Stromme and Klaveness unite to solve hold cleaning issues

After carrying dirty cargoes such as coal, it is essential that the hold is cleaned meticulously before loading clean cargoes like grain.

One of the most notorious challenges in the bulk shipping industry is cleaning holds between dirty and clean cargo — for example, coal and grain. With limited time and minimal crew, these challenges can lead to failed inspections, off hire time and reduced profits.

The Klaveness Group, one of the largest international transporters of dry bulk cargo, operates more than 100 vessels. Being heavily involved in the transport of coal, petcoke, and grain has led to cleaning challenges for the crew. To solve this, Klaveness and Stromme have formed a co-operative effort to develop solutions for hold cleaning and maintenance problems. This is no easy task, since each ship operates with a minimal crew and is subject to short ballast trips.

Dagfinn Asmyhr, senior operations manager for The Klaveness Group, describes the cost-effective cleaning equipment and procedures, which have been implemented onboard their Panamax bulk carriers.

"The procedures we have implemented, along with the equipment we have chosen, are key factors in keeping our ships profitable," states Asmyhr. "Improper cleaning and maintenance, leaves a ship susceptible to rejection from inspectors and costly off-hire time."

For bulk carriers, the transport of coal and grain represents a substantial part of the total cargo. For several vessels, these two commodities can be as much as 50% of the cargo carried. Efficient hold cleaning procedures, for these cargoes, are essential to retain profits for all parties involved.

While some varieties of coal and petcoke may be fairly dry, others contain a high oil content and leave greasy stains. These can be difficult to remove if they're not cleaned on an ongoing basis.

Before a vessel can load grain, local officials conduct an inspection to ensure that the condition of the cargo holds and hatches meet the requirements for grain transport. If residue from a previous cargo is discovered, the ship will be rejected. In addition, the holds have to be free from insects, rodent infestation and strong odour. This includes the odour from cleaning chemicals and paint. And finally, the hold sides and bottoms, underneath the hatch covers and inside the hatch coamings, have to be rust free.

If the vessel does not meet all these requirements, it will be turned down for cargo such as grain, fertilizers, and soda ash, which results in off-hire and large cleaning costs.

"To avoid off-hire headaches," says Asmyhr, "proper maintenance planning is essential. It has to start at a very early stage, and necessary actions must be taken to get the holds accepted during an inspection."

Part of the planning should be a checklist of requirements to be considered prior to loading.

1) Previous cargo problem

The holds are declared unfit for loading if any residue from previous cargo, dunnage debris, or repair or hot work is found. Holds can also be rejected if other debris or substances are found.

Action: Sweeping and mucking out all residue, followed by a thorough wash down using high pressure, air/water cleaning equipment is necessary.

2) Cargo stain problem

Cargo stains are not acceptable if they rub off. Surveyors give coal and petcoke stains special attention because they tend to blister and peel if the hold starts to sweat.

Action: Coal and pet coke stains can be removed by using spray jet systems for applying chemicals from the tank top. The choice of chemicals must be carefully considered, as odour and caustic effects will affect the next cargo. High-pressure cleaning can be used to access small areas in the lower parts of the holds.

3) Rust and paint scale problems

All areas affected by rust and paint scaling, are carefully checked by the surveyor. The holds will be declared unfit if rust or paint scaling is found.

Action: Rust and paint scales are removed using high-pressure air/water cleaning equipment. These areas are then cleaned and scrapped.

4) Unsanitary conditions

If a hold is found to contain animal filth, bird droppings, or sewage, it is rejected.

Action: Hold must be thoroughly checked and any unsanitary conditions, cleaned appropriately.

5) Wetness

All holds must be dry. If the holds contain water or leaking water, the vessel will be declared unfit.

Action: If water exists in the hold after a wash down, it must be mopped up or air-dried. If water is leaking into the hold, appropriate action must be taken to repair the leak.

6) Odour free

All grain storage areas must be odour free. This includes odour from paint and cleaning chemicals.

Action: Hatches must be left open so fresh air can circulate in the affected area.

Careful cleaning of a ship's hold.

7) Infestation free

Holds will be declared unfit if three or more insects, dead or alive, are found in one hold. The holds will also be declared unfit if larvae, unhatched insect eggs, are found.

Action: Infected holds may need to be fumigated prior to being accepted. This can be a costly and time-consuming operation. Special attention must to be given to exposed areas, such as under hatch covers, hatch coamings, access-ways, and bottom areas of bulkheads, slopes and tank-tops.

If a major problem is anticipated, a professional cleaning company should be contacted to evaluate the holds. If cleaning time is limited from the last cargo discharged until grain loading, it is essential that the cleaning and preparation of the holds starts as soon as possible.

If rust and paint scaling are a problem, while coal is being transported, scrapping should start on top of the cargo. This can be done on the last laden leg of the voyage, provided that necessary safety precautions are taken for the crew. To avoid claims, make sure that all rust and paint scales being scraped, are collected and removed from the holds prior to arrival at the discharge port.

While discharging the last cargo, the crew should co-operate closely with stevedores to collect and remove the majority of the cargo residue, using the shore cranes. If necessary, residue can be removed from between the frames and sweeping can begin during the discharging operation.

Start cleaning the holds as soon as they become empty. Check with the local agent for regulations on pumping wash water overboard while in port. If regulations don't permit the discharge of wash water, leave the dirty water on the tank top and pump it out when anchored or in open sea.

Regardless of the length of the ballast leg, check the holds to determine if the previous cargoes have left stains that may be difficult to remove. In some cases, the owner or operator may be able to supply suitable equipment and chemicals in the last discharge port.

An easy way to check for potential staining is take some cargo in your hand and rub it to see if it leaves a residue. If the residue can be easily washed off with cold water, there shouldn't be a major cleaning problem. If there is a greasy residue or an oily film in your hand, chemical washing may be necessary, in which case the owner's office should be informed.

At unloading ports, where a protective agent is appointed, a copy of the cleaning report should be filed in the ship's log as well as submitted to the agent. A digital camera can be used to document the hold condition, before, during and after the cleaning operation. Digital photos can be attached to the cleaning report via e-mail to the owner or agent. This will give both parties the opportunity to evaluate the conditions of the holds prior to arrival in a loading port.

During the hold inspection, keep the on board equipment and all available crew on stand by. Sometimes minor touch up work is required to get all holds passed the inspection. Prompt attention by crew and easy access to proper cleaning equipment is therefore essential during inspection.

Even if the hold inspectors accept all the holds, the crew needs to check the holds daily if they are waiting for a berth. Holds may start to sweat in humid weather or when there is a significant difference between the air and water temperature. In these conditions, rust may appear, cargo stains may blister or peel and bulkheads and tank tops may become wet.

In many ports, the surveyors will perform a new inspection upon berthing. If rust, loose residue, or wetness is present, the holds may be rejected and the vessel may have to vacate the berth.

After transporting cargo such as petcoke, all cargo stains should be removed, even if the next cargo is also dirty. If stains are allowed to build up, cleaning problems can easily accumulate and cause off-hire time and extra expenses.

With proper cleaning and maintenance, a ship's efficiency can be greatly increased. Planning and co-operation with the shore crew can decrease a ship's berth time and increase profitability.