



**MERCHANT MARINE ACADEMY OF MACEDONIA  
DECK DEPARTMENT**

**THESIS**

***THE NORMAN ATLANTIC SHIPWRECK***



**STUDENT: KARALIOTAS FILIMON**

**REGISTRATION NUMBER: 3375**

**SUPERVISOR: KARAOULANIS DIMITRIOS**

**NEA MICHANIONA, 2017**

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## **ABSTRACT**

This thesis is about the Norman Atlantic accident on 28 December 2014. This accident led to the death of many people and a partial destruction of the ship. The main causes of the accident were the overloading of the ship by vehicles and the inappropriate electrical connection of the trucks with the ship's power grid. Many mistakes and omissions have been seen in the crew as they did not know how to handle those difficult times to rescue passengers, as well as the non-operation of many safety systems on the Norman Atlantic ship. In conclusion, it seems that the breach of safety rules and the inappropriate operation of the crew lead to such a disastrous accident.

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## **INTRODUCTION**

The purpose of this thesis is to study the Norman Atlantic. In particular, to study the course of the ship, the incident of fire, statements of witnesses, the conditions of the ship and the rescue operation. Then the cause of the fire is studied, the crew and passengers rescue and aid cooperation between Italy and Greece.

The thesis consists of 4 chapters detailed for the purpose of the work.

The first chapter gives some information about the Norman Atlantic ship, its construction and its course.

The second chapter describes in detail the occurrence of the accident, problems encountered and the mistakes that followed. In addition, passengers' testimonies give an overall picture of the accident.

The third chapter analyzes the causes of fire aboard Norman Atlantic, following the inquiries kept up to two years and still continuing to be investigated.

The fourth and last chapter analyzes the maritime safety, according to the ISM Code, and then describes how safe are ro-ro vessels. In the end of the chapter, there is a focus on the Norman Atlantic case, namely whether and to what extent the safety rules were respected, but also the compensation paid to the families of the victims according to the rules of the European Commission.

In the end, there is the conclusion, and also some suggestions that all ships have to follow for safer travel.

# CHAPTER 1:

## INFORMATION ABOUT MS NORMAN ATLANTIC

### 1.1 Characteristics of Norman Atlantic

MS Norman Atlantic is a roll-on/roll-off passenger (ROPAX) ferry belonging to the Italian company Visemar di Navigazione. The ship is hired by ANEK Lines from December 2014.

The ship is 186 meters (610 ft 3 in) long, with a radius of 25.6 meters (84 ft 0 in) and a depth of 6.71 meters (22 ft 0 in). She is powered by two MAN B & W 9L48 / 60B diesel engines that can propel the ship at 24 knots (44 km / h). The capacity of the ship is 850 passengers and around 2,286 lanes for vehicles.



**Figure 1.** Norman Atlantic (Philips, 2014)

## **1.2 Historic Route of Norman Atlantic**

The ship was built in 2009 by Cantiere Navale Visentini, in Porto Viro, Italy as Akeman Street for Ermine Street Shipping Co Ltd, London, United Kingdom. Her sister ships are Dimonios, Etretat, Norman Asturias, Scottish Viking and Stena Flavia. Between February and April 2010, she was chartered to T-Link. After a reconstruction in May 2011 in Valletta, Malta, she was chartered to Saremar and renamed Scintu in June 2011. In January 2013, she was chartered to Grande Navi Veloci, followed by a charter to Moby Lines in April 2013. In October 2013, Scintu was chartered to LD Lines. She was renamed Norman Atlantic in January 2014. On August 29, 2014, she made her last trip with LD Lines from Rosslare, County Wexford, Ireland to Saint-Nazaire, Loire-Atlantique, France, and Gijon, Asturias, Spain. In September 2014, she was chartered to Caronte & Tourist, followed by a charter to ANEK Lines in December 2014.

## **CHAPTER 2:**

### **ABOUT NAVIGATION**

#### **2.1 Incident**

On December 28, 2014, the ship sailed to the Strait of Otranto in the Adriatic Sea. The itinerary was from Patras to Igoumenitsa and Ancona. At that time, she was carrying 222 vehicles, 487 passengers and 55 crew members. A fire broke out on the deck of the vehicles shortly before 6:00 am local time, half an hour after leaving the port of Igoumenitsa, an intermediate stop, when she was 44 nautical miles (81 km) northwest of Corfu and 33 nautical miles (61 km) Northwest of Othonas. The incident occurred in Greek territorial waters but with night closing in , the ship began to drift to Albania. There were strong winds. The heat from the fire penetrated the entire ship, even began to melt the men's shoes on the reception bridge according to eye witnesses.



**Figure 2.** Fire in Norman Atlantic (Newsbeast, 2014)



**Figure 3.** The fire from the deck of the vehicles (Newsbeast, 2014)

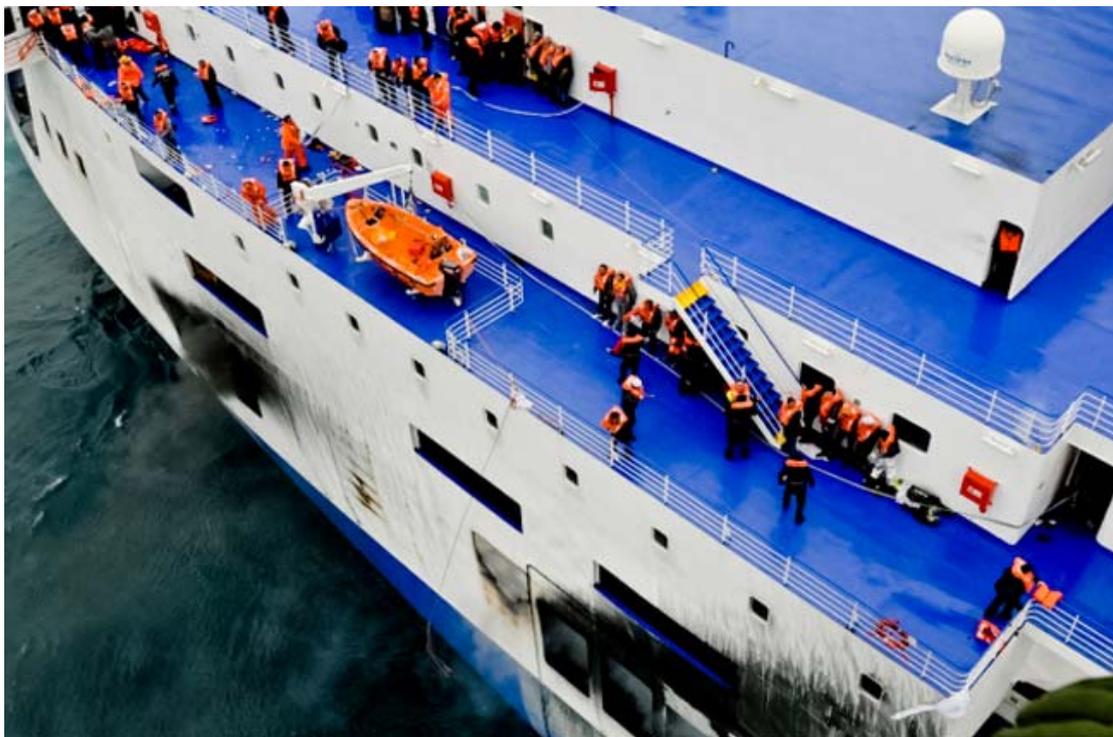
## 2.2 The rescue

An international rescue effort started, led and coordinated by the Italian Coast Guard, as they began to evacuate the passengers and crew on board. Defense Minister Nikos Denis said the Italian authorities had responded to a Greek request for assistance and that the Italian coastguard had taken over the control of the Norman Atlantic rescue operation. Italian Prime Minister Matteo Renzi announced that the first passengers were rescued by a helicopter and that his government is cooperating with the Greek government. The Italian ship Cruise Europa saved 69 passengers and brought them to Igoumenitsa (BBC, 2014). As the darkness fell on December 28, the Italian navy said that a tug, Marietta Barretta, was finally able to link a line to the ferry. Greek Shipping Minister Miltiadis Varvitsiotis confirmed the towing operation but said he did not know the destination of the trailer. Although Albania was "much closer," he said the final decision was based on Italian rescuers who "know the situation better". Prime Minister Renzi told reporters that the ship was evacuated and that Captain Giacomazzi was the last to leave the ship at 2.50 pm.



**Figure 4.** The rescue (Newsbeast, 2014)

A group of 49 people managed to escape with a rescue boat, but others were prevented from doing so as two of the four lifeboats were destroyed by the fire. Lifeboats had a capacity of 160 people each. The survivors described their experiences on the flaming ship, with the crew of the ship being shocked by the fire, and there could not be a smooth evacuation of the ship. Those who stayed in the rescue boat were rescued from the Spirit of Piraeus, which was routed to Singapore, and landed in Bari, Italy. They had also launched several life rafts, but some have been overturned, causing deaths from choking or hypothermia of many passengers. Aby Jeannette rescued 39 people from Norman Atlantic rescue boats and brought them to Taranto, and the Genmar Argus tanker saved a Norman Atlantic body from the sea. Other people at sea or rafts were rescued from helicopters. In total, seven ships were in the area along with rescue helicopters and a C-130 search and rescue support aircraft was also dispatched.



**Figure 5.** Rescue attempt (Newsbeast, 2014)

Italian and Greek helicopter crews placed more than 400 passengers in safety despite winds and thick smoke. Bad weather complicates past attempts to connect cables to the ship for towing. Cruel seas and dense fogs in the area also led to the collision of two merchant ships, resulting in at least one death. The Italian coastguard confirmed the first casualty of the disaster when it recovered the body of a man who had been thrown out of the flaming ferry.

Employees said most of the passengers were Greeks, but the manifest included names from several other countries, such as Germany, Italy, Austria, Turkey, France and the Netherlands. The rescue effort included helicopters and aircraft from the Italian and Greek defense forces along with ten support ships. At the beginning of the rescue, seven merchant ships gathered around the ship to operate as a windmill as firefighters made their way to the scene.

Employees have said that one person has died and at least one other is injured as strong winds and unstable waters lead rescue vessels and aircrafts to struggle to get close enough to help.

Another official said two Italian and two Greek helicopters participated in the rescue.

Earlier, Greek Minister of Shipping Miltiades Varvitsiotis said that the combination of very bad weather, with winds of up to 88 kilometers per hour, and the fire made the company extremely complex.

Italian Prime Minister Matteo Renzi praised the work of the Italian rescue operation, which said he had helped avoid a "slaughter." The Italian navy said Italian captain Argilio Jacomazzi was the last of the crew to leave the ship in a rescue effort defying the open sea and frozen weather in a 36-hour drama.

## 2.3 Losses

According to ANEK Lines, the total number of passengers and crew, based on the ship's manifest, was 475 (ANEK LINES, 2014). As of 31 December, reports show that 499 people were on board, including 55 crew members. This number excludes possible stowaways on board.

At least twelve people were killed as a direct result of the fire and two other Albanian crew members were killed during rescue operations on December 30 when they broke a connecting cable. Eight people were injured in the original incident. Officials said a man died after jumping from the ship that was burning. A 62-year-old Greek was the first of the deaths recovered from the sea. In particular, the bodies of the nine victims (three Greeks, two Italians, two Germans, one Georgian and one Turkish passenger) were recovered from the sea while nineteen other passengers (9 Greeks, 4 Turks, 2 Italians and 1 German 2 Syriac and 1 Iraqi) remain missing (Gazzetta del Sud, 2015).



**Figure 6.** Rescue by helicopter (Newsbeast, 2014)

## **2.4 Claims for the total number of passengers**

On December 30, the number of people boarded the ship was revised to 499 people. The number of unregistered people was revised to 179 by the Italian authorities. On January 1, 2015, the number of people not counted was 98, according to Italian prosecutor Giuseppe Volpe, but according to the Department of Merchant Shipping, 18 more people were still ignored. On 3 January 2015, Mr Volpe said the number of people missing from the fire was 10 to 15, while the Greek authorities reported that the number of missing people was 19, including the nine Greeks. Three of the rescuers in the Norman Atlantic were illegal immigrants from Afghanistan, stacked on trucks. Judge Volpe said he expects more bodies to be found on board. Among those killed were Ilia Kartoza, a Georgian orthodox priest, who, according to an autoptic witness, helped others to evacuate, but the rescuers failed to save him. His body was recovered from Lecce on December 30, 2014 according to Georgian Journal, 2015.

On 15 January 2015, the Italian authorities announced that nine people from Norman Atlantic (except two from the Iliria trailer) were confirmed dead and 18 were missing. On January 23 it was announced that another person was missing. On Feb. 4, it was announced that the number of deaths was now twelve while another eighteen were missing (World Maritime News, 2015). On February 13, 2015, just before the ship was towed to Bari, a second body was discovered in the truck parking area. On the same day, the bodies of three people were found on the coast of Corfu and Apulia, possibly belonging to some of the missing persons. As of February 14, 2017, the ship is anchored at the port of Bari.

Emergency authorities have completed the rescue of hundreds of passengers from Norman Atlantic, but passengers show that more people could be found on the ferry. Italian Defense Minister Roberta Pintoy told a press conference that the Italian navy rescued 427 people, bringing the total to 437 people. However, the Greek authorities initially announced that 478 passengers and crew were found on board when the open-air fire and sordid weather from Albania broke out.

However, Italian Transport Minister Maurizio Lupi said it was unclear whether the passenger list released by the Greek authorities was an accurate reflection of who was

on board. He said the ship had made a stopover on a Greek island before it was in trouble on Sunday morning.

"There is a list of boarding passes showing the names of 427 passengers and 56 crew members," said Lupi. This is why we continue our quest for search: we can not know what the exact number was. "



**Figure 7.** Smoke and fire on board (Newsbeast, 2014)

## 2.5 Investigations

The Italian authorities have launched a criminal investigation into the fire. The investigation would determine whether criminal negligence played a role in the fire. Judge Giuseppe Volpe was in charge of the investigation, which could bring charges for a bad ship. The ship was inspected in Patras on December 19th. Six major deficiencies have been identified with regard to emergency lighting, fire doors and rescue capacity. The owners were dealt with a notice that gave them fifteen days to correct the deficiencies (Waterfield & Tzafalias, 2014). On January 2, 2015, the prosecutor's office in Bari broadened the search and investigated two other crew members and two representatives of the Greek shipping line ANEK Lines, who traveled to Norman Atlantic.

The Greek authorities also launched a preliminary investigation. Possible charges include “disruption of shipping which could lead to endangerment of persons” and arson.

Associate John Lang, a former chief inspector at Britain's Marine Accident Investigation Branch, said the state of emergency, under noisy freezing conditions at night, "provokes many of the established conventions and wisdom about how a massive rescue should take place." In the course of the research, the correct, rather than the convenient, conclusions should be drawn, adding that "The results of a thorough research to improve maritime safety have rarely been demonstrated" (The Telegraph, 2014).

A Turkish passenger said, as a possible cause, that the illegal Afghan immigrants who had boarded the ship were hidden in a truck and had fired in the ship's garage to stay warm. Another possible cause is sparks caused by trucks ripping sides of the boat .

Preliminary underwater inspections by Norman Atlantic revealed that the water intake pipes of the fire brigade had been blocked with mussels. Additional inspections are necessary to ascertain whether this obstruction has contributed to the spread of fire. Although the travel data recorder (black box) was recovered, no data was extracted until mid-March, obviously because the heat of the fire caused the melting of the plastic on the hard disk. Recordings of the Voyage data recorder, published October 7,

2015, state that the sprinkler system was not working properly, and instead of water spraying, there was smoke from the system. Investigations also indicate that there was a truck that had the engine running. Smoke came from the truck before the fire.



**Figure 8.** Smoke from the deck of vehicles (Newsbeast, 2014)

## 2.6 Passenger Testimonies

Passengers claim that the ship's abandonment order was not given until four hours after the fire started. Despite the smoke-filled cabins, the alarm had not been heard. They also report that Norman Atlantic crew gave them little help according to BBC, 2014.

"It was hell," said Greek opera singer Dimitra Theodosiou after she was evacuated by helicopter. "It was very cold, terribly cold, the nearby ships sprayed water from their hoses and we were completely wet." She was treated for a mild hypothermia at a hospital in Lecce, Italy.

Another passenger, Robert Mane, said there was little warning that a fire broke out, and many people fought to get into lifeboats. "We were asleep when the smoke came out of the cabins. Flames and smoke hit people from all sides," he said. "The crew tried somewhat to coordinate the evacuation of emergency vessels, but that proved impossible. "At this stage people were throwing the boats on their own. It took me 25 minutes to get in."

"We lived a hell. The uncertainty increased our fear the night fell again and the helicopters had stopped coming. The fire fell down, the floors were burning, the people were already lost in the garages or in the sea. We were drenched by the fire, hoses and the rain, and the wind was cold and powerful" says Rania Thira.

"Like many other passengers, we had booked tickets to sail to another ship of ANEK, the Greek Spirit we knew. Suddenly we were in Norman Atlantic without explanation, although we had paid 380 euros for two people, a cabin and a car. This is the kind of respect they showed to the passengers," says Yiannis Vasalos.

"We were excited and we stepped out of the cabin to face the total chaos," Thera says.

"There was no alarm, it was absolutely clear we just saw a crew girl knocking on the doors and asking people to go out there was no collecting station and no plans, by the time we reached the deck the fire had spread, life jackets and live vests were burned on one side " .

"The crew was nowhere to be seen, the lifeboats were distributed to the passengers by some truck drivers who had used an axe to break a storage cabinet." Even in the endeavor to tow later, three Greek truck drivers risked their lives, but none of them was crew, "says Basil.

"A crowd was gathered and pushed to move in. When the fire came dangerously close, panic broke out and many ended up in the sea, some of them drowning," Basil remembers.

In a quote from the Norman Atlantic data recorder published by the Italian newspaper Il Fatto Quotidiano, a sailor listens to inform the bridge at 5:17 am That he had seen a truck with his engine running in the smoke-free garage.

"It was almost at midnight on Sunday I could not stay behind I ran to the captain in full state and started shouting on his face:" There are 300 people here who will suffer hypothermia and you worry about saving the ship! "They had not brought blankets Or water, "remembers Thera.

"There was a complete analysis of the communication. I was on the missing passengers list until I arrive in Athens on December 31. The more I think of our test, the more embarrassed I am because they took advantage of us and they continued to treat us like trash," says Basil .

Kenanidis points out that there were not enough crew members on Norman Atlantic. "We had to handle ourselves in the garage," he says.

"A crew of 56 members is unacceptable on such a ship, traveling with so many passengers and cargo," agrees Antonis Dalakogeorge, president of the Pan-Hellenic Association of Merchants. "Also, Italian ferries do not have a seafarer whose position is in the garage to alert for anything that may happen, as Greek ships have."



**Figure 9.** Rescue operation (Newsbeast, 2014)

## **2.7 About the tragedy**

Norman Atlantic, with 222 vehicles, 487 passengers and 55 crew members, was 44 nautical miles northwest of Corfu when it sent a warning signal after the fire started on the lower deck.

"The ship is already evacuated," an official said, adding that 130 people had been transported from a rescue boat to a container ship that had approached when the fire broke out.

Officials reported that both the Italian and Albanian authorities participated in the operation, which was conducted in difficult conditions with strong winds. The rescue operation was carried out by the Italian Coast Guard in cooperation with the Greek Port Company.

Hundreds of passengers and crew (over 500 in total) were at the mercy of a fire in the middle of the Adriatic Sea, as the strong winds, the waves and the rain around the ship made it difficult to save them. There was no emergency protocol or fire extinguishing mechanism. With the panic created, there has been a disruption of communication between the Italian and Greek authorities.

## **CHAPTER 3:**

### **FIRE CAUSE**

Norman Atlantic traveled to the port of Brindisi, Italy, arriving there on January 2, 2015. The ship was isolated for research. On January 6, a lifeboat from Norman Atlantic was found on a beach near Valona, Albania. Norman Atlantic continued to burn in the harbor for nearly two weeks until January 10, 2015, when firefighters eventually could enter the hull for inspection.

Six people - the captain, three crew members, the ship's operator and owner - are being investigated by the court in Bari's southern Italian port for multiple manslaughter and causing destruction of the ship.

#### **3.1 Chaotic situation**

The fire broke out at one of the lower levels of the ship's garage on December 28 while it was still in Greek waters and the ship was drifting without power into stormy seas.

It took 36 hours from the Greek, Albanian and Italian rescue teams to evacuate 477 passengers and crew from the ship in strong winds and rugged seas.

Family members looking for their relatives continued to arrive in Bari's Italian port, and some were clearly shocked to see the remnants of their beloved person.

Judge Volpi also said that the final deaths could be greater than 11. As unregistered illegal migrants were found among the survivors, rescuers fear that others might have been stowaways on the deck of trucks. When conditions allow, the first task for the police, firefighters and judges will be to look on the deck and the trucks for illegal immigrants.

The destruction of Norman Atlantic causes a number of unanswered questions. The registry records 474 passengers. However, 477 survivors have been removed and at least 11 others have died leading to speculation that the ferry might have transported not only too many passengers but also many vehicles on their way from Patras, Greece to Ancona, Italy. The fire that started the catastrophe which was still flickering as the ship came to the port was first reported on Lorry Deck 4.

The media reports paid tribute to the role of the captain of the ship, Argilio Jacomazzi, the latter to be lifted off the flaming ship. However, many survivors complained that the rescue operation was carried out amid panic and confusion between the crew. Media reports say seafarers were not ready to throw ropes on the first rescue boats, a task carried out by some passengers.

In addition, the first victim of the disaster, a Greek passenger, died trying to launch a connecting staircase between Norman Atlantic and a rescue ship. Passengers also claimed that many crew members left the ship before the passengers.

Il Fatto Quotidiano gives new information on the accident. According to the Italian newspaper "Inside Norman Atlantic, on which a fire broke out in the early hours of December 28, 2014, there was a truck with a lighted engine in the garage".

According to a recorded conversation contained in the black box and posted on the newspaper's web portal at 4:17 in the morning, a crew member who was on bridge 4 informs those in the ship's control room that he has detected a lit diesel A truck machine, from which smoke comes out.

It also confirms that "the truck is not connected to the ship's power grid". Il Fatto recalls that it is explicitly forbidden to keep engines lit in the garages of ships.

Nine minutes later, Captain Argilio Giacomazzi sounds a crew-only alarm, and immediately gives the order to put the permanent fire-fighting system into operation.

Shortly afterwards, however, at 4:40 at dawn on December 28, the fire on board is already - as evidenced by other talks - out of control.

According to Il Fatto Quotidiano, these data show that Norman Atlantic may have failed to comply with the rules and procedures to be followed in the event of a fire and evacuation of the ship.



**Figure 10.** Burning Norman Atlantic (Protothema, 2015)

### 3.2 Causes

Although the document carefully suggests that a conclusion on every aspect of the accident may be premature, a report was published in June 2015 by the Directorate General of Rail and Maritime Research of the Ministry of Transport on the Norman Atlantic Fire. It is undoubtedly a preliminary step to reconstruct the cause of the disaster (although criminal responsibility is currently being investigated by judicial investigation) and to prevent such accidents in the future.

MIT inspectors who checked the proof reports believe that there was electrical overload in a trailer refrigerator boarded on the deck number 4.

Truck refrigerators must have a source of energy at all times to protect their cargo. For safety reasons, ferry boats forbid them to keep their engines in a garage so that they are connected to the main power source. Witnesses said that Norman Atlantic was not equipped with enough plugs for the number of refrigerated trucks it transports to allow them to travel with engines running. This may be the explanation behind the spark that caused the deadly fire. However, much of the report relates to the spread of flame on board and the failure of firefighting systems to operate. In fact, as far as Norman Atlantic is concerned, the fire has spread more rapidly due to adverse wind conditions that may have affected firefighting detectors as well. In addition, the deck of trailers had several openings that surely helped spread the fire. The report issued by Directorate General of Rail and Maritime Research also assesses the crew's behavior: in fact, although the emergency situation was working properly, the Chief Engineer manually handled the fire-fighting system (the assessment of the event was also noted in the report) and repeatedly stated its exact position of the Fire to the bridge, the report also notes that onboard surveys found that the fire extinguishing valves had been opened on deck 3 instead of 4. Special attention was paid to the unusual crew, which includes 23 Italian sailors hired by shipowner (Visentini) and 23 members from Greece, recruited by (Anek). The Italian crew was appointed for maritime care, while the Greek was engaged in commercial activities, including cargo storage. However, the report focuses on the fact that the fire started in the same area and, despite adequate fire-fighting systems, the ship was destroyed.

### **3.3 Survey results after two years**

A year later, following the Norman Atlantic accident, it is still knotted in the port of Bari and the investigation by the Italian judicial authorities is moving at a remarkably slow pace. Researchers have not yet searched the entire ship to find the remnants of the victims trapped on the deck or the cars. Prosecutors will request testimony from two representatives of ANEK Lines, the Greek company that hired the ship, a charging officer, Italian owner Carlo Visentini, captain Argilio Giacomazzi and seven crew members. Suspects are facing accusations such as causing wreck, manslaughter through negligence and numerous causes of physical harm. The investigation was extended for another six months.

Most of the dead, as well as the passengers who made out of the boat alive, injured and traumatized, were from Greece.

Two years after the naval accident of the Norman Atlantic, a group of Italian experts finds out a series of mistakes and omissions both when loading the ship and dealing with the fire that flooded its decks and during its evacuation process.

#### **A. Loading**

The first problems are identified by the experts in the loading phase. According to the finding, no safety distances were observed between the vehicles, while the electrical connection of the refrigerated trucks to the ship was carried out by an apprentice electrician who had just boarded and not by the responsible electrician of the ship. It is also reported that insufficient control has been done to prevent the entry and stay of stowaways in the garages. At least three survivors, based on the findings, were not on the passenger list. In testimonies, some survivors spoke of seven or ten stowaways.

## B. The spread of the fire

The fire started on deck 4, while experts note that at least two members of the Italian crew were intimidated by the first signs of smoke. According to the report, the necessary steps weren't taken to prevent smoke from entering the engine room while one of the engineers reportedly abandoned the site without informing the ship's bridge. Issues appear to have occurred with the activation of the drencher fire extinguishing system in the zone where the fire occurred.

Experts believe that "the overall fire control system of the Norman Atlantic" garage "had apparent and inherent defects, also related to the high probability of human error."

## C. Evacuation

The evacuation operation that followed was described by the experts as "chaotic". They note that those lifeboats that have remained intact from the flames have not been used as prescribed by the regulations. As an example, they bring a 150-person boat, on which 85 passengers embarked. Reference is also made to problems of coordination of crew members, but also to control or guidance of passengers, some of whom were in panic. Indeed, two of the crew members responsible for the management of the rescue plans did not know that this was their duty, while another crew member reached the post he was given late.

Also, as the experts point out, activation of the rescue slide did not take place in the right way, endangering those who used it.

Several survivors have been settled out of court, and last December, other survivors and relatives of the deceased filed a lawsuit against the shipowner, the management company and against the Italian shipyard where Norman Atlantic was built.

## **CHAPTER 4:**

### **EUROPEAN UNION AND MARITIME SAFETY**

#### **4.1 The ISM Code for Safety**

The ISM (International Safety Management Code) is based on the creation and operation of a ship's secure ship management system, certified by the issue of two types of certificates, one for the Office of Compliance and one for the each ship (Safety Management Certificate). These certificates are issued by the flag or - as is usually the case with cargo shipping - the classification society acting on its behalf.

Offices managing ships with more than one flag, ie the most, are required to keep as many DOCs as the flags. Flagships authorized by multiple flags may issue multiple DOCs with a single visit to the office for inspection. Each SMC is linked to a single DOC and if the DOC is recalled for some reason - e.g. serious findings during port control from the outset - automatically becomes void and the ship does not leave the port unless the reasons for revocation disappear and no new one is issued.

The Safety Management System (PSC) philosophy is based on a written report of management imperfections in the execution of procedures at the office and - most importantly - on the ship. These imperfections are called non-conformities and specific procedures for how they are corrected are provided. The repeat non-conformity previously corrected is considered a serious misconduct. The finding of a serious misconduct is called major non-conformity and may result in the recall of the DOC of the manager (World Shipping Organization, 2015).

In any case, it is important for the office to be able to prove that its HRC is working.

The system works if administrative deficiencies:

- They are localized on time.
- They are mentioned in writing.
- They are dealt with within a reasonable time.
- And most of all they do not.

Compliance or non-compliance with the ISM Code is evidenced by the documents of the HRC. In the event of an accident, the finding by the authorities that the RCC operates is a strong indication of the responsibility of the manager and the crew and can only result in a minor non-conformity.

## 4.2 Sea safety

The Ministry of Merchant Marine places great emphasis on the issue of transport safety, because it is a very special feature. Because shipping is carried out by ships, under conditions that are often unfavorable, the security measures to be taken should be particularly upgraded.

At the international level, there is the so-called Uniformity on the transport of dangerous goods. Because shipping is a link in the whole transport chain, there would be a very big problem with different regulations on the transport of dangerous goods at sea with those on land, either by road or by rail.

So many issues are common. I will focus more on the purely maritime transport of dangerous packaged species. For maritime transport, at least in Greece, two different regulations apply. Of course, they have many common elements, but the regulations are two because they have a different implementation philosophy.

There are regulations, which are related to domestic transport, of dangerous goods in packaged form and there is also the second pillar, which is the regulations governing the maritime transport of dangerous packaged goods but by ships on international voyages. These are ships that either leave Greece and go abroad, or coming from abroad and arriving in Greek ports.

The basic decree, which regulates the safety of the domestic transport of dangerous packaged species, is Presidential Decree 405/96. This is called "Regulation on the loading, unloading, handling and residence of dangerous goods in ports and their carriage by sea" and regulates issues not only of the transport of dangerous goods, but also what security measures should be taken in the inland port areas, Loading and unloading of these dangerous goods.

Greece has set as a philosophy the ban on the transport of dangerous packaged articles by ships carrying passengers at the same time, ie so-called passenger ships. Article 2 of the Rules of Procedure concerns internal transport, ie ships sailing between Greek ports and whose purpose is to introduce security measures concerning the loading and unloading by Greek or foreign vessels of the movement and stay of dangerous packaged species, The sea and land area of ports and bays, as well as the maritime area of the area of jurisdiction of port authorities and port officials. In order to make this a little clearer, each port and its operator, eg. Port organizations to lay down the terms and conditions under which dangerous packaged species will be safely loaded into the area of interest.

### **4.3 Safety regulations for passenger ships**

The identification of marine areas is of great importance in determining the application of Directive 98/18 / EC to different categories of passenger ships. The directive includes a procedure for the publication of lists of marine areas, which proved to be difficult to apply. It is therefore necessary to establish a functional and transparent procedure to enable effective monitoring of the implementation of the Directive.

In order to harmonize the level of safety of passenger ships throughout the community, the derogation granted to Greece as regards to the timetable for the implementation of the safety requirements should be abolished.

Directive 2003/25 / EC of the European Parliament and of the Council of 14 April 2003 on specific stability requirements for ro-ro passenger ships (5) introduces enhanced stability requirements for passenger ferries operating on international voyages And to Community ports; this strengthened measure should also apply to certain categories of such ships operating on domestic voyages operating under the same sea conditions. Failure to apply these stability requirements justifies the gradual decommissioning of ro-ro passenger ships after certain years of operation.

In view of the structural modifications that ro-ro passenger ships may need to undergo in order to comply with the specific stability requirements, these requirements should be introduced over a period of several years in order to provide sufficient Time in the affected maritime sector to comply: for this, a phasing-in timetable should be provided for existing ships. This phasing-in timetable should not affect the imposition of specific stability requirements in the maritime areas covered by the annexes to the Stockholm Agreement of 28 February 1996.

It is necessary to take swift and flexible account of changes in relevant international instruments, such as the International Maritime Organization (IMO) conventions, protocols, codes and resolutions.

Pursuant to Directive 98/18 / EC, the International Code for the Safety of High Speed Craft contained in IMO Maritime Safety Committee MSC 36 (63) of 20 May 1994 applies to all high-speed passenger craft engaged on domestic voyages . The IMO has adopted a new High Speed Craft Code, the 2000 International Code for the Safety of High Speed Craft (HSC 2000 Code), contained in MSC 97 (73) of 5 December 2000 of the IMO Maritime Safety Committee And applies to all high-speed craft built from 1 July 2002 onwards. It is important to ensure that Directive 98/18 / EC can be updated in a flexible manner so that developments occurring at international level also apply to high-speed passenger craft engaged on domestic voyages (IMO, n.d.).

It is important that appropriate measures are taken to ensure safe access for persons with reduced mobility to passenger ships and high speed passenger craft engaged on domestic voyages in the Member States.

#### **4.4 Ro-ro and safety**

Because of the publicity surrounding accidents involving passenger ro-ro ships such as the Herald of Free Enterprise, Scandinavian Star and Estonia, it is sometimes assumed that this type of ship is much more dangerous than others. This is not borne out by statistics. The World Casualty Statistics for 1994 published by Lloyd's Register of Shipping show that passenger/ro-ro cargo loss rate per thousand ships was 2.3 - the same as the average figure for all ships.

However, when one considers loss of life at sea the picture changes. Between 1989 and 1994, the Lloyd's Register figures show that 4,583 lives were lost in accidents at sea. Of these 1,544 were lost in accidents involving passenger/ro-ro cargo ships - exactly one third, even though ro-ro ships make up only a small fraction of world merchant marine tonnage. This would seem to indicate that although passenger ro-ro ships are involved in an average number of accidents the consequences of those accidents are usually far worse.

Since coming into being in 1959, IMO has adopted numerous international conventions and other instruments which are designed to improve maritime safety in general. Some of these are particularly relevant to ro-ros. The International Regulations for Preventing Collisions at Sea, 1972, for example, contain a series of measures to improve the safety of shipping in confined waters, such as straits and narrow channels. These include the introduction of traffic separation schemes and other routing measures. Ro-ros, such as passenger ferries, frequently operate in such waters which are not only confined but are frequently congested as well.

However, since the early 1970s, when ro-ros were appearing in increasing numbers, IMO has developed various measures with the special features of ro-ro ships in mind. These are dealt with the following different subject headings: Subdivision and damage stability, Fire safety, Cargo safety (IMO, 1997).

A ro-ro vessel is one of the most sought after cargo ships to work on. Providing both cargo and passengers carrying capabilities, ro-ro ships reaches ports more frequently and have shorter voyages. The flexibility, speed and the ship's functionality to blend with other transportation modes has made it popular among seafarers. However, the problem with the RO-RO ship is its design, which includes cargo in upper decks and accommodation at even higher levels. The effects of wind and bad weather on high accommodation can also disturb the ship's stability. In Ro-Ro ships which carry only cargo, the general arrangement of cargo access door is close to the water line. In the event of listing, the door can get submerged leading to high chances for ingress of water inside the ship which will lead to capsize. One weak point of ro-ro vessel is that sometimes the cargo door itself is used as a ramp which makes the ship more vulnerable to damages. The subdivision of ro-ro ship from inside lacks from the transverse bulkheads, leading to lower water tight integrity when water ingress or flooding takes place. Lack of bulkhead also leads to spreading of fire more quickly as no subdivision is present to contain the fire. When a ship is to be abandoned, life raft and lifeboats are used to leave the ship as soon as possible. The location of lifeboat and life rafts on ro-ro ships is usually very high, which makes it even difficult to lower them at sea especially when the ship is listing. Another reason which acts externally on the Ro-Ro vessel is the rough weather, which may result in reduction in the stability and cause heavy rolling of the ship. Heavy rolling has lead to capsizing of ships in the past. Cargo stowage is very important operation on Ro-Ro vessel for any loose cargo (trailer, cars etc.) It can give rise to a chain reaction leading to heavy shift in cargo position. The trucks and trawlers loaded on board also carry cargo inside them and any shift of that cargo can also lead to listing of the ship. It is very difficult to have a sequential loading of cargo as cargo arrives on terminals at different intervals and due to lack of time on port. This further leads to uneven cargo distribution, something for which nothing can be done about. Lack of proper cargo distribution has been the reason for several ship accidents in the past.

Many of the accidents to ro-ros that have occurred have been because regulations were not properly implemented or through human error. This is true of other ship types as well, of course, but ro-ro ships are perhaps more complex than most ships and any errors made can lead to catastrophic consequences, because of the large number of people on board.

More importantly, action should be taken before an incident occurs, applying the proactive policy IMO adopted in the 1990s. The review of large passenger ship safety, initiated by the Organization in 2000, is an example of a proactive holistic approach to the consideration of safety issues pertaining to passenger ships, with particular emphasis on large cruise ships. This work culminated in the adoption of a series of amendments to SOLAS adopted in December 2006, with anticipated entry into force in July 2010. The amendments will have a profound impact on the design of future passenger ships, taking into account the guiding philosophy based on the dual premise that the regulatory framework should place more emphasis on the prevention of a casualty from occurring in the first place and that future passenger ships should be designed for improved survivability so that, in the event of a casualty, persons can stay safely on board as the ship proceeds to port (OMI, n.d.).

The outcome of this proactive initiative has resulted in an entirely new regulatory philosophy for the design, construction and operation of passenger ships that will better address the future needs of the passenger ship industry. Many of the new regulations adopted will apply equally to passenger ro-ro ferries as to cruise ships.

IMO has also recognized the need to focus on those ferries which do not come under SOLAS and is working on the development of standards for "non-convention" vessels - those passenger ferries which for reasons of being operated inland or solely on domestic routes are not required to conform with SOLAS. On 20 January 2006, IMO signed a Memorandum of understanding (MoU) with Interferry formalizing the two Organizations' intent to work together towards enhancing the safety of non-Convention ferries by collaborating, through IMO's Integrated Technical Co-operation Programme, on related capacity-building activities within developing countries.

## **4.5 Investigation by the European Commission on compliance with European safety legislation in Norman Atlantic**

In response to a parliamentary question submitted on 20/01/2015 by independent MEP Notis Marias and eleven Italian MEPs asking the Commission to investigate the conditions of the Norman Atlantic fire on 29 December 2014 and whether the vessel complied With the corresponding EU legislation on security [E-000687-15], Commissioner Violeta Bulc responded (Pavlakis-Moschos & Associates, 2015) on 03/10/2015:

"1. It is too early to conclude how the incident occurred or to what extent the minor deficiencies identified during the Port State Control Inspection in Patras were significant as they were not considered serious enough to prevent the ship from leaving the port. A mid-term review report should be published within 12 months of the incident. Periodic assessments carried out by the Commission with the help of the EMSA fact findings did not reveal systemic Missiles with the recognized organization (RO), which undertakes legal and orderly duties for the ship concerned. Italy, as flag State, must take the measures it deems appropriate to ensure that this ship complies with applicable international rules This also entails the obligation of monitoring / reporting by the EU Authorizing Officers, who are now subject to pre-infringement procedures. Italy was inspected by the IMO in 2007 and its shipping authorities now hold a valid quality management certificate.

2. EMSA shall contribute to reducing the risk of maritime accidents. The Agency shall carry out visits to the Member States, assisting the Commission in assessing the effective implementation of relevant Union legislation. There are no plans to provide the organization with more control over the inspection procedures.

3. The Commission and EMSA shall be at the disposal of the competent authorities for any assistance. The lessons learned from this accident should be taken into account in improving the regulations on the safety of passenger ships in both the EU and on international level. The Commission is currently carrying out a physical check of the Community legislation on the safety of passenger ships in order to assess whether the current legislative framework is appropriate for this purpose. "

#### **4.6 Compensation for passengers and families of passengers who have lost their lives or are missing**

The Prosecutor of the Greek Supreme Court ordered a preliminary investigation to be carried out by the Central Piraeus Port Police Station to find out whether there was a criminal act (a) a disruption of life-threatening maritime transport and the risk of human life being disturbed, and / or (b) arson. The port authorities of Piraeus examine and investigate the ship's inspections in compliance with international regulations on fire protection and rescue. On 3 January 2015, investigations by the Hellenic American Marine Investigation Investigation Office (HBMCI) for joint security research with the corresponding Security Investigation Authority of Italy were conducted in Brindisi. On January 6, 2015, an employee of the Greek Fire Brigade Service was sent to Brindisi, at HBMCI's request, to assist with the search (Pavlakis-Moschos & Associates, 2015).

The Norman Atlantic was towed to the port of Brindisi on January 2, 2015, where it remains to this day. The Italian investigation authorities are exploring the possibility of further towing the vessel to the Italian port of Bari, as this would facilitate the investigation of the marine tragedy. Today Italian and Greek officials have decided not to use liquid nitrogen to reduce the temperature inside the ship but to proceed with spraying nebulized water into Norman Atlantic fuels. Businesses in the hope that firefighters and investigators will be able to enter the main garage of the ship and embark on a thorough search to detect any dead bodies as they fear that some of the missing passengers and truck drivers may have been trapped in the vehicles After the fire burst (Pavlakis-Moschos & Associates, 2015).

Both passengers and members of the Norman Atlantic crew who survived the accident, as well as the families of those who have died in this tragic accident or are still missing, have significant rights to compensation not only for their financial losses but for their moral harm and psychological distress in accordance with national and international law (Regulation (EC) 392/2009, Athens Convention)

Norman Atlantic passengers and crew members as well as relatives of passengers who have lost their lives or who have not yet been registered should, as soon as possible, obtain independent legal advice from lawyers specializing in injuries and marine casualties. Interests and rights of indemnity are fully and properly protected. It is appropriate for victims of the maritime tragedy to recover from the early stages all the tangible property they lost during the accident and to collect all available documents and evidence proving their damage (Including copies of passenger and vehicle tickets which, in addition to the medical records and receipts, includes income from the accident, including repatriation expenses, clothing, food, etc.

If there is a way to describe the attitude of the Greek state to the tragedy, there is an absolute lack of interest or care for the families of the victims and survivors. No assistance was offered, either monetary or psychological, and, above all, nothing was done to speed up the judicial process, so that the victims would have their day in court. The Department of Shipping has suspended the case in the service responsible for investigating marine disasters without further interest.

It was a huge naval tragedy on a ship hired by a Greek company, with hundreds of Greek passengers, and the fire broke out in waters for which the Greek authorities are responsible. And so many questions remain unanswered.

"The state has almost no interest. Truck owners lost their vehicles to fire after paying insurance, road and other costs for 2015. Owners and drivers were left without work but were still obliged to pay their social security charges," says Apostolos Kenanidis, head of the OFAE Federation of Swiss Truck Drivers. "ANEK initially proposed a compensation of € 25,000 to each passenger, which later became € 35,000. Our members were given an additional amount for lorries, although this is not enough to replace the destroyed vehicles.

## CONCLUSION

Since the Norman Atlantic accident, resulting in the presence of dozens of dead and missing persons, it has led to a series of investigations to clear up the cause of the accident. The overloading of the ship shows that the shipowners look at their interests without taking into account the safety rules as well as the inadequate training of the crew in emergency moments and the malfunctioning of the ship's systems. The results of all this were the indifference of the company and the Greek state to help Norman Atlantic passengers in any way and support they need.

All these omissions lead to the Norman Atlantic accident, with dozens dead. Adherence to safety rules, proper emergency crew training and control of ship systems are necessary to avoid such accidents in order to make passengers and crew safe.

Below are some of the suggestions received from the Digifema report, few advice suggested by the Department's management should be followed to enhance the safety of navigating ferries :

- Open areas in new ro-pax units should not be allowed.
- The black box fire resistance (VDR data from Norman suffered serious damage) should be applied.
- More stringent measures must be taken to control the presence of anyone in the garage during navigation
- Chartered vessels should not hire staff from different companies;
- Closed circuit video should be installed in ro-pax internal routing areas.
- Thermal detection system
- The fire protection of the evacuation system must be enhanced;
- The extinguishing system must be applied to cargo areas
- There must be a debate on the minimum distance between vehicles.

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