Introduction

When a ship goes into dry-dock for survey and repair, the established routines of life at sea change. Faced with a multiplicity of hazards alien to the ship’s normal business, a ship's master will need to work in partnership with the yard to ensure the crew stays safe in a situation over which he has less than his usual authority.

This article is written from the perspective of a Contracts Manager of a UK shipyard, but its guidelines are relevant for good risk-management procedures.

A procedural approach to health, safety and environmental impact

The introduction of the International Safety Management (ISM) Code has resulted in vessels being operated under a procedural process involving both shore and onboard ship management. This has caused ship owners and managers to examine the health, safety and environmental aspects and impacts of the business that they conduct. It is designed to ensure that all risks are captured, analyzed and mitigated as far as is reasonably practical. For most masters and crew in well-run ships with responsible management structures ashore, their daily routines are regimented by company procedure manuals which give guidance and instruction in the day to day operation of the ship in which they serve.

Formal risk assessments form the basis of the way that both routine and extraordinary tasks are undertaken. The master may take an element of assurance in that a well run ISM accredited company will have spent considerable time and effort in safeguarding the ship and crew under his command.

For the master and crew used to a daily routine where risks are known and identified, the very nature of a modern docking introduces a myriad of hazards alien to the ship’s normal business. In addition to this, roving squads of ship yard workers and contractors of varying nationalities often appear to be hell-bent on reducing the vessel to its component parts in as little time as possible. This intense and often round the clock activity will have the almost inevitable effect of destroying the ship’s natural daily working rhythm and introducing perils not normally encountered when the vessel goes about her daily business. This may leave the master with the dilemma of ensuring that his crew remain safe during the docking period in an environment that has changed dramatically and over which he feels he has little control.

Inherent hazards of the Repair Process

Repair processes can generate many hazards and the need for additional risk assessments, some of which may be alien to the ship’s crew; these may include:

• Ultra high pressure water 4000 Bar (UHPW) plate blasting preparation
• Generation of heat, fumes and noise
• Scaffold structures with temporary walkways and lighting
• Restricted access due to open tanks and compartments
• Further restriction due to clutter and trip hazards generated by stripped down machinery
• Vehicles such as cherry pickers and fork lift trucks;
• Confined spaces where entry risks have changed;
• Grit blasting;
• Hot working and the precautions necessary to ensure safe working;
• Guarded openings;
• Industrial radiography.
Ships’ crews, yard workers and contractors are often at risk from exposure to hazards that they themselves create. While permanent yard staff may well have been adequately trained to follow documented risk control procedures, other personnel may not be fully alert to the dangers that surround them. This applies particularly if their experience of ships in dry-docks is limited or non-existent. Even when staff leave the ship, a pedestrian has many hazards to negotiate arising from the general day to day business of a large heavy industrial site.

To maintain a level of hazard control, the shipyard needs to provide information and instruction to all persons who will be directly or indirectly exposed to potential dangers. The master and owners of a vessel undergoing repairs and refit work in dock should expect the yard to have an accredited safety management system. This system should specifically incorporate procedures to inform and protect its customers, crews and contractors.

**Recommendations**

The following is offered as a guide to the type of process that a shipyard should have in place to achieve this level of care. Most shipyards are committed to ensuring that all repair work is carried out in a safe and controlled manner. There is also a recognized need for all individuals working within the shipyard complex to be aware of the nature of the hazards that may be encountered. Each person needs to be made aware of what is expected of them in order to safely move and work within the environment without compromising the well being of both themselves and others.

To provide essential safety advice for personnel arriving at the yard from either shore or sea, the shipyard’s Health and Safety department will carry out safety induction training for all persons coming on to the site for both ships’ crews and contractors. The induction process for ship’s crew takes place as soon as practical after a ship arrives in dock and before contractors carry out any work. This requirement is incorporated into the standard terms of the repair contract.

This induction process is carried out by the yard Safety Manager or a deputy and consists of practical advice to crew and contractors concerning the hazards which may be encountered. The preventative and protective measures, which must be followed by all those working or living on board within the yard are also stressed at this time. This one-hour period of safety induction training may be held on board or in the shore safety training room. For ships that regularly dock, the crew may receive a refresher safety induction on the run to the port via a supplied CD-Rom. Where language or numbers of crew present a problem, the master will be asked to nominate specific crew members who can attend the session and then return on board to cascade the information to other crew members. The information given by the safety department member is visually reinforced by a yard produced safety film. A personal guidance booklet containing site-specific general and safety information is also issued as a source of reference.

An area given particular emphasis at this time is the use of the personal ‘tally’ card, which is issued to each crew-member and contractor. The importance of placing this card in the ‘tally’ rack at the bottom of each gangway when boarding a ship is underlined as a means to determining those left on board in the event of an emergency evacuation of the vessel. The daily times of the yard sirens to indicate shift changes and the emergency alarm signals are also given in the safety guidance booklet along with the position and routes to the designated muster stations.

All vessels undergoing work within the yard are subject to a daily audit visit by the Safety Manager, who will make himself known to the master and the company superintendent at this time and who will observe activities around the vessel using a scoring method to determine the level of protection being applied. Copies of the daily safety record sheet are passed to the Production and Ship Manager in charge of work on board. Work may be stopped immediately if the Safety Manager observes or is made aware of a seriously unsafe condition. This may also occur if there is no marked improvement in a previously highlighted area.

Ship and yard managers meet daily to discuss matters affecting overall progress and quality. The first item on the agenda is health and safety where all those present can state any problems they are experiencing onboard vessels and the proposed corrective action that is to be taken. It is interesting to note that there is an increasing tendency for some companies to increase the scope of work that they expect the crew to carry out while in dock. This does not normally present a problem in ships where a reasonable safety culture exists on board. There have, however, been occasions where ships’ staff have been refused permission to carry out potentially hazardous tasks for which they are clearly untrained.

Finally, at the completion of the vessel’s stay in the yard, the customer is asked to fill in a questionnaire where the performance of the work is evaluated. Once again, health and safety is at the top of the list, with comments being noted and acted upon as part of a drive for continual improvement.
There exists an interesting overlap of responsibilities between the UK Maritime and Coastguard Agency (MCA) and the Health and Safety Executive when it comes to enforcement of legislation for ships under repair in the UK. The memorandum of understanding between the MCA and HSE calls for the HSE to be the lead enforcing authority for all works carried out in dry docks. The MCA is expected to lead when minor or routine voyage repairs are undertaken by ships crew in wet dock, at sea and during trials. It is worthy of note that all major repairs, both in wet or dry dock and by whomever carried out in the UK fall to the HSE under the UK Health and Safety at Work Act.

Conclusions

• The Ships Master remains responsible for the safe well-being of his crew at all times.
• A comprehensive ship’s safety management system should take into account periods spent in dry-dock, as there will probably be a need for the master to comply with the yard requirements.
• The yard safety manager should arrange for safety induction as soon as practical after the vessel docks.
• The ship repair company is to ensure that the master and his crew have relevant safety information and identified yard contacts for personnel with health and safety responsibilities.
• The repair facility safety management system should cover all aspects of the system to be undertaken in the vessel and provide suitable and sufficient instruction for both the customers crew and contractors.
• Risk assessments and method statements should be provided by the yard, contractors and also the Master if his crew are to undertake any repair and maintenance tasks whilst at the yard/repair berth.
• As in all matters, communication is key to ensuring that the activities of the yard, its subcontractors and ship’s crew do not increase the risks to persons on board.

Article produced in association with:
Captain David Smith, CMIOSH, MIMarEST, Blair Marine Ltd