

## Marine Notice No. 26 of 2008

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### Stability of <25GT fishing vessels fitted with blast freezers on deck

TO OWNERS, SKIPPERS, MANAGERS AND OPERATORS OF <25GT FISHING VESSELS WITH BLAST FREEZERS ON DECK, NAVAL ARCHITECTS AND PRINCIPAL OFFICERS

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#### *Summary*

As a result of the capsizing of three <25GT fishing vessels fitted with blast freezers on deck which resulted in the loss of 27 lives SAMS initiated a project to investigate the stability of this type of vessel. During the project a fourth vessel capsized, fortunately without loss of life. This marine notice alerts industry to the findings of the investigation and advises owners to validate the stability of this type of vessel.

### 1 Background

Between 1999 and 2008 four fishing vessels engaged in the squid industry have capsized with the loss of 27 crew members.

After the third vessel capsized research was conducted and five common threads were identified;

- § All vessels were <25GT;
- § All vessels were fitted with blast freezers on deck;
- § All vessels capsized in gale force weather conditions;
- § All vessels sank in the Port St Francis area, three within 1 nautical mile area;
- § Two vessels had fish in the blast freezer, one vessel did not have fish in the blast freezer and the status of one vessel is unknown.

### 2 SAMS Response

External naval architects were appointed to investigate the stability of these vessels with the following terms of reference:

- § Did the vessel have a positive GM at the time of the incident?
- § What was the effect on righting lever of the weather and the anchor chain?
- § What effect did the catch in the blast freezer have on the vessel's stability?
- § If there had been no blast freezer, would the vessel have capsized?
- § Could there have been an instantaneous loss of stability, if the vessel encountered "white water"?

### 3 The findings

The calculations indicated that;

- § The stability at the time of the incident, with no weather forces included, failed to meet 3 of the

5 minimum criteria, but by a very small margin which alone was not enough to make the vessel capsize;

- § The righting lever at the time of the incident was greatly reduced when the effects of severe wind loading were applied.
- § Assuming that the blast freezer was removed, with no weather conditions applied the calculations indicated that the vessel met and exceeded all the minimum criteria.

It should be noted that lack of stability was not the only reason that the vessels capsized, other factors noted are;

- § The vessels were too close to shore in the prevailing weather conditions;
- § The weather conditions were extreme, although not unusual for the area.

While all three factors are causal to the incidents, the vessel has to have a sufficient reserve of positive stability to be able to withstand these conditions.

A workshop was recently held with industry where it was agreed that industry and SAMSA would work together to resolve this problem.

## **4 The Way Forward**

### **4.1 New building**

In determining the volume of the vessel, the blast freezer will be included in the measurement of the vessel.

In the event that the vessel is still considered to be <25GT the following procedure will be adopted.

SAMSA will not approve the construction plans of any vessel fitted with a blast freezer on deck unless compliance with the *Merchant Shipping (National Small Vessel Regulations), 2007* can be demonstrated, in particular Regulation 6.1(a) which reads as follows:

#### **“Design and construction of vessels**

*6. 1 (a) Every vessel must be constructed of suitable materials of good quality, with due regard to sound design practice and methods of construction and under normal operating conditions the design must provide sufficient reserve of positive stability so that the vessel cannot capsize easily when carrying a load.”*

This means that a vessel to be constructed will be required to produce a full stability book, including a “worse case” condition, i.e. slack tanks, no fish in the fish hold, 50% of the blast freezer capacity loaded with catch, spare pans stowed in the fish hold.

The first Local General Safety Certificate will not be issued until this condition has been met.

### **4.2 Existing vessels**

Owners are strongly advised to validate that vessels meet the requirements of Regulation 6.1(a) and have a sufficient reserve of positive stability. This is especially pertinent to vessels that are fitted with what industry has described as “oversized boxes”. Current industry thinking is that the maximum blast freezer capacity required is approximately 1.5 tonnes. SAMSA is aware that there are vessels operating with blast freezers that can hold 3 tonnes, which if filled to capacity, with little or no fish in the fish hold, significantly reduces the reserve of positive stability.

During the survey of a vessel for the issue of a Local General Safety Certificate, the surveyor will

call for validation of stability.

In order to cause the least disruption to industry, vessels with a blast freezer capacity in excess 1.5 tonnes (150 pans) will be inspected during the “close season” commencing 23 July 2008, it is therefore recommended that the *stability validation*\* is undertaken during this four week period.

Vessels with a blast freezer capacity of 1.5 tonnes or less will have to prove compliance by the end of the “close season” in late November 2008.

\**Stability validation* involves the following – Inclining the vessel and having a stability book drawn up (including the “worst case” condition).

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