



# Tilsynsrapport

Rapport	
Rapporttittel <b>Report after AoC-verification Safe Scandinavia – marine systems</b>	Aktivitetsnummer 60E20

Gradering		
<input checked="" type="radio"/> Offentlig	<input type="radio"/> Begrenset	<input type="radio"/> Strengt fortrolig
<input type="radio"/> Unntatt offentlighet	<input type="radio"/> Fortrolig	

Involverte	
Hovedgruppe T-Flyttbare	Oppgaveleder Odd Rune Skilbrei
Deltakere i revisjonslaget Odd Rune Skilbrei, Leif J Dalsgaard, Bjørn Arstad	Dato 26.3.2007

## 1 Introduction

The Petroleum Safety Authority Norway (PSA) is currently handling Prosafe's application for acknowledgement of compliance (AoC) for the accommodation facility "Safe Scandinavia". PSA carried out, with assistance from the Norwegian Maritime Directorate (NMD), a verification regarding marine systems on "Safe Scandinavia" at the Keppel Norway yard in Sandnes March 22<sup>nd</sup> through 23<sup>rd</sup> 2007. The verification included load bearing structures, stability, ballast, water and weather tight integrity, and mooring systems. The verification was part of the ongoing handling of the application for AoC. The program for the verification was sent to Prosafe March 12<sup>th</sup> 2007.

## 2 Background

The facility is planned to be used as accommodation unit by Statoil in conjunction with the Snorre A facility from April to October 2007. Safe Scandinavia is planned to be moored alongside Snorre A, and connected to Snorre A by means of a walkway to provide accommodation for additional personnel involved in upgrade activity on Snorre A.

As preparation for the use of the facility on Snorre A, Safe Scandinavia entered a short yard stay at the Keppel Norway yard in Sandnes. This AoC-verification was carried out during that yard stay.

### **3 Goal**

The goal of the verification was to verify compliance with the HSE-regulations on NCS in connection with the ongoing handling of the application for AoC for the facility.

### **4 Results**

The verification activity revealed 10 non-conformities related to ballast system, stability and water-tight integrity.

We also identified 13 observations of areas of improvement.

Based on the number of non-conformities identified, it is our opinion that the general level of understanding of Norwegian regulations should be improved within the Prosafe organization.

Demonstration of the use of emergency operations with respect to ballast system and watertight integrity indicated that training related to operation of emergency procedures should be improved.

### **5 Observations**

PSA observations are generally communicated in two categories:

- Non-conformities: Observations with obvious infringement of regulatory requirements.
- Areas of improvement: Observations of subject areas with obvious shortcomings, yet not an established infringement of relevant regulation.

## 5.1 Non-conformities

### 5.1.1 Three ballast valves in longitudinal ballast main manifold

**Non-conformity:**

In the case of power loss these valves go to open position.

**Basis:**

The operator of ballast control panel informed us about this during the audit. In addition, we observed at the solenoid cabinet that three magnet coils for solenoids were energized when these ballast valves were closed. According to regulations such ballast valves shall go to closed position in the case of such failure mode

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 19 section 2.

### 5.1.2 Ballast valves might open inadvertently after power loss

**Non-conformity:**

Originally open ballast valves will open inadvertently when power is restored after a blackout of ballast control panel, if manual actions are not taken according to procedure during black-out.

**Basis:**

After a black-out condition all the ballast switches must be manually turned to “off” position to prevent opening of valves that were in open position prior to blackout, after power is restored. This was informed by the operator of the ballast control panel during the audit, and confirmed through review of the written procedure the operator uses on board and review of received control diagram.

Requirement; All ballast valves shall fail to closed position, and stay there until manually commanded open again by an intended act by the operator.

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 19 section 2.

### 5.1.3 Marking of ballast valves

**Non-conformity:**

Marking and local instructions for ballast valves in pontoon are inadequate.

**Basis:**

Observed during verification of pontoon interiors

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 13 section 1.

#### **5.1.4 Manual operation of ballast system**

**Non-conformity:**

Manual operation was not possible by means of manual pump in pontoon pump room.

**Basis:**

The personnel were not able to demonstrate the operation of the manual pump during the verification of pontoon interiors.

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 18

#### **5.1.5 Emergency operation of ballast pumps**

**Non-conformity:**

Ballast pumps can not be operated from emergency ballast control station, i.e. solenoid panel station.

**Basis:**

Observed during tour of the facility, and confirmed by personnel on board.

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 18

#### **5.1.6 Marking of connections for hand pump at ballast**

**Non-conformity:**

Some connections for hand pump at ballast valves were not marked with instruction label.

**Basis:**

This was observed during tour of facility.

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 22 section 1.

#### **5.1.7 Marking of ballast system valves**

**Non-conformity:**

The ballast system valves are not clearly marked with indication of open and closed position.

**Basis:**

This was observed during tour of facility. The current symbolic indication on the ballast valves is insufficient with respect to clearly indicating the state of the valve.

**Requirement:**

Framework Regulation § 3, NMD 879/91 – Ballast regulation § 13 section 1.

### **5.1.8 Indication of power source feeding ballast control panel**

**Non-conformity:**

There is no indication on the ballast control panel of which of the power sources that currently feeds the panel.

**Basis:**

This was observed during tour of Navigation Bridge, and confirmed by personnel onboard.

**Requirement:**

Framework regulations §3, NMD 897/91 Ballast regulations § 15 section 1 letter h

### **5.1.9 Water-tight integrity**

**Non-conformity:**

Closing of damper in water-tight vent (# 42) did not function at activation.

**Basis:**

We observed during function testing that this damper failed to close. The corresponding fan had to be manually shut off prior to initiating closing of damper for the damper to fully close.

**Requirement:**

Framework Regulation § 3, NMD 878/91 – Stability regulation § 18 section 3a.

### **5.1.10 Tanks to receive counter flooding on VCG-curves diagram**

**Non-conformity:**

Indication of dedicated tanks to receive counter flooding is missing from the diagram showing maximum VCG-curves.

**Basis:**

This was observed during review of the facility's VCG-curves diagrams.

**Requirement:**

Framework Regulation § 3, NMD 878/91 – Stability regulation § 49 section 3.

## **5.2 Areas of improvement**

### **5.2.1 Marking on panel for watertight doors**

**Area of improvement:**

The switch that places all watertight doors and hatches in emergency mode could benefit from clearer and more prominently displayed marking.

**Basis:**

This was observed during tour of Navigation Bridge

**Requirement:**

Framework regulations §3, NMD 878/91 Stability regulations § 38 section 3

### **5.2.2 Local marking and instructions of watertight doors**

**Area of improvement:**

The marking locally with respect to the watertight doors is not clearly displayed. On some of the doors the instructions are only visible when the door in question is in a certain position

**Basis:**

This was observed during tour of starboard column and pontoon.

**Requirement:**

Framework regulations §3, NMD 878/91 Stability regulations § 42

### **5.2.3 Battery-operated emergency lights**

**Area of improvement:**

Several missing battery-operated emergency lights in connection with water-tight doors, escape ways and emergency control stations.

**Basis:**

This was observed during tour of starboard column and pontoon

**Requirement:**

Framework regulations §3, NMD 856/87 Construction regulations § 12 section 1

### **5.2.4 Local alarms at watertight doors**

**Area of improvement:**

Alarms in connection with two watertight doors went off ambiguously and randomly due to problems with micro-switches.

**Basis:**

This was observed during entering of watertight doors during tour of starboard column and pontoon

**Requirement:**

Activity regulations § 42 about maintenance

### **5.2.5 Oil and debris in bottom of column and pump room**

**Area of improvement:**

Oil and debris located in bottom of columns and pump rooms

**Basis:**

This was observed during tour of starboard column and pontoon

### **5.2.6 Reference to correct version number of supporting documentation in AoC-application**

**Area of improvement:**

The AoC application refers to version 1 of the facility's stability analysis. A later version 2 of this analysis has been issued.

**Basis:**

This was observed during document review

**Requirement:**

Framework regulations § 21 with guidance

### **5.2.7 Marking of solenoid controls in emergency ballast control station**

**Area of improvement:**

Some identification tags are missing on solenoid controls in emergency ballast control station.

**Basis:**

This was observed during tour of emergency ballast control station

**Requirement:**

Framework regulations §3, NMD 897/91 Ballast regulations § 13 section 1

### **5.2.8 Instructions in local winch control station**

**Area of improvement:**

Instructions in local winch control cabin are small and not prominently displayed.

**Basis:**

This was observed during tour of local winch control station

**Requirement:**

Framework regulations §3, NMD 857/87 Anchoring regulations § 8

### **5.2.9 Local instructions and marking of ballast pumps**

**Area of improvement:**

Some local instructions and marking of pumps are too dirty, or worn, to be readable.

**Basis:**

This was observed during tour of starboard column and pontoon

**Requirement:**

Framework regulations §3, NMD 897/91 Ballast regulations § 13 section 1

### **5.2.10 Indication of weather-tight integrity in freeboard plan**

**Area of improvement:**

Freeboard plan does not indicate margin line for weather tight integrity.

**Basis:**

This was observed during document review

**Requirement:**

Framework regulations §3, NMD 878/91 Stability regulations § 49 section 3

### **5.2.11 Marking of air vents outside on main deck**

**Area of improvement:**

Some markings of air vents are inadequate. Some markings are also missing (fallen off).

**Basis:**

This was observed during tour of facility

**Requirement:**

Framework regulations §3, NMD 879/91 Ballast regulations § 13 section 2

### **5.2.12 Production standard of watertight doors**

**Area of improvement:**

The standard the two water tight doors that are re-classified from weather-tight to water-tight are designed according to, should be documented

**Basis:**

The standard used could not be identified during the audit

**Requirement:**

Framework regulations §3, NMD 878/91 Stability regulations §§ 30 and 34

### **5.2.13 Use of manually operated watertight doors on main deck column top entrances**

**Area of improvement:**

The reason for not choosing remotely operated water-tight doors in these locations should be considered for regulatory compliance with respect to amount of daily traffic through these doors.

**Basis:**

This was observed during tour of facility.

**Requirement:**

Framework regulations §3, NMD 878/91 Stability regulations § 33 section 2 letter b



## 6 Participants from the Petroleum Safety Authority

Odd Rune Skilbrei (Task leader) - structural integrity/ marine systems

Leif J Dalsgaard – structural integrity/ marine systems

Bjørn Arstad (NMD) – marine systems

## 7 Participants from Prosafe

NAME	FUNCTION	START-UP MEETING	SUMMARY MEETING
Ian Young	HSEQ Director - Prosafe	X	
Cameron Mew	HSEQ Manager - Prosafe	X	
Gerry Anderson	Safety Officer – Prosafe	X	
Andrew Brown	Master – Prosafe	X	X
Brian Cuthbertson	Chief Engineer – Prosafe	X	X
Clive Adshead	Director of Technical Service - Prosafe	X	
Martin Brown	Vessel Manager	X	X

## 8 Documents

The following documents were used during planning of the audit:

- Application for AoC for "Safe Scandinavia" - Prosafe
- Application for consent to use "Safe Scandinavia" at Snorre A - Statoil