

Elite force for shipboard

During his time responding to major incidents all over the world, marine firefighting world expert Gert-Jan Langerak has gained some strong views on how shipboard response safety standards could be improved, writes Ann-Marie Knegt.



Gert-Jan Langerak, Senior Consultant and Marine Firefighting Expert, Falck Risc.

Gert-Jan Langerak is always on call. Currently, his day-job is at the fire training school Falck Risc, based in Rotterdam, Maasvlakte, The Netherlands, as Senior Consultant and Marine Fire Fighting Expert of Falck's Emergency Response Team. Falck Risc is a world-leading provider in safety training and offshore services.

Because Falck's Emergency Response Team is a subcontractor for salvage companies (including Smit Salvage, Svitzer Wijsmuller Salvage and Mammoet Salvage), Langerak has a packed suitcase and a complete set of firefighting PPE in the back of his car at all times. As soon as a request for help comes in, he could be off to the remotest places in the ocean to fight massive fires in oil/chemical tankers, or engine room fires on trawlers.

Salvage: Code Red

Recently, Langerak and his ER-team were featured in a National Geographical Channel's series, Salvage: Code Red, in which Langerak and his team were filmed during the response to a massive fire on the *Adryatik*, a RO-RO freighter carrying hazardous oil products on the Croatian Sea on the 6th of February, 2008.

"When we arrive at the scene of the incident, it is a matter of collecting information, because we can't always depend on what the ship owner provides us. We use thermal imaging cameras to first check the outside of the ship for hotspots, and because the vessel is made of steel which conducts heat, this usually enables us to see where the seat of the fire is very quickly. When it has been determined that it is safe enough to enter the ship, we continue the assessment onboard. We look at the type of load it is carrying, and reference this with the hazardous cargo list," he explains.

The response team has experienced many fires in containers packed with substances where more attention could have been paid to storage and classification.



Superstructures

Shipboard firefighting is one of the most specialised disciplines of firefighting and the tactics are similar to industrial response. A ship requires firefighting from the inside out in many cases and a ship should always be approached via the roof to extinguish the fire.

Superstructures of seagoing ships can be as high as 60 metres. "Imagine climbing a building that high, and then descending inside straight through smoke and rising heat. This differs completely from any other type of incident. On the other side of the coin, some risks are compensated. For instance, ships are made of steel that typically does not collapse, while municipal fire services view the potential of a structure to collapse as one of the largest hazards. It is imperative that everything that has been taught for onshore use in firefighting is set aside during a shipboard fire, because onshore tactics of approach do not work in this environment"

A different approach

Onboard a ship, firefighters can walk over or under a fire, due to its steel construction and its compartmentation. Langerak explains that the compartment under the fire is the coolest in the ship and therefore the best place to attack the fire. However, the steel construction also has its disadvantages, as the conduction of heat can rapidly make a fire spread to a neighbouring compartment.

"The most common mistake made in responding to shipboard fires is that crews do not take enough time for the response. Onshore crews expect to extinguish a fire in a short time frame, because that is what they have been taught to do. Shipboard fires, however, are usually a long affair, and as the Falck Emergency Response Team, we know it can take days or sometimes weeks to extinguish."

Most shipboard fires are caused by chemicals, but they have



response



How thermal imaging cameras can help at sea

The thermal imaging camera is becoming increasingly popular as a lifesaving tool at sea. These high-tech devices can help locate people trapped in smoke, and in assessing and tackling fires onboard vessels. E2v, a specialist in innovation for industrial markets, points out its high-tech Argus4 cameras have been designed to instill confidence in a ship's crew as they tackle dangerous situations, as they enable offshore response teams to see through smoke, identify and rescue casualties, and locate hot spots or the seat and spread of a fire.

With over 30 years of naval thermal imaging experience, e2v's engineers have seen fires start in engine rooms and electrical systems. Overheated motors can develop into blazing infernos, and therefore gearboxes, motors and bearings should be regularly monitored to quickly identify and eliminate hotspots. Thermal imaging cameras are also an essential tool in maintenance work and condition monitoring, helping mariners to achieve higher safety standards at sea.

Argus4 specification:

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Most shipboard fires are caused by chemicals, and because they have usually already undergone a reaction by the time the ER team arrives, 95% of fires can be treated with water.



usually already undergone a chemical reaction by the time the ER team arrives onboard, and therefore 95% of all fires can be treated with water. The surrounding fuel, however, usually takes a long time to burn.

Targeted response

In order to carry out the best risk analysis, the response team often takes a chemical expert with them, with a range of high-tech gas monitoring and analysing equipment. It is extremely important for the team to know if they are dealing with a flammable, toxic or corrosive situation.

Although all hazardous substances onboard are indexed, they are only registered in their normal state, and not in a state of combustion or reaction, and as the properties of substances can

change completely, readily-available information is just not useful. The role of the chemical advisor is therefore essential to determine the most targeted type of response.

Langerak thinks that safety standards in the transportation of chemicals can be improved upon. "We have experienced many fires in containers that were packed with substances where there could have been more attention paid to storage and correct classification. Another potential issue which can result in incidents is the combination of undertrained crews with different languages and cultures." Furthermore, many shipping companies have excellent officers and maintenance standards, but in some cases I come across situations where maintenance standards are low and the officers do not have enough knowledge about the fire suppression systems onboard ships. For instance, they know that when the alarm goes off they have to press a button. However, if the system fails, they haven't a clue of what to do, and this often causes the incident to escalate."

System familiarisation

Falck Risc has just carried out extensive research into onboard fire suppression systems and human interaction. Langerak points out that although the systems are increasing in complexity, not enough attention is given to user-friendliness and effectiveness of use. While officers attend a firefighting training course once during initial training, but are given no familiarisation with the systems onboard.

Langerak is a great advocate of training people in their own surroundings with the systems they work with. He also underlines that current IMO/SOLAS regulations are too open for interpretation, and not dynamic enough. "The international regulations are far behind on subject matters such as suppression and extinguishing system safety and PPE for onboard response teams. Stricter legislation should be put in place to prevent incidents from escalating," he concludes.

Langerak is a great advocate of training people in their own surroundings with the systems they work with on a day-to-day basis.



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