



CIAIM-13/2015 REPORT

Collision between CELSIUS MUMBAI and WISBY ARGAN in the Bay of Algeciras on 11 October 2014

NOTICE

This report has been drafted by the Spanish Maritime Accident and Incident Investigation Standing Commission (CIAIM - Comisión de Investigación de Accidentes e Incidentes Marítimos), under the provisos of Article 265 of the Consolidated Text of Spanish State Ports and Merchant Navy Act approved by Royal Legislative Decree 2/2011, dated 5 September and by Royal Decree 800/2011 dated 10 June.

The sole objective of the CIAIM when investigating a marine accident and incident is the prevention of future marine accidents through the ascertainment of their causes and circumstances.

This report is not written with litigation in mind and shall be inadmissible in any judicial proceedings whose purpose, or one of its purposes is to attribute or apportion liability or blame.

The use of this document for a purpose other than the prevention of future accidents may lead to erroneous conclusions or misinterpretation.



Figura 1. Area of the accident



Figura 2. CELSIUS MUMBAI



Figura 3. WISBY ARGAN

1. SYNOPSIS

On 11th October 2014 the chemical tankers CELSIUS MUMBAI and WISBY ARGAN collided in the Port Maritime Zone of the Bay of Algeciras. While WISBY ARGAN was leaving CEPESA Terminal, CELSIUS MUMBAI was heading to the berth WISBY ARGAN had just abandoned. CELSIUS MUMBAI's bulb collided against WISBY ARGAN's port bow.

The collision caused some damage on WISBY ARGAN's port bow, being the hull perforated above and below waterline and in the bulkhead deck area, which particularly affected the structure of one of the ballast tanks. CELSIUS MUMBAI's bulb forepeak and starboard side in way of n°6 water ballast tank were undergoing some deformation.

No casualties occurred or pollution was produced. Both vessels were escorted by two harbour tugboats while entering the port to be subsequently repaired.

1.1. Investigation

The CIAIM was notified about the incident on 11th October 2014. On this day, the event was temporarily assigned as "serious accident" and an investigation procedure was decided to be opened. The plenary session of CIAIM confirmed the level assigned to the accident and the decision to open a safety investigation. This report was revised by the CIAIM at the meeting held on 13th May 2015 and, upon its approval, issued on January/2016.

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2. FACTUAL INFORMATION

Tabla 1. Particulars of the Vessels

Name	CELSIUS MUMBAI	WISBY ARGAN
Flag / Port of Registry	Marshall Islands / Majuro	Norway / Oslo
Identification	IMO Number: 9304332	IMO Number: 9426489
Type	Chemical/Oil Tanker	Chemical/Oil Tanker
Main Particulars	<ul style="list-style-type: none"> Length overall: 145.53m Width: 23.70m Depth: 13.35m Gross tonnage: 11571 GT Hull material: steel Propulsion: 6150kW diesel engine 	<ul style="list-style-type: none"> Length overall: 99.80m Width: 18.25m Depth: 9.0m Gross tonnage: 4776 GT Hull material: steel Propulsion: 2925kW diesel engine
Ownership	STAINLESS 6 LIMITED Majuro - Marshall Islands IMO 5760619	CASABLANCA -TANKERS AB Lidköping - Sweden IMO 5300626
Management	FLEET MANAGEMENT LIMITED Wanchai - Hong Kong IMO 1601573	WISBY SHIP MANAGEMENT AB/ Lidköping - Sweden IMO 1892445
Shipbuilding details	USUKI SHIPYARD CO., LTD. Usuki, Japan. 2005	PENGLAI ZHONGBAI JINGLU SHIP INDUSTRY. Penglai, Shandong, China. 2009
Classification Society	Korean Register of Shipping	Det Norske Veritas

Tabla 2. Voyage Particulars

Name	CELSIUS MUMBAI	WISBY ARGAN
Ports of Departure / Arrival	Algeciras Anchorage Area D / CEPSA Terminal (Algeciras)	CEPSA Terminal (Algeciras)/Dakhla (Morocco)
Type of Voyage	To be unloaded	To be loaded
Cargo information	2000 t monoethylene glycol	4700 t diesel oil 1000 t fuel oil
Ship Complement	25 crew members, all of them of Indian nationality	12 crew members, all of them of Philippine nationality

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Tabla 3. Information on the Incident

Name	CELSIUS MUMBAI	WISBY ARGAN
Type of accident or incident	Collision	
Date and time	11th October 2014, 01:39 LT	
Position	36° 09,50' N; 005° 23,98' W (1.08 miles to 170° off CEPESA Refinery jetty west end)	
Vessel's Operations and Voyage Segment	Entering CEPESA Terminal	Leaving CEPESA Terminal
Place on board	Bow bulb	Port bow
Ship damage	Bulb deformation and hull holes on starboard side.	Portside fissure affecting underwater hull, non-submerged hull and bulkhead deck
Injuries / missing / fatalities	None	None
Pollution	Nil	
Other non-ship damage	None	
Other personal injuries	None	

Tabla 4. Marine and Weather Conditions

Wind	1 Beaufort NE (2 to 5 knots)
Sea State	Ripples
Visibility	Unrestricted. Very few clouds

Tabla 5. Land-based Authority Participation and Emergency Service Response

Authorities	SASEMAR, Pilots' Corporation, Algeciras Harbour Master Office
Rescue means	<ul style="list-style-type: none"> • Multipurpose Rescue and Pollution Control Vessel LUZ DE MAR • Tugboats
Response quickness	Immediate
Measures	Summoning of rescue vessels.
Results obtained	Damaged vessels taken to port.

3. DETAILED DESCRIPTION

Events are herein described according to available data, statements and reports. Referred time is Local Time (LT). There exists a difference of about 1 minute between the times registered by the VDR¹ of both ships.

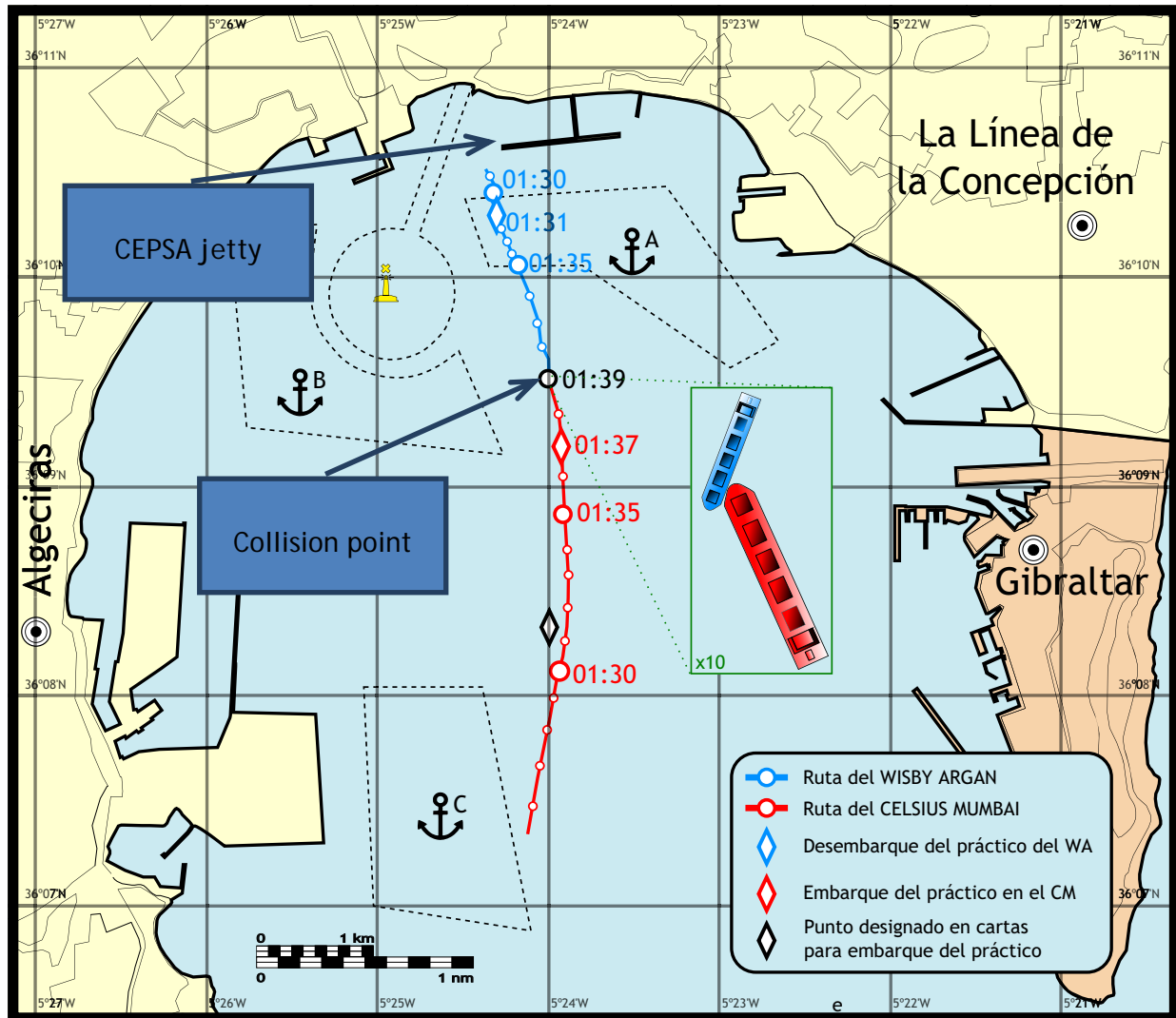


Figura 4. Location of the accident and ship course prior to collision

On 11th October 2014 WISBY ARGAN was due to leave the marine terminal of "Gibraltar-San Roque" CEPSA refinery, while anchored CELSIUS MUMBAI was waiting for permission to be docked at said terminal.

At 01:06 hours, the pilot was taken on board WISBY ARGAN.

¹ Voyage Data Recorder

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The CELSIUS MUMBAI was authorised from Algeciras VTS centre to begin to hoist the anchor. Once this operation was completed and the VTS centre informed, she was advised by this centre to head to the safe water mark and rig the pilot's ladder 1m above the water surface, portside, for the pilot to embark.

At 01:18 hours, WISBY ARGAN was completely unmoored from CEPESA Terminal C jetty. The steering gear was in manual mode.

At 01:31 hours, the pilot disembarked WISBY ARGAN along her port side downwards. Once on board the pilot's boat, he then headed towards CELSIUS MUMBAI, having previously warned WISBY ARGAN's master on CELSIUS MUMBAI's closeness.

At 01:35 hours, WISBY ARGAN's chief officer called CELSIUS MUMBAI on VHF radio channel 16, but later requested to switch to VHF radio channel 6, which both vessels did. The conversations were held in English language. WISBY ARGAN advised CELSIUS MUMBAI on her intention to pass port to port once she had started heading starboard at a 10 °/min speed of turn. CELSIUS MUMBAI did not confirm the substance of this call.

At 01:37 hours, CELSIUS MUMBAI contacted WISBY ARGAN to notify her intention to pass starboard-to-starboard. WISBY ARGAN's chief officer confirmed starboard-to-starboard even though she was turning to starboard. At that moment, WISBY ARGAN's master was at the helm.

At 01:38 hours, the pilot was taken on board CELSIUS MUMBAI her port side. At the same time, he could notice that WISBY ARGAN was heading portside.

CELSIUS MUMBAI called WISBY ARGAN to insist on her proposal to pass starboard-to-starboard, while WISBY ARGAN proposed portside-to-portside. Both vessels agreed to pass portside-to-portside. A few seconds later, CELSIUS MUMBAI repeatedly proposed to pass starboard-to-starboard. WISBY ARGAN did not provide confirmation. She only advised through marine VHF radio about her altering course to pass portside-to-portside with helm hard to starboard. CELSIUS MUMBAI requested once again starboard-to-starboard.

At 01:39 hours, the pilot arrived at the CELSIUS MUMBAI bridge and noticed that the vessels were too close with the subsequent increase of collision hazard levels. WISBY ARGAN ordered full speed astern.

After a few seconds, both vessels collided. CELSIUS MUMBAI's bulb crashed against WISBY ARGAN's port bow. In the crash, WISBY ARGAN shifted starboard while CELSIUS MUMBAI moved portside. Afterwards, WISBY ARGAN's stern headed towards CELSIUS MUMBAI's starboard side in such a way that WISBY ARGAN's portside fin hit CELSIUS MUMBAI's starboard ballast tank no.6 area. WISBY ARGAN's damage affected her port bow, being her hull perforated in underwater hull and non-submerged hull areas and bulkhead deck. It basically affected the structure of ballast tank no.1. Some deformation affected CELSIUS MUMBAI's bulb and starboard side. The pilot urgently advised the master to switch to full speed astern, an action which he was already implementing.

At 01:43 hours both vessels moved apart after their collision.

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At 01:45 hours, the Algeciras RCC² operator on duty logged “Both vessels’ vectors are linked, likely collision”.

At 01:50 hours, SASEMAR summoned the rescue ship LUZ DEL MAR.

At 01:52 hours, the pilot, who was on board CELSIUS MUMBAI, informed on the accident to both Algeciras Vessel Traffic Service and Pilots’ Corporation.

At 01:53 hours, Algeciras RCC received a CELSIUS MUMBAI call on VHF radio channel 74 to be informed that the collision had affected her port bow with no sign of pollution.



Figura 5. WISBY ARGAN damage



Figura 6. CELSIUS MUMBAI moored after the accident. No significant damage is noticed

At 02:15 hours, a pilot embarked WISBY ARGAN, which was escorted by a tugboat, to anchor her in anchorage A. CELSIUS MUMBAI also proceeded to be anchored in anchorage A upon Algeciras Harbour Master Office instructions.

At 02:51 hours, CELSIUS MUMBAI was anchored. Instantly, the authorisation by Algeciras Harbour Master Office to moor the ship at CEPSA Terminal C was received.

At 03:15 hours, WISBY ARGAN was anchored in anchorage A.

At 04:12 hours, CELSIUS MUMBAI was moored along CEPSA Terminal C.

At 09:30 hours, Algeciras Harbour Master Office inspectors surveyed and detained both vessels.

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² Rescue Coordination Centre

4. ANALYSIS

4.1. Pilot's Embarkation and Disembarkation Point

The northern pilot's embarkation point in the Bay of Algeciras is 173° and 2.1 miles off the west end of the CEPSA Refinery jetty.

WISBY ARGAN leaving and CELSIUS MUMBAI entering actions were conducted by the same pilot. When the pilot disembarked the former, both ships were at a distance slightly longer than 1.5 miles and at approximately 6 minutes from the collision point.

The pilot disembarked WISBY ARGAN before the vessel had abandoned the compulsory pilotage area. However, he had notified the master about the vessel traffic in the bay and the closeness of CELSIUS MUMBAI.

The entering ship CELSIUS MUMBAI did not stop engine or reduced engine power while the pilot was embarking (CELSIUS MUMBAI made various reductions in the engine power prior to the collision and the Pilot embarking), but she went ahead towards her assigned berth at a speed of approximately 7 knots, even though the pilot's ladder had already been rigged. The leaving ship WISBY ARGAN was steadily increasing her speed after the pilot had disembarked until she reached almost 8 knots, which was her speed two minutes before the collision.

At the moment the collision took place, the speed of both vessels was about 6 or 7 knots. CELSIUS MUMBAI informed that this speed had been sustained because it was the one pilots required for their embarkation.

As the distance between the pilot's embarkation area and the CEPSA refinery jetty is 2.1 miles, it is highly probable that leaving and entering ships will face again a situation of excessive closeness, which could be avoided by:

- establishing the pilot's embarkation point at a farther distance so that no excessive closeness between vessels is produced in case the same pilot must provide entering and leaving ships with assistance.
- avoiding ships to cross by:
 - o delaying ship entrance to the port until the leaving ship has abandoned the area, either by requesting the entering ship to wait at the pilot's embarkation area or in an area farther from the mooring terminal.
 - o pilot's disembarking from leaving ships in the pilot's embarkation area, but never before, so that pilotage can be conducted until the leaving ship track has been cleared.
 - o dividing entering and leaving traffic in separate areas.
- assigning a pilot to the entrance service and other one to the leaving service so that VHF radio communication misunderstanding can be minimised when two vessels are crossing.

4.2. Maritime Safety Authorities

Article 25 of the Spanish Royal Legislative Decree (RDL) 2/2011 dated 5 September, in which the Consolidated Text of Spanish State Port and Merchant Navy Act was approved, sets forth the responsibilities of Port Authorities, among which:

- The provision of general services and management and control of port services to achieve their development under optimal efficient, economical, production and safety conditions.
- Marine and land-based traffic organisation and coordination at ports.

Article 107 'Procedure for the Provision of General services' mentions the possibility of transferring the management of these services to third parties whenever safety is not jeopardized or the exercise of authority involved. The section concerning the maritime signalling service of article 137 (concept and regulation) reads:

"The aim of the maritime signalling service managed by Port Authorities is the installation, maintenance, control and surveillance of visual, audible, electronic or radioelectric devices, either active or passive, intended to improve navigational safety and the traffic of vessels along the Spanish territorial waters, and, if necessary, the position of sailing vessels..

The provision of this service is in charge of the relevant Port Authority in the corresponding area assigned for that purpose [...]

Likewise, it will also include marine coastal traffic monitoring and assistance to be provided by the Spanish Maritime Salvage and Security Society (SASEMAR)"

A contract between the Port Authority of Algeciras Bay and the Pilots' Corporation of Algeciras Bay sets forth the provision of an information and general instruction service to vessels and the functions for vessel traffic organisation in the Port of Algeciras Bay since 30 December 1997, according to which pilots perform this duty.

Also, a Framework Agreement for Collaboration between the Spanish Maritime Salvage and Security Society (SASEMAR) and the Spanish State Ports is in force since the end of 2014, valid for four years, and whose purpose is *"regulating the conditions for contracting the provision of general marine traffic organisation, coordination and monitoring services, as well as coordination tasks and actions to be implemented in emergency cases due to marine pollution between Port Authorities and SASEMAR."*

At the moment the collision took place, the vessel traffic service monitoring equipment was controlling both vessels:

- a Port Authority operator on watch.
- two pilot console operators in two different locations: pilots' premises and Maritime Salvage and Security Control Tower.
- two SASEMAR operators.

None of the aforementioned operators, who were working with their own equipment (telephone set, VHF radio equipment, and AIS³ and/or ECDIS⁴ monitoring systems) in the same room, but completely detached from one another, implemented any action to prevent the accident. Nobody detected the collision hazard between both vessels until it was impending.

None of them had been assigned any function concerning shipboard manoeuvre monitoring or management, since these functions and their execution lie with navigation watchmen or, as a last resort, with the masters. In this regard, IMO Resolution A.857 (20) adopted on 27 November 1997, Guidelines for Vessel Traffic Services reads:

"...When the VTS⁵ is authorised to issue instructions to vessels, these instructions should be result-oriented only, leaving the details of execution, such as course to be steered or engine manoeuvres to be executed, to the master or pilot on board the vessel. Care should be taken that VTS operations do not encroach upon the master's responsibility for safe navigation, or disturb the traditional relationship between master and pilot."

Despite the monitoring function previously described, course planning and course and manoeuvre monitoring of both vessels was the respective masters' responsibility.

4.3. Communications

The VHF radio channels used during manoeuvring operations were:

- Channel 16 for establishing communication between vessels and channel 6 for conversations between them.
- Channels 13 and 8 for contact with pilots.
- Channel 74 for communication with Algeciras RCC.

Radio communications were in English language.

Since radio channel 6 had been selected by both vessels, the conversation held between them at the moment the collision took place could not be heard by other radio station without having to change channels.

4.4. Bridge Procedures

4.4.1. WISBY ARGAN.

Master, Chief Officer and a marine apprentice, who had just returned after accompanying the pilot for his disembarkation, were in the WISBY ARGAN bridge when the ship collided.

As priority had been provided to rigging, the lack of personnel in the bridge at the moment of the accident resulted in the execution of additional tasks by both master and chief officer. The master was as well performing the helmsman's tasks, which disobeys the company's Safety Management System (SMS) and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, STCW 78 as amended, Regulation VIII/2 and

³ Automatic Identification System

⁴ Electronic Chart Display Information System

⁵ Vessel Traffic Service

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Sections A-VIII/2 and B-VIII/2, where it is set forth that whoever be on watch they will not undertake any other task which might interfere with the safety of the vessel on route.

The person in charge of VHF radio communications was the chief officer. The communication between this officer and the master, who was executing the manoeuvres, was certainly deficient as can be inferred from both the company's report and VDR recordings.

At 01:35 hours, the chief officer requested CELSIUS MUMBAI to pass portside-to-portside, which was assumed as accepted with no prior confirmation from the other vessel. Afterwards WISBY ARGAN began to alter her course to starboard side.

IMO Resolution A.954 (23), Proper Use of VHF Channels at Sea, (annex "Guidelines on the Use of VHF Channels at Sea", Section 2, VHF Communication Procedure, article 2.2 Exchange of Messages, paragraph 2.2.2) reads: Where a message is received and only acknowledgement of receipt is needed, say "received". Where a message is received and acknowledgement of the correct message is required, say "received, understood", and repeat message if considered necessary. According to paragraph 2.2.4, where the message contains instructions or advice, the substance should be repeated in the reply. In accordance with paragraph 2.2.6, if a message is received but not understood, say "Message not understood".

At 01:37 hours, CELSIUS MUMBAI informed WISBY ARGAN about her intention of passing starboard-to-starboard. WISBY ARGAN's chief officer provided confirmation through the marine VHF radio when the master was already turning starboard.

This fact may have obliged WISBY ARGAN's master to yaw portside as registered in both AIS and VDR, which was also noticed by the pilot while he was embarking CELSIUS MUMBAI.

An improper use of the marine VHF radio some minutes before the incident may have contributed to the occurrence of the accident, since they endeavoured to agree manoeuvres through VHF radio instead of implementing COLREGs criteria, without even reaching an agreement on the track each vessel should follow.

An improper use of marine VHF radio systems has been contributing to a large number of collisions⁶ due to misunderstandings, loss of time, agreements on actions clearly set forth in COLREGs or misinterpretation when trying to agree actions against aforementioned regulations, such as CELSIUS MUMBAI's proposal to pass green-to-green (starboard-to-starboard).

At 01:36 hours, WISBY ARGAN's chief officer contacted Algeciras Vessel Traffic Service to notify her departure, only three minutes before the collision, which denotes either an unawareness of the impending hazardous situation or a lack of attention to surrounding events. This might have been favoured by certain self-sufficiency linked to a decrease in the necessary watchfulness levels after repeatedly performing the same action on previous occasions without any particular difficulty.

⁶ See publication Maritime and Coastguard Agency *MGN 324 Radio: operational guidance on the use of VHF radio and automatic identification systems (AIS) at sea*, in which improper uses of VHF which favoured accidents are exemplified.

4.4.2. CELSIUS MUMBAI.

CELSIUS MUMBAI officers in the bridge did not notice WISBY ARGAN actions. They were requesting starboard-to-starboard while WISBY ARGAN was altering her course to portside. CELSIUS MUMBAI personnel in the bridge might have been paying more attention to taking the pilot on board than to vessel traffic in the bay.

4.5. Manoeuvre

Both vessels systematically disobeyed several rules of the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs), which together with their excessive closeness due to pilotage conditions lead to the occurrence of the accident.

The following COLREGs regulations were disobeyed:

Rule 8 Action to avoid collision:

a) Any action to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

The location of the pilot's embarkation area at a distance of less than 2.1 miles to CEPESA jetty caused excessive closeness between both vessels, which hindered the compliance with the rules regarding actions taken in ample time in a situation similar to the one under analysis.

b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

WISBY ARGAN did not take any clear action which CELSIUS MUMBAI could distinctly observe. On the contrary, her course was successively altered to port and starboard sides because of the conversations held between both vessels through VHF radio communication system.

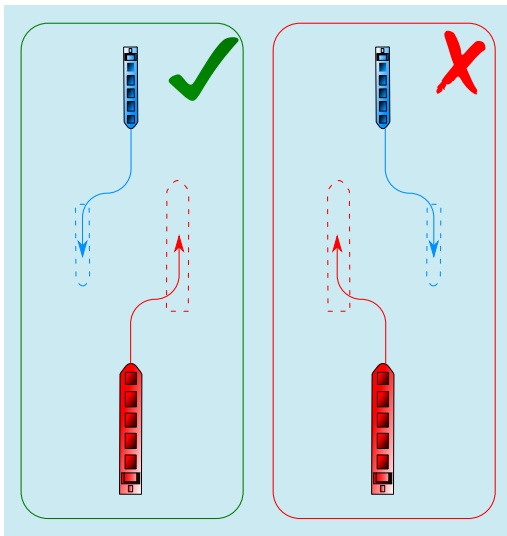


Figura 7. Head-on situation

Rule 14 Head-on situation (situation for both ships)

a) *When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other [...]*

c) *When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.*

In fact, WISBY ARGAN initially complied with this rule. However, the action was aborted by yawing to the opposite side as a result of the VHF radio communications held between her chief officer and CELSIUS MUMBAI. At first, CELSIUS MUMBAI did not alter her course until she finally turned portside at

the last moment.

Nevertheless, both vessels might have understood the situation as a crossing. Even in this case, both would have also disobeyed rule 15:

Rule 15 Crossing situation:

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side (CELSIUS MUMBAI was slightly on WISBY ARGAN's starboard side) shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

WISBY ARGAN would have disobeyed it in her attempt to follow CELSIUS MUMBAI's instructions on "green-to-green", which would have caused her crossing ahead CELSIUS MUMBAI.

Rule 16, Action by give-way vessel:

Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

This rule would have been disobeyed in WISBY ARGAN's attempt to follow CELSIUS MUMBAI's instructions on "green-to-green" and with her performance of erratic actions, which had to be rectified, as a result of the conversation her chief officer had held through the VHF radio communication system without previously verifying the actions his master and, at the same time helmsman, had performed.

Rule 17. Action by stand-on vessel:

a) *i) Where one of two vessels is to keep out of the way the other shall keep her course and speed.*

ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

c) A power-driven vessel which takes action in a crossing situation in accordance with subparagraph a-ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

CELSIUS MUMBAI only altered her course to portside some minutes before the collision, this way disobeying section c) of this rule. In addition, she advised the other vessel through the VHF radio communication system to disobey some other COLREGs rules.

It has not been possible to revise the “Bridge Procedure Manuals” since none of the ship owners agreed to produce them. In fact, CELSIUS MUMBAI’s ship owner has not provided any detail to this Investigation Commission.

Another open question is the reason why VHF radio communications prevailed over the compliance with COLREGs regulations, considering that WISBY ARGAN was already performing a correct collision avoidance manoeuvre.

WISBY ARGAN’s master rectified the initial turn to starboard action by yawing portside, on which COLREGs specifically advise against. Her chief officer, at that moment responsible for VHF radio communications, only followed the other vessel’s instructions. In this case, the communication with his own master was certainly insufficient.

4.6. Company’s Training

WISBY ARGAN master had participated in a BTM⁷ course in 2009.

Her chief officer had entered a “Bridge Resource Management” course in 2006 and a BTM course in 2011.

A “Marine Resource Management Training Course” was also furnished by the Company, which neither the master nor the chief officer had taken.

Regarding CELSIUS MUMBAI, and after the MOU⁸ inspection subsequent to the accident conducted by Algeciras Harbour Master Office, all the crew members are assumed to hold compulsory diplomas and certificates, since no deficiency in this sense was registered.

The available details of the accident show a lack of training on VHF radio communication skills, bridge communication management, COLREGs compliance and Human Resources Management.

4.7. Accidents recorded in the Bay of Algeciras

An average of 24 annual incidents or accidents in the Bay of Algeciras has been recorded since 2005 iaw SASEMAR (Maritime Salvage and Security Society) statistics. More than half of the accidents involved recreational crafts or man overboard incidents.

⁷ Bridge Management Team, gestión de equipos humanos en el puente

⁸ Memorandum of Understanding, see www.parismou.org

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The Pilots' Corporation service in year 2014 comprise a total amount of 15819 ladders, ferries and barges excluded, which clearly denotes low rates of accidents and incidents. Nevertheless, the conditions of this accident are likely to occur once again. Then, the authorities and entities involved in vessel traffic monitoring and control activities in this area must analyse this and other similar accidents and also take all the measures considered necessary to avoid any prospective occurrence.

Back to year 2010, the former Maritime Accident and Incident Investigation Standing Commission of the General Directorate of Merchant Navy (Comisión Permanente de Investigación de Siniestros Marítimos de la Dirección General de la Marina Mercante (DGMM)) had already advised on the need to establish a Traffic Separation Scheme for approaching the Bay of Algeciras or, failing this, a "caution area", in addition to a "procedure for communications between vessels and Algeciras VTS Centers" in its report on the collision between CIUDAD DE CEUTA and CIUDAD DE TÁNGER (see DGMM website)".

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5. CONCLUSIONS

The accident occurred as a result of the coincidence of several failures which stem from human overconfidence, concurrent events failing to comply with several COLREGs rules and incorrect vessel traffic monitoring activities in the Bay of Algeciras:

1. Despite the intensive vessel traffic monitoring procedures implemented in the Algeciras Bay, which include electronic monitoring equipment and both pilot and SASEMAR (with VTS⁹ qualified operators) staff on watch, none of the surveillance services made any action to prevent the collision. No communication between vessels (established through VHF radio channel 6) could be heard from any of these monitoring centres without having to change channels. It is then advisable to optimize these means and improve the shore-crew interfaces in order to prevent any prospective occurrence of a similar situation as far as possible.
2. It became evident a lack of training on the procedures for VHF radio communications between vessels and communication procedures among officers in the respective bridges.
3. Non-compliance with COLREGs.
4. WISBY ARGAN's master was acting as a helmsman during the manoeuvre. This means he had abandoned his task of ultimate responsible person for the vessel's navigation and manoeuvring.

It must also be mentioned the initial CELSIUS MUMBAI's DPA¹⁰ lack of cooperation with this Commission, who did not provide any information for investigation purposes. On his side, WISBY ARGAN's DPA only cooperated partly with this Commission, although he provided some information.

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⁹ *Vessel Traffic Services.*

¹⁰ *Designated Person Ashore.*

6. SAFETY RECOMMENDATIONS

To both vessels' ship owners:

1. Safety Management responsible persons must be trained on this subject, more specifically on the reasons why the technical causes of accidents must be surveyed and on the necessity and commitment to cooperate with maritime incident and accident investigation authorities in order to improve marine safety.
2. A procedure for VHF radio communications from the bridge must be established in order to satisfy Radiocommunication Regulations and comply with IMO Resolution A.954 (23) on the "Proper Use of VHF Channels at Sea" included in Annex "Guidelines on the Use of VHF Channels at Sea". In addition, they must also train their crews on this procedure.

To SASEMAR, Algeciras Harbour Authority and Algeciras Pilots' Corporation:

To analyse this accident, which involved the transport of hazardous cargo in the middle of the Bay, and to assess the feasibility of optimising the means available to the three services that simultaneously monitor the vessel traffic in the Bay of Algeciras with the aim of avoiding situations like the one described herein. The measures derived from the analysis, if applicable, should be implemented.

To Algeciras Pilots' Corporation.

3. To analyse the embarkation and disembarkation procedures developed by a single pilot for two almost simultaneous pilotage services, i.e., a leaving and an entering ship service, taking into consideration pilots' embarkation point and vessels' speed, location and course so that vessels are not left in a track leading to collision or in a situation of excessive closeness with limited capacity for action.

To the company responsible for WISBY ARGAN's maritime management:

4. To establish a bridge procedure that fully complies with the Standards of Training Certification and Watchkeeping of Seafarers, Convention 78 as amended, Regulation VIII/2 and Sections A-VIII/2 and B-VIII/2.

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