradshaw was commended for her bravery by the RNLI for her successful boarding of the FR8 Venture and the medical assistance she provided.

It is common currency at sea that crew should not be on the exposed deck in rough or heavy sea conditions. The securing and storing of equipment should have the necessity to take place whilst the vessel remains in sheltered waters so as not to imperil seamen who would otherwise be left to carry out their tasks on deck and would be vulnerable to the aggression of wind and sea in deteriorating sea conditions.

I am of the opinion that the death of AB Bagal and AB Kharva could have been avoided had the Master:

- (a) Applied a thorough pre-departure planning procedure.
- (b) Properly anticipated the weather and sea state in open water.
- (A) Pre-departure planning procedure

A thorough pre-departure planning procedure would have identified the time appropriate to securing the vessel. The time of taken to secure the vessel and the storage of apparatus would vary depending on the number of seamen detailed to those duties. Evidence was heard that the time taken to secure the ship could be as much as 3 hours. If men doubled up in tasks this could be reduced to around 2 hours. Captain Nayar confirmed that the FR8 Venture was under no time constraints to set sail on 11 November, was subject to no timetable or deadline for delivery of its cargo. It had been

engaged over 24 hours on ship to ship transfer of crude oil which is a complex though routine operation. The ships are tethered together kept apart by large fenders known as Yokohama fenders which are delivered to the ship by the harbour authority. It springs (moving lines) are flaked out for emergency purposes on both ships and fire fighting equipment is also made available. Hoses connect the manifolds of each ship. When the operation is complete this equipment required to be stored. Although this process had been started by the time the FR8 Venture weighed anchor the storage and securing procedures were ongoing throughout its passage under pilot age and beyond into the Pentland Firth.

The securing of the anchors in itself is a time consuming process. The process of lifting the chain and depositing it within the hosepipe taking it out of gear and applying the brake and thereafter securing the anchor for sea passage is a procedure which has a number of fail safe systems put in place to prevent the anchor going adrift in the course of a voyage. The affects of an anchor dropping accidentally under passage could be catastrophic.

Prior to embarkation each ship must prepare a sea passage plan (production 13), a preparation for sea check list (production 14) and a navigation check list (production 15), as a requirement made by the International Maritime Organisation. These plans and check lists together set out navigational data such as courses to steer, navigational publications consulted, weather forecasts etc. Each document sets out all information relevant to the voyage, the state of preparations of the ship and the immediate costal navigational considerations which should apply. In the case of the FR8 Venture all this documentation was prepared and in order. The sea

passage plan was comprehensive and was available with all relevant data as regard anticipated weather to the Master. It was known that the weather would deteriorate beyond the shelter of Scapa Flow. That should have dictated a comprehensive approach to preparing the ship for exit from the sheltered waters. The absence of fully co-ordinated pre-departure procedures was evident from the preparation for sea check list (production 14) but this document is entitled that “it is to be completed by the officer on watch/Master and in conjunction with the duty engineer where required prior to departure from every port (regardless of country) and a log entry made.” *Inter alia* the check list requires confirmation that “anchors” have been cleared and made “ready” and “all cargo and cargo equipments are secured and ready for sea”. The answer to each of these requirements has been inserted as affirmative in the case of the FR8 Venture. The form was signed off by the ship’s Master and Third Officer. The evidence is however in contradiction to these confirmations. Storage of mooring ropes and fire equipment, securing of the manifolds and preparation of the anchors for securing, were all in process as the ship weighed its port anchor and made way. It was obvious that the document had been completed in anticipation of this work being carried out but what is of significant concern is that the preparation for sea check list provides that this work should be undertaken prior to the vessel leaving port so far as possible. Had the greater volume of this work been done prior to the vessel leaving the harbourage, then it is possible the deaths of the able bodied seamen could have been avoided.

All relevance passage information available to the Master was either not understood by him or treated by him in a cursory manner. The anticipated

weather information was fully documented and available to him. There was an under estimation on his part of the force of the sea and whether which would be experienced as the vessel reached more exposed waters. It had the sea conditions and the anticipated sea conditions been properly assessed as to the risk the amount posed to crew working forward on the vessel and in more exposed waters there would have been a prompt to the Master to complete the preparation for the vessel for sea either whilst the vessel remained in the harbour or whilst the vessel remained in more sheltered waters. Had there been a greater awareness of the conditions, the task of preparing the decks for sea would have been completed much sooner than proved to be the case. In the absence of a pre-departure planning the vessel set sail without proper anticipation of the sea state which it would encounter, now this could affect the preparation of storage and security of the decks. In reality there was an uncoordinated and lazy fair approach taken in securing the deck. The Captain there had it in mind that the more treacherous waters in the Pentland Firth would not be reached until the vessel was in the vicinity of the Merry Men of Mey. He did express anxiety that he would wish the deck to be cleared of personnel prior to approaching this area. That was his intention. However on proper reflection of conditions, he would however ought to have been aware that difficult conditions for the vessel would be experienced prior to the vessel reaching this point in the Pentland Firth.

(B) Weather conditions and sea state

Sea passage plan provides for consideration of the weather for the purposes of determining the navigational progress of the vessel. Therefore the projected progress of the vessel could be altered to avoid known weather

obstacles such as hurricane or cyclonic activity. If these conditions were anticipated then the vessel could stay out clear of it. In this case the Master indicated that had he had such concerns that there would be conditions which would render the passage unduly difficult, he could have chosen to enter the Pentland Firth and head east into the North Sea and thereafter south through the straights of Dover into the Atlantic and towards the USA and thereafter westerly towards the USA. However he had no fear for the vessel heading westwards in terms of the navigational plan. The forecast sea state and weather were inevitably forbearing on the passage planning process. The sea passage plan of the FR8 Venture made reference to “weather as per Navtax”. This referred to a computerised weather facsimile whereby the ship is currently updated with current and predicted weather. This provides continuous information to the vessel. The forecast of the Scapa Flow, the Pentland Firth and the Orkney Coastal waters for Saturday 11 November issued by the Met Office in Aberdeen at 02.37 hours on 11 November 2006 provided for “a deep low will track east of Iceland into the Norwegian Sea during Saturday and become complex. This low will move away east on Saturday as a transient ridge crosses the UK and surrounding waters. Meanwhile another low will track into Iceland from the southwest. This low will drift east and become complex on Monday.

11 November 2006	Wind Direction	Mean Wind Speed	Gusts
Between 06.00 and 12.00	West	25 to 35 increasing 30 to 40	45 to 55
12.00 to 18.00	West Veering Northwest	30 to 40	45 to 55

The actual conditions for the 11 November 2006 for the Pentland Firth prepared by the UK Metrological Office for the Marine Maritime Investigation Board were as follows:

“From 06.00 to 12.00 hours the winds slowly increased from 29 knots to 33 knots (force 7), and significant wave height increased from 5.1m to 5.8m (very rough); and from 1200 onwards the wind veered to the west north-west and increased to 35 knots (force 8) causing the significant wave height to further increase from 5.8m to 6.4m (high seas).”

The actual weather was therefore entirely consistent with the forecast weather in the Pentland Firth should have prompted a more considered plan in the preparation of sea.

Additional information was provided by the ships radar. A print out of the radar definition was produced to the enquiry (production 20). In particular it was recorded that at 11.57 hours, some 33 minutes before the fatal incident, the ship was within a stretch of water characterised by parallel lines of sea returns approaching the vessel. The radar was set to provide returns in excess of 4m between the crests of the waves on the westerly swell and waves of at least that height and consistency but what was forecast is the sea state at that time. The sea clutter disclosed in the radar definitions show clear parallel lines of wave crests into which the vessel would sail. This would have been a useful indicator of the seas the FR8 Venture was approaching.

Scapa Flow is a natural deep water harbourage, the entrance to which is through a deep water channel known as the Sound Hoxa. The southern entrance to the harbour lies between the islands of Flotta to the west and South

Ronaldsay to the east. The narrowness of the channel prevents any great fetch to build in the waves and therefore forms a bulwark against the swell being gained within the confines of Scapa Flow itself.

The conditions in the Pentland Firth can be extreme. A tidal race can be up to 16 knots and therefore of a force which can bring to a halt sea traffic coming against the direction of tide. On the 11 November 2006 there was a flow tide running west to east. It was two days before the neap tide, therefore the tide was not running at its hardest. The ferry between Scrabster on the Scottish mainland and Stromness in Orkney had diverted from its usual passage west of Hoy to take advantage of the shelter provided in the lea east of Hoy. Captain Winterburn, the Master of the ferry the MV Hamnavoe, gave evidence that he had crossed the Pentland Firth insight of the FR8 Venture, had seen spray breaking on its bow. He spoke to a swell which had built up over the previous 24 hours which was on 11 November creating what he considered to be very rough seas. He himself did not consider it appropriate of have any men on deck at this time. He did not question the decision of the Master of the FR8 Venture to be at sea. The FR8 Venture was an ocean going vessel capable of dealing with most, if not all, sea conditions. That position had general concurrence from the other witnesses to the enquiry namely Captain Kavanagh, Captain ? and both pilots from the Harbour Authority. Captain Winterburn did not consider the conditions to be extreme or unusual. He did not consider waves of 8m in height to be abnormal and spoke of his experience of waves of 12m in height in the area of the Pentland Firth. For the FR8 Venture to ship two significantly sized waves on board the waves would have to be in excess of 8m given that there was a freeboard of 6.6m and a

bulwark of 1.4m on the bow of the FR8 Venture. Captain Winterburn saw nothing potentially unusual with the seas which were encountered on the 11 November 2006 with the proviso that in such conditions no seaman should be on exposed deck.

Both Captain Bentley and Captain Smith, the pilots who were aboard the FR8 Venture prior to the accident gave evidence that they did not think it necessary to give advice to the Master that he should remain within the confines of the Scapa Flow until weather conditions had improved. Contrary to the advice given on their departure was to get the vessel up to full speed to counter the wind and tide which would run against the vessel. The Captain there had familiarity with the Pentland Firth but his pre-occupation was in securing the vessel before it crossed into the Merry Men of Mey from the Orkney Harbour limits. It was clear he did not anticipate the waves in excess of 8m which proved fatal. However the weather report predicted high seas and the plans for the vessel should have been tailored to accommodate these conditions. He was sailing a large ocean going vessel but the return on his radar screen clearly disclosed that he was sailing into seas where risked crew on the exposed deck would be all too evident. In the absence of proper pre-planning he should either have withheld the crew from the deck until conditions became more settled or considered sailing on the lee of the wind (a course which he subsequently adopted) once the accident occurred, thereby aligning the ship with tide and wind to complete the preparation of the ship for sea.

Securing of the anchors

The deaths of AB Bagal and AB Kharva occurred while both were engaged in

work at the starboard windless in the bow of the ship. Their purpose in being there was to complete the securing of the starboard anchor which had been held on brake and ready for use whilst the vessel remained within the Orkney Harbour limits. I have already referred to the relative complexity of the securing of the anchors securing operation. The port anchor had been secured in the course of leaving Scapa Flow whilst the vessel was under pilotage. Captain Nayar considered it an axiom of good seamanship that whilst within the harbour limits at least one anchor should be ready in the event of engine or steering failure. He was anxious as to the potential environmental impact which could be caused were the FR8 Venture to go a ground. Although the FR8 Venture was constructed with a double skinned hull to protect against spillage if the vessel to run aground. Nonetheless Captain Nayar considered potential wreckage a risk which could be best managed by being able to drop anchor until a tug or other assistance was provided. The general approach is that an anchor should be at the ready, braked but not secured, was reinforced by the pilotage plan produced by Captain Smith. This details that “anchor equipment should be manned and ready for immediate use whilst vessel proceeds in pilotage area.” While Captain Smith gave evidence that the form which formed his pilotage plan was not standard but a form produced by him as a functional plan for leaving Flotta Terminal. He endorsed the view that it is good practice to have at least one anchor made ready for use whilst within Harbour limits. However, having left Scapa Flow and negotiated the Sound of Hoxa and beyond the points of pilot departure at Nevi Skerry, Captain Smith confirmed that the sea opened up and that there was a deep water channel for the vessel to negotiate. It would be reasonable at that point in the voyage to secure the anchors. He distinguished the situation between the departure of a vessel from arrival of a vessel. When a vessel was arriving into the Orkney Harbour

limits, it would be losing speed and therefore would require to have its anchors made ready. In contrast a vessel exiting harbour limits would be gaining speed and could secure its anchors once the voyage through the narrower straits had been completed. His recollection was at that the point of his disembarkation from the FR8 Venture, he was asked by the Captain there if he could begin to secure his anchors. He recalled that he answered that that was now appropriate. Two tugs had been in attendance. One had been attached and one had been standing by at the head of the channel (Stanger Head) and that they had afforded some protection to the FR8 Venture. Captain Smith felt it appropriate that once there had been disengagement of the attached tug with the Master having been advised to gain full service speed it would be appropriate to commence securing the remaining anchor. From the point of disembarkation of the pilot to the edge of the Orkney Harbour Authority limits would be a sailing time of 30 mins to 40 mins which would be a more sufficient time to have the anchor secured before more turbulent waters were reached.

It was made clear to the enquiry that in any event in the context of sailing in a deep water channel of 70m in depth and gaining speed there would be some doubt as to the efficacy of having an anchor at the ready in any event. Captain Bentley questioned the effectiveness of anchors in these conditions. Neither pilot considered that having an anchor at ready was necessary once the ship had negotiated the strait leading into Scapa Flow. Captain Smith advised that the reference to having anchors at the ready had now been edited from his current pilotage plan prepared by Orkney Harbour. He affirmed that control of the vessel remains the responsibility of the Master. Good seamanship would dictate when anchors should be at the ready and that would clear the expected on entering ports but on exiting and once beyond restricted waters the decision to secure anchors should be with the Master and should be

affected at once conditions allowed taking into account all prevailing conditions at the time. In other words the decision to secure the anchor should not be dictated by an arbitrary regulation that the anchor should be secure within the defined Orkney Harbour boundary.

Captain Nayar was firmly of the view that he was bound by the Orkney Harbour Regulations to maintain an anchor until he had crossed the limited area of the Harbour. In his view he was bound by such a regulation and that is why he did not commence securing the starboard anchor until he was outwith the Orkney Harbour limits. The accident occurred approximately 5 mins after the FR8 Venture exited the Orkney Harbour delimited area. Had the starboard anchor been secured as little as 10 mins, 15 mins or 20 mins prior then the accident would not have occurred.

In the evidence I heard there was a clear misunderstanding as to the requirements for making an anchor ready was within the designated area of the Orkney Harbour. The Captain there considered the requirement prescriptive rather than advisory. Captain Kavanagh of the Marine Accident Investigation Branch equally considered how the requirements are not only to be good seamanship but to be a regulatory requirements of the Orkney Harbour Authority. Both pilots knew of no such requirement. Captain Winterburn believed it was a requirement of the Authority but he did not sail with anchors at the ready whenever he took his vessel through Scapa Flow. Captain Marsh and Mr Sclater, were also of the view that maintaining an anchor at the ready was a port regulation though neither were able to produce a document in support of the regulation beyond what began evident to be the informal document produced by Captain Smith as a useful pilotage plan. Orkney Harbour Authority should consider in detail their requirement to have anchors at the ready within the Orkney Harbour limits. There should be a clear distinction between a

requirements need of a vessel on entering the Harbour limits between the requirements on a vessel leaving the Harbour limits. There is forceful submission made to me by Mr Craig in terms of section 6(1)(e) of the Act that it is a relevant factor that there should be made available to Masters clear guidance on the use of anchors within Orkney Harbour limits. I adopt his submission and recommend that Orkney Harbour Authority should review its rules with a view to ensuring that there is no scope for ambiguity as to whether or not it is a port requirement that ships should have an anchor ready for use when within Orkney Harbour limits whether or not a vessel is under pilotage. If such a regulation is to be effected then it is quite clear that in adverse conditions Masters must steer a course which minimises a risk to seaman on an exposed deck and have a programme of preparation for sea which ensures that all work needed to be done on the foredeck is prioritised to minimise the risk to seamen in exposed conditions.

In reviewing the ship operation manual falling on the accident, FR8 Ship Managements PTE Limited have made specific reference to best practice on the vessel in heavy weather:

“3.5.2. Navigation in heavy weather

- (a) Needless to say in heavy weather there should be no crew working on exposed deck. Should it be required for crew to be on deck...the Master should turn around on a course which puts the seas and weather in a position that the crew on exposed deck have maximum protection from the sea as well as weather...”.
- (b) When approaching or leaving ports, the priority which Master and deck officers should have is to ensure that when the vessel is either arriving or leaving port, the unsecuring or securing (of the anchor)

should be done as late or early as possible (based on whether the vessel is arriving or departing port) to ensure that the crew on deck are exposed to the elements for the least possible time. When departing port most of the securing should be done prior to leaving the berth or anchorage...the guiding principal should be to secure the vessel forward to aft...”.

These procedures clearly and in ambivalently address central feature of this enquiry and I am satisfied that FR8 Ship Managements have already responded responsibility and diligently to the issues raised by the deaths of AB Bagal and AB Kharva. I endorse these revisions to the ship management manual and therefore make no recommendation that these procedures should be reconsidered.

I heard the evidence on whether or not two further factors had a bearing on the deaths of AB Bagal and AB Kharva. These related to the use of lifelines and to the working rosters of both seamen.

No lifelines were rigged on the deck of the FR8 Venture which would be designed to provide assistance and security to crew on deck in heavy weather. The evidence was quite clear that the deployment of lifelines on vessels such as the FR8 Venture was inappropriate. It was evident that the deck of crude oil tanker contained significant structures which would have made the use of lifelines appropriate. I was satisfied from the evidence from Captain Marsh that lines are more commonly associated with standby vessels and were not appropriate for use on board vessels of either the size or complexity of a crude oil tanker. I was also asked to consider whether crew fatigue could have attributed to the deaths of both seamen. I was not satisfied that this was a relevant factor. Although the crew had had their sleep interrupted when the ship to ship oil transfer had been completed, thus

restricting their period of sleep over the previous 24 hours, I was satisfied that since the deck crew were engaged in manual activity rather than any decision making process, fatigue would have been unlikely to have been a contributory factor in their deaths. If they had been on a 6 hour watch rota, although they had been raised from their berths at 4 am on the morning of the 11 November 2006, there was nothing to suggest that their ability to perform their tasks was in any way impaired by their physical and mental condition. Further it was generally recognised that there would be greater activity expected of crew when a vessel was being made ready for passage and that once the vessel was at sea there would be greater opportunity for rest.

I greatly sympathise with the Master of the FR8 Venture. This was his first command, I have no doubt that the deaths of the seamen under his command greatly upset him. I accept that in leaving the starboard anchor to be secured at a point beyond the limit of the Orkney Harbour Authority area, he considered that he was complying with a regulation which afforded him no discretion. However it was clear that he had not fully appreciated the conditions he was sailing into and had he given more careful considerations of those conditions, avoidance measures could have been taken whereby the deaths of AB Bagal and AB Kharva could have been avoided.

I extend my sympathies to the families in Mumbai of both seamen who were no doubt financially dependant upon each of them.