

Report of safety investigation

STRANDING

OF THE GENERAL CARGO VESSEL

MUSKETIER

On 8TH FEBRUARY 2011

**ON THE COAST OF AMBLETEUSE COMMUNE
(PAS-DE-CALAIS - FRANCE)**

Warning

This report has been drawn up according to the provisions of Clause III of Act No.2002-3 passed by the French government on 3rd January 2002 and to the decree of enforcement No.2004-85 passed on 26th January 2004 relating to technical investigations after marine casualties and terrestrial accidents or incidents and in compliance with the « Code for the Investigation of Marine Casualties and Accidents » laid out in Resolution MSC 255 (84) adopted by the International Maritime Organization (IMO) on 16 May 2008.

It sets out the conclusions reached by the investigators of the *BEA*mer on the circumstances and causes of the accident under investigation.

In compliance with the above mentioned provisions, the analysis of this incident has not been carried out in order to determine or apportion criminal responsibility nor to assess individual or collective liability. **Its sole purpose is to identify relevant safety issues and thereby prevent similar accidents in the future.** The use of this report for other purposes could therefore lead to erroneous interpretations.

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Abbreviation list

AIS	: Automatic Identification System
ARPA	: Automatic Radar Plotting Aid
BEAmer	: <i>Bureau d'enquêtes sur les évènements de mer</i> (MAIB French counterpart)
CALDOVREP	: Mandatory reporting procedure in the TSS in the Strait of Dover and its Adjacent Waters
COLREG	: Convention on the International Regulations for Preventing Collisions at Sea
DEFREP	: Defect Report
DSC	: Digital Selective Calling
ECDIS	: Electronic Charts Display Information System
EMSA	: European Maritime Safety Agency
GMT	: Greenwich Meridian Time
IMO	: International Maritime Organization
MRCC	: Maritime Rescue Coordination Centre
OOW	: Officer Of the Watch
TEU	: twenty-foot equivalent units
TSS	: Traffic Separation Scheme
UTC	: Universal Time Coordinated
VHF	: Very High Frequency
VTs	: Vessel Traffic Service

1 CIRCUMSTANCES

On 8 February 2011, the general cargo vessel *MUSKETIER* coming from Spain and bound to Germany, was in the northeast bound lane of the Dover TSS.

When she was abeam buoy zc1, she did not alter course as planned and went on steering a steady course towards the coast. At 12.41 am local time, she stranded on the coast of Ambleteuse commune. A seaside resident, witnessed the event and sounded the alarm to Gris-Nez MRCC.

Taking the opportunity of the high tide, she got refloated by herself. The vessel had been directed to anchor on roads in the Dick area where she had undergone a safety inspection by an assessment team. As no damage had been observed, she resumed her voyage towards Brake (Germany).

2 VESSEL

MUSKETIER is a general cargo vessel, strengthened for heavy loads and containers. She had been built in 2006 by Bergum shipyard (The Netherlands); she flies the British flag (Gibraltar). She is owned by the “Musketier shipping Ltd” company based in Gibraltar and “Briese Shipping BV” company based in The Netherlands is her technical manager. She is time chartered by “Partners Fletamentos SL” based in La Coruna.

During this voyage she was loaded with cellulosic fibre packages. She had also 126.5 m³ of fuel.

Main characteristics :

- call sign : ZDHM6 ;
- Length overall : 88.60 m ;
- breadth : 12.50 m ;
- Gross tonnage : 2545 ;
- Deadweight capacity : 3817 metric tons ;
- Summer draught : 5,425 m ;

- Main engine : 1520 kW ;
- service speed : 13 kts ;
- Bow thruster : 220 kW ;
- Container capacity : 188 TEU ;
- Rudder : "fish tail" design (over 55° on each side) ;

Classed by Lloyds Register EMEA.

Main navigation equipments :

- 2 radars ARPA fitted
- 1 ECDIS
- AIS

3 CREW

The crew list is made of 7 members : a Ukrainian Master (48 year old), a Russian first officer, a Lithuanian chief engineer. Hands among whom a cadet are Filipinos. The officers hold the required certificates for this type of vessel.

The master and the first officer were the only deck officers on board and were alone in being in charge of the watch.

The watch organisation was :

- Master : **0.00 am to 4.00 am** and **8.00 am to 4.00 pm**
- First officer : **4.00 am to 8.00 am** and **4.00 pm to 12.00pm**

4 SEQUENCE OF EVENTS

Time : UTC + 1

On **8 February 2011**, *MUSKETIER* coming from Marin (Spain) and bound to Brake (Germany) was within the northeast bound lane of the Dover TSS.

At **8.41 am** *MUSKETIER* transmitted to MRCC Gris-Nez the mandatory report (CALDOVREP system). She was then located abeam BASSURELLE lightbuoy.

At **11.18 am** steering a 060° average course, she reached waypoint 12 as it was plotted on the ECDIS. At this position the next course planned was 030° to join waypoint 13, which would lead her to reach the eastern part of the northeast bound lane by ZC2 buoy.

At **11.56 am** as she did not alter course at waypoint 12, she crossed the eastern edge of the northeast bound lane and entered the Inshore Traffic Zone, steering steadily a 060° course.

At **12.41 am** *MUSKETIER* ran aground on the coast of Ambleteuse commune (Pas-de-Calais - France) on a flat rocky bottom.

At **12.42 am** an eyewitness of the incident located in Ambleteuse informed Gris-Nez MRCC of the unusual presence of a merchant vessel that seemed to be stranded at a few hundred meters from the shore at a place named "La Langue de Chien".

At **12.49 am** after several attempts, Gris-Nez MRCC succeeded in having a VHF call with the vessel. *MUSKETIER* master reported a problem with an engine oil filter.

At **12.53 am** the MRCC diverted the custom patrol boat DF 37. She arrived on scene at **12.59 am**.

At **12.56 am** a PAN signal had been broadcasted by Gris-Nez MRCC.

At **1.05 pm** the French Navy rescue helicopter based at Le Touquet had been operated to monitor the area and possibly to detect a pollution. It was on scene at **1.27 pm**.

At **1.10 pm** *MUSKETIER* informed that she would intend to get refloated by herself.

At **1.49 pm** the vessel got refloated on her own and proceeded to Dick roads.

At **4.30 pm** an assessment team had been winched down onto *MUSKETIER*.

At **5.05 pm** the vessel dropped anchor on roads at Dick.

At **8.55 pm** the assessment team had been winched off

At **12.55 pm** the vessel sailed after a relieving master had joined the ship.

5 CONSEQUENCES

The vessel structure showed no distortion. The residual list was due to the cargo stowage and to the ballasting. There was neither visible damage, nor water leak and no pollution.

6 ANALYSE

The method selected for this analysis is the method usually employed by *BEA*mer for all its investigations, in compliance with the “Code for the Investigation of Marine Casualties and Accidents” laid out in Resolution MSC 255(84) adopted by the International Maritime Organization (IMO).

The factors involved have been classed in the following categories :

- **natural factors ;**
- **material factors ;**
- **human factor ;**
- **other factors.**

In each of these categories, *BEA*mer investigators have listed the possible factors and tried to qualify them relatively to their characters :

- **certain, probable, hypothetical ;**
- **causal or underlying ;**
- **circumstantial, inherent ;**
- **aggravating.**

With the aim to reject, after examination, factors with no influence on the course of events and to retain only those that could, with a good probability, have a real influence on the course of facts. The investigators are aware that maybe they have not given an answer to all the issues raised by this accident. Their aim remains to avoid other accident of the same type; they have privileged with no *a priori* an inductive analysis of the factors which have a significant risk of recurrence due to their inherent character.

6.1 Natural factors

Weather conditions at the time of the event were good : southerly wind force 2 to 3 Beaufort, sea state smooth, visibility 10 miles.

There was almost no tide as the stranding occurred shortly before the high water stand.


The weather and tide conditions were not linked to the event.

6.2 Material factors

A few minutes after the stranding, the master reported to Gris-Nez MRCC that he had a machinery problem (engine oil filter). He retracted this statement latter. Actually the engine had stalled because of the refloating attempts.

Anyway, as shown on the picture opposite, no machinery alarm had been recorded between 10.57 am and 1.13 pm (local time). After that time the alarms recorded showed an abnormal engine temperature due to manoeuvres done by the master to make an attempt to get the vessel refloated.

On the other hand all the navigation and communication equipments were in a good state of operation.



Tag	Time	Description
10117	17:41:40.0	M.E. Separator unit Alarm
10104	17:08:41.4	M.E. Stopping air press. Low
00404	17:06:48.1	FBA Lop bridge Panel1 not present
10103	17:05:46.7	M.E. Auto stop
10309	01:31:50.3	A.E. F.O. separator Alarm
10105	01:31:49.2	M.E. Safety system Failure
10113	00:02:27.6	M.E. F.O. leak tank level High
10108	09:57:32.2	M.E. L.O. filter diff. press. High
10417	12:13:24.3	FO heater emergency daytank
10710	12:13:23.5	G.B. Trustbearing
10323	12:13:22.4	UPS Eccdis 1 Failure
10522	12:13:19.8	F.O overflowtank level high
10518	12:13:19.7	Fuel oil day tank level after Low
10121	12:13:18.3	M.E. Water level in charge air duct High
10114	12:13:18.0	M.E. F.O. filter diff. press. High
10110	12:13:17.9	M.E. L.O. filter diff. press. High High

Engine alarms listing

No material factor had contributed to the event.

6.3 Human factors

6.3.1 The master fell asleep

The master admitted he fell asleep; it occurred anyway before he had reached “waypoint 12”, i.e. before 11.18 am.

His loss of consciousness had lasted at least 1 hour and 20 minutes. As he did not alter course as planned at “waypoint 12”, the vessel kept a steady 060° course at a speed of 8 knots that led her on the ground.

This is the first **causal factor** of the stranding.

6.3.2 Ship's complement and work organisation

The fact of falling asleep can be originated in the working rhythm of the 2 deck officers being in charge of the sea watch, with a particularly tiring Watchkeeping organisation. It emerge from the service timetable that the master was in charge of the watch from 0.00 am to 4.00 am and from 8.00 am to 4.00 pm, taking over thus a 8 hour shift after only a theoretical 4 hour rest. Note that no alcohol test had been done after the accident.

This working rhythm is inappropriate and does not allow the officers in charge of the watchkeeping to keep their physical aptitude and to remain vigilant enough to fulfil their task.

This is an **under lying structural factor** of the loss of vigilance of the master driving to the grounding.

6.3.3 Operating the equipments

The OOW had at his disposal equipments dedicated to prevent a course error or a lack of vigilance on the bridge :

- the ECDIS in which the track to follow was set, with the corresponding waypoints, has an alarm system activated when the vessel closes a waypoint. In this case,

there was a 2 level pre-alarm (see ECDIS report extract below, corresponding to waypoint 12 at 11.15 am local time).

(Time : GMT)

First WOP arrival alarm (active)

10:15:37 - - Alarm

Second WOP arrival alarm (active)

10:18:04 - - Alarm

Waypoint arrival (active)

10:18:36 - - Alarm

Comment : 10:18:36 Lat = 50 42.242N Lon = 001 20.246E

Activate WP WP_013

10:23:31 50 42.589N 001 21.151E Ship watch 58.10 8.10 47.90 8.10

- A dead man alarm system, meant for maintaining the OOW's vigilance when the lookout is carried out by a lone person on the bridge, which was actually the case.

At the time of this event, these 2 systems were inactivated. It emerges from the investigation that it was usual to inactivate the ECDIS alarms during daytime. On the other hand the master admitted that he had stopped the dead man alarm system. This had not been recorded on the log book.

These practices, that deprive the OOW of an alarm in case of a lack of vigilance, are an **underlying conjunctural factor** of the accident.

6.4 Other factors

The MRCC intervention

The MRCC has for the TSS monitoring, the SPATIONAV system, in operation at the time of the event, in which Gris-Nez and Saint-Frieux radar detections are mixed as well as AIS data. The radar blip and the trajectory of the vessel (course/speed vector) as well as her call sign are visible on the displays. A click on the blip opens a window with extra data.

A replay of the surface situation, using SPATIONAV equipment, confirms that *MUSKETIER* crossed the edge of the northeast bound lane of the TSS at 11.56 and entered the

Inshore Traffic Zone heading 060°, speed 8 knots; that was about 45 minutes before the grounding.

Facing such a situation, the MRCC has a number of intervention assets :

- communication : VHF, VHF DSC, AIS ;
- French navy rescue helicopter, based in Le Touquet, with a diver that can be winched down, could be on scene after 20 minutes ;
- Vessels in the area, insofar as they are identified.

In the case of *MUSKETIER*, the MRCC had assessed the situation after the occurrence of the incident, thank to an outside witness. This lack of detection before the stranding was due to the following factors :

- Team on watch busy with various events in the TSS area : rally of numerous fishing vessels, vessel with a failure (DEFREP procedure), collecting vessel entering TSS data, watchkeeping relief...
- Lack of “crossing the limit” or “area intrusion” type alarm that would have been an additional “safety barrier” and would have possibly drawn the operator’s attention on an abnormal nautical situation. In the case of *MUSKETIER*, such a system would have alerted the OOW. The MRCC would have had then 40 minutes to operate the assets already mentioned.
- Lack of detection of the abnormal situation by the French navy signal station of Boulogne sur Mer, which has a view over the area. However, the TSS control is not a specific task of a Navy signal station.

The fact that the MRCC had not detected the intrusion of *MUSKETIER* in the Inshore Traffic Zone, in which she was not allowed to sail (Colreg 10) and moreover steering on a trajectory driving her at short term to the coast, did not allow it to operate the appropriate assets.

However, the TSS monitoring performed by the MRCC and its capacity to react should have been the last safety barrier before the event.

This is also the **second causal factor** of the event.

7 EXECUTIVE SUMMARY

As *MUSKETIER* was sailing in the northeast bound lane of the Dover TSS, she did not alter course at the waypoint, because the OOW was asleep and the navigation alarms were inactivated.

As the MRCC did not detect this situation, it had not been able to operate appropriate assets in order to draw the vessel OOW's attention.

As a consequence *MUSKETIER* stranded on the coast of Ambleteuse.

As the tide was rising, the vessel got refloated quickly. She suffered no apparent damage and there was no pollution.

8 RECOMMENDATIONS

The *BEA*mer reminds again to the IMO and to the EMSA :

- 1/ the necessity to make the concerned owners aware of the risk posed by coasters ranging the European coasts, with obviously undersized complements.

The *BEA*mer recommends :

To *MUSKETIER* owner

- 2/ to put in place a complement and bridge organisation consistent with the type of the vessel and her activity, in order to guaranty that the crew physical condition is compatible with the safety.

To the administration in charge of French MRCC

- 3/ to adapt the SPATIONAV system for a VTS use, particularly by adding alarms specific to equipments dedicated to monitor the maritime traffic within a TSS.

LISTE DES ANNEXES

APPENDIX LIST

- A. Décision d'enquête**
Enquiry decision

- B. Trajectographie SPATIONAV**
SPATIONAV trajectory

- C. Image radar de la situation surface globale**
Global surface situation radar image

- D. Image radar de la zone de l'échouement**
Gris-Nez MRCC radar image of the stranding area

Décision d'enquête

Enquiry decision



Décision

Le Ministre de l'Écologie, de l'Énergie, du Développement durable et de la Mer ;

- Vu** la loi n° 2002-3 du 3 janvier 2002 relative aux enquêtes techniques après événements de mer ;
- Vu** le décret n° 2004-85 du 26 janvier 2004 relatif aux enquêtes techniques après événement de mer, accident ou incident de transport terrestre ;
- Vu** le décret du 09 septembre 2008 portant délégation de signature (Bureau d'enquêtes sur les événements de mer) ;
- Vu** le décret du 09 juin 2008 portant nomination du Directeur du Bureau d'enquêtes sur les événements de mer ;

DÉCIDE


Article 1 : En application de l'article 14 de la loi sus-visée, une enquête technique est ouverte concernant l'échouement du cargo *MUSKETIER* immatriculé 9369514 et battant pavillon Gibraltar survenu le 8 février 2011 sur le littoral de la commune d'Ambleteuse.

Article 2 : Elle aura pour but de rechercher les causes et de tirer les enseignements que cet événement comporte pour la sécurité maritime, et sera menée dans le respect des textes applicables, notamment le titre III de la loi sus-visée et la résolution MSC.255 (84) de l'Organisation Maritime Internationale.

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Pour le Ministre et par délégation
Le Directeur du BEAmer
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Trajectographie SPATIONAV

SPATIONAV trajectography

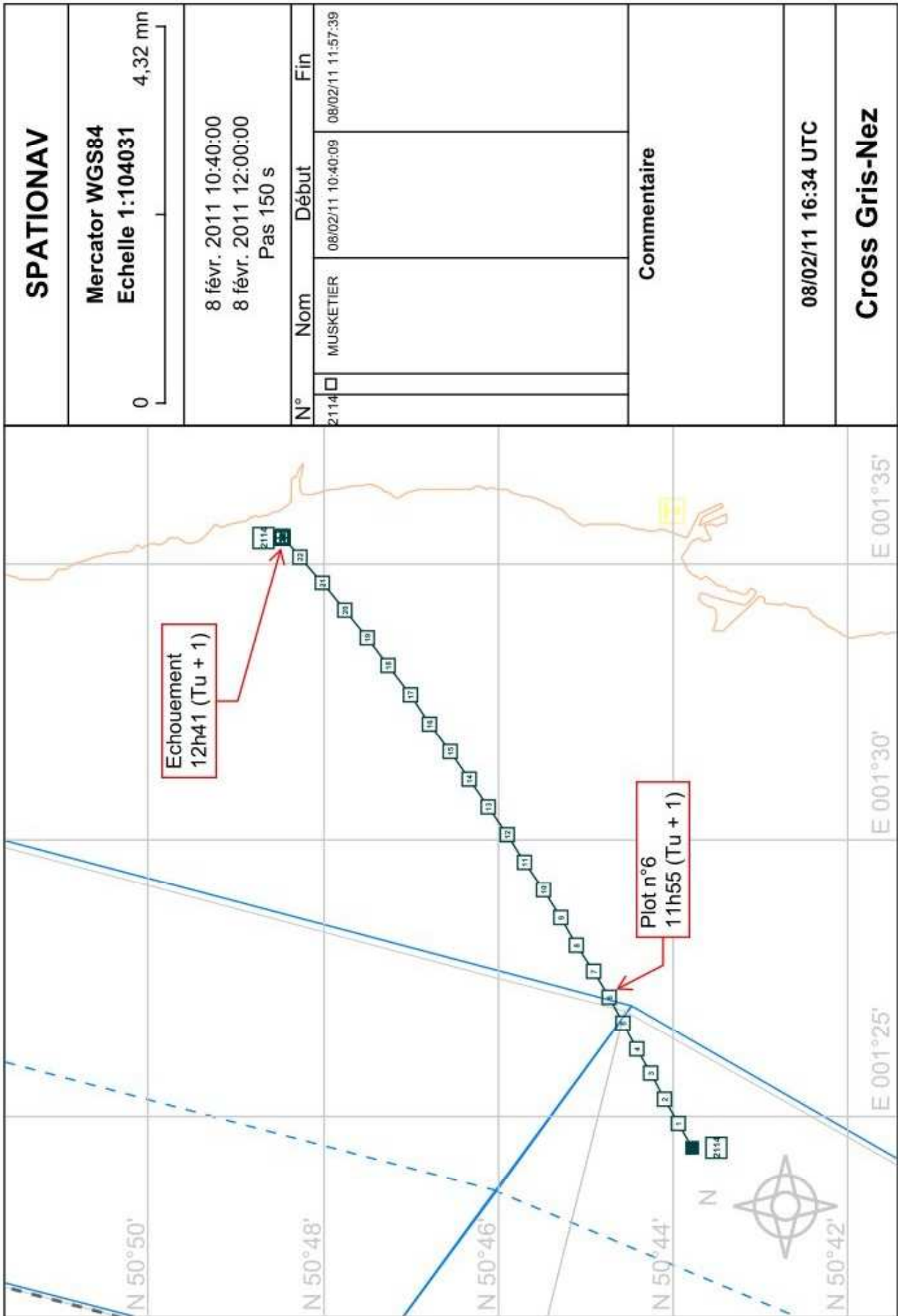


Image radar de la situation surface globale

Global surface situation radar image

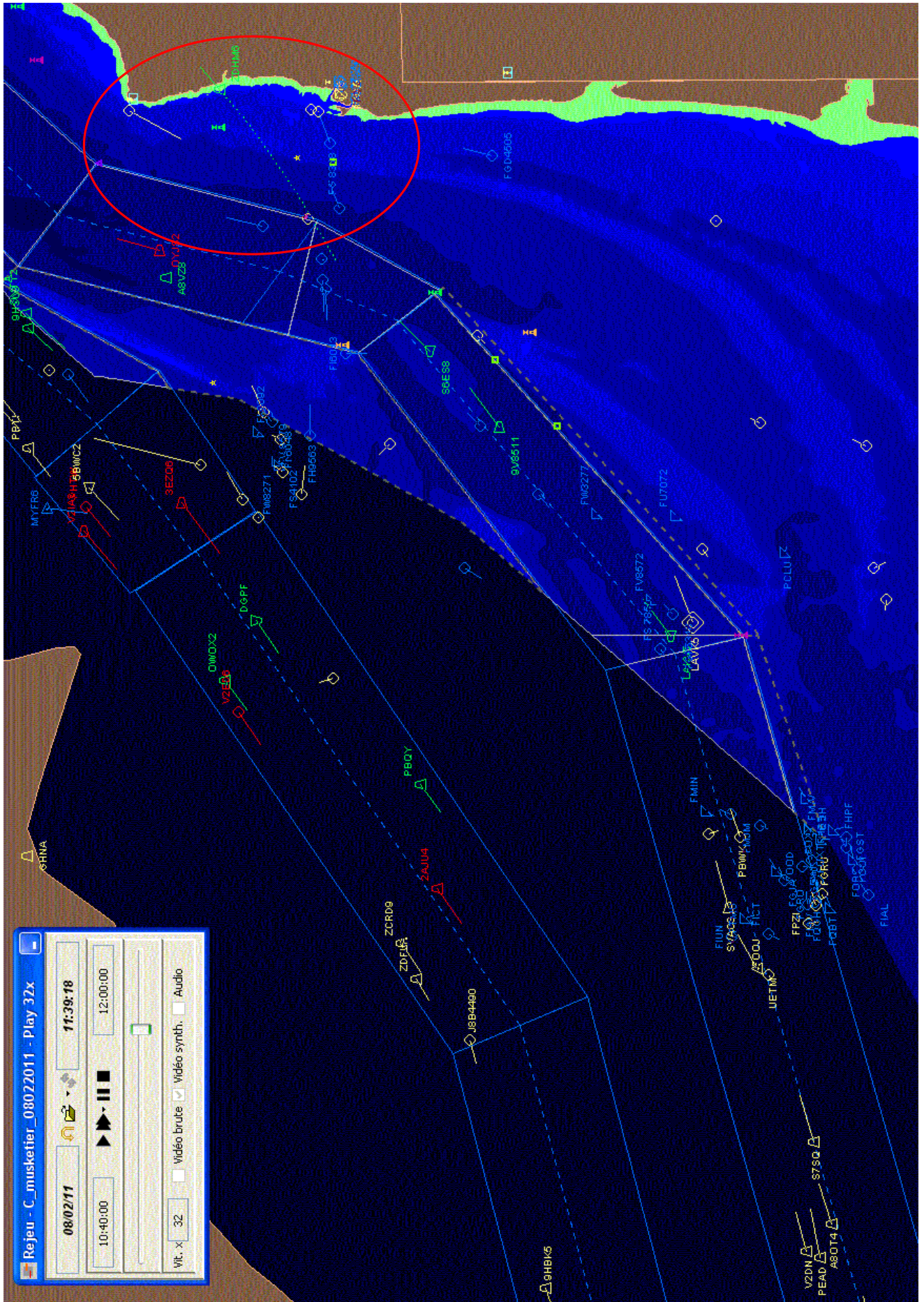


Image radar de la zone de l'échouement

Gris-Nez MRCC radar image of the stranding area

