

SHERIFFDOM OF GRAMPIAN HIGHLAND AND ISLANDS AT PETERHEAD**2011 FAI 39**

DETERMINATION
by
SHERIFF MARYSIA LEWIS
in
FATAL ACCIDENT INQUIRY
into the deaths of
RAMILITO CAPANGPANGAN CALIPAYAN
and
BENJAMIN ROSILLO POTOT
and
RIMANTS VENCKUS

The Sheriff, having resumed consideration of the evidence adduced at this Inquiry, DETERMINES:

[1] **In terms of Section 6(1)(a) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976** ("the Act") between 00.30am and 01.30 am on Friday 1st August 2008, Ramilito Capangpangan Calipayan and Benjamin Rosillo Potot died within the galley and Rimants Venckus died within the wheelhouse on board the vessel MFV Vision II BF 190 ("the Vision II") berthed at Provost Park Jetty, Balaclava Inner Harbour, Fraserburgh. Each of the deaths resulted from a fire which occurred on board the Vision II.

[2] **In terms of Section 6(1)(b) of the Act**, the deaths of Ramilito Capangpangan Calipayan, Benjamin Rosillo Potot and Rimants Venckus were caused by the inhalation of smoke and fire gases.

[3] The accident resulting in the deaths of Ramilito Capangpangan Calipayan, Benjamin Rosillo Potot and Rimants Venckus was caused by a base unit electric fan heater ("the fan heater") fitted within a seating unit in the galley of the Vision II. The air supply to the fan heater was either slowed or stopped by items within the storage area blocking the air vents in the back of the fan heater. This caused the fan heater to overheat. Inside the fan heater are two thermal protection devices. These thermal protection devices are expected to operate if there is an overheating event. If airflow through the air vents is reduced or blocked, the temperature within the fan heater rises. The thermal protection devices ought to respond to the blockage and the increase in temperature by shutting off the fan heater. They did not do so. The temperature of the heating element continued to rise and ignited combustible material within the fan heater which in turn ignited solid combustible items stored within the seating unit.

[4] **In terms of Section 6(1)(c) of the Act**, the reasonable precautions by which the accident and the deaths might have been avoided are as follows:

- (a) The fan heater, which had been installed when the Vision II was built, should have been housed within a suitable plywood box.
- (b) Combustible items should not have been stored in close proximity to the fan heater.
- (c) The self-closing mechanism on the fire door separating the galley from the passageway should not have been disabled and that door should not have been kept permanently open through the use of a hook and eye device.
- (d) Crew members should have been provided with adequate training and undertaken regular emergency drills in the action required of them in the event of an emergency.
- (e) Regular inspection and maintenance of emergency exits should have been undertaken.
- (f) The fire detection system should have been wired in such a way as to prevent it being turned off.
- (g) The fire detection system should have been connected to a secondary power source lest the main power failed or was turned off.

(h) Labels should have been attached to the circuit breakers relating to the fire detection system instructing the crew that the circuit breakers were not to be powered off.

(i) Additional fire alarms should have been fitted in the galley, the passageway and the cabin space.

[5] **In terms of Section 6(1)(d) of the Act**, there were no defects in the system of working which contributed to the deaths.

[6] **In terms of section 6(1)(e) of the Act**, the other facts which are relevant to the circumstances of the deaths are as follows:

(a) The MCA and the SFIA misunderstood which organisation had responsibility for (i) inspecting and approving the suitability and installation of plinth electric fan heaters and (ii) approving or otherwise the installation and use of tie backs on galley doors. As a result of this misunderstanding, neither organisation inspected these items.

(b) A piece of scaffold pole should not have been used to secure the doors on the watertight door onto the aft main deck. This might have provided the crew with an additional escape route.

Representation

[7] This Inquiry took place at Peterhead Sheriff Court on 16th, 17th, 18th, 19th and 20th May 2011. The Crown was represented by Mr Fay, Procurator Fiscal Depute, and the current owner of the Vision II was represented by Mr Neil Smith. I am grateful to all of the participants at this Inquiry for their assistance. I also commend the careful, thorough and fair way in which Mr Fay and Mr Smith approached their tasks.

The witnesses

[8] The following witnesses were led on behalf of the Crown.

- Alan Beedie, security guard based at Fraserburgh Harbour.
- David West, the previous owner of the Vision II which was formerly known as The Amethyst.
- Alexander Jack, the current owner of the Vision II.
- Peter Ian Downie, a marine electrical engineer employed by R D Downie Limited.
- Martin Smart, a fisherman and an electrical engineer sometimes employed by R D Downie Limited.

- Kenneth Downie, of R D Downie Limited.
- Colin McLeman, assistant superintendent at Fraserburgh Harbour.
- James Morenc, an ambulance paramedic based in Fraserburgh.
- George Basterfield, a former fire fighter based in Fraserburgh.
- John Alexander Coutts, a full-time fire fighter based in Aberdeen.
- William Routt, Group Manager of Grampian Fire and Rescue based in Aberdeen.
- Captain Martin Harper of the Marine Accident Investigation Branch who prepared the Marine Accident Report dated March 2009.
- Nicholas John Carey of the Fire Investigation Group based in London. He is the author of the Fire Investigation Electrical Examination Report dated 13 October 2009.
- Stuart Cruickshank, Station Manager, of Grampian Fire and Rescue based in Aberdeen.

The Productions

[9] During the course of the Inquiry, the following documents were tendered:-

For the Crown

- (CP1) Marine Accident Report dated March 2009
- (CP2) Fire Investigation Report dated 19 October 2009
- (CP3) Fire Investigation – Electrical Examination Report dated 12 October 2009
- (CP4) Electrical Systems Technical Report dated August 2009
- (CP5) Amendment sheets to the Electrical Systems Technical Report
- (CP6) Book of photographs
- (CP7) Fan heater recovered from the cabin
- (CP8) Fan heater recovered from the wheelhouse
- (CP9) Fan heater recovered from the galley

For Mr Jack

- (JP1) Notice – “Switching to Shore Power” dated 02 June 2009
- (JP2) Notice – “Warning” – dated 02 June 2009
- (JP3) Copy photograph of the engine room switchboard of the Vision II (June 2009)
- (JP4) Copy photograph of the wheelhouse switchboard of the Vision II (June 2009)
- (JP5) Copy photograph of the wheelhouse console of the Vision II (June 2009)

(JP6) Marine Guidance Note 425 (M + F) – Assessment of Risks for those Sleeping on “Dead Ships”.

(JP7) Marine Guidance Note MGN 413 (F) – Voluntary Code of Practice for Employment of Non European Economic Area (EAA) Fishing Crew.

(JP8) Copy switchboard diagrams produced by RD Downie Limited

(JP9) Copy United Kingdom Fishing Vessel Certificate – Vision II dated 21 December 2009

(JP10) Copy Record of Particulars of a Fishing Vessel – Vision II

(JP11) Copy Safety Awareness Certificate (Alexander Jack) dated 10 January 2001

(JP12) Copy Certificate of Competence (engineer officer) (Alexander Jack)

(JP13) Copy Certificate of Competence (skipper) (Alexander Jack)

(JP14) Copy training certificates – Sigita Palmilera

(JP15) Copy training certificates – Noel Toleco

(JP16) Copy training certificates – Joel Claridad

(JP17) Copy training certificates – Arturo A Fortuno

(JP18) Copy training certificates – Arnel Penuel

Evidence

The Amethyst

[10] David West is from a family involved in the proud tradition of sea fishing. On leaving school, he worked as a crew member on a fishing vessel operated by his father. Through hard work and diligence, he obtained his Skipper Certificate at the age of 21. He bought a second hand boat. He quickly realised that second hand boats require a great deal of repair and maintenance. He decided that it would be more cost effective to order a new fishing vessel, built to meet his requirements, than to operate the vessel to its full potential for four years and thereafter sell the vessel and buy a replacement vessel. In 2000, 2004 and 2008 he purchased new fishing vessels from Macduff Shipyards Limited, Macduff, Aberdeenshire.

[11] In 2004, he ordered from Macduff Shipyards Limited a new twin rig prawn trawler. The trawler was named the MFV Amethyst BF19 (“the Amethyst”). The Amethyst is 163 tonnes and measures 18.6 metres in length. The Amethyst was issued with its fishing vessel certificate in December 2004 and entered service early in 2005.

[12] Ownership of the Amethyst was shared by three companies:-

- 44 shares were held by Laurel Bank Fishing Limited. This company is owned by David West;
- 16 shares were held by Johnstone Fishing Limited, which is a company owned by the Mate; and
- 4 shares were held by Morlan Fishing Limited which is a company owned by Mr West's brother.

The sale of the Amethyst

[13] Alexander Jack is a cousin of David West. Mr Jack has been involved in the fishing industry since he left school at the age of 15. He is a fisherman and holds a Skipper's Certificate. He was the Skipper of a fishing vessel named the Vision. He became aware that the Amethyst was to be sold. He was interested in acquiring that vessel and transferring the Vision to his son. His son also holds a Skipper's Certificate. In or about February 2008, negotiations commenced for the sale and purchase of the Amethyst.

[14] At an advanced stage in the negotiations, Mr West offered to take Mr Jack and some of Mr Jack's crew on a routine fishing trip aboard the Amethyst in order that they could become familiar with the operation of the vessel. They sailed from Fraserburgh on 20 July 2008 and returned to harbour on 27 July 2008. Once the catch had been landed, the Amethyst berthed stern to at Provost Park Jetty, Balaclava Inner Harbour, Fraserburgh.

[15] Mr Jack believed the vessel to be in good overall condition. During the voyage, he identified the need for repairs to be carried out to some items of equipment aboard the Amethyst. He prepared a list of repairs and tasks [CP1, Annex A] and presented this to Mr West. Mr West undertook to instruct the repairs and tasks and to pay for same. Mr Jack proceeded on an overseas holiday with his family later on 27 July 2008.

[16] On or about 28 July 2008, the final stages of the sale took place and was completed on Wednesday, 30th July. A new Certificate of Registry was issued and the vessel was officially renamed MFV Vision II BF 190.

[17] The Vision II is owned by a partnership, MB Vision LLP:-

- Zander Jack Fishing Limited, a company owned by Mr Jack, held a 75% interest in the partnership;

- Melantic held a 25% interest in the partnership.

The construction of the Vision II

[18] The hull of the vessel was constructed by Richards Dry Dock and Engineering Limited in Great Yarmouth. The hull was moved to Macduff Shipyards Limited for the fit out of the vessel. Macduff Shipyards Limited does not hold ISO 9000 or ISO 14000 accreditation and did not operate an in-house quality assurance system but it has a solid reputation in the fishing industry for providing fishing vessels of a high quality of build and finish. Skilled tradesmen are employed by the company and such was their level of experience, knowledge and competence that they completed the fit-out of vessels without the need to refer to detailed drawings.

[19] The materials used throughout the Vision II were appropriate for a fishing vessel of less than 24 metres. Captain Harper explained that in common with the majority of fishing vessels less than 24 metres in length, the furniture and fittings of the Vision II were predominantly wood based. In his opinion, the Vision II met all required standards for fireproofing and there was nothing unusual in the design or construction of the galley.

[20] Macduff Shipyards Limited sub-contracted all electrical work to R D Downie Limited, a local company of good repute. R D Downie Limited provides its own workforce and electrical supplies.

Construction Inspections

[21] This chapter of evidence was given by Captain Harper. He explained that the Sea Fish Industry Authority ("SFIA") represents the interests of the fishing industry in a number of areas, including the development of construction rules for various types of fishing vessels. The SFIA construction standards are reviewed annually. By 2006, the construction standards included structural fire protection.

[22] The SFIA had responsibility for carrying out general surveys of fishing vessels and ensuring that owners met the terms and conditions for the awards of grants. The Maritime and Coastguard Agency ("MCA") also had responsibility for carrying out surveys of marine vessels during and after the construction thereof. In an attempt to avoid any overlap of duties, these bodies entered into a Memorandum of Understanding and where appropriate the MCA issued individual letters of appointment, authorising SFIA surveyors to act on behalf of the MCA [CP1, paragraphs 1.9.1-1.9.3 and Annex D]. The SFIA surveyors were expected to visit vessels during the construction process and to provide

stage certificates when appropriate. On completion of the final survey, the surveyor, if satisfied that the vessel complied with all relevant and applicable construction standards, would complete a Declaration of Survey and a Record of Particulars (Form FV2).

[23] Captain Harper's investigations revealed that the MCA appointed its own lead surveyor in relation to the construction of the Amethyst. The MCA surveyor and the SFIA surveyor agreed upon their respective areas of responsibility with the SFIA being responsible for all survey work, except structural fire protection and lifesaving appliances. The SFIA surveyor attended regularly at the shipyard during construction and issued stage certificates when appropriate to do so. Unfortunately he did not attend when the electrical system survey fell due but approved the electrical installation after receiving written self-certification declarations from R D Downie Limited and Macduff Shipyards Limited. He used Form FV2 – Record of Particulars of a Fishing Vessel – as a checklist as well as using this document as the main record of survey. The Form completed for the Amethyst did not have entries for the electrical and auxiliary systems fitted. Despite being incomplete, the Form FV2 was submitted as a Declaration of Survey and it was accepted by the MCA as such and thereafter a Fishing Vessel Certificate was issued (see paragraphs [37]-[38] below).

The layout of the Vision II

[24] A diagrammatic profile of the vessel illustrates the various decks [CP1, figure 1 and CP4, page 142]. A diagram of the main deck [CP1, figure 2] shows the location of the split net drums, various hatches, the galley, washrooms and points of access up to the wheelhouse and down to the cabins. At the stern of the main deck are two split net drums [photographs CP 6/4 & 6/7]. Between these drums is a watertight door [photographs CP 6/7-6/9] giving access to a passageway leading to the galley, the washrooms and a door leading to aft of the main deck. Within the passageway are stairs leading down to the cabins and the engine room and a vertical ladder leading up to the wheelhouse.

[25] The galley is entered from the passageway through an A60 rated fire door. The door opens outwards from the galley into the passageway. The door was originally fitted with a self-closing mechanism. The vessel was also fitted with a hook and eye tie back. Mr West could not recall if the tie back had been fitted at his request or was simply supplied by the builders. The tie back was used to keep the door open when the vessel was at sea. Within the galley were normal kitchen appliances – sink, cooker, microwave, fridge, a u-shaped bench seating unit in the middle of which was a wooden table. The seating unit was constructed of wood. It was roughly 2 feet in height. The top section of

the seating unit could be raised and the void within the seating unit was used as storage space. The base unit fan heater was installed, at or just above floor level, within the storage space in the starboard section of the seating unit. The seat coverings were manufactured using flame retardant materials. A sliding glass escape window from the galley to the aft of the main deck was fitted in the forward facing bulkhead.

[26] The cabins are at the stern of the Vision II below the main deck. Although there are 8 berths, Mr West and Mr Jack both reported that they usually went to sea with a crew of 5 or 6. The cabin door is an A60 fire rated door. Within the cabin area there is an escape hatch [CP1, Figures 19 & 20] which leads to the stern of the main deck close to the split net drums. This escape route was clearly marked. There is a vertical ladder adjacent to the cabin door. To exit through the emergency hatch it is necessary to climb the ladder, remove the deck head panel, release the 4 securing dogs and push open the hatch.

[27] Access to the wheelhouse can be taken from the passageway alongside the galley by climbing a vertical ladder and opening a hatch [photographs CP 6/(20-21)]. Access can also be taken from the stern on the main deck by climbing up an external ladder and entering through a door into the wheelhouse [photographs CP 6/10-11].

The Heaters

[28] Macduff Shipyards Limited instructed R D Downie Limited to install heaters on board the Vision II. According to Kenneth Downie, the precise number and location of the fan heaters was not prescribed by drawings or other job specifications, but evolved as a result of discussion between representatives from Macduff Shipyards Limited and his electricians. There were 5 "Heatstore Base Unit Fan Heaters" fitted on board the Vision II: 2 in the wheelhouse; 2 in the cabin area; and 1 in the galley. Mr Downie advised that this type of heater had been routinely installed for many years on board fishing vessels. He described the normal installation process adopted by Macduff Shipyards Limited and R D Downie Limited for the installation of base unit fan heaters in a galley onboard fishing vessels - Macduff Shipyards Limited supplied a joiner to cut an aperture in the seating unit at floor level or up to 3 inches above floor level and an electrician from R D Downie Limited would thereafter wire the heater into a fused spur connection adjacent to the face of the heater. The joiner would box in the heater with marine grade plywood.

[29] The heaters in the wheelhouse and the cabins were boxed in with marine grade plywood. The heater in the galley was installed in the storage space in the starboard

seating unit but was not housed in a plywood box. The chassis of the heater was exposed. Paragraph 5.1.8.1.1 of the Merchant Shipping Notice (1770) provides that:

“electric space heaters, where provided, should be constructed and fitted to reduce the fire risk to a minimum and where such heaters are situated on decks or bulkheads the structure of such decks or bulkheads should be protected by non-combustible material, Heaters with exposed elements and open flame heaters should not be provided.”

[30] The Installation and Operating Instructions for these heaters [CP1, Annex C] reveals that the heaters were designed for fitting in the space behind the plinth of floor standing kitchen units or other fitted furniture units. The heaters complied with the European Safety Standard EN60335-2-30. The Installation and Operating Instructions contains safety warnings including the following:-

“DO NOT COVER OR OBSTRUCT the air inlet or outlet grille.....

If the appliance is covered there is a risk of fire.....

Do not use this heater in areas where excessive dust exists.....

Do not touch or obstruct the grille areas when the heater is in operation.”

Electrical systems

[31] The Fishing Vessel Certificate provides no details relevant to the electrical distribution on the Vision II. The investigators were unable to locate any single line drawings, schematics or cable routing drawings for the vessel's a.c. or d.c. electrical distribution systems. Mr Kenneth Downie explained that until after the fire, the electronics for most of the new vessels at Macduff Shipyards Limited were installed without the aid of electrical drawings, the electricians relying on instructions from Macduff Shipyards Limited and their own practice and experience. The investigators were also unable to locate (a) an Owner's Manual in respect of the Vision II, (b) a written scope of electrical activities undertaken on the Vision II in the days immediately prior to the accident, and (c) the test records for the electrical system on the Vision II. Power distribution system diagrams were subsequently prepared by investigators [CP1, page 15].

[32] Two generators were fitted in the engine room of the Vision II, each supplying 415v alternating current. The port generator was used to supply the main switchboard and when required, to drive the main hydraulic pump. The starboard generator was used to supply the main switchboard and to provide the domestic demand for power. These generators were not designed to run simultaneously.

[33] The main switchboard fed two 6kW transmotors which in turn provided 24v direct current to two 24v battery banks. An emergency battery bank was located on the wheel house deck. Power to the fire alarm and the detection panel was fed directly from the 24v emergency battery supply through the emergency switchboard. Investigators found that all switchboards were in good condition and fitted with appropriate mini circuit breakers.

Shore power

[34] A shore power facility was provided by Fraserburgh Harbour Board for use by vessels in the harbour. Power was taken from the main grid at 11kW, was transformed down to 415v and made available to vessels through 32 amp and 63 amp sockets positioned around the harbour [CP1, page 15, figure 12]. Mr Jack advised that due to the increasing cost of fuel, most vessels berthed in the harbour were connected to shore power thus allowing the skipper to conserve fuel on board the vessel. This does not accord with information supplied to the MIB [CP1, page 20, para 1.5.5]. On Sunday 27 July, when the vessel returned to harbour, power was supplied by the vessel's generator. On 28 July, with repair work about to commence, the engine and auxiliary machinery were shut down. Rimants Venckus connected the vessel to shore power. In doing so, he turned off all of the 24v breakers and isolated the fire alarm and detection panel [CP1, pages 41-42].

The fire detection system

[35] An approved fire detection system, ED 820 manufactured by Electronic Devices Limited, was fitted in the wheelhouse [CP1, figure 14]. The system served the galley, the engine room and the cabin space. Smoke and heat sensors were fitted in each of these areas. The heat and smoke sensors in the galley were fitted in the deck head almost directly above the source of the fire. The sensors were connected to an alarm panel in the wheelhouse. The system was designed to alert someone on watch at sea. The detection of smoke or heat would result in the sounding of an audible alarm only in the wheelhouse and a light indication on the control panel to identify the affected area.

[36] The alarm panel was wired into the emergency switchboard. The alarm panel had been isolated when Rimants Venckus turned off the circuit breakers [CP1, page 36, figure 17]. With the fire detection system isolated, none of the crew would have been alerted to the outbreak of the fire.

The Fishing Vessel Certificate

[37] A Fishing Vessel Certificate (RSS Number C18331) dated 23 December 2004 in respect of the Amethyst [CP1, Annex A] was valid until 21 December 2009 subject to a

satisfactory inspection between 21 December 2006 and 21 December 2007 in accordance with the Code of Safe Working Practices for the Construction and Use of 15 Metres (LOA) to less than 24 metres (L) Fishing Vessels. There is no record of any such inspection taking place during that period.

[38] A Fishing Vessel Certificate (RSS Number C18331) dated 21 December 2009 in respect of the Vision II [JP9] was valid until 21 December 2014 subject to a satisfactory inspection between 21 December 2011 and 21 December 2012. An inspection took place on 17 February 2011 [JP10].

The deceased

[39] Rimants Venckus was born on 10 February 1958. He formerly resided at 4-20 Celtnieku Street, Ventspils, Latvia. He had served aboard the Amethyst as second engineer under the command of Mr West. He is believed by Mr West to have been suitably qualified but unfortunately his training records and qualifications were not found during the investigation.

[40] Ramilito Capangpangan Calipayan was born on 12 December 1974. He formerly resided at Block 14, Unit 5, Phase 3, North Hill Village, Tigbe, Bulacan in the Philippines. He had worked aboard deep sea merchant vessels for some years and latterly had been working aboard fishing vessels. Mr Calipayan worked for Mr Jack aboard the MFV Vision BF 36 as second engineer for a number of months. He had been re-assigned by Mr Jack to act as the chief engineer aboard the Vision II.

[41] From 27 July 2008 up to and including the date of the accident, Mr Calipayan and Mr Venckus were living and working aboard the Vision II. Mr West and Mr Jack had agreed that Mr Calipayan, as the incoming chief engineer of the Vision II, should join the Vision II early to become familiar with the electrical and engineering systems aboard the vessel and to be shown the operations of the vessel by Mr Venckus. Mr Calipayan and Mr Venckus were expected to undertake maintenance work on the vessel during the handover period.

[42] Benjamin Rosillo Potot was born on 24 May 1975. He formerly resided at 398-D Cupalong Street, Tondo, Manila in the Philippines. He had previously worked aboard deep sea merchant vessels. Mr Potot was a fisherman employed aboard the MFV Orion BF 432 ("the Orion"). He lived aboard the Orion. He was a friend of Mr Calipayan.

[43] None of the deceased had undertaken the mandatory SFIA Basic Safety Awareness Course.

Living on board fishing vessels

[44] According to Mr Jack, the fishing industry in the North East of Scotland depends on the use of foreign fishermen. His current crew is foreign. Many foreign seamen live on the fishing vessels. This provides a benefit to the crew as the accommodation is free of charge and it provides a benefit to the skipper by way of an added level of security while his vessel is in port. Mr Jack reported that living conditions on board the Vision II were of a high standard. Although this view was endorsed by Captain Harper, he considered that while a vessel may meet appropriate safety standards for working at sea, that does not necessarily mean that the vessel is safe for those who are permitted to live aboard the vessel in port. He pointed out that in the aftermath of the accident, the MCA issued a press notice [CP1, Annex G] drawing to the attention of owners, skippers, crews, agents and port authorities the hazards of living aboard a vessel and the need for risk assessments to be carried out. Captain Harper did not know whether such an assessment had been carried out by the owners and skippers of the Vision II.

The repairs and other works to the Vision II

[45] The agreed work package was commenced by Macduff Shipyard Limited. Concurrently an independent service engineer attended to repair the auto pilot and chart plotter in the wheel house. Finding that there was no 24 volt supply to the equipment, the service engineer informed Rimants Venckus who went below deck and activated the appropriate electrical circuit breakers.

[46] On 29 July two electricians, Peter Downie and Martin Smart, were instructed to carry out a number of electrical repairs, including the repair of a heater, on board the Vision II. On arrival they were informed by the crew that there were three faulty heaters which required to be repaired. One heater was located in the wheel house, another in the galley, and the third in the cabin area. Six screws on the front panel of each heater hold it in place. The electricians unscrewed the screws and pulled the heaters free. They did not check the fabric of the housings. They took the heaters to the work shop, inspected them and tested the switches and thermostats on each heater. They discovered one faulty switch and two faulty thermostats but neither witness could recall which fault related to which heater. The repairs were effected. The heaters were tested in the workshop and

found to be in good working order. The following morning the electricians returned to the Vision II, refitted the heaters and tested them again. They were again found to be in good working order.

[47] Kenneth Downie confirmed that the majority of repairs carried out by R D Downie Limited to fan heaters relate to switches and thermostats. The company still carries out repairs of that type to fan heaters on board fishing vessels but no longer supplies base unit fan heaters for installation on board new vessels.

The events on 31 July and 01 August 2008

[48] At approximately 21.00 on 31 July 2008, after supper on board the vessel "Millburn", Ramilito Calipayan proceeded onshore with a friend, Benjamin Potot. The two were later seen socialising at a bar in Fraserburgh with a third friend.

[49] Allan Beedie was on duty at Fraserburgh Harbour in the evening of 31 July 2008 and into the early hours of 01 August 2008. He has been a security guard at Fraserburgh Harbour since 1996. Part of his duties involve patrolling the harbour, taking note of anything unusual and preventing unauthorised entry onto any of the vessels. He frequently noticed crew men moving from boat to boat. Between 12.15 and 12.30 am on 01 August, whilst sitting in his patrol van, he noticed two Filipino gentlemen, Ramilito Calipayan and Benjamin Potot, walking towards the Vision II and then boarding it. A third man boarded the fishing vessel "The Faithful" which was secured along the starboard side of Vision II.

[50] At about 1.20 am when he was patrolling the harbour, he noticed smoke coming from the main deck and beneath the wheel house of the Vision II. He boarded the vessel, opened the galley door and was immediately engulfed in smoke. He closed the door. He climbed up to the wheel house and he opened that door too. Once again, he was engulfed in smoke. He closed the door, left the boat and called emergency services. He did not see or hear anyone. He boarded "The Faithful" hoping that the crew had boarded that vessel, knocked on a door, but there was no response. He then walked up to the end of the pier to wait for emergency services. An ambulance arrived a few minutes later.

[51] Colin McLeman is an assisted superintendent at Fraserburgh Harbour. He carries out general duties at the harbour. Previously, he had been employed as an engineer at the harbour. He is also a crewman on the Fraserburgh lifeboat. On arrival at the pier, he approached the onshore power supply box. He realised that the Vision II was connected

to shore power. Mr McLeman explained the process by which vessels connect to shore power. He noted that the cable connecting the Vision II to the power supply box had tripped and consequently he disconnected the cable. He then boarded the lifeboat along with the other lifeboat crew and remained on stand-by to provide assistance if required. There was a risk of fire spreading because the Vision II moored close to another vessel. Eventually, acting on instructions, he and his crew moved the adjoining boat out of danger. He advised that a representative of the Health and Safety Executive had subsequently checked all onshore power boxes and they were found to be in good working order.

The attendance of emergency services

[52] James Morenc was part of the first paramedic crew to arrive at the harbour. They were met at the top of the pier by a gentleman who pointed them in the direction of the fire. He saw plumes of smoke and flames licking the top of the wheelhouse. He did not know if anyone was aboard the vessel. He and his colleague concluded that it was too dangerous to board the vessel, moved the ambulance to a position of safety and waited for fire and rescue services to arrive. He twice called his control office, requesting immediate attendance of fire and rescue services. The first Fire and Rescue Services appliance and crew arrived. They set up spot lights and turned on their hoses to try and dampen the flames. He saw members of the Fire and Rescue Services crew enter the vessel a few minutes later.

[53] George Basterfield is a retained fire fighter based in Fraserburgh. He and his team were the second Fire and Rescue Services team in attendance at the fire. He saw the first team preparing to board the vessel. He was informed that there may be casualties and was instructed to board the vessel with his team. They donned breathing apparatus and boarded the Vision II at the stern. The first fire-fighter held a thermal imagiser and led the way on board. Mr Basterfield and another colleague followed, hosing down surfaces as they proceeded towards the galley. Mr Basterfield commenced searching the left hand side of the galley and one of his colleagues carried out a search of the right hand side of the galley. It was too hot aboard the vessel for the thermal imagiser to be of any assistance in the search. They had to carry out the search by touch rather than vision because of the density of the smoke. The first victim was discovered lying on the left hand side of the galley on a seating unit. The second victim was discovered lying on the seating unit at the back of the table [photographs CP 6/29-30, 6-35-40]. Due to cylinder pressure in their oxygen tanks becoming low, Mr Basterfield and

his colleagues disembarked and reported the discovery of the bodies. The bodies were later identified as Mr Calipayan and Mr Potot.

[54] John Alexander Coutts is a full-time fire fighter. On the evening of 31 July he was on duty in Peterhead. He was instructed to attend a fire on board a vessel in Fraserburgh harbour. At approximately 03.00 on 01 August he arrived at the harbour with his team. There were a number of appliances already on the quayside. He and his team donned breathing apparatus and waited at the control point for instructions. He explained that the officers in charge of such an incident require to assess the risks to the fire fighters prior to giving instructions on fire fighting, search, and rescue. They consider the size of the vessel, entry points and the temperature. They then instruct the spraying of the exterior of the vessel to cool the vessel so that breathing apparatus teams can board. Meantime, the breathing apparatus teams check and put on their equipment, enter the vessel for a specified time period based on the quantity of air within the oxygen tanks, carry out a left hand or a right hand search of specified areas of the premises, and report back on conditions.

[55] His first instruction was simply to stand by with his team of fire-fighters. He was instructed to board the vessel with his team and to search the wheel house. Conditions within the wheel house were appalling. Smoke was very thick and heat was intense. He instructed fire-fighter Young to carry out a right hand search while he carried out a left hand search. They did so by touch rather than vision due to the conditions. The third member of the team carried a hose to damp down and cool down the surfaces. Mr Coutts took ten steps to his left and found a casualty lying face down. He called on fire-fighter Young for assistance. Fire-fighter Young ascertained that the gentleman was deceased. The body was lying on the floor close to an open hatch. He informed the officers in charge of the discovery of the body. He was instructed to continue his search of the wheel house and then to return to quayside. The body was later identified as Mr Venckus.

[56] Mr Morenc was asked to board the vessel again because a body had been found in the wheel house. The gentleman was lying face down, covered in black soot and he was wearing underpants *[photographs CP 6/15-19]*. Mr Morenc applied a heart monitor and confirmed that life was extinct.

[57] William Routt is the group manager of Grampian Fire and Rescue Services based in Aberdeen. At 01.30am on 01 August he was informed that casualties were believed to

be aboard a burning vessel in Fraserburgh harbour. He arrived at the harbour at 02.15am and assumed the role as incident commander. There were three fire appliances already on the quayside - two from Fraserburgh and one from Peterhead. Some crew members were already fire fighting and others were involved in search and rescue. Due to the scale of the fire and the risk of the fire spreading he called for more resources. He received unconfirmed reports of two casualties. He assessed the risks involved and then deployed his resources. There was a vessel tethered to the Vision II and he instructed the lifeboat crew to move that vessel out of danger. By 03.30am, the incident had concluded, the search had been carried out and three bodies discovered.

The Investigation

[58] Due to the unusual circumstances of the fire, Mr Routt decided to seek assistance from Grampian Police. Consequently a joint investigation into possible causes of the fire was undertaken by Grampian Police and Grampian Fire and Rescue. The investigators considered the possibility of the fire being caused by a naked flame, wilful fire raising, sparks from welding work or inflammable liquids but each of these was discounted. Mr Routt and the investigators concluded that the available evidence pointed to the heater in the galley being a possible source of the fire. They decided to call on the assistance of Mr Caley, who is an expert in electrical fire investigation work, to review their findings and also to consider afresh the possible causes of the fire.

[59] Captain Martin Harper was the lead investigator with the Marine Accident Investigation Board ("MAIB") appointed to investigate and report on the cause of the fire on board the Vision II. He spoke of his methodology in investigating the cause of the fire and the preparation of his Report [CP1]. Section 1 of the Report is concerned with the particulars of the vessel and the accident. Section 2 contains an analysis of the contributory causes and circumstances of the accident. Section 3, 4 and 5 contain conclusions, recommendations and details of some Actions taken by various parties since the accident.

[60] Captain Harper had investigated all possible causes of the fire, including an unattended smouldering cigarette [CP1 section 2.3]. As a result of the work carried out by others, including Mr Carey, Captain Harper now accepted that the cause of the fire was the base unit fan heater in the seating unit within the galley. He was critical of the installation of base unit fan heaters on working fishing vessels given (a) the high failure rate of component parts and (b) the method of installation not being in accordance with the manufacturer's instructions. He strongly recommended that all heaters intended for

use on fishing vessels ought to be assessed as suitable for use in a marine environment prior to installation. To the best of his knowledge no such assessment had been carried out on the base unit fan heaters installed on the Vision II.

[61] Captain Harper made a number of observations in regard to containment of the fire. The self-closing mechanism to the fire door separating the galley and the main passageway had been dismantled and a hook and eye device had been attached to that fire door. The combined effect of these modifications resulted in the provision of additional oxygen for the fire allowing the fire to spread quickly throughout the Vision II. In his opinion there was no real justification for the removal of a safety barrier designed to contain a fire in the galley. The hatch leading from the main passageway up to the wheel house was open and that too contributed to the rapid spread of the fire throughout the vessel. There was no need, in his opinion, for that hatch to be in the open position.

[62] He also addressed the issue of blocked and jammed escape routes. Within the cabin there is a clearly marked escape route through the ceiling leading to the main deck. This requires the occupant to climb a ladder adjacent to the cabin door, remove the deck head wooden panel, release the four securing dogs and push open an escape hatch. There was no evidence that Mr Venckus had attempted to use the escape hatch. The deck head panel was undisturbed. In any event, he would not have been able to exit through that escape hatch because the securing dogs on the hatch were seized. Investigators were only able to open the hatch by using sledge hammers. This, in his opinion, was directly attributable to poor maintenance. Further, had there been regular safety training exercises, the crew and the skipper would have realised that the safety hatch was not operational.

[63] In addition, the watertight door leading to the aft deck had been locked and further secured with the use of a scaffolding pole. In the dark, smoke filled environment, Mr Venckus would have had difficulty attempting to escape the fire through that route. The only option left to him was to climb up from the cabin area to the smoke filled main passageway and then up to the wheel house through an open hatch. Regrettably in so doing he was overcome with fumes. Inquiries led Captain Harper to conclude that Mr Venckus, who was extremely worried about security aboard the vessel, adopted a daily practice of locking the door to the aft deck and then placing a scaffolding pole across the door as an additional means of preventing access to the main passageway and galley through that door.

[64] Captain Harper was somewhat perturbed that none of the deceased had undertaken the UK basic safety training for working aboard fishing vessels. The UK basic safety training qualification is a mandatory requirement for working aboard a fishing vessel. In his opinion that was a major omission in their training. He accepted that the deceased held qualifications but those related primarily to work which they previously carried out on deep sea or merchant ships. He insisted that whilst some of the skills gained by the deceased are transferable to fishing vessels, there will still be gaps in their safety awareness. During a lengthy cross-examination, Captain Harper accepted that while the undertaking of the UK basic safety training skills would not have prevented the fire starting, it may have assisted each of the deceased in making informed decisions resulting either in better containment of or escape from the fire.

[65] Mr Nicholas Carey is a full-time fire investigator. He was instructed by Angus Hamilton of Grampian Police to assist in the investigation into the cause of the fire which took place aboard the Vision II. He was provided with documents, photographs, three base unit fan heaters recovered from the vessel and further material.

[66] He commenced his investigation by considering the source of the power to the Vision II as a possible contributing factor but quickly discounted that from further investigation. The vessel had been connected to shore power. He attended Provost Park Jetty at Fraserburgh Harbour. There he checked the supply boxes and the distribution board on the quayside. The socket outlet was properly designed. That device had operated on the evening of the fire - it had tripped, as it should have done.

[67] He examined the distribution board in the wheel house which covered the galley. The distribution board has a number of circuit breakers which are similar to fuses. The circuit breaker, for the fan heater in the galley, had not operated.

[68] On 27 July 2009 he carried out a laboratory examination of the fan heaters at Grampian Forensic Laboratory. On 29 July 2009 he carried out fire tests on the fan heaters at a facility provided by Grampian Fire and Rescue in Aberdeen. Following upon his examination and testing of the heaters, he prepared a Fire Investigation – Electrical Examination Report dated 12 October 2009 [CP3]. The heaters are of similar construction. This type of portable fan heater is manufactured for installation in the bottom plinth or floor plinth in kitchen units. It is not manufactured for use anywhere else. These fan heaters are fit for purpose in kitchen units. In Mr Carey's opinion, these fan heaters are not fit for purpose on board fishing vessels.

[69] The fan heater recovered from the galley was badly fire damaged. The fan heater recovered from the wheel house was heavily smoked stained and the fan heater recovered from the cabin was relatively unmarked. Each heater has a dial on the front right hand side which operates the thermostat and controls the temperature. Inside each heater are two thermal protection devices. One is located within the heating element and the other is above the heating element. These thermal protection devices are expected to operate if there is an overheating event. An overheating event will occur if the airflow is blocked or the grills are obstructed. If airflow is reduced or blocked, the temperature within the heater rises and the thermal protection devices respond. A thermal protection device contains two metal contacts which touch each other. During an overheating event these contacts ought to open and separate, causing the heater to switch off. After the temperature reduces, the heater will automatically reset.

[70] Mr Carey utilised the heater recovered from the cabin area for reconstruction testing as it had been least damaged in the fire. With reference to his Report [CP3] Mr Carey described the tests which he carried out on that heater and his detailed examination of all three heaters [sections 5, 6 and 7]. He concluded that the air supply to the heater in the galley either slowed down or was stopped and that the heating element within the heater became hot. The thermal protection devices did not function. The thermal cut-out located above the heating element sustained severe heat damage – a bead had welded the contacts together preventing them from opening. The thermal cut-out within the heating element showed signs of arcing damage. He also found signs of extensive arcing damage to the contents of the thermostat. The temperature rose and ignited combustible material within the heater. He accepted that even if the storage unit had been empty of all combustible material, the fire would still have taken hold, burning the wood within the storage area and then spreading onwards. In his opinion, all of these factors point to the base unit electric fan heater located within the seating unit in the galley being the cause of the fire onboard the Vision II.

[71] The final witness, Stuart Cruickshank, is the station manager for Grampian Fire and Rescue in Aberdeen. He is the co-author of a Fire Investigation Report dated 19 October 2009 [CP2]. In reaching his conclusions, he considered the statements of the witnesses, the characteristics and fittings on the vessel, the fire, smoke and heat damage within the vessel and the point of origin of the fire. He spoke of possible causes of the fire – naked flame, accelerants, sparks from welding work, wilful fire-raising – and he explained why he discounted each of these alternative causes of the fire. He concluded

that the fire was caused by the base unit fan heater within the seating unit in the galley due to the thermal protection devices failing to operate. He agreed with the conclusions of Mr Carey.

Developments since the fire on board the Vision II

[72] This tragic accident brought into sharp focus the dangers in living on board a fishing vessel in port. The productions tendered during the Inquiry and the evidence from a number of witnesses revealed that although safety systems and precautions on board a vessel are adequate while the vessel is at sea, those same safety systems and precautions may be inadequate when the vessel is in port and the vessel's power generation systems are shut down. Since the fire on board the Vision II, there have been a number of significant developments in respect of which evidence was adduced at the Inquiry.

[73] Captain Harper explained that since the accident the MCA had been heavily involved in reviewing and promoting safety issues associated with crews living on board fishing vessels in port. The actions taken by the MCA up to the date of publication of the Marine Accident Report are set out on *page 49 of CP1*. I do not propose to repeat those actions in this section of my Determination. I simply acknowledge that the actions have been taken.

[74] Since the publication of the Marine Accident Report [*CP1*], the MCA produced a Marine Guidance Note – MGN 425 (M+F) entitled “Assessment of risks for those sleeping on “dead ships”” [*JP6*]. Captain Harper explained that the purpose of the Note is to provide guidance on the minimum standards that are deemed acceptable for vessels not normally equipped for on board sleeping and it applies to vessels greater than 24 metres in length and less than 500 gross tonnes as well as those under 24 metres.

[75] In addition, the MCA issued a further Guidance Note – MGN 413 (F) entitled “Voluntary Code of Practice for Employment of Non European Economic Area (EEA) fishing crew”. Captain Harper advised that the MCA, through this Guidance Note, acknowledges that the practice of living aboard fishing vessels is a reality. Many of the vessels are not designed to be used for long periods of time and have basic cooking, wash, heating and hygiene facilities. That forces those who have to live aboard to “make do” and sometimes take undue safety risks. The Guidance Note attempts to ensure consistency across the fishing fleet and it states that it is intended to be a live document and aims to reflect change, experience, social and practical responsibility. I have set out

the evidence of Mr Jack and Captain Harper regarding the decent standards of living aboard the Vision II.

[76] Since completion of the repairs following the fire damage, the owners of the Vision II have, amongst other things, installed 7 CCTV cameras covering the net drum/aft deck area, the forward deck and winch, the engine room and the fish room; alarms in the cabin, galley and passageway; a handrail inside and another handrail outside the galley window to help people haul themselves out of the galley when faced with an emergency situation. Weekly testing of the cabin escape hatch is included in the safety drills. The galley door is no longer tied back. *[CP1 section 4.2]*. Mr Jack spoke of warning notices regarding the operation of the switchboards being in place in the engine room and wheel house *[JP1-5]* and of all members of crew having undertaken the UK basic safety awareness programme *[JP11-18]*.

[77] It was somewhat unfortunate that evidence was not led from the SFIA. I offered parties the opportunity of calling a witness from that body and from Macduff Shipyard Limited to speak to the interaction during the fit-out of the vessel among Macduff Shipyard Limited, the SFIA surveyor and the MCA surveyor. Both parties were of the view that the Inquiry had suffered through previous adjournments and did not wish any further delays. The Crown and Mr Smith were content to rely on the evidence adduced from other witnesses during the Inquiry and on the Marine Accident Report. Captain Harper was aware of steps having been taken by the SFIA to review and amend its construction standards by the introduction of an ISO quality management system. The electrical section of the construction standards has been completely reviewed to ensure compatibility with the latest regulations from the Institute of Electrical Engineers. At the time of writing his Report, the SFIA was in the process of implementing new procedures and guidance to surveyors that will further clarify the requirements and level of inspection and reporting required for each vessel under survey *[CP1 paragraph 4.3]*. Captain Harper could not advise the Inquiry on the current position in regard to these matters.

[78] In its analysis of UK fishing vessel safety 1992 to 2006, the MAIB recommended that the MCA ensure the current mandatory training requirements for fishermen are strictly applied. The MCA has accepted the recommendation.

Submissions

[79] Mr Smith and the Procurator Fiscal Depute lodged written submissions which they supplemented orally in the concluding stages of the Inquiry. I have not set out the submissions in detail but comment upon them when appropriate.

Determination and recommendations

Section 6(1)(a)

[80] The Procurator Fiscal Depute submitted that the date, time and place of death of each of the deceased was at 1.15am on 01 August 2008 on board the Vision II. Mr Smith concurred with that submission.

[81] The evidence reveals that Alan Beedie saw Mr Calipayan and Mr Potot board the Vision II between 12.15am and 12.30am on 01 August 2008. At around 01.20am on 01 August 2008, Alan Beedie noticed smoke emanating from the wheelhouse and main deck of the vessel. He attempted to enter the galley and then the wheel house but was beaten back by flames, intense heat and dense smoke. He alerted emergency services and remained on the pier. A short time later, the bodies of Mr Calipayan, Mr Potot and Mr Venckus were discovered by emergency services on board the Vision II. There was no dispute on the evidence of these matters. I made an appropriate determination (*paragraph [1] above*) containing a time frame rather than a specific time of death.

Section 6(1)(b)

[82] A Joint Minute of Agreement was lodged at the start of the Inquiry. Paragraphs 6, 8 and 10 thereof narrate that a post-mortem examination of each of the deceased was carried out on 04 August 2008 by Dr J H K Grieve. All three deceased were identified by fingerprints. Dr Grieve prepared *inter alia* a short form report for each of the deceased and those forms together with Intimations of Death to the Procurator Fiscal were attached to the Joint Minute. These documents collectively state that the condition leading to death in respect of Mr Venckus was (a) smoke inhalation and (b) fire aboard a fishing vessel and in respect of Mr Calipayan and Mr Potot was (a) death in fire and (b) fire aboard a fishing vessel. The toxicology results are set out in paragraphs 1.6 and 2.6 of the Marine Accident Report [CP1]. No medical evidence was led.

[83] The Procurator Fiscal Depute and Mr Smith submitted that the information within these documents taken together with the evidence of those involved in the discovery of the bodies would allow me to find that the cause of death in respect of each of the deceased was the inhalation of smoke and fire gases. I accepted their submissions and made an appropriate determination (*paragraph [2] above*).

Section 6(1)(c)

[84] The Procurator Fiscal Depute submitted that there were a number of reasonable precautions whereby the deaths and any accident resulting in the deaths might have been avoided. Mr Smith initially suggested that there were no such reasonable precautions, but he later departed from that position and agreed with the Crown in a number of respects. I deal with these matters in the following paragraphs.

[85] The five base unit fan heaters on board the Vision II were installed during the construction of the vessel. Four of the fan heaters had been appropriately housed within suitable plywood boxes. The fan heater located within the seating unit in the galley had not been housed within a plywood box and no explanation was given to the Inquiry for that omission. Captain Harper and Mr Carey were of the opinion that electric fan heaters designed and manufactured for installation in the space behind the plinth of floor standing kitchen units or other fitted furniture units are not suitable for installation in a seating unit on board a seafaring fishing vessel. Mr Kenneth Downie and Mr Smart reported that since this accident base unit electric fan heaters are no longer installed on new fishing vessels built by Macduff Shipyards Limited. Heating is now provided by panel heaters.

[86] The Crown submitted that the fan heater in the galley should have been boxed in and ultimately Mr Smith concurred with that view. I was satisfied on the evidence that had the base unit fan heater, located within the seating unit in the galley, been housed within a plywood box, this would have greatly reduced the likelihood of the air vents becoming blocked by other material within the seating unit and might have prevented the fire. Accordingly I made the finding sought by the Crown (*paragraph [4(a)] above*).

[87] Storage space aboard a working fishing vessel is limited. The seating unit in the galley served a dual purpose - storing materials and housing a fan heater. That, until the accident, was standard practice aboard the Vision II and other fishing vessels of similar construction. The contents of the seating unit were destroyed in the fire. Captain Harper had discussions with the remaining crew regarding the contents of the seating unit [*CP1, para 1.8.3*] which they recollected included a tablecloth, shopping catalogues, equipment handbooks, wooden plates and working gloves. The Procurator Fiscal Depute submitted that the fire might have been prevented if combustible materials had not been stored in the seating unit. Mr Carey was a little more cautious in his approach to this issue. In his opinion, keeping the storage space within the seating unit clear of all combustible materials would not have prevented the fire but would most certainly have slowed the

development of the fire and might have afforded Mr Venckus, in particular, more time to successfully flee the Vision II. Mr Smith was more robust, suggesting that the seating unit was storage space and those on board the vessels had no reason not to make use of it for that purpose. I accepted the evidence of Mr Carey on this issue and I made an appropriate finding (*paragraph [4(b)] above*).

[88] The Procurator Fiscal Depute sought a finding, which was opposed by Mr Smith, that the electricians ought to have tested the thermal protection devices on completion of the repairs to the thermostats for had they done so, the fire might have been prevented. This very proposition was put to Mr Carey who rejected it completely. Testing a thermal protection device is not part of routine electrical maintenance and in any event is not viable. Testing the functionality of a thermal protection device would necessitate the simulation of an over-heating event, similar to the test carried out by Mr Carey. That simulation would damage the heater to such an extent that it would require to be removed from service and replaced. In light of the evidence, I am not prepared to make the finding sought by the Crown.

[89] The fire door separating the galley and the main passageway had a specific purpose – it was a safety barrier intended to contain fire. The self-closing mechanism on that door had been disabled. A hook and eye device had been attached to that fire door. I accepted the evidence of Captain Harper that the combined effect of these modifications was calamitous for it resulted in the provision of additional oxygen for the fire allowing the fire to spread quickly throughout the Vision II. The self-closing mechanism on the fire door separating the galley from the passageway should not have been disabled and that door should not have been kept permanently open through the use of a hook and eye device. But for those modifications, the spread of the fire might have been delayed, allowing Mr Venckus time to make good his escape. Accordingly I made the finding sought by the Crown (*paragraph [4(c)] above*). I should add that this matter has been addressed satisfactorily by the owners of the vessel.

[90] Crew members should have been provided with adequate training and undertaken regular drills in the action required of them in the event of an emergency. Had Mr Venckus been adequately trained, he might have been more familiar with the location of and routes to emergency exits and might have made good his escape. There was no evidence that Mr Venckus attempted to escape through the emergency hatch. Whether that is due to lack of knowledge or training on his part is not known, but in any event he would have been unable to leave the cabin by that means because the securing dogs on

the emergency hatch within the cabin area were seized. Captain Harper attributed this to poor maintenance and I accept his evidence on this matter. He also pointed out that had there been regular safety training exercises, the crew and the skipper would have realised that the emergency hatch was not operational and further they would have become familiar with the location of other routes to emergency exits. Regular inspection and maintenance of emergency exits should have been undertaken. Had this hatch been in good working order, the death of Mr Venckus might have been avoided. I accept the submission of the Crown on these matters and made appropriate findings (*paragraphs [4(d)]-[4(e)] above*). Mr Smith did not quarrel with the Crown's submission on this matter, reminding me that since the accident these matters have been addressed by the owners of the vessel.

[91] The evidence reveals that the fire detection system along with other systems on board the Vision II had been switched off by Mr Venckus prior to the vessel being connected to shore power. It was therefore impossible for the fire detection system to detect heat or smoke. It is essential that fire detection systems remain fully operational regardless of whether a vessel is at sea or in port, given that many crews routinely live aboard fishing vessels in port. The fire detection system should have been wired in such a way as to prevent it being turned off (i.e. fused, rather than passing through a mini-circuit breaker). Further, since the fire detection system was not wired in such a manner, the system should have been connected to a secondary power source in case main power failed or was turned off. I have concluded that these are precautions by which the accident and the deaths might have been avoided. Accordingly I made the findings sought by the Crown (*paragraphs [4(f)]-[4(g)] above*).

[92] The electrical system on board the Vision II was complex. There were no schematic diagrams and no procedures in place for changing to shore power. There were no notices, labels or signs on the switchboards alerting the crew to the impact of changing to shore power on the electrical system and fire detection system. It is a matter of conjecture that had there been warning or explanatory notices attached to the switchboards or warning labels attached to the mini circuit breakers, Mr Venckus might not have turned off the circuit breakers when changing to shore power. Be that as it may, it seems to me that the labelling of the mini circuit breakers relating to the fire detection system instructing the crew that the breakers were not to be switched off, is a reasonable precaution by which the accident and the deaths might have been avoided. Accordingly I made the determination sought by the Crown (*paragraph [4(h)] above*). I note that this issue has also been addressed by the owners.

[93] As the fire alarm was located in the wheelhouse, even if it had sounded, it was remote from the crew's quarters and it is unlikely that any of the deceased would have heard it. Had alarms sounded in the galley, the passageway and the cabin space, the deceased might have been roused in time to save themselves. It was suggested during the Inquiry that as Mr Venckus was not in close proximity to the source of the fire and fumes, an early alarm warning might have given him ample time to escape the ravages of the fire. The same suggestion was not made in respect of Mr Calipayan and Mr Potot who were in the immediate vicinity of the source of the fire and fumes. Based on the evidence, I am satisfied that the vessel should have been fitted with additional fire alarms in the galley, the passageway and the cabin space and accordingly I made the finding sought by the Crown (*paragraph [4(i)] above*). Mr Smith did not disagree with the Crown submission on this matter, observing once again that the owners of the vessel had made appropriate improvements to the fire alarm system.

Section 6(1)(d)

[94] I was invited by the Crown to find that the imprecision in the Minute of Understanding between the MCA and the SFIA regarding responsibility for assessment of the fire protection elements of the survey process was a defect in their system of working. Mr Smith did not agree with that submission, nor for that matter do I. In deciding whether to make any determination as to the defects in any system of working which contributed to the death or any accident resulting in the death, the Court must be satisfied that the defect in question did in fact cause or contribute to the death. I am not prepared to make the finding sought by the Crown under s6(1)(d). The cause of the fire was a defect within a fan heater. It seems to me more properly to be a fact which is relevant to the circumstances of the deaths under s6(1)(e) and I deal with that in the following paragraphs. Further, in anticipation of possible criticism by the Crown of the new owners, Mr Smith submitted that there were no defects in the system of work on the part of the new owners of the Vision II which led to the accident and the deaths. I agree with his submission. The evidence does not support a finding that any defect in a system of working operated by the owners of the Vision II contributed to the deaths or the accident leading to the deaths.

Section 6(1)(e)

[95] The Crown sought a series of findings all related to the survey process. Mr Smith was a little troubled by the lack of evidence from any representative of the MCA and the SFIA. He did, however, accept that Captain Harper had made detailed investigation of both bodies in relation to the survey process (*paragraphs [21]-[23] above*). He also accepted that following upon publication of the Marine Accident Report, steps had been taken by both bodies to clarify their respective areas of responsibility during the inspection and survey of a new build vessel and to resolve any areas of ambiguity. I accepted the evidence of Captain Harper that, in the course of his investigation, he had discussions with representatives of the MCA and the SFIA regarding the survey process followed during the construction and fit-out of the Vision II. He concluded, and I have no reason to doubt him on this matter, that despite entering into a Minute of Understanding regarding the survey process, the MCA and the SFIA misunderstood which organisation had responsibility for (i) inspecting and approving the suitability and installation of base unit electric fan heaters and (ii) approving or otherwise the installation and use of a hook and eye device on a fire door. As a result of this misunderstanding, neither organisation inspected these items. It seems to me that this is a matter entirely relevant to the circumstances of the deaths. Accordingly I made the determination (*paragraph [6(a)] above*) sought by the Crown but under s6(1)(e) rather than s6(1)(d).

[96] The Crown sought a finding, based on the evidence of Captain Harper, that the SFIA surveyor should not have approved the survey inspections during the fit-out of the Vision II and should not have issued a declaration of survey until the vessel was fully compliant with MSN 1770(F) and SFIA Construction Standards. It is regrettable that the documents containing the construction standards were not produced to the Inquiry. No evidence was led regarding the nature of non-compliance. For example, a bald statement that the owners had not conducted an annual inspection as required by MSN 1770 (F) without reference to the appropriate section of MSN 1770 (F) is not particularly helpful. For these reasons I am of the view that the finding sought by the Crown under section 6(1)(e) is not one which can properly be made for there was no evidence to support the finding.

[97] The Crown, based on the evidence of Captain Harper, sought a finding that the MCA should not have accepted an incomplete Form FV2 in place of a Declaration of Survey and should not have relied upon that Form FV2 when issuing a Fishing Vessel Certificate in respect of the vessel. The Form FV2 was not produced to the Inquiry, nor was a sample of a Declaration of Survey. The evidence on this matter was once again

limited. I am again of the view that the evidence does not support the finding sought by the Crown.

[98] That having been said, I was advised by Captain Harper that the MCA had already taken action to address the issues in this and the 2 preceding paragraphs. The Crown was satisfied with the steps taken by the MCA and the SFIA and accordingly did not invite me to make any recommendations on these issues.

[99] The SFIA Basic Safety Awareness Course is mandatory for all foreign crew on board UK fishing vessels, and is specifically tailored to the requirements of the British Fishing Industry. Captain Harper tended to the view that had the deceased undertaken this safety training they may have been more alert to the dangers of life aboard a vessel in port. The Crown requested that I make a finding in regard to this matter. I am not prepared to do so for there was no evidence that the taking of this course would have prevented the deaths. The MCA has accepted a recommendation made by the MAIB that the MCA ensure the current mandatory training requirements for fishermen are strictly applied. I can do no better than to commend that acceptance and to emphasise to owners, skippers, crews and the enforcement agencies the importance of compliance with safety training.

[100] Mr Venckus was routinely in the habit of securing the watertight door leading from the main passageway on to the aft main deck. He did this by locking the door and then jamming the dogs by placing a piece of scaffolding pole across them. This door could have been used by the deceased as a means of escaping the fire by exiting the door onto the aft main deck. It seems to me to have been thoughtless and verging on irresponsible to secure any exit from the vessel in that fashion. Accordingly I made the finding sought by the Crown (*paragraph [6(b)] above*).

Recommendations

[101] I was invited by the Crown to make certain recommendations relative to the use of fan heaters aboard marine vessels. Any recommendation must be directly related to the particular circumstances of the accident. Given the terms of my determination at paragraphs [4](a) and (b) above, and based on all of the evidence, it seems to me that the recommendations sought by the Crown are entirely reasonable. Accordingly I make the following recommendations:-

- (i) base unit fan heaters should no longer be fitted in fishing vessels;

- (ii) in the event of a base unit fan heater, currently fitted in a fishing vessel, ceasing to operate due to a component failure, the entire base unit fan heater should be removed and thereafter replaced with a panel heater; and
- (iii) where a base unit fan heater has already been installed in a fishing vessel, it should be housed in a suitable marine plywood casing, to comply, insofar as possible with the Installation and Operating Instructions for that type of heater.

[102] I conclude by offering my sincere condolences to the family and friends of the deceased.