MCIB
Marine Casualty Investigation Board

REPORT OF INVESTIGATION INTO A FIRE ON-BOARD THE MOTOR FISHING VESSEL "GROVE" ON 19TH NOVEMBER 2002.

The Marine Casualty Investigation Board was established on the 5th, June 2002 under The Merchant Shipping (Investigation of Marine Casualties) Act 2000

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1. SYNOPSIS.

1.1 On Tuesday, 19th November 2002 at approximately 11.30 hours while fishing off the Mayo Coast a fire occurred in the engine room of the Fishing Vessel "Grove". There were no injuries.

2. FACTUAL INFORMATION

2.1 The Motor Fishing Vessel "Grove" is a stern trawler built of steel with the wheelhouse, machinery space and accommodation aft of amidships (see Appendix 8.1). The vessel is laid out below the main deck as follows, fore peak, store, main fish hold, fuel tanks, machinery spaces, crew accommodation, freshwater tanks and the steering compartment. Above the main deck the vessel has a shelter deck containing trawl winches, net drum and fish processing equipment.

The vessel was built in 1976 by Gydnia Shiprepair Yard, Gydnia, Poland. It was registered in the Netherlands in 1978 as "Ennte en Appie". Irish registration was in 1978 as "Grove". The owner was Mr. J.P. O'Shea, Killybegs, Co. Donegal. The Main Engine at this time was one Bolenes Motorfabriek, 1800BHP (1342.8kW) with 12 cylinders.

In September 1994 an application was received for change of engine survey The information on the accompanying form survey 118 certificate of particulars of engines and boilers is as follows:

Maker:	Krupp MAK Maschinenbau Gmbh.
When made:	1993
Number of cylinders:	6
Bore:	200mm
Stroke:	300mm
Power:	1020kW @1000rpm. This is the engine presently in the vessel.

2.2

Port of Registry:	DUBLIN	
Official Number:	402484	
Gross Tonnage:	334.32 tons	
Register Tonnage:	160.31 tons	
Length Overall:	130.85 Feet	(39.88m)
Registered Length:	126.35 Feet	(38.51m)
Registered Breadth:	26.30 Feet	(8.03m)
Registered Depth:	14.15 Feet	(4.31m)
Length of Engine Room	34.10 Feet	(10.39m)

2.3 An entry in the registry of the 3rd August 2001 notes Mr. Brendan McGrath, Co. Waterford as the present owner.

2.4 Machinery

Main propulsion machinery is a single engine driving a single propeller via a reduction gearbox.

Details of Main Engine

MAK:	6 cylinders
Made:	1993
Bore:	200mm
Stroke:	300m
Power:	1020kW @ 1000rpm.

Electrical power is supplied by two main generators situated port and starboard side of the engine room and an emergency generator situated in a forward compartment.

Port Generator

Scania:	1402 - 8 cylinders in Vee formation
Alternator:	Leroy Somers
Volts:	380 - 50 Hz - 3 phase
KVA:	200
KW:	160
Power factor:	0.8
RPM:	1500.

Starboard Generator

Caterpillar	8 cylinders Vee formation
Alternator:	Leroy Somers
Volts:	400 - 50 Hz - 3 phase
KVA:	300
KW:	240
Power factor:	0.8

Emergency Generator

Cummins:	6 cylinders in line
Alternator:	
Volts:	380
KVA:	100

2.5 Life Saving Appliances - applicable legislation:

S.I. No. 100 of 1967 Life Saving Appliances for Class X vessels,
S.I. No 549 of 1998 (Fishing Vessel Safety) Regulations, 1998
S.I. No. 550 of 1998 Fishing Vessel (Safety Provisions) Regulations, 1998
1993 Torremolinos Protocol and Torremonlinos International Convention 1995,
Council Directive 97/70/EC
Commission Directive 1999/19/EC
Commission Directive 2002/35/EC
For vessels of 24 metres in length and over.

Appliances on board:

Rescue Boat:	Port Liferaft Dunlop 10 person (under service) Strb. Liferaft: Dunlop 10 person 11/2002
Lifejackets:	6
EPIRB: Konnad No. KM 512	406fh EIWY 2004

2.6 Fire Fighting Equipment - applicable legislation:

S.I. No. 101 of 1967 Fire Appliances foe Class X vessels

Equipment on board:

Engine Room

Fixed CO2 system:	4 cylinders 8 nozzles in engine room.
9 Kg. Dry powder	Port Aft.
9 Lt. Foam	Port Aft.
5 Kg. CO2	Strb. midship.
5 Kg. CO2	Port Forward.
9 Lt. Foam	E/R entrance.
5 Kg. CO2	E/R entrance.

Accommodation

9 Kg. Dry Powder	Alleyway
Hydrant hose and nozzle	Alleyway
Hydrant	strb. Side main deck.
2 Kg. CO2	Wheelhouse.
5 Kg. CO2	Wheelhouse.
9 Lt. Foam	sleeping area
5 Kg. CO2	Emergency generator
9 Lt. Foam	Fwd. Deck.
5 Kg. CO2	Fridge plant.

2.7 Manning - Regulations applicable:

S.I. No. 289 of 1988 Fishing Vessels (Certification of Deck Officers and Engineer Officers) Regulations. 1988 as amended.

Fishing Vessels (Certification of Deck Officers and Engineer Officers) (Amendment) Regulations, 2000.

Requirements for this vessel:

Deck Officer		Engineer Officer	
Skipper full	1	Class 2	1
2nd hand full	1	Class 3	1
		Limited Area	
Skipper limited	1	Class 2	1
2nd hand limited	1	Class 3	1

Manning on board at time of incident:

Skipper: Gareth Murphy	Certificate of Competency as Skipper of a Fishing Vessel. Certificate No. 070. (Skipper Full)
Mate: Patrick Diver	Deck hand course completed.
Chf. Engineer: Evgeniy Dobryak	Russian National, Russian Certificate for Fishing Vessel Third Class Engineer, Endorsement of Certificate 1168/2001 – Reg. III/1 STCW 78/95. This would indicate a watch-keeping certificate.
2nd Engineer:	None.
Crew: Mark Diver	Second Hand Full Certificate No. 145.

2.8 Vessel certification status: no certification produced.

3. EVENTS PRIOR TO THE INCIDENT

3.1 The motor Fishing Vessel "Grove" is a 38.10metre stern trawler built of steel with wheelhouse, machinery space and accommodation aft of amidships built in 1976 at the Gdynia Ship repair yard Gydina, Poland. The present owner is Mr. Brendan McGrath, Co. Wexford.

3.2 The vessel sailed from Killybegs on Thursday 14th November 2002 at about midnight for the fishing grounds west of Achill. Four people were on board, Gareth Murphy - Skipper, Patrick Diver - Mate, Evgeniy Dobryak - Chief Engineer and Mark Diver - crewmember.

4. THE INCIDENT

4.1 On Tuesday 19th November 2002 the vessel shot its fishing gear at about 10.00 hrs. The vessel's position was 54.21.0 North, 11.11.2 West. The vessel was heading in a South Westerly direction. The Engineer was in the engine room at this time changing fuel filters and then came up for breakfast. At approximately 11.30 hrs the power went off although the main engine continued to run. The Engineer Evgeniy Dobryak went to the engine room and saw sparks and some smoke and reported the fire. Gareth Murphy and Mark Diver went to the engine room and saw smoke and flames. Gareth Murphy then went to the wheelhouse and called Malin Head Radio Station and told them that there was a fire in the engine room and gave them details of vessel and crew.

4.2 At this stage Mark Diver and Evgeniy Dobryak entered the engine room with a portable fire extinguisher to fight the fire locally but with little effect and withdrew. They then informed the Skipper that the fire was too big for them to put out.

4.3 The Skipper then decided to use the Fixed CO2 Fire Fighting System. All Engine Room doors and vents were closed and lifejackets donned. The Skipper tried to stop the main engine by using the electrical stop button in the wheelhouse, but the engine continued to run. He then pulled the operating wires for the remotely operated fuel shut off valves, but the engine continued to run. The Skipper carried out a head count of all crew, and when all were accounted for he operated the CO2 system.

4.4 Malin Head Radio Station was again contacted and informed that the CO2 system had been released. Malin Head Radio Station informed the Skipper that the helicopter was on its way and would be with them at about 13.00hrs. A short time later Malin informed the Skipper that the MFV "Fr. McKee" would also be with them at about 14.00hrs. In the meantime the fishing gear was hauled in and a towrope made ready. By 15.00hrs the "Fr. McKee" had the "Grove" in tow, a lifeboat was along side at this stage and departed a short while later.

5. EVENTS FOLLOWING THE INCIDENT

5.1 At 18.00hrs approximately the Skipper and Engineer entered the engine room. The main engine was still running. There was still some smoke in the engine room. The Engineer stopped the main engine by operating the fuel rack manually and then closed the tank fuel outlet valves. The Emergency Generator, which is located in a forward compartment, was started and electrical power was restored to the vessel.

5.2 The engine room boundaries were continually checked from the closing down of the engine room to docking at Killybegs (02.30hrs approx. on Wednesday 20th November 2002).

5.3 The Engineer ascertained that the fire had involved the main supply cables from the Starboard Generator to the main switchboard (See Appendix 8.2). Shortly after arrival in port repair work commenced.

6. CONCLUSIONS AND FINDINGS

6.1 The Starboard Generator Unit is located on the Starboard side of the engine room with the engine forward and the generator aft. The layout of the main supply cables from this generator (consisting of seven cables i.e. two for each phase and a single neutral cable) is as follows:

The cables exit the connection box on the generator and run downwards on the inboard side to the stool that supports the generator unit. The cables then run horizontally forward to the main switchboard. In the area of the generator stool the cables are supported by cable ties to a flat bar that is welded to the foundation stool.

It would appear from the damage to the cables that the cable ties had broken allowing the cables to hang and sway with the movement of the vessel. The insulation was completely worn and burnt exposing the conductors over a distance of about 250mm, some of the copper conductors were themselves burnt through.

The cables, while hanging, made contact with the flange of a vertical pipe, which is located alongside the cable run. There was some burning of the flange and securing nuts probably caused by arching (the Engineer did report seeing sparks). As the main engine continued to run while the electrical power was off some damage occurred due to overheating.

6.2 Electric power is required to operate the solenoid that activates the mechanism to stop the main engine. As there was a power failure the engine could not be stopped from outside the engine room. Remotely operated fuel shut off valves; these are spring loaded quick closing valves of traditional type. When the remote control wire was operated the tripping mechanism was activated but the valve failed to close due to obstruction by paint.

6.3 Engine room closing devices (fire flaps) were either badly corroded or seized; the closing of these in this condition would have little effect. It would appear that the CO2 injected into the space was probably dissipated by escaping through the closing devices, the engine continuing to run would indicate a presence of oxygen, the engine running would have the effect of pumping CO2 though the combustion process and out the exhaust. The vessel was in an unkempt condition generally but the engine room was satisfactory. The Engineer was in the machinery space shortly before the incident and was probably in this space several times each day and did not see or recognise the seriousness of power cables hanging loose. This together with the failure of the remotely operated fuel shut off valves to close and the condition of the closing devices indicates that proper procedures were not adhered to.

7. RECOMMENDATIONS

7.1 Fishing Vessels should be manned in accordance with the applicable Statutory requirements.

7.2 S.I. No. 48 of 1993 - Merchant Shipping (MUSTERS)(FISHING VESSELS) Regulations, 1993. Marine Notice No. 5 of 1992 – Re: MUSTERS AND DRILLS ON FISHING VESSELS. Musters, which include the operation of Fire Fighting appliances, are required to be carried out every voyage and at intervals of not more than 14 days.

7.3 Good procedures and practices and plain good housekeeping are essential for the safe operation of any vessel. A new marine notice dealing with Musters on fishing vessels should be issued and an awareness campaign, which would include issues such as musters, procedures and practices should be carried out.

7.4 Consideration should be given to requiring all fishing vessels over 15metres to carry a Safe Manning Document, this document would be similar to the document carried by Merchant Ships.

7.5 In Vessels where power is required to stop the main engine another means should exist, outside the machinery space, to shut down the main engine.

8. Appendices

8.1: Photograph, Vessel berthed at Killybegs.

8.2 Photograph, Starboard Generator Unit, cable support and vertical pipe.

8.1: Photograph, Vessel berthed at Killybegs.

APPENDIX 8.2

8.2 Photograph, Starboard Generator Unit, cable support and vertical pipe.