



Cargo hold fire on board *BBC Baltic* at Port Hedland, Western Australia

26 January 2012

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- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

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Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.

FACTUAL INFORMATION

BBC Baltic

BBC Baltic (IMO No. 9427093) is a multi-purpose general cargo ship registered in Antigua and Barbuda (Figure 1). The ship was built in 2008 by Dalian Fishing Vessel Company, China and classed with Germanischer Lloyd (GL).

The ship has an overall length of 115.5 m, a moulded breadth of 16.5 m and a deadweight of 6,223 tonnes at its summer draught of 5.7 m. The multi-purpose ship can carry containers and/or general cargo. It has two cargo holds with three hatch covers. The cargo holds have a deck at about their mid-depth (a tween deck).

At the time of the incident, *BBC Baltic* was owned by Suderloog, operated by BBC Chartering & Logistics and managed by Briese Schifffahrts, all of Germany.

Figure 1: *BBC Baltic*



The incident

At 0715¹ on 26 January, *BBC Baltic* berthed at number two berth in Port Hedland, Western Australia. The cargo to be discharged from the ship comprised containers and 'break bulk project cargo' which consisted of large metal structures of various shapes and sizes that had been loaded in China.

At about 1010, two boilermakers and an assistant from Cervan Marine, a local engineering company, boarded the ship. The ship's chief mate showed them the welded steel stoppers (lugs) securing items of cargo on the hatch covers and explained which lugs he required them to cut off to allow the cargo to be discharged.

At 1040, the boilermakers, with their assistant helping, began cutting off the lugs. They were using two oxy-acetylene gas-cutting sets which they had brought with them. In preparation for the hot work, *BBC Baltic's* crew had placed two fire hoses and a fire extinguisher on the main deck near the hatch covers. The ship's fire pump(s) had not been started to pressurise the fire line to make immediate use of the fire hoses possible.

At 1300, the discharge of cargo from the hatch covers started and the Cervan Marine workers took a lunch break. Once the hatch covers were clear of cargo, the workers resumed cutting some remaining lugs off the covers.

By 1500, the boilermakers had completed cutting off the remaining lugs. The ship's crew then opened the hatch covers of number one cargo hold, which was to be discharged next. Lugs securing cargo in the hold would need to be cut off. In preparation for the hot work, the crew placed three fire hoses, two dry-powder fire extinguishers and a number of fire blankets in the hold.

At 1550, when the Cervan Marine workers returned from a break, the chief mate took them to number one cargo hold. He showed them the lugs securing cargo in the lower part of the hold which he required cut off. He also pointed out the fire-fighting equipment that had been prepared.

One of the boilermakers began preparing to cut off the lugs in the lower hold. The assistant lowered the gas-cutting hoses to him from the main deck where the oxygen and acetylene cylinders were located. The chief mate and the other boilermaker went up to the tween deck where the chief mate pointed out the lugs which he required cut off before leaving the cargo hold.

At about 1600, as the chief mate left the cargo hold, the boilermaker in the lower hold started gas-cutting. The assistant began lowering gas-cutting hoses to the other boilermaker on the tween deck. No fire watch had been established at the hot work site(s) inside the cargo hold.

By 1605, the boilermaker in the lower hold had cut off one of the lugs securing a large drum shaped structure located on the starboard side (Figure 2). There were two such screen drums in the after part of the hold, both covered with a tarpaulin. As the boilermaker moved to start cutting the other lug, he noticed a glow and realised that the tarpaulin cover was on fire. He yelled 'fire, fire!' and asked for water while attempting to stamp the fire out with his feet. The boilermaker on the tween deck, who had just started gas-cutting, heard the yells of 'fire' from below and immediately exited the cargo hold. The assistant on the main deck also heard the yells and he stood by there to help. None of the ship's crew was in the hold and no attempt was made to use a fire extinguisher or the other fire-fighting equipment that had been prepared.

At 1606, the chief mate saw smoke coming from number one cargo hold. He raised the alarm, alerted the ship's master via handheld radio and hurried to the hold. The master immediately went to *BBC Baltic's* navigation bridge to use the ship's radio to notify authorities ashore of the fire. He also notified the ship's local agent before leaving the bridge to co-ordinate the fire-fighting on deck. Both of the ship's fire pumps had now been started.

1 All times referred to in this report are local time, Coordinated Universal Time (UTC) + 8 hours.

At 1607, after being notified of the fire by a harbour tug, the Port Hedland Port Authority control tower began coordinating an emergency response. Tugs and the local branch of the Fire & Emergency Services Authority of Western Australia (FESA) were asked to respond.

At about 1607, the chief mate entered the cargo hold with a fire extinguisher. Once in the lower hold, he saw the tarpaulin was well alight and generating dense smoke. He quickly exited the cargo hold with the boilermaker who called out to the assistant to lift up the gas-cutting hoses and turn off the gas cylinders. *BBC Baltic's* crew were standing by on the main deck with the now pressurised fire hoses.

Shortly after 1608, the fire burnt through the oxy-acetylene hoses left on the tween deck and the acetylene ignited resulting in a fire ball and dense black smoke (Figure 3). The master ordered the crew to spray water on the cargo adjacent to the fire and to check that the oxygen and acetylene cylinders had been turned off. By this time, the Cervan Marine workers had left the ship.

Figure 2: Screen drums in the lower hold

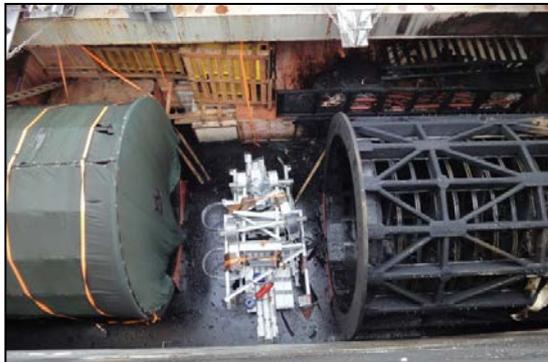


Figure 3: Fire ball seen from the berth



By 1610, the ship's crew were fighting the fire with fire hoses and boundary cooling. At 1612, a harbour tug joined in boundary cooling and, a few minutes later, another tug joined it. At 1615, fire-fighting teams from FESA and the cargo terminal arrived at the berth and, shortly afterwards, began assisting the ship's crew.

By 1625, the fire had been extinguished. The ship's crew began checking compartments adjacent to number one hold for hot spots and fire risk. No hot spots were found and a fire watch covering the hold and adjacent compartments was established.

At 1720, the emergency was declared over but the fire watch was maintained as a precaution.

The two boilermakers had been given oxygen ashore by the attending ambulance as a precaution to treat any smoke inhalation but no one was otherwise injured as a result of the fire. The cargo near the fire and its packing was damaged. There was significant paint damage in and near number one cargo hold which now contained a large quantity of water from the fire-fighting effort.

At 1800, the Australian Maritime Safety Authority (AMSA) placed a detention order on *BBC Baltic*, pending class (GL) confirmation of its seaworthiness. On the following day, contractors began removing contaminated water from number one cargo hold for disposal ashore.

On 28 January, following a GL inspection, AMSA released *BBC Baltic* from detention. By 30 January morning, 24 tonnes of contaminated water had been removed from the cargo hold. Cargo discharge was completed in the evening and, on the morning of 31 January, the ship sailed from Port Hedland.

SAFETY MESSAGE

In carrying out the hot work on board *BBC Baltic*, neither the ship's crew nor the Cervan Marine workers properly considered and mitigated the risk of fire. All the precautions listed on the ship's hot work permit were not taken nor was the permit completed properly. Similarly, all the measures listed

on Cervan Marine's job safety analysis were not taken. Furthermore, a tool box meeting was not held to discuss the work and risk, define roles and responsibilities, and the action to take in case of a fire.

As a result of inadequate risk assessments, there was no fire watch, none of the ship's crew was at the hot work site and Cervan Marine's workers did not have a clear understanding of the action to take in case of a fire. Consequently, action to fight the cargo hold fire with a fire extinguisher and other fire-fighting equipment was not taken immediately, resulting in a larger fire that took longer to contain.

SAFETY ACTION

Whether or not the ATSB identifies safety issues in the course of an investigation, organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this incident.

Briese Schiffahrts

Briese Schiffahrts has advised that it has undertaken a review to improve shipboard procedures for hot work. The improvements will focus on the company's hot work permit system ensuring better co-ordination with shore workers through a tool box meeting to identify risks, discuss preventive measures, define responsibilities and agree the action to take in case of a fire.

Cervan Marine

Cervan Marine has advised that its procedures for work undertaken on board ships have been amended. The amended procedures require the company's designated supervisor to discuss the scope of work with the responsible ship's officer, convey relevant information to its workers, complete a risk assessment with them and be present when the work starts. These procedures also require that Cervan Marine's own fire extinguishers are in readiness at the work site and its hot work permit tags are completed. The permit's requirements include confirming that the ship's fire hoses are pressurised and ready for immediate use before starting hot work.

Port Hedland Port Authority

The Port Hedland Port Authority has advised that it is contacting shippers to recommend an upgrade to the fire retardant quality of the protective coverings of cargo that is secured at sea with fittings which need to be removed by hot work in port.

SOURCES AND SUBMISSIONS

Sources of Information

Briese Schiffahrts, *BBC Baltic's* master and chief mate, Cervan Marine and its workers, and the Australian Maritime Safety Authority (AMSA).

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to Briese Schiffahrts, *BBC Baltic's* master and chief mate, Cervan Marine, the boilermakers and assistant, Port Hedland Port Authority (PHPA) and AMSA.

Submissions were received from Briese Schiffahrts, Cervan Marine, PHPA and AMSA. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.