



Mariners' Alerting and Reporting Scheme

MARS Report No 360 October 2022

MARS 202241

Hot sludge burns crewmember

As edited from FEBEMA report (Belgium) 2020/003688

→ The main engine on a bulk carrier was switched over to very low sulphur fuel oil (VLSFO) to comply with regulations. Once the engine was operating on VLSFO, the sludge discharge line of the oil separator frequently clogged, generating a 'separator fail' alarm on the alarm panel. To mitigate the problem, it was decided that the oil separator was to be cleaned twice a day.

In the evening hours, the engineer on duty received a 'separator fail' and a 'fuel oil bowl leak' alarm on the computer. The vessel was rated as UMS (unattended machine space) and there were no engineers in the machinery space at the time. Experience to date indicated that this alarm was a consequence of the contamination and clogging of the separator bowl at the discharge line. As per procedures, the engineer informed the bridge that he was going to the engine room.

Procedures also specified that two crew should always enter the engine space together. Despite this, the engineer on duty entered the space alone, and did not put on his coveralls and gloves as he entered the engine room – again contrary to procedures. Having transferred to the standby separator and shut the alarming separator, he opened the plug of the inspection hole of the sludge discharge line to verify the condition. The discharge line was completely blocked, so this did not decrease the pressure between the blockage and the bowl opening. Hot (40C) sludge oil gushed out of the inspection hole and covered the engineer's arms and legs.

The victim called for assistance and other crew arrived. They attempted to wash the sludge off the engineer's hands at the washstand but the sludge was sticking to his skin. He was escorted to the ship's hospital and pain-killers were prescribed. After consultation, the Master decided to evacuate the victim at the nearest port, approximately 250nm from the vessel's location. In the shore hospital, it was found that



12% of the victim's skin surface had been covered in sludge, mostly on his arms and legs.

The investigation found, among other things, that;

- A long sleeved overall and leather gloves could have greatly reduced the amount of sludge that contacted the victim's skin.
- The regular clogging of the fuel oil separator on board was probably due to the cold flow properties of the particular blend of VLSFO in use. Mitigating action was taken to keep the process running by cleaning the oil separator twice a day, but the source of the problem had not been dealt with. A more detailed analysis of the specific blend of VLSFO, and in particular its cold flow properties, could have solved the separation problems with this blend of fuel.
- Cleaning the separator was not a standard job on board. It was decided to carry this out twice a day to deal with the new batch of fuel, but no further risk assessment or safety measures were implemented to mitigate the risks associated with this job.

Lessons learned

- Expect the unexpected - in this case, that the discharge line was completely blocked.
- The discharge line was not equipped with a pressure gauge, since the sludge inside the discharge line is normally not under pressure. It was unusual and unexpected that the sludge was under pressure after switching off the separator.
- This is yet another example where lack of proper PPE was an aggravating factor for the negative consequences.

MARS 202242 – MIND THE GAP

Coast Guard (USA) Safety Alert 04-22

→ The US Coast Guard is investigating a casualty involving a fall from a pilot ladder where the handholds in the gate arrangement aboard the vessel were modified so that the gate arrangement was not rigidly secured to the vessel's structure at the point where the ladder comes

aboard. This left a gap in the handholds where an embarking person might reasonably be expected to reach to pull themselves up.

The gap above the vessel structure appeared to be a modification to allow for the passing of the spreader during deployment and retrieval of the pilot ladder. This made it possible to retrieve the pilot ladder without having to lift the spreader up and over the vessel's railings.



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A Safety Alert has been issued, although, at this time we cannot speculate on how this modification contributed to the accident. Readers are reminded that pilot ladder requirements as specified in SOLAS 2004 (Consolidated) and by IMO Resolution A.1045 (27) should be strictly adhered to.

Lessons learned

The International Organization for Standardization (ISO) recently published a series of standards aimed at improving pilot ladder safety. These standards supplement existing IMO recommendations and requirements for pilot ladders. Vessel owners and operators, shipboard personnel and system designers are strongly encouraged to review and comply with these standards.

- ISO 799-1:2019 Ships and marine technology – Pilot ladders – Part 1: Design and specification.
- ISO 799-2: 2021 Ships and marine technology – Pilot ladders – Part 2: Maintenance, use, survey, and inspection.
- ISO 799-3:2022 Ships and marine technology – Pilot ladders – Part 3: Attachments and associated equipment.

MARS 202243

Fire in hold while loading scrap metal

As edited from SHK (Sweden) report RS 2022:05

→ A general cargo vessel was loading scrap metal using a shore grab. Although the cargo declaration specified 'scrap metal', in practice there were other elements of refuse in the scrap metal stockpile such as old car tires, wood, foam plastic and other plastic materials and containers with small amounts of flammable liquid. The export company stated that the scrap metal cargo was allowed to contain 5% by weight of material that was not metal waste but also was not hazardous waste.

As loading progressed, smoke was seen coming from the cargo hold. After a short period, the smoke intensity increased and the loading was stopped. Port staff called the municipal fire service. Meanwhile, the ship's crew were preparing their own hoses. The smoke intensity

continued to increase and a nearby shipyard located downwind had to be evacuated.

At this point, about 500 tonnes of metal waste had already been loaded. There was no fixed extinguishing system in the hold and the Master did not want excessive water in the hold because it could cause the vessel to become unstable. It was decided that the cargo would be unloaded and extinguished on the quay. However, the unloading operation had to be interrupted because the crane operator judged that the crane could be damaged from the heat of the fire.

The hold was scanned with a thermal camera which showed that the fire was still burning. Various extinguishing methods were discussed, including filling the hold with foam. After some stability calculations, the vessel was trimmed so that the water could collect in the forward part of the hold, which was empty. The excess water was then pumped off the vessel and collected in tanks to be carried away for decontamination. It took almost 12 hours to extinguish the fire, although in the end only minor damage was suffered.

The investigation found that the fire was probably caused by sparks or frictional heat generated during loading, which then ignited flammable liquid or other flammable material within the load of scrap metal. The investigation concluded that management practices in regard to the scrap metal were less than adequate. In particular, the risks of handling metal waste mixed with combustible material had not been adequately assessed.

Lessons learned

- Sometimes, obvious risks are not seen until an accident happens. In this case, the oil contaminated objects and flammable refuse mixed in with the scrap metal were easy to spot. In cases like this, it is important to have the fortitude and firmness of character to stop loading (or not load) if nothing bad has yet happened.
- Vessels have capsized at berth to firefighting efforts by shore teams. Close coordination is between the Master and fire chief is needed in order to properly execute the extinguishing effort without further risk to the vessel.



Fire in the hold

The stockpile

MARS 202244

Drifting 'give-way' vessel collides with fishing vessel

As edited from TAIC (New Zealand) report MO-2021-203

→ A container ship under way was stopped and drifting at sea due to port congestion at the next destination. The OOW was supported by another crewmember as lookout. The vessel was drifting sideways towards the east under the influence of the westerly wind. At 03:10 the lookout reported spotting a small vessel on the radar 6 to 7 nm away and fine on the starboard bow. About 13 minutes later, this target now 3.8nm away, was plotted by the lookout.

At 03:30, the lookout operating the radar reported to the OOW, who was occupied with other tasks, that the target was showing a small CPA. The OOW was not concerned; he assumed, correctly, that the target was a fishing vessel. His expectation, although flawed, was that fishing vessels usually altered course and would keep out of the way, especially as the ship was drifting. Meanwhile the lookout was now using a red laser pointer directed at the fishing vessel to warn its crew of their presence.

At 03:50 the OOW became concerned that the fishing vessel was getting too close and did not appear to be altering course. At 03:55 a relief OOW arrived on the bridge and spent a few minutes familiarising himself with the ship's situation. He then went to the electrical equipment room behind the bridge with the OOW on duty to investigate a water leak that had developed there during the night.

About three minutes later, both officers were back on the bridge. The relieving OOW asked about the fishing vessel, which was now 0.5nm away and still closing. They soon lost sight of the fishing vessel in the blind sector ahead of the ship caused by the container stow. At this distance the ship's radar lost definition of the target and any displayed data became unreliable. Very soon after, the fishing vessel made contact with the container ship, but the bridge crew later recounted that they did not see, hear or feel the collision. The lookout was sent forward with a radio to investigate, while each officer went to one of the two bridge wings in an attempt to see what was occurring at the bow. At about 04:05 the fishing vessel emerged from the container vessel's port bow and remained in the vicinity for about 10 minutes. The bridge team made no attempt to contact the fishing vessel, nothing was recorded in the bridge logbook and the Master was not informed.

The fishing vessel had crossed the container vessel's bow with the narrowest of margins; so close that the stabiliser arm collided with the stem of the ship's bow. The fishing vessel then pivoted around the stabiliser arm and its port bow collided under the flare of the container vessel's port bow near the anchor. Still on autopilot, and with its engine still driving ahead, the fishing vessel slowly scraped along the container vessel's hull as it rose and fell with the waves.

The fishing skipper, who had left the wheelhouse for other tasks, arrived and put the engine in reverse, backing away from the container ship. It soon became apparent that the watertight integrity of the hull was intact. The skipper then attempted to contact the container vessel by VHF radio, but because the communication antenna had been damaged this was unsuccessful. The crew then severed the fishing line and departed the scene, heading for port.

The investigation found that, although drifting, the container vessel was nevertheless considered to be a power-driven vessel underway and was therefore required to follow the Colregs and take the appropriate action to avoid a collision, which it did not. The container vessel's bridge crew had detected and were plotting the progress of the fishing vessel on their radar. They had correctly identified the target as a crossing vessel, but it did not occur to them that their vessel was the give way vessel.

The bridge crew were working on two false assumptions.

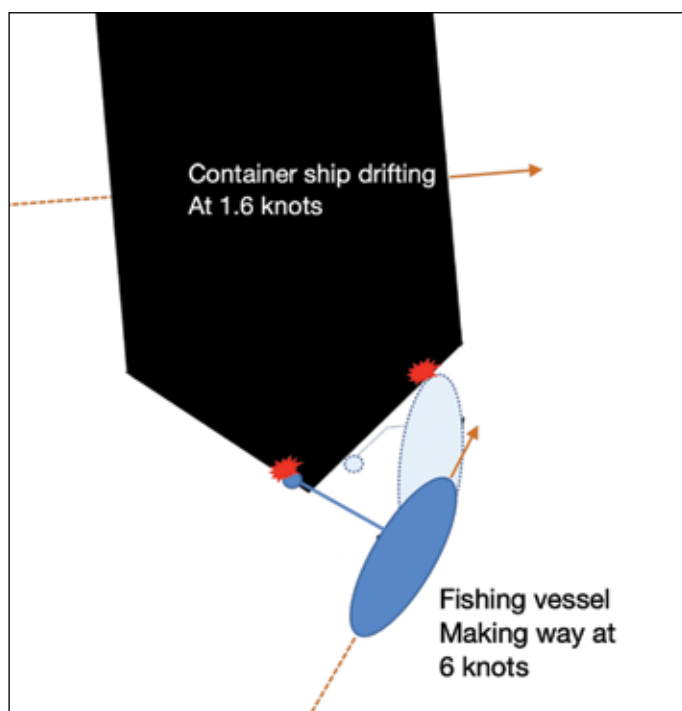
- First, that because their vessel was drifting this put the onus on other vessels underway to avoid their ship.
- Secondly, because the target was probably a fishing vessel, it would give way to them by virtue of their size.

The fishing vessel's skipper made no attempt to sight the container vessel after noticing it on the radar at 4nm distance because he was occupied with other tasks elsewhere on the vessel – no one was in the wheelhouse.

Another important finding of the investigation was that there is mounting evidence showing a compromise in crewing levels aimed at keeping small fishing vessel operations economically viable. This in turn is resulting in fishing crews either not achieving full compliance with national and international legislation or operating when fatigued. Either way, the result will be a higher risk of these vessels being involved in collisions or groundings.

Lessons learned

- All vessels have a part to play in preventing collisions at sea, regardless of whether they are the stand-on or give-way vessel.
- Making assumptions about the intentions of other vessels based on false or scanty information is high risk, which will inevitably contribute to collisions at sea.
- When drifting, you are still a vessel underway and may need to manoeuvre as per the Colregs. Keep your engines at the appropriate level of readiness given the local circumstances.
- Should you wish to attract the attention of another vessel, do not use a laser pointer. Try the Aldis lamp, the ship's searchlight or the ship's horn (at least 5 short blasts).



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