# Marine safety investigation report

## NAUFRAGE DU CHALUTIER *PANAMERA*, LE 3 NOVEMBRE 2013 À 25 MILLES DANS LE SUD-EST DU CAP LIZARD (MANCHE-OUEST)

## *FOUNDERING OF THE TRAWLER PANAMERA, ON 3 NOVEMBER 2013 IN THE SOUTH-EAST OF LIZARD POINT (WESTERN CHANNEL)*

Bureau d'enquêtes sur les évènements de mer

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# Marine safety investigation report

## FOUNDERING OF THE TRAWLER

# PANAMERA

## ON 3 NOVEMBER 2013 AT 25 MILES IN THE SOUTH-EAST OF LIZARD POINT (WESTERN CHANNEL)

# Warning

This report has been drawn up according to the provisions of Transportation Code, specially clauses L1621-1 to L1622-2 and to the decree of enforcement No.2004-85 passed on 26th January 2004 modified 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 and published by decree n° 2010-1577 on 16 December 2010.

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

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 improve maritime safety and the prevention of maritime pollution by ships and to draw lessons that may help to prevent similar accidents in the future**. The use of this report for other purposes could therefore lead to erroneous interpretations.

For your information, the official version of this report is written in French language. The translation in English language is proposed to facilitate the reading of this report to those who are not French speakers.

# REPORT CONTENT

# 1 SUMMARY

**(UTC + 1)**

On 3 November 2013 around 4.14 am, the fishing vessel *PANAMERA*, on her way back to her home port Saint-Quay-Portrieux in poor weather, foundered off the south-eastern coast of Cornwall (UK) (in the bearing 144° at 25 miles from Lizard Point), further to the flooding of the crew's quarters subsequent to a leak initially located at frame C1/C3.

Nobody was injured and the five crewmembers were winched on board a helicopter.

The enquiry conclusion states that corrosions and fatigues in the hull structure were at the origin of a failure which had grown progressively worse preventing the flooding to be contained despite the attempts to fother the leak and to pump out.

The recommendations of the report are about the improvement of the leak fothering gear available on board and the strengthening of controls on the hull of old fishing vessels made of steel.

# 2 FACTUAL INFORMATION

## 2.0 Background

*PANAMERA* was owned by the fishing company Cap 3000 SARL which headquarters are located at Plérin (Côtes-d'Armor - France).

This company owned two 20 metres fishing vessels fitted for deep sea fishery and 15 day fishing periods. They fish in the Western Channel and the Celtic Sea. Each week, they land their fishery products at the port of Roscoff (Finistère - France).

Each week, there is a crew turn-over. Each sailor has a fifteen day period at sea and an eight day rest ashore schedule.

Both vessels of the company had names related with a famous German car racing team.

## 2.1 Ship particulars


### Vessel's main characteristics:

Steel-hulled trawler built in 1990 by Chantiers de Bretagne-Sud at Belz (Morbihan - France).

- Registration : PL 722 246;
- Length overall : 20.60 m;
- Breadth : 6.54 m;
- Draught : 3.33 m;
- Gross tonnage : 90.97 Register tons;
- Free-board : 427 mm (minimum);
- Power : 418 kW;
- Main engine : Caterpillar;
- Coupled-up to the main engine :
  - Main bilge pump : Forani - AM 50 in bronze, capacity 48 $m^3$/h;
  - Domestic / fire pump : Forani B 40, capacity 16 $m^3$/h;

- Auxiliary engine : Deutz ;
- Coupled-up to the auxiliary engine :
  - Emergency pump Forani – M 50, capacity 48 $m^3$/h set for bailing the fish hold and the crew's quarters;
  - Two 400 W electrical «cellar-pumps », capacity 9 $m^3$/h;
- AIS : fitted;
- Radar : 2 Furuno 1823 type RDP 18;
- GPS : 2 Furuno GP 32;
- Echo-sounder : 2 Furuno FC 291;
- Autopilot : fitted;
- Steering compass : fitted;
- Watch alarm system : fitted (Seda III);
- Navigation category : 2nd category;
- MMSI Nr : 227593000;
- Navigation licence : Valid until 23 June 2014;
- National free board certificate : Issued on 13 June 2013 by Bureau Veritas.

## 2.2 Voyage and crew particulars

From 28 October to 2 November 2013, *PANAMERA* had fished in the northwest of the Isles of Scilly.

The crew list was in accordance with the safe manning decision issued on 17 July 2012.

The skipper was 33 year old. He holds a certificate of competency obtained in 2003, a captain 200 certificate obtained in November 2009, a marine engine operator licence, a ROC, a certificate of proficiency in survival craft and rescue boats obtained in July 2009, an advanced firefighting certificate obtained in June 2011, a basic safety certificate obtained in June 2009 and a level II marine medical care certificate, obtained in June 2013.

His captain 200 certificate restricts him to command vessels fitted for coastal fishery or to be second in command of vessels fitted for deep sea fishery. An exemption, constantly issued since January 2012 and after all issued on 16 July 2013 for a 6 month period by the *Délégation à la mer et au littoral des Côtes d'Armor* (local French maritime authority), allowed him to be in command of *PANAMERA*.

He has been on *PANAMERA'S* crew list for 13 years.

The skipper, joined the vessel for this fishing period on 21 October 2013 after a week of rest ashore. He was physically fit for his task.

The chief engineer, 36 years old, holds a 750 kW engineer certificate since July 2004. He has been going to sea aboard fishing vessels since 1996 and he has been *PANAMERA'S* chief engineer since 4 June 2013. He was physically fit for his task.

The three other crewmembers were physically fit and held the required certificates for their tasks.

## 2.3 Marine casualty information

*PANAMERA* foundered on 3 November 2013 around 4.14 am in the bearing 144° at 25 miles from Lizard Point (south end of Cornwall - UK) at position 49°37'.60 N and 004°49'.39 W.

The foundering occurred at night in poor weather conditions:

- according to Météo France analysis : WNW wind force 6 to 7, very rough sea state (cf. extract of the detailed report in appendix D);
- according to *PANAMERA* : at the time of the emergency call at 1.36 am, NW wind force 6, sea state 5;
- according to the RNLI British lifeboat: at 4.21 am in the area, NW wind force 7, sea state 7.

The vessel was on her way back to her home port to carry out repairs, subsequent to an inflow of water in the crew's quarters, which has grown worse on the way.

The wreck of *PANAMERA* lies at a depth of about 80 metres.

## 2.4 Shore authority involvement and emergency response

On **3 November 2013** at **1.36 am**, the skipper of the trawler *PANAMERA* phoned to Corsen MRCC to inform that there was a major leak aboard.

At **1.47 am**, a three-party conference was set up involving *PANAMERA*, Corsen MRCC and Falmouth MRCC. Falmouth RNLI lifeboat was operated. A MAYDAY RELAY signal was emitted by Falmouth MRCC.

At **2.05 am**, Gris-Nez MRCC was informed.

At **2.25 am**, a Sea King helicopter with divers and a motor pump was operated.

At **2.35 am**, Falmouth MRCC informed that *M/V FREESIA* had been diverted in order to provide shelter during the winching operation, even assistance in the event of an emergency evacuation.

At **2.45 am**, Falmouth MRCC requested *PANAMERA* to activate her 406 MHz locator transmitter.

At **3.19 am**, the helicopter was in the area. The latter observed that *PANAMERA* was afloat, listing heavily.

At **3.29 am**, the helicopter reported the beginning of the first sailor winching.

At **3.42 am**, last sailor winched aboard and flying back to Culdrose airbase.

At **3.45 am**, RNLI lifeboat arrived in the area. *PANAMERA* was still afloat but the towing was uncertain.

At **4.14 am**, Falmouth MRCC informed Corsen MRCC by phone that *PANAMERA* had sunk. The two liferafts afloat had been recovered by the RNLI lifeboat. The helicopter landed at its base.

# 3 NARRATIVE

**Local time (UTC + 1)**

*PANAMERA* sailed from the port of Roscoff on **Monday 28 October 2013**. Fishing was uneventful.

On Saturday **2 November 2013** around **4.30 pm**, as she was en route at 7 - 8 knots between the Isles of Scilly and the British coast to seek shelter in the Bay of Falmouth because of the poor weather conditions, the water ingress alarm of the crew's quarters went off.

After a couple of minutes of automatic pumping, the alarm cleared then went off again a very short while after. A visual inspection was carried out by the chief engineer who observed that the drain well was filling up. The pump started again and was coping with the water ingress.

Around **5.00 pm**, the skipper contacted the owner by phone. He announced him that the fishing had been good, that he was currently sailing in the south of the Isles of Scilly. He informed that the high level alarm of the drain well in the crew's quarters went off, but it was a rather limited issue. Where it was coming from was unclear for him. He was wishing this leak to be located and sealed alongside at Roscoff, on the next Monday.

Taking into account the weather forecast for the next Monday at Roscoff, and as the vessel was about to complete her fishing period, the owner called Saint-Quay-Portrieux auction market to know if it was possible to land the fishery products on Sunday 3 November 2013 around noon. He called also Saint-Brieuc Chamber of Commerce to ask if it was possible for the vessel to enter port of Le Légué on Monday 4 November 2013, for eventual repairs. Both requests were feasible. The owner called back the vessel and told her to head for Saint-Quay-Portrieux.

The skipper acknowledged and altered course towards Saint-Quay-Portrieux maintaining the speed at 7 – 8 knots, indicating an estimated time of arrival between 12.00 am and 2.00 pm on the day after. He informed the owner that the leak had been located under the platform beneath the escape ladder, at the port crew's quarters. This water ingress could be controlled by the simple pressure of a finger (2 to 3 cm long and 0.5 cm wide), according to the skipper's statement. The water was flowing through the draining holes to the draining well located in the crew's quarters. The pump coupled-up with the main engine was coping with the water ingress.

Safety patrols were carried out on a regular basis.

From around **10.00 pm** to **10.30 pm**, the chief engineer decided to make sure that the auxiliary engine pump was operating properly. For that purpose, he closed a valve to shut off the circuit set on the main engine and opened the dedicated valve to set the suction circuit on the auxiliary engine. The trial was successful and the whole operation took a dozen of minutes.

Around **10.30 pm**, back to the main suction system.

Around **11.00 pm / 11.30 pm**, after he had made-up a tailored wedge fitting the breach, the chief engineer, supported by the bo'sun, inserted it in the breach and held it in place with planks.

On Sunday **3 November 2013** around **1.00 am**, the patrolman observed that the water level had risen quickly in the crew's quarters and reported this to the skipper. The chief engineer and the bo'sun noted that the pillaring maintaining the plug did not resist probably as a result of repeated shocks related to the severe weather conditions.

In order to gain wider access to the breach, they destroyed the wooden bulkhead, at the end of the starboard berth, between the crew's quarters and the escape ladder.

While the chief engineer was trying to seal the breach, the boatswain was lighting the cubby-hole with a lamp. He observed that a 0.50 m water geyser was spouting out of the breach. He assessed the hole to reach the size of a fist, i.e. a 10 cm diameter breach. The sealing operation could not be achieved.

At **1.36 am**, the skipper informed Corsen MRCC that he would launch the two liferafts and order the crew to put their survival suit on.

The water level was rising in the crew's quarters, resulting in the deterioration of the furniture, the bulkheads and of the insulation secured to the plating. One of the ratings observed that a part of the latter had been dragged in the draining well, clogging probably the suction strainer.

The chief engineer and the boatswain operated the two « cellar pumps » in addition, but in vain.

*PANAMERA* was sinking further by the stern. The skipper decided to transfer the fuel oil from the aft tank to the fore tank. This operation did not allow to correct the trim.

At **3.19 am**, the Sea King helicopter arrived in the area and requested the vessel to maintain a 7 knot speed. It winched down a Tp2t Barros type motor pump with a capacity of 46.2m$^3$/h, which was lowered through the forecastle hatch onto the lower deck. At this instant the boatswain noted that the aft freeing ports were in the water. The motor pump was immediately started by the chief engineer while the boatswain took the suction strainer down to the crew's quarters. The water level was at the level of the third step, i.e. about 80 to 90 cm above the platform.

While the pump has been operating for less than one minute, *PANAMERA* was sinking by the port stern.

At **3.29 am**, vessel stopped, the winching of the sailors began while *PANAMERA* was heeling more and more on her portside. After the two Portuguese sailors had been winched, the boatswain had to climb the forecastle main deck to reach the stanchion in order to position the harness. The skipper and the chief engineer, as they could not stay on board, jumped in the water. They would be winched further on. The operation was completed at **3.42 am**.

At **3.45 am**, the RNLI lifeboat arrived in the area and observed that *PANAMERA* was still afloat.

At **4.14 am**, *PANAMERA* foundered. The two liferafts had been recovered by the RNLI lifeboat.

# 4 ANALYSIS

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.

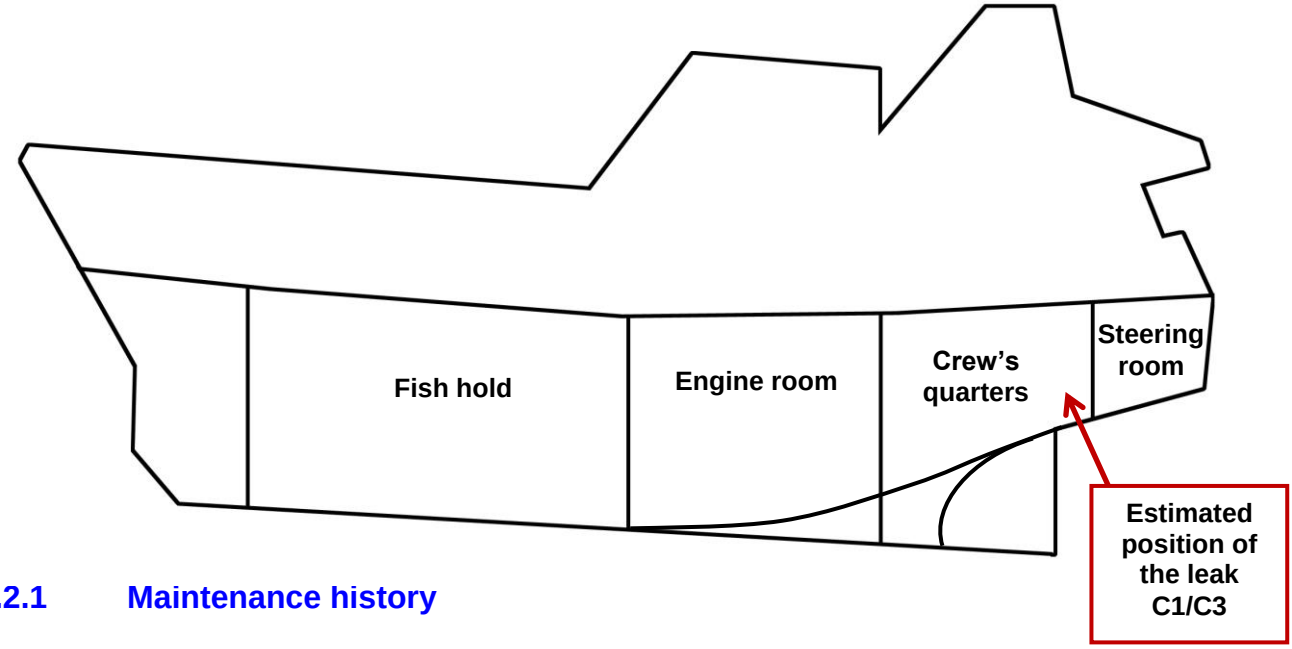
## 4.1 Natural factors

There were adverse weather conditions (cf. appendix D).

These conditions constitute an **aggravating factor** of the initial failure leading to the foundering.

## 4.2 Material factors

### 4.2.0 Location of the leak aboard *PANAMERA*




### 4.2.1 Maintenance history

Various works, surveys and repairs had been done on the hull of *PANAMERA*, but due to the lack of technical information, it has only be possible to restore partially the sequence of works, and only after year 2000.

The main works, after year 2000, in chronological order are as follows:

| Date | Event | Type of works | Place of works |
|---|---|---|---|
| March 2001 | Stranding | Plating and water tank | Boulogne-sur-Mer |
| Juin 2009 | Following a thickness test | Replacement of defective sheets | Le Légué |
| Juin 2012 | Technical stop | Sanding and painting with epoxy primary and anti-fouling | Le Légué |
| Début 2013 | Technical stop | Repair of hatches coamings | Le Légué |
| Juin 2013 | Technical stop | Washing of the hull<br>Cleaning of the bilge beneath the lower berth in the crew's quarters | Le Légué |

**In March 2001**, as a result of a grounding on the British coast, the engine room had been flooded. The vessel had been towed to Boulogne-Sur-Mer and substantial repairs had been done on the under works, particularly in the area impacted by the grounding, from frame 7 (cf. appendix C).

It should be noted however that works had been done on the fresh water tanks located in the steering room at frame C1/C2. An insert had been welded close to the port fresh water tank, while a platting sheet had been replaced in the vicinity of the starboard tank. At the time of the foundering the port tank was empty.

**For the record**, i**n 2000**, after a hull thickness test, sheets of plating had been replaced close to the port fresh water tank on board the trawler *SCUDERIA*, sister-ship built on the same year than *PANAMERA*.

This area seems thus to be particularly subjected to corrosion effects and fatigue in the hull structure.

**In June 2009**, a hull thickness measure had been done by the Oceanic Expertise Company located at Le Guilvinec (France). This survey highlighted some weaknesses in an area quite close to the failure area:

- between 3 to 5 m from the aft perpendicular (C 2.5 to C 4.5), the loss of thickness on the side and bilge plating on the portside can be of more than 20 % of the original thickness (up to 47 %);
- between the steering room bulkhead and frame C 4.5 located at 5 m from the aft perpendicular, beneath the crew's quarters, the port and starboard plating loss of thickness can be of more than 20 % of the original thickness (up to 47 %);
- between 8 and 10 m from the aft perpendicular (C 8.5 to 9.5), the port garboard strake loss of thickness in some localised areas can be of more than 20 % of the original thickness (up to 25 %).

A part of the defective sheets had been replaced by the shipyard of Le Légué at the end of year 2009. A dry-dock inspection was done by Bureau Veritas on 22 and 24 December 2009.

The under works were not subjected to a specific complementary survey.

The free-board certificate was issued on 5 January 2010, valid until 22 December 2010.

**In June 2012**, during the annual technical stop at port of Le Légué, a sanding of the under works was carried out by the Esp Company from Brest. Two layers of epoxy primary and anti-fouling were applied.

No deterioration of the under works had been visually observed during this operation.

**On 29 April 2013**, During the annual visit done by Bureau Veritas in the port of Roscoff, it has been noted by the latter that the repair of the hatchway coamings of emergency escapes located on the after deck, was satisfactory thanks to the steel doubling plates put in place. Indeed, before this work, water ingress were recurring by through the escape hatches.

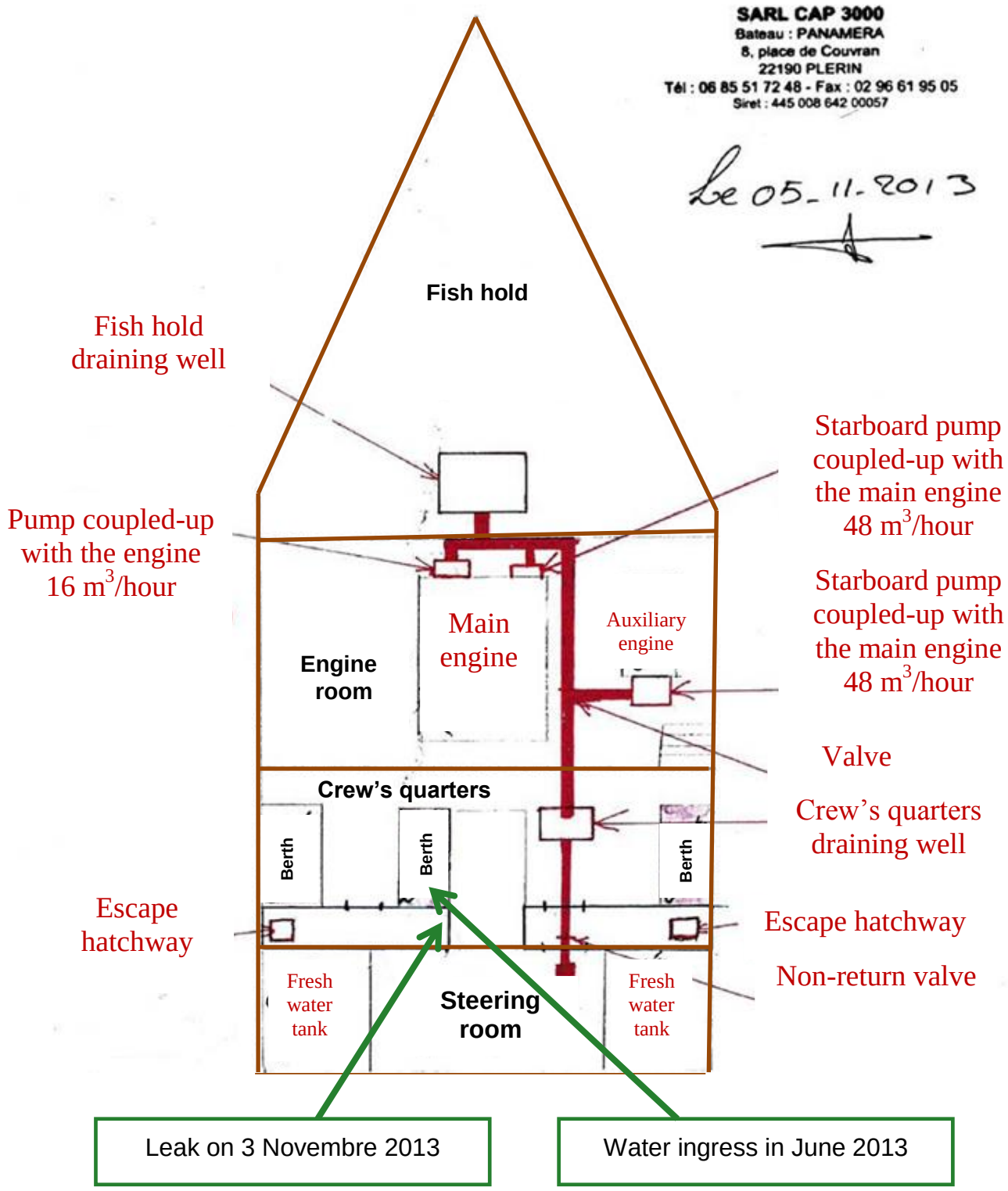
**In June 2013**, during the annual technical stop at port of Le Légué, the same company from Brest carried out a high-pressure washing of the hull. No deterioration of the under works had been observed.

**On 24 June 2013**, During the annual visit done by *Centre de sécurité des navires*, (Vessel Safety Centre) the inspector reported that the lower part of the basement of the lower port berth in the crew's quarters was seriously deteriorated, due to a water ingress from the fishing deck (water ingress sorted out and former mattress support replaced). The former mattress support was still partly present in the bilge. This space had to be dried and cleaned in order to get sound again. This cleaning had been carried out by the shipyard of Le Légué (invoice 5047 on 1st July 2013).

The crack was not located beneath the berth, but in the space (escape hatchway) located between the watertight bulkhead of the steering room, the crew's quarters and the wooden bulkhead at the end of the starboard berth (cf. the drawing thereafter).

Plan d'asséchement du navire PANAMERA

## ***Draining plan***



### 4.2.2 Maintenance monitoring

Good practices include, for any ship-owner, monitoring or subcontracting the monitoring of the condition of his vessel and to take particular care of the hull and related structures (plating, floor, longitudinal …).

As a summary of the maintenance history drawn in 4.2.1, the available technical documentation offers little indication about the nature and exact scope of the works achieved. The suspected area C1 – C3 does not seem to have been subjected to works or preventive survey.

The insufficiently preventive monitoring of the vessel maintenance constitutes an **underlying factor** of the accident.

### 4.2.3 Faulty welds, corrosions, fatigues

#### Faulty welds due to building deficiency

These faults are always possible as soon as a comprehensive check of the welds is not systematic. Inclusions, lacks of penetration, undercuts could have been dormant for years and awaken by new constraints (vibrations, vessel's movements, various constraints …) and result in breaks and cracks of the material.

#### Corrosions

An alert had been raised after the thickness test of the plating in June 2009: an around 50 % thickness loss on the port and starboard plating in the area C3/C5, had been observed. If the replacement of the critical areas had been actually carried out, there does not appear to be any research on the causes of this anomaly.

It should be noted that corrosion did not arise only on sheets but also on welds which condition is not mentioned in the provider's report.

In addition, the condition of the internal structures is not mentioned in the provider's report (no comment, or this aspect was not part of the service).

Sacrificial anodes are there to protect from corrosion, particularly in the afterbody area where several metals can be found (propeller, rudder blade/stock, nozzle, and

sternpost). How effective were these anodes? Were they in sufficient number? It is interesting to note that the initial water ingress was located in the area C1/C3, above the nozzle.

#### Fatigue of the hull

In this afterbody area, there are numerous mechanical stresses and the metal can, after many years of use, lose its elasticity and become brittle, fragile.

#### Sum of the three above assumptions

This is the most common case: a break can occur close to a structure and result in other cracks/breaks in a nearby area which is itself faulty. Breaks of the plating on cargo vessels are an example.

The sum of these elements, without knowing precisely their respective share, is assessed to be the **causal factor** of the foundering.

### 4.2.3 Development of the crack

#### The crack extended

The crack reported as initial extended due to stresses suffered by the afterbody of the vessel (propulsion, vibrations, sea state) joining other weak points of the structure, resulting thus in a break which became a breach, which would explain partly the inefficiency of the wedge put in place around 11.00 pm.

#### Putting in place the wedge (wooden plug)

The lack of holding of the wedge can be explained also by the thickness of the metal edges of the crack which was too thin: the more the wedge was inserted, the wider became the crack, the opposite results from those sought (which was feared by the skipper…).

The plugging device had been efficient for a very short time. A ready-for-use emergency device would have been more convenient.

### 4.2.4 Leak rate

By applying the formula Lpm = 2.08 x A x $\sqrt{H}$:

Lpm = Litres per minute,

Lph = Litres per hour,

A = surface in $cm^2$ (5 x 5 x 3.14) = 78.5 $cm^2$ (approx.),

H = depth, in centimetre, at which the breach was located (approx. 110),

2.08 = coefficient adopted for calculating,

Lpm = 2.08 x 78.5 x 10.488088 = 1712.62 litres/mn,

Lph = 1712.62 x 60 = 102757 litres/h i.e. a little more than 102 $m^3$/h.

Calculations show that the bilge pump with a 48 $m^3$/h capacity and the two electrical pumps with a 9 $m^3$/h capacity each, did not allow to deal with the flooding any more.

On the other hand, the support of the motor pump (46.2 $m^3$/h), which had operate only for a short time, could maybe have allowed to cope with the leak before the situation became irreversible.

### 4.2.5 The flooding of the steering room

#### 4.2.5.1 The filling through the crack

The crack reported as initial should have extended up to the steering room, resulting in its progressive flooding, and thus the little reserve buoyancy, remaining after the crew's quarters had been flooded, got lost.

The tear grew wider over the time, due to the stresses caused by the poor weather conditions, due to the sum of weaknesses of the bounding with the structures, of the corrosion of the bottom plating caused by the ingress of seawater through the base of the escape hatch coamings and of external corrosion.

The reserve buoyancy of the vessel was 42 $m^3$; the floodable volume of the crew's quarters was 39 $m^3$ and the one of the steering room 8 $m^3$. The flooding of these two compartments can explain the foundering of the vessel.

#### 4.2.5.2 The complementary filling by the bilge draining circuit

The water draining system located in the steering room was working by gravity with pipes passing forward through the watertight bulkhead steering room/crew's quarters. This circuit was made of a suction strainer located on the steering room floor, at the base of the bulkhead. This strainer was connected with the draining well by a pipe.

This circuit was interrupted by a disconnecting non-return valve, which controlled the water flow. It was manoeuvred vertically with a cable rolled on a small reel.

According to the chief engineer, this system was set so that water run off continuously. He had never operated the disconnecting valve.

The filling of the steering room through the draining system seems though unlikely.

Conclusion:

The filling of the steering room through the crack which extended constitutes a **contributing factor** of the accident.

### 4.2.6 Assumption of a collision with a container

This assumption is not retained because the impact point under the counter stern of the trawler is unlikely due to the situation of a submerged container.

### 4.2.7 Assumption of a collision with an otter board

A collision with an otter board, during its hauling in, is *a priori* excluded taking into account the low probability of an impact under the counter stern.

## 4.3 Human factor

### Monitoring of the hull

After the plating thickness test in 2009 highlighting deep and localised corrosions, except for three inserts put in place in the damaged areas, *BEA*mer is surprised that neither a research to find out the cause of this aggression had been carried out nor any specific survey agenda built-up.

Likewise the efficiency of the cathodic protection was not checked.

For the record, the shipowner or the operator must keep the ship and its equipments in compliance with the general “safety” rules (art. L5241-2 of the Code of transports).

### Vessel operation

Observing that the water ingress persisted, the skipper’s original idea to head for Falmouth, a sheltered port, with an important, well equipped and available shipyard, was appropriate.

# 5 CONCLUSIONS

The foundering of *PANAMERA* off the coast of Cornwall (UK) was due to the flooding of the crew’s quarters as the result of the weakness of the hull, which had been initially contained, then worsened very quickly before it became irreversible despite the attempts to fother the leak and to drain.

The flooding of the crew’s quarters, alone, could not lead to the wreck. The flooding of the steering room precipitated the event.

The assumption of a collision with a submerged object or with an otter board seems to be unlikely taking into account the location of the initial fissure (counter stern, close to the longitudinal axis).

# 6 LESSONS AND RECOMMENDATIONS

## 6.1 Lessons

**To ship-owners of fishing vessels:**

1 - **2014-E-072**: the monitoring of the hull condition of fishing vessels owned by ship-owners which do not have an own know how must be given for checkings and works to shipyards recognized by professionals for their skills.

**To skippers of fishing vessels:**

2 - **2014-E-073**: In case of events that could result in critical situations, it is advisable to head for a shelter as soon as possible.

3 - **2014-E-074**: Safety drills, including leak-fighting, should be carried out periodically. The possibilities and limits of the leak-fighting means must particularly be known.

**To all parties involved in the maintenance of the ship (ship-owner, Bureau Veritas, administration, shipyard):**

4 - **2014-E-075**:
It is not enough to be satisfied with conforming to his own prerogative. Besides, each one should cooperate with the others in the aim of the best maintenance of the ship.

## 6.2 Recommendations

*BEA*mer recommends:

**To *administration des Affaires Maritimes* (French maritime administration):**

1 - **2014-R-031**: Make the regulation evolve in order to improve and detail the equipment which should be on board fishing vessels to seal the breaches, in order to cope with any kinds of leak.

2 - **2014-R-032**: Make the regulation evolve in order to strengthen the controls of the hull of the old fishing vessels made of steel.

# LISTE DES ANNEXES
## *APPENDIX LIST*

**A. Liste des abréviations**
***Abbreviation list***

**B. Décision d'enquête**
***Enquiry decision***

**C. Dossier navire**
***Vessel file***

**D. Analyse METEO FRANCE**
***MÉTÉO FRANCE Analysis***

**E. Carte**
***Chart***

# Annexe A
# *Appendix A*

## Liste des abréviations
## *Abbreviation list*

| | | |
|---|---|---|
| ***BEA*mer** | : | Bureau d'enquêtes sur les évènements de mer |
| **CRO** | : | Certificat Restreint d'Opérateur |
| **CROSS** | : | Centre Régional Opérationnel de Surveillance et de Sauvetage |
| **MRCC** | : | Maritime Rescue Coordination Center |

# Annexe B
# *Appendix B*

## Décision d'enquête
## *Enquiry decision*

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

Bureau d'enquêtes sur
les événements de mer

Paris, le **05 NOV. 2013**

N/réf. : BEAmer **0015**

**Décision**

**Le Directeur du Bureau d'enquêtes sur les événements de mer (BEAmer) ;**

**Vu** le code des transports, notamment ses articles L1621-1 à L1622-2 ;

**Vu** le décret n° 2004-85 du 26 janvier 2004 modifié relatif aux enquêtes techniques après événement de mer, accident ou incident de transport terrestre ;

**Vu** le décret du 2 août 2012 portant nomination du Directeur du Bureau d'enquêtes sur les évènements de mer ;

**Vu** le SITREP SAR 1472 établi le 03 novembre 2013 par le CROSS Corsen ;

**DÉCIDE**

**Article 1** : En application de l'article L1621-1 à L1622-2 du code des transports, une enquête technique est ouverte concernant la voie d'eau, ayant conduit au naufrage du chalutier *PANAMERA* immatriculé 722246 à Paimpol, survenu dans la nuit du 02 au 03 novembre 2013 au sud-ouest du cap Lizard.

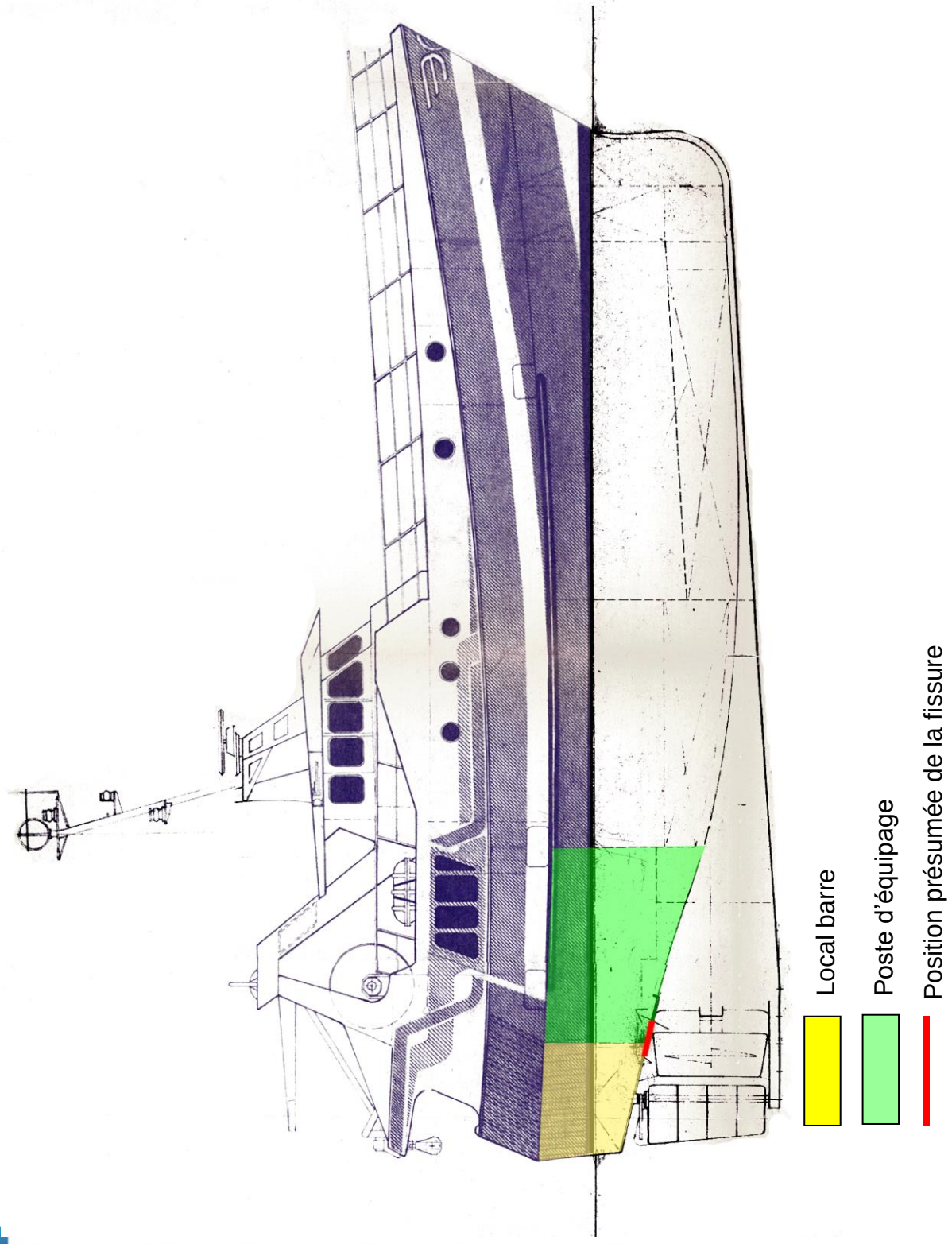
**Article 2** : Elle aura pour but de rechercher les causes et de tirer les enseignements que cet événement comporte pour la sécurité maritime, et sera menée dans le respect des textes applicables, notamment les articles du code des transports susvisés et la résolution MSC 255 (84) de l'Organisation Maritime Internationale.

Ministère de l'Écologie,
du Développement durable
et de l'Énergie
BEAmer
Tour Pascal B
92055 LA DEFENSE CEDEX
téléphone : 33 (0) 1 40 81 38 24
télécopie : 33 (0) 1 40 81 38 42
Bea-Mer@developpement-durable.gouv.fr

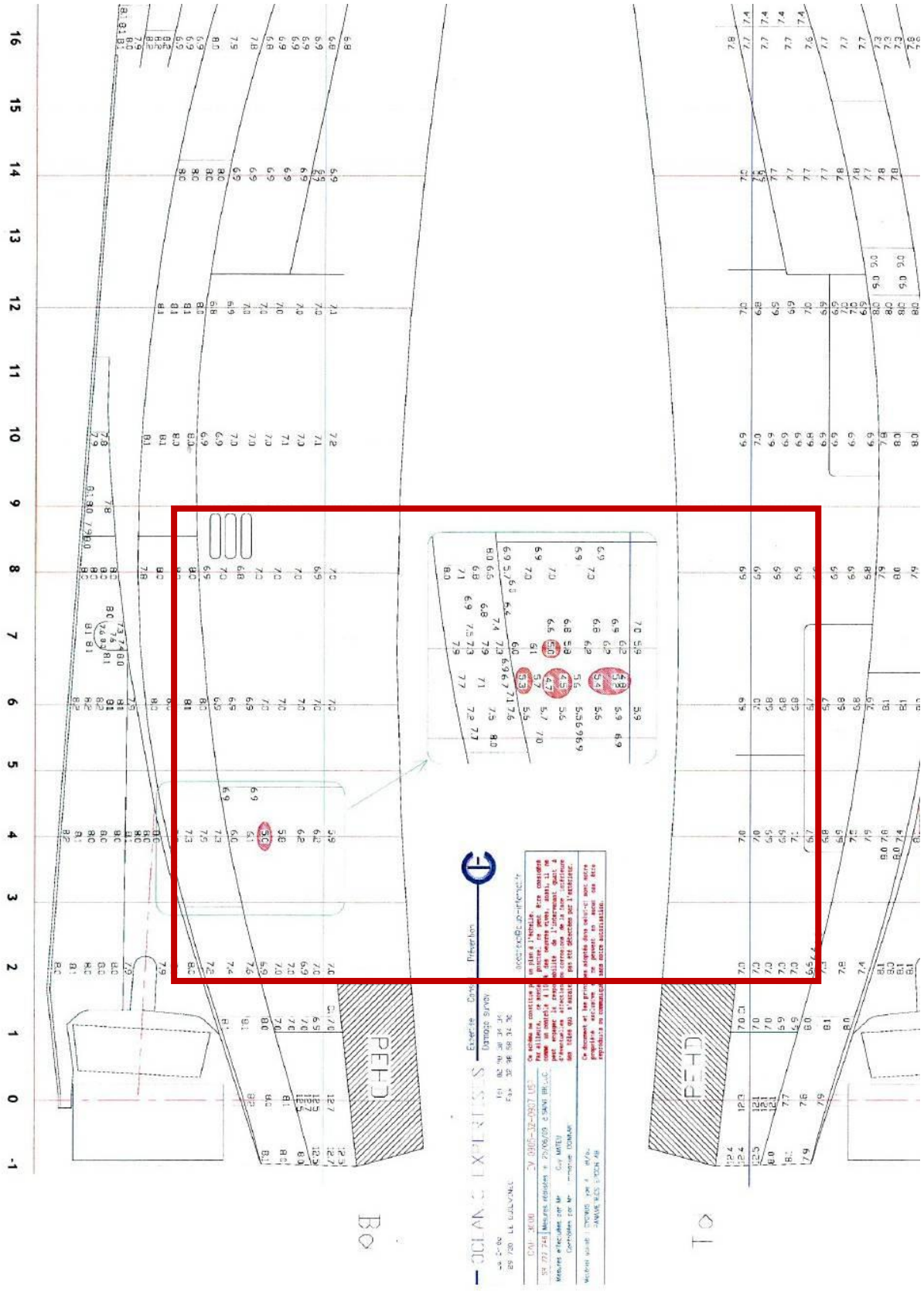
L'administrateur en chef de 1ère classe des Affaires maritimes
Philippe LAINÉ
Directeur-adjoint du BEAmer

# Annexe C
# *Appendix C*

## Dossier navire
## *Vessel File*

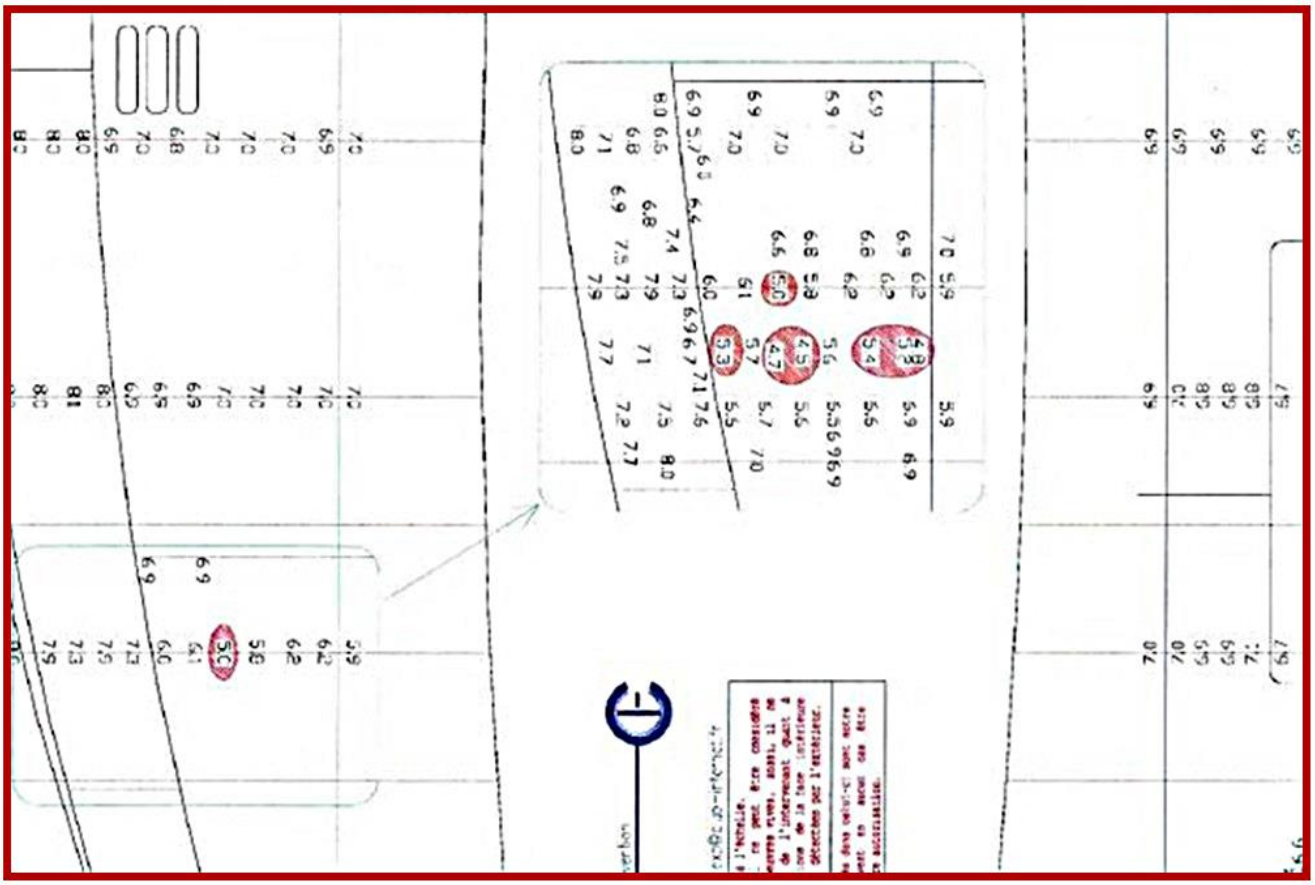


## Mesures d'épaisseur de coque par ultrasons (juin 2009)
## *Ultrasonic thickness gauging survey of the hull (June 2009)*

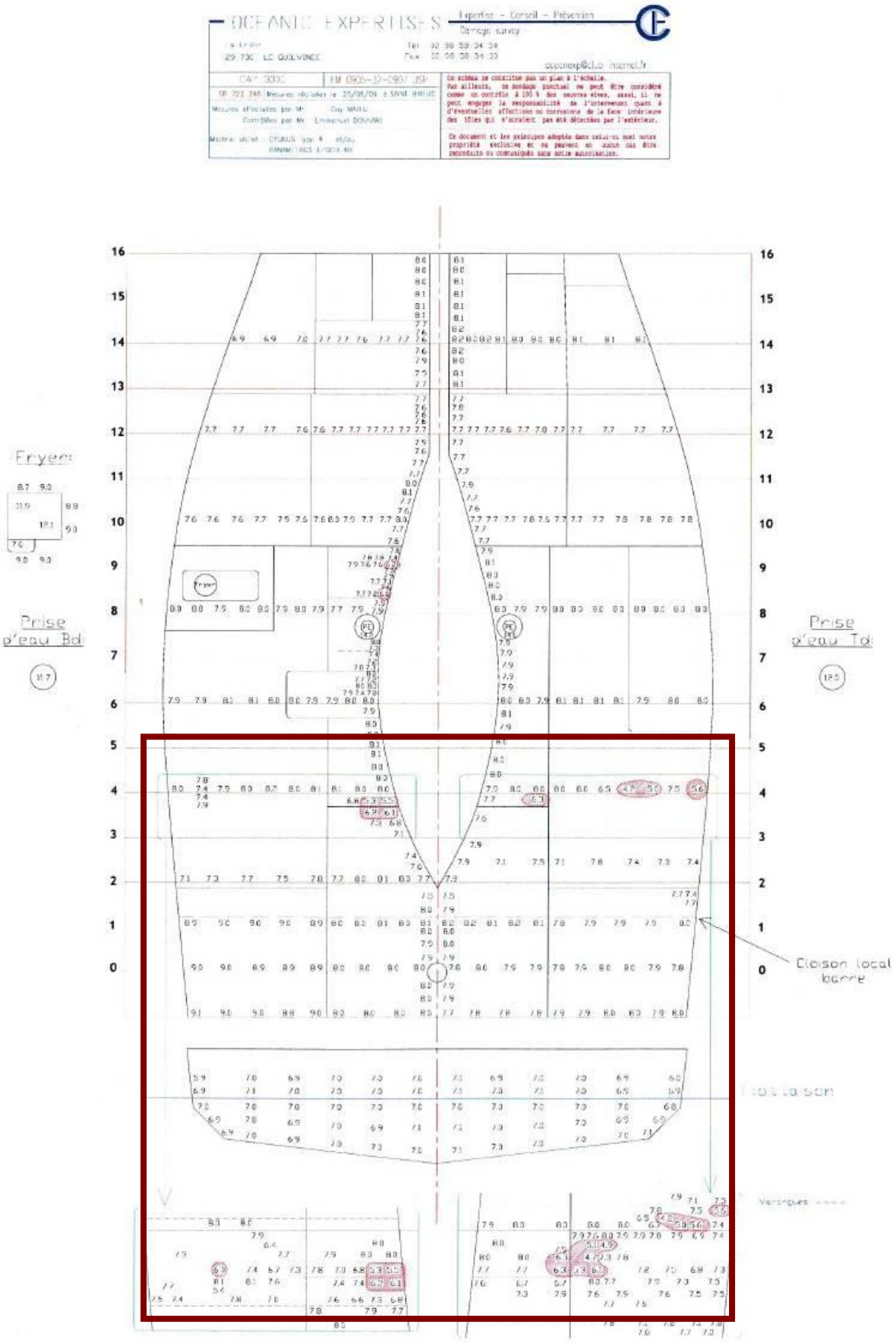


**Agrandissement de la zone figurant en page 28,**
**comportant des valeurs anormales d'épaisseur de coque**

***Zoom on the area marked out on page 28,***
***displaying abnormal values of the hull thickness***

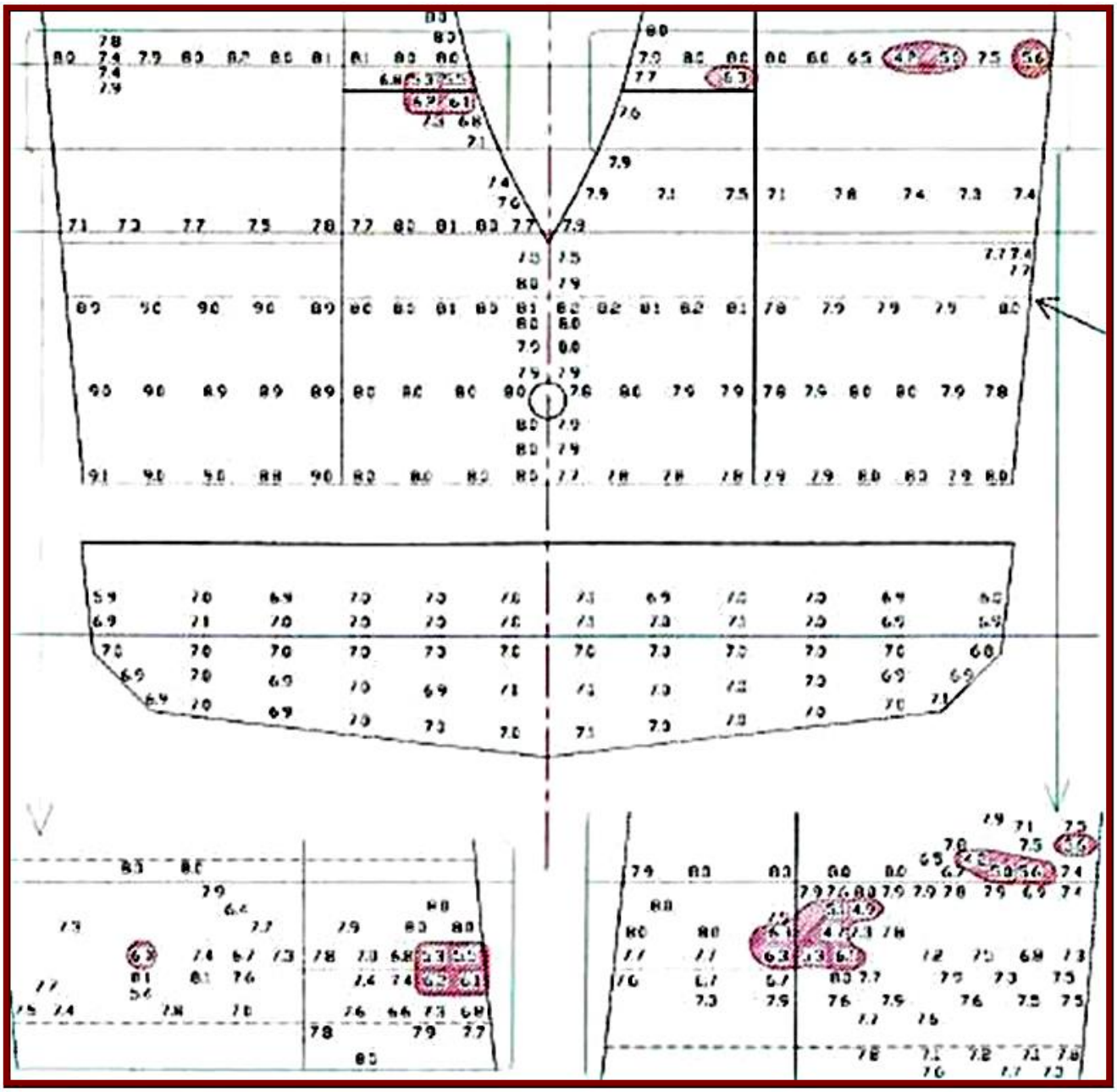


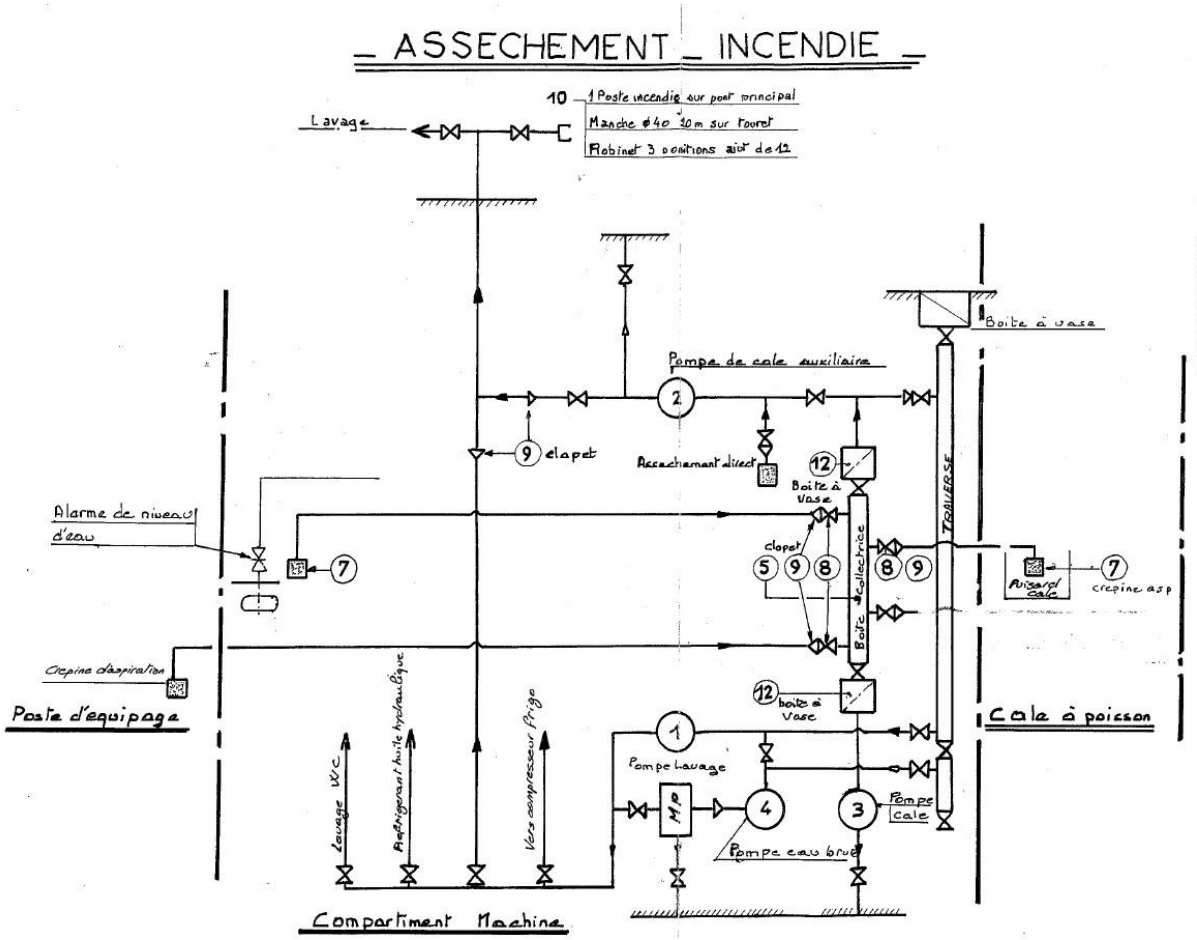
## Mesures d'épaisseur de coque par ultrasons (juin 2009)
## *Ultrasonic thickness gauging survey of the hull (June 2009)*



**Agrandissement de la zone figurant en page 30,**
**comportant des valeurs anormales d'épaisseur de coque**

***Zoom on the area marked out on page 30,***
***displaying abnormal values of the hull thickness***





## Travaux réalisés par la société SOCARENAM à Boulogne-sur-Mer (extraits)
## *Works achieved by the company SOCARENAM at Boulogne-sur-Mer (extracts)*

**SOCARENAM** *N.Réf. PL/SD/73*

***Travaux sur tôles de bordé endommagées***

**** BORDE TRIBORD***

*- Dépose et remplacement plat d'étrave avant formé du cple 33 au cple35 soit plat 200 ép 30m/m, longueur 2m env.*
*- Dépose et remplacement plat de quille du cple 29 au cple 33 soit plat 200 ép 30m/m, longueur 2m et du couple 24 au cple 26 soit plat 200 ép 30 m/m, longueur 1m.*
*- Dépose et remplacement 1ère tôle du cple 32 au cple 35 soit 1 tôle 1,50m x 0,60m, ép 8m/m.*
*- Dépose et remplacement 2ème tôle du couple 26 au couple 35 soit 1 tôle 4,70m x 0.75m, ép 8 m/m*
*- Dépose et remplacement 3ème tôle du cple 26 au cple 35 soit 1 tôle 4,70m x 0,75m, ép 8 m/m.*
*- Dépose et remplacement 4ème tôle du cple 24 au cple 35 soit 1 tôle 4,20m x 0,70m, ép 7m/m (tôle de Bouchain), avec remplacement partiel par insert d'une varangue.*
*- Dépose et remplacement 4ème tôle du cple 14 au cple 20 soit 1 tôle 3m x 0,80m, ép 7m/m (tôle de Bouchain), avec remplacement partiel d'une membrure.*
*- Dépose et remplacement 5ème tôle du cple 25 au cple 35 soit 1 tôle 5,50m x 1,10m, ép 7m/m.*
*- Dépose et remplacement en insert de la 5ème tôle du cple 19 au cple 25 soit 1 tôle 3m x 0.80m, ép 7 m/m et du cple 7 au cple 14 soit 1 tôle 3,50 x 0,80, ép 7 m/m, avec dévaigrage préalable poste équipage du cple 6 au cple 9.*
*- Dépose et remplacement de la quille de roulis du cple 9 au cple 21 soit 1 tôle 6m x 0,25m,ép 8 m/m et plat de 100, ép 10 m/m.*
*- Dépose et remplacement tôle de fond par insert largeur 0,600 m du cple 10 au cple 19 soit 1 tôle 4,50m x 0,60 m, ép 8 m/m.*
*- Dépose et remplacement tôle de fond du cple 16 au cple 26 avec remplacement partiel par insert de 2 varangues.*
*- Dépose et remplacement tôle de dérive du cple 17 au cple 20 soit 1 tôle 1,60m x 0,60m, ép 8 m/m.*
*- Dépose du carénage du sonar soudé sur la quille, sonar non remonté à la repose.*
*- Dépose et remplacement par insert tôle de dérive entre cple 11 et 12 soit 1 tôle 0,60m x 0,60m, ép 8 m/m/*
*- Rechargement et meulage du chan du plat de quille aux différentes zones endommagées.*

**** BORDE BABORD***

*- Dépose et remplacement 1ère tôle du cple 26 au cple 29 soit 1 tôle 1,50m x 0,65m, ép 8 m/m.*
*- Dépose et remplacement 2ème tôle du cple 32 au cple 35 soit 1 tôle 1,50m x 0,60m, ép 8 m/m.*
*- Dépose et remplacement 2ème tôle du cple 26 au cple 29 soit 1 tôle 1,50m x 0,65m, ép 8 m/m.*
*- Dépose et remplacement tôle de fond du cple 19 au cple 26 soit 1 tôle 2,50m x 2,50m, ép 8 m/m, avec remplacement partiel par insert de 7 varangues et de la cloison machine.*
*- Dépose et remplacement par insert tôle de fond du cple 16 au cple 19 soit 1 tôle 1,50m x 0,90m, ép 8 m/m, avec confection d'ouvertures pour FRYER et remplacement partiel par insert d'une cloison du caisson FRYER..*
*- Dépose et remplacement 4ème tôle du cple 24 au cple 28 à la soudure soit 1 tôle 2,50mx0,70m, ép 7 m/m (tôle de Bouchain).*
*- Dépose et remplacement tôle de dérive du cple 17 au cple 19 soit 1 tôle 1,10m x 0,60m, ép8 m/m.*
*- Dépose de 2 carénages de sondeur endommagés et remplacement de l'un des 2 carénages par un neuf et contrôle étanchéité du 2ème.*

***TRAVAUX CUVE A EAU AR Bd et Td***

*- Cuve AR Bd : pose insert portant sur 2 couples au niveau d'une réparation par soudure.*
*- Cuve AR Td : remplacement tôle de bordé et demi-rond acier de protection.*

# Annexe D
# *Appendix D*

## Analyse MÉTÉO France
## *MÉTÉO FRANCE analysis*

METEO FRANCE
Toujours un temps d'avance

**Direction de la Prévision**
**Division Marine & Océanographie**

**CERTIFICAT D'INTEMPERIE EN MER – Page 3 sur 3**

**PERIODE** : Nuit du 2 au 3 novembre 2013 de 18h UTC (le 02/11) à 06h UTC le 3 et en particulier autour de 02h20 UTC

**ANALYSE** : au plus près du point 49°37,'60 N / 004°37'.39 W (position du naufrage)
Zone « large » concernée : « OUESSANT »

*Attention ! En raison de la variabilité des éléments météorologiques dans l'espace et dans le temps et des limites des techniques d'observation et d'analyse,* ***l'analyse fournie n'est que la plus probable.***

*Suite de : « Certificat d'Intempérie en Mer – Page 3/3 »*

**En conséquence, mon avis d'expert météorologique, établi sur la base des éléments contenus dans ce rapport est le suivant :**

**Du fait des mauvaises conditions météorologiques prévues, les BMS n°426, 427 et 428 ont été émis respectivement le 01/11 à 16h02 UTC, les 02/11 à 05h13 et 15h53 et concernent entre autre la zone OUESSANT.**

**Au moment du naufrage, autour de 02h20 UTC (03h20 locales), l'estimation la plus probable est un vent moyen d'Ouest-nord-ouest soufflant de 25 à 32 nœuds (6 à 7B) avec des rafales associées fortes à très fortes de l'ordre de 38 à 41 nœuds. La mer totale est très forte de hauteur significative (H1/3) comprise entre 4 et 5 m. La période moyenne est de 10 secondes. La hauteur maximale (Hmax) la plus probable des vagues est alors estimée de 7,50 à 9,50 mètres.**
**Le ciel est le plus souvent très nuageux avec des averses modérées. Sous les paquets nuageux les plus actifs des grains sont probables et parfois sont orageux. Les visibilités sont moyennes en général, mais mauvaises sous les précipitations.**

**Le chargé d'expertise (Météo France)**

**FIN**



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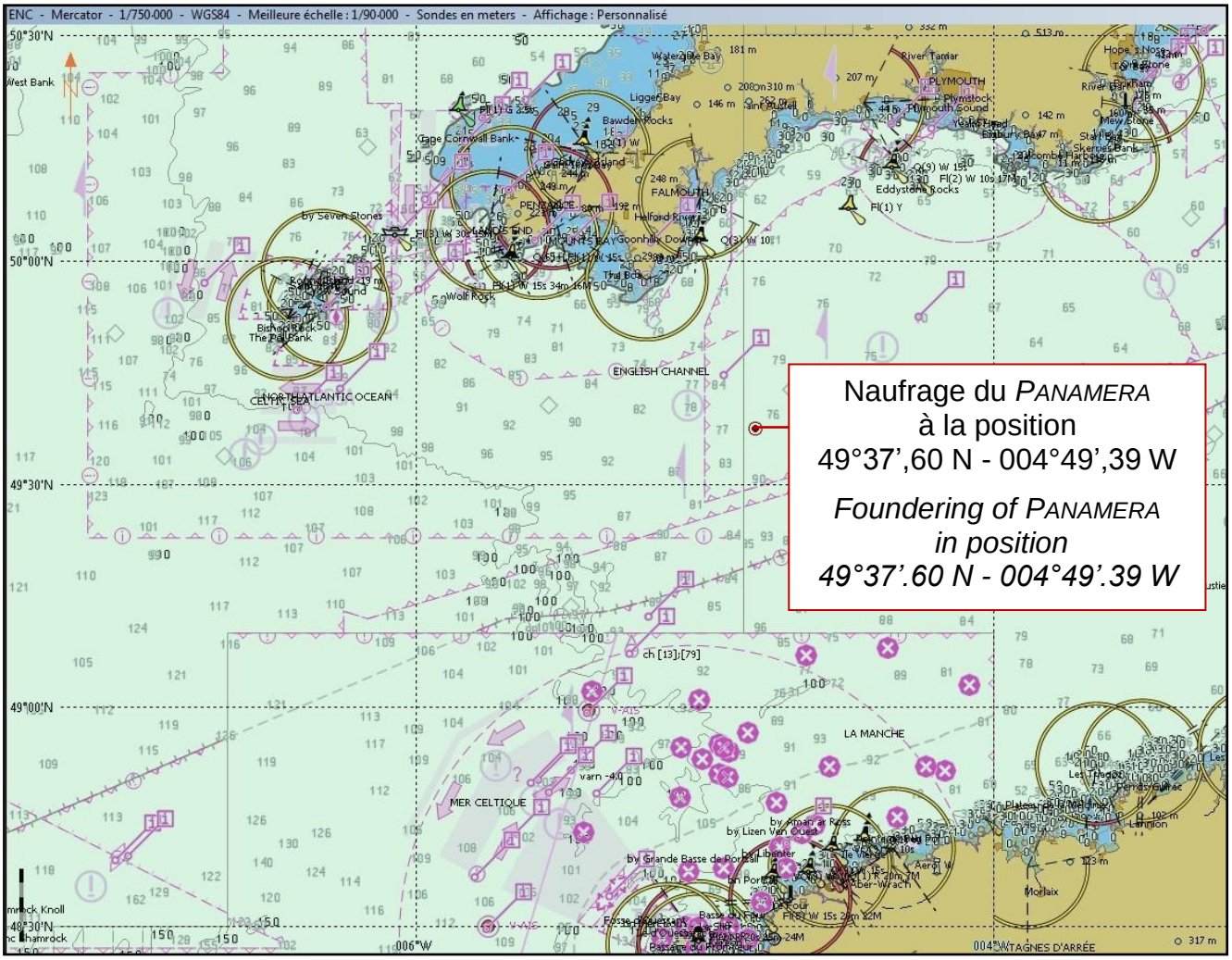
**Direction de la Prévision, Division « Marine et Océanographie »**
42, Avenue G. Coriolis, 31057 Toulouse Cedex
Téléphone : +33 (0)5 61 07 82 40, Télécopie : +33 (0)5 61 07 82 09, http://www.meteo.fr/marine

# Annexe E
# *Appendix E*

## Carte
## *Chart*




**Ministère de l'Écologie, du Développement durable et de l'Énergie**

# Bureau d'enquêtes sur les évènements de mer

**Tour Pascal B - 92055 La Défense cedex**
**téléphone : +33 (0) 1 40 81 38 24 - télécopie : +33 (0) 1 40 81 38 42**
**www.beamer-france.org**
**bea-mer@developpement-durable.gouv.fr**