

SAFETY MATTERS



Newsletter from **Boskalis**

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check, check and
double check



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WOW, FREE SALMON TODAY!



Save diving: check, check and double check

Diving is a risky business. After all, if things go wrong, things can go seriously wrong. However, because everyone realizes it is risky, divers and those around them take safety seriously, and that means the state of the equipment, compliance with procedures, and communication.



Check prior to diving

Several types of diving work take place at Boskalis: At Subsea Services, divers inspect and repair pipelines and the foundations of oil and gas platforms. At Salvage, divers inspect the inside of a wreck so that, on the basis of their independent findings, action can be taken

or advice given about the follow-up. Diving work is also required in connection with dredging work, for example for propeller cleaning. However different activities are, what connects them is the question of how we can make diving activities safe?

Robin Knook, Global Asset Manager (Diving), Subsea Services:

“Make sure you have a backup”



“In the world of diving, safety is all about **avoiding single points of failure**. Divers work in an environment that is not meant for humans. A number of tools have been created to help them survive in such an environment. However, if those tools fail, things can go horribly wrong. That is why you need to

check, check, and double check. Make sure your equipment is in order. And make sure you have a **backup**. For example, not just one compressor, but two. Always.

The offshore industry is demanding on both people and equipment. Good maintenance is therefore crucial. Our divers are specialists. On the basis of preliminary investigations we

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draw up a thorough plan of what we are going to do when we are in the water. If circumstances turn out to be different than what we expected, the diver simply returns and the **diving plan** is adapted. Procedures are followed at all times and everything is discussed and approved.”

Air diver grit blasting



Gerrit Roest, Captain of the Oranje dredger:

“Effective communication”



“In the (long-gone) past, someone who had learned to dive as a hobby would be in the water repairing things. That is a recipe for disaster.

Following a fatal accident involving a contractor in

Malaysia at the start of the Nineteen Nineties, such practices are prohibited by means of a standing order. These days we always hire professional divers. We are currently working with the Oranje in Korea, where the propeller has to be cleaned by divers every three weeks. That is extremely frequent. We selected a diving company while preparing the project. Diving is specialist work. We cannot do much more than compare their safety procedures to ours and examine the condition of their equipment.

My experience is that diving companies are generally very serious about safety. It is our job to facilitate that security: **good communication**

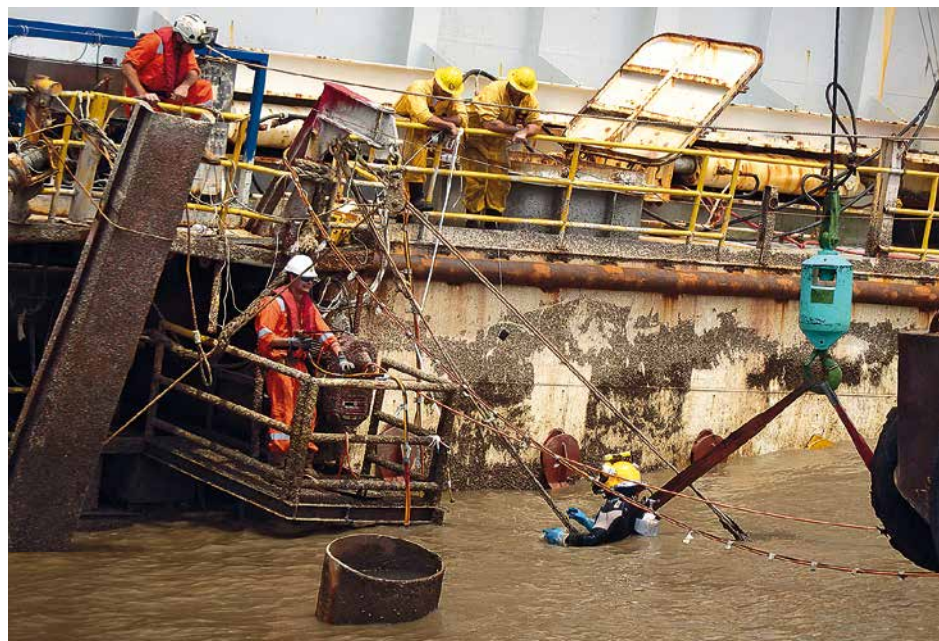


Okay!

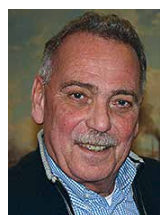
is essential. That way, everyone knows that diving operations are taking place and that all equipment is blocked. We used to discuss this only with the parties that were directly involved. However, since NINA, we now hold discussions with the entire crew. This not only results in greater awareness, but also increased interest in the activities of the divers. That **involvement** is beneficial to safety.”

Kees van Essen, Manager Operations, Salvage:

“We do it safely, or we don’t do it at all”



Emergency response; Raissa, Kalimantan, Indonesia, January



“In our work, you never know what you can come across. All you know is that it will be a problem you have to solve. This applies both to an emergency response, but also to wreck clearing. Both require good communication with the contractor and diving foreman who supervise the operation from the diving platform, and initiative by the divers

themselves. They are all-rounders: they observe, report, do what they have to do, and only return when they have finished. As regards safety, the motto is: we do it safely or we don’t do it at all. It also comes down to the **assessment by the diver**, meaning, in effect, his experience. The first diver decides whether it is a ‘go’ or a ‘no go’ and, in the case of a ‘no go’, what the alternatives are. We have our own salvage diver training program. Trainee divers initially participate surplus to

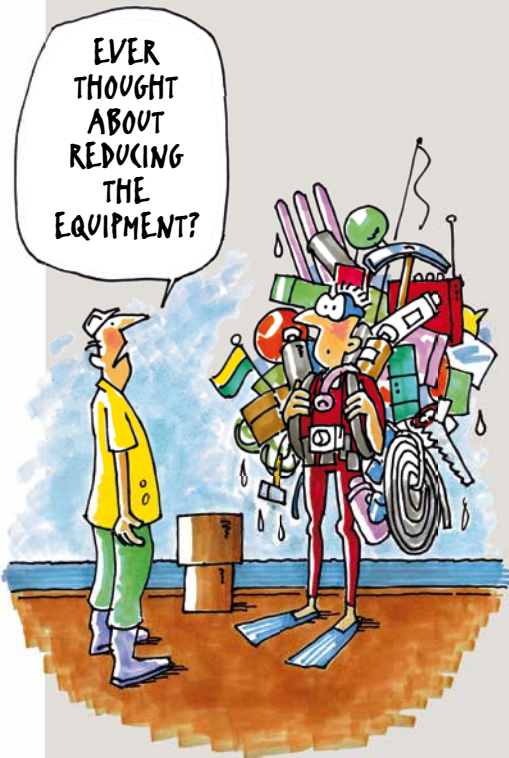


requirements. It is a long learning process because it takes at least six years to become a diver. Trainee divers are shown the ropes by experienced divers who point out the risks and how to deal with them. For example, they learn that safety primarily means caring for each other: **looking out for your colleague**, while your colleague looks out for you.”

Salvage project; Baltic Ace, North Sea



Awareness and risk management



At the National Diving Centre [Nationaal Duikcentrum] in Delft (NDC), introductory courses are regularly organized for anyone who is professionally involved in diving activities, such as dredgers.

Robin Knook has given a variety of training courses: "We teach people the basic principles of diving and diving safety. In that way, they become aware of the risks and, with the instruments that we provide to them, they can take measures themselves to minimize the risks." The following is a selection:

- Make sure that you are familiar with the basic diving guidelines. These basic guidelines drawn up by the diving sector apply as a worldwide standard for all diving operations and the maintenance of diving equipment. You, the customer, can use these basic guidelines

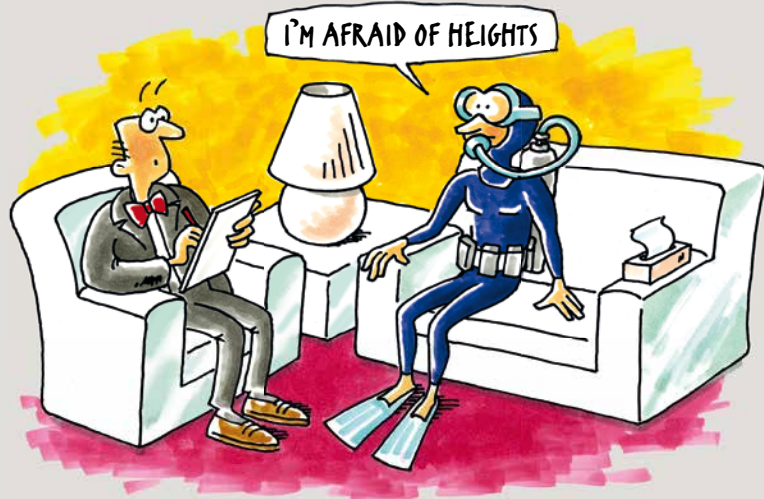
to ask critical questions, for example while preparing the project. See: www.imca-int.com/diving-division.aspx.

- Check the **breathing air**. It is important that breathing air is of a good quality and is not contaminated. Check where a compressor gets its air from, for example not in the vicinity of an outlet pipe.
- Check the state of the **equipment**. This is laid down in the Planned Maintenance System. Large-scale maintenance is managed by the asset department, often in collaboration with external certification agencies. Small-scale maintenance takes place in between times, at various levels.

Company salvage diving training course

You do not become a salvage diver just like that. Salvage has complete control of the training process. All contractors and the first divers in the pool started as trainee divers. The key word of the training is awareness.

Salvage diver training course, Waalhaven



Kees van Essen, Kees van Essen, manager operations: "The training process starts with an international diving course, for example in Durban, South Africa. This is followed by an internal salvage diver training course. During this course, young divers, led by a mentor/contractor, learn various techniques, such as firing and welding underwater, as well as the risks and how you can minimize them. The trainee divers can follow a mountain climbing course because

mountain climbing represents the same challenge as, for example, unloading a container ship with a serious list. It is with this baggage that the trainee diver starts work. Initially surplus, but shown the ropes by experienced divers. On the way he gains more responsibilities until he has been promoted to first diver within six or seven years."



Did you know...

...that, in Suriname, operators receive additional training on a simulator?



Training on the simulator

In Suriname, Boskalis is involved in open mining activities. Both the customer, Suralco, and Boskalis impose stringent requirements on operators. In order to ensure they comply, the project organization in Suriname provides additional training on a simulator.

In circa 30 trainingsuren leren de operators in
Operators receive approximately 30 hours of

training in a real-life cabin to learn how to
use the equipment efficiently and safely.

"The simulator manufacturer supplies a tailor-made solution", explains SHE-Q manager Erik van den Biggelaar. "We have indicated what we believe is important and that has been incorporated into the training module. It is even possible to add examination questions to the training program, for example about NINA."

Professionalism and awareness

Trainer Andreko Madasan prepares the operators for the theory and practical exams. "We allow people to start with what they have learned from experience and then confront them with the result. They are then given instructions on what they can improve and how. This leads to substantial improvements, for example in the level of production they achieve. This increases not only their professionalism, but also their safety awareness."

On the simulator, you can train without fear because you cannot cause any incidents. For example, operators learn to be more observant, position themselves better and take account of the blind spot. We have now trained around 50 people, to the satisfaction of ourselves and certainly of the customer."

More is available from
erik.vd.biggelaar@boskalis.com



Check prior to diving



In the spotlight:

This time in the Spotlight: the Boskalis Hirdes EOD Services business unit. What do the people in this business unit do? And what does safety mean to them?

Boskalis Hirdes Explosive Ordnance Disposal (EOD) Services: specialist in detecting and destroying unexploded munitions on the seabed

What?

Detecting munitions on the seabed by means of historical research and survey, followed by identification and removal of the munitions. This specialism is utilized prior to an extensive range of activities, such as the expansion of a harbor or the construction of a wind farm or an oil platform. What it comes down to is: risk inventory and minimization.

Who?

Seventeen permanent employees, including six EOD personnel, who work from the home base in Hamburg, Germany, plus a pool of 100 specialists, including Remotely Operated Vehicle (ROV) operators and EOD personnel.

How?

Specialist knowledge is the main instrument of this BU, along with technical tools, such as magnetometers and ROV's. Due to the risks, the use of divers is kept to a minimum and the preference is to use technological solutions where possible.

What does safety mean to Boskalis Hirdes EOD Services?



The haul from a day of bomb cleanup



Grenade in ROV manipulator

“Locating munitions and removing it yourself was once considered to simply be part of being a dredger,” says Frank Seubring. “We now realize the risks this entails and we will not accept those risks any longer.” Frank is Operations Manager at Boskalis Hirdes EOD Services, the offshore arm of Heinrich Hirdes, which since the 1970's has accumulated experience with clearing munitions on land. That specialist knowledge is now being utilized more widely within the organization.

Avoiding surprises

Over the past years, a great number of incidents have been reported regarding munitions being discovered; in the past five years, for example, more than 300 reports were made of munitions being discovered in the suction head. The majority of these incidents only lead to delays and not to damage to property or injury. In the past twenty years there were four incidents that resulted in major damage to property. In any event, the impact is always significant: consider

for example the feelings of insecurity among the crew. “When munitions are present the situation is never entirely safe”, Frank says about the issue. “But the sooner (and more effectively) you are made aware of certain risks, the smaller the chance of unpleasant surprises. For that reason we want to be involved in a project at the earliest possible stage, preferably as early as the tendering phase, so that we have the time to provide a thorough advice on the local situation, and to address this situation if necessary. That also has commercial benefits, because if you can present a customer with an overview of possible UXO's, then you turn this into a shared problem.”

Appropriate measures

Worldwide there are large amounts of munitions lying on the seabed, for example along the coast of the Netherlands and off of Finland, Russia and Germany. These are for example unexploded bombs that missed their target, but also munitions that were dumped in the water. Different types of munitions require a different approach,

Professional packaging of munitions that can be transported





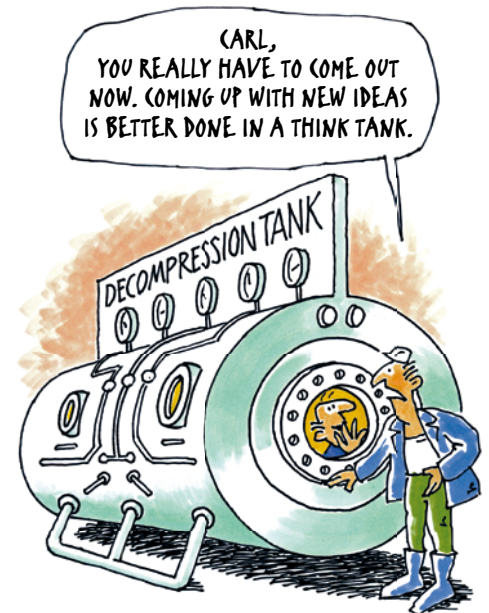
UXO survey in Swinoujscie, Poland

Frank says. "What we sometimes see now is that the measures that are being taken are not adapted to the risks. That creates false security and is perhaps even more dangerous than the risk itself. Compare it with driving a car: if you know that you don't have brakes you would drive at a walking pace, but if you believe that you do have brakes you automatically drive faster. Therefore have your plans checked by our experts. Don't take unnecessary risks: we're here to help!"

ROV's instead of divers

Finally, how do the employees of Hirdes themselves ensure their own safety?

"Being aware of the risks is important, being well-informed, and good preparation and careful implementation", Frank explains. For example only someone with an understanding of munitions can work out the data for a survey, because based on certain characteristics you can indicate a strong suspicion on whether or not an object is a UXO. Time is a major factor for being able to work carefully, both in terms of safety and for the environment. This can include, for example, the placement of screens to break pressure waves. And finally we work with ROV's as much as possible during the identification and cleanup of objects; we prefer not to use divers because of the risks involved."



**We look forward
to hearing your ideas
on how to
improve safety.
Please send them to:
safety@boskalis.nl**

Historical research for UXO's: digging into the deep

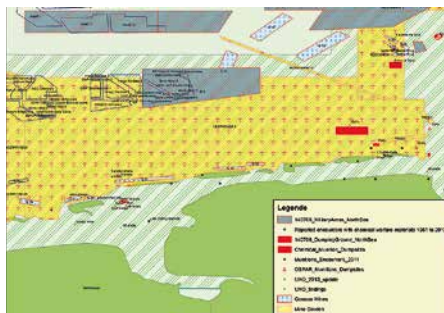


Jan Kölbel, Technical Director of Boskalis Hirdes EOD Services, is specialized in historical ammunition research.

"Military actions at sea, like battle activities, military practice and the placement of mines, are all documented. You can find this information at the National Archives. However, sometimes the execution of a plan went differently. A ship that was ordered to dump ammunition sometimes started doing this before the actual dumpsite. For this you have to consult the fleet's and ship's logbooks. If we find this kind of information we enter it into the Global Information System, our continuously growing database with specialized maps."

Awareness

Jan sees growing awareness regarding the risks of UXO's. "But clients do not have the knowledge to judge information at its true value. For instance: if a minefield has been swept, it sounds as if the area is clean and safe. However, minesweeping only means cutting the anchor chain and detonating the mines by shooting on them, which only results in detonation of about



Overview of UXO's coastal area of the Netherlands - Germany

10% of the mines, so consequently most of them drop to the seabed. So: a mine-swept area may be safe for shipping, but not for anyone building a windfarm at sea."

Jan is setting up a tool for clients to minimise the risks of an encounter with UXO's based on real info. He is currently writing his PhD (doctor's degree) about it at the University of Leipzig.

Colophon

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