

13 NOMINATIONS IN THE RUNNING FOR IADC'S SAFETY AWARD 2017

INTRODUCTION

The International Association of Dredging Companies (IADC) is a global organisation for contractors in the dredging industry with over 100 main and associated members. To promote safety awareness on the job, IADC formed a Safety Committee comprised of QHSE experts.

In 2014, the committee initiated a 'Charter of Best Practices' which acknowledged the need for its members to establish common standards and maintain a high level of conduct in their worldwide operations, safeguarding their employees and the continuous improvement in guaranteeing a safe and healthy work environment. Companies have remained committed to eliminating work-related accidents and incidents.

Shortly after, the Safety Award was launched to promote the development safety skills throughout the dredging industry, recognising individuals, teams and companies demonstrating diligence in safety awareness in the execution of their profession.

Soon to be given for the second time, the annual award is a relevant accolade for all companies engaging in activities related to the

dredging industry. Its conferment commends exceptional safety performance demonstrated by either a project or product as well as individual employee or a team working on a vessel, working site or office environment.

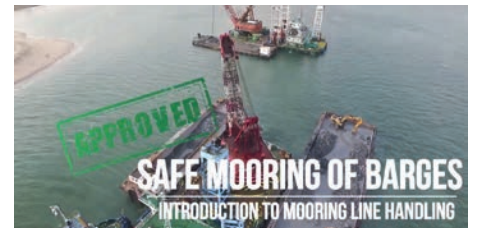
With the submission of entries closed on 31 May, the IADC enthusiastically unveils all 13 meritorious nominations in the running to receive the Safety Award 2017.

WHY A SAFETY AWARD?

- Encourage the development of safety skills on the job and safety awareness
- Make work safer
- Reward people and companies who make it possible to work safer
- Reward those who demonstrate special diligence in safety awareness in performing their profession

'SAFE MOORING OPERATIONS' VIDEO

PENTA-OCEAN CONSTRUCTION CO., LTD. AND HYUNDAI ENGINEERING & CONSTRUCTION (HDEC)



Led by Mr Heo Eun-Jin, a team produced the training video Safe Mooring Operations to show employees up-to-date regulations and standards in local languages before commencing a joint venture.

Prior to their collaboration on the Tuas Finger One Project in Singapore, Penta-Ocean Construction Co., Ltd. (POC) and Hyundai Engineering & Construction (HDEC) demonstrated their commitment to enhancing and ensuring safety in the dredging sector. A team led by Mr Heo Eun-Jin produced the training video Safe Mooring Operations, complete with up-to-date regulations and standards in local languages and then showed employees before work commenced. During the coastal land reclamation project's timeline, with all mooring-related hazards still

present, zero accidents were reported in relation to mooring. In addition to creating a conducive working environment for all workers, an unexpected and favourable outcome was the positive reaction from auditors and clients. Translated into the various languages of viewers, the audio-visual presentation method proved to be effective and can be utilised for many aspects of a project's safety concerns.

HYUNDAI ENGINEERING & CONSTRUCTION CO., LTD. was founded in 1947 and has been Korea's leading land development and construction industries, continuously ranking first in domestic construction capability evaluations. HYUNDAI E&C works abroad and offers total engineering solutions encompassing design, engineering and operations. The division also carries out such projects as dredging monitoring, environmental dredging, LNG receiving terminals, LNG supply pipelines, multi-purpose water gate facilities, and integrated steel works. HYUNDAI E&C is committed to developing safe and environmentally friendly technologies, increasing investments in safety and the environment, and developing

Find more information at:
<http://en.hdec.kr>

PENTA-OCEAN started business in 1896 in Hiroshima, Japan as a marine contractor. Over the last 100 years, the company has pursued advanced technologies which provide solutions to civil, marine and architectural engineering projects associated with urban growth and the environment. Penta-Ocean offers a total engineering approach, integrating both hardware and software. It is committed to customer satisfaction, including excellent post-delivery service, and the highest standards of safety and environmental awareness. Penta-Ocean has pioneered construction and maintenance systems in harmony with the natural environment underscoring state-of-the-art technologies and ecologically friendly methods. The company's track record includes internationally acclaimed civil-marine projects, offshore energy and resource-related structures, roads, tunnels and high-rise multi-purpose buildings.

Find more information at:
<http://www.penta-ocean.co.jp>

HATCH COVERS FOR DECK HATCHES

JAN DE NUL GROUP



Falling down an unprotected and open hatch presents high potential for a fatal injury, therefore the crew of the trailing suction hopper dredger Capitan Nuñez added stationary stanchions secured with safety pins to safeguard the openings.

When a low deck hatch is in the process of opening, it quickly becomes a dangerous situation. Falling down an unprotected and open hatch presents high potential for a fatal injury. While new vessels have already eliminated this danger by adding waist-high coamings around hatch openings, crews on older vessels are still vulnerable.

While many types of ad-hoc barriers have been created to resolve the issue throughout the dredging industry, the crew of the trailing suction hopper dredger Capitan Nuñez found an innovative answer to the problem: stationary stanchions. Surrounding the deck hatch, the stanchion makes the area surrounding the opening safer, whether it is in the open or closed position, or anywhere in between. By removing the safety pin which

secures the stanchion, the add-on can be removed if the need arises, making the solution easy to use. Older vessels in the Jan De Nul fleet have been retrofitted with the stanchions making for a sustainable solution.

JAN DE NUL GROUP designates people and global expertise as the corner stones of its phenomenal success. Thanks to its skilled employees and the world's most modern fleet, Jan De Nul Group is a leading expert in dredging and marine construction activities, as well as in specialised services for the offshore industry of oil, gas and renewable energy. The combination with its civil engineering and environmental activities renders the Group complete. Our professional and innovative solutions are trusted across the industry. Whether it concerns the construction of the new locks in the Panama Canal or a new port complex in Western Australia, together with our customers, we build for further social and economic development, being mindful of the environment.

Find more information at:
<http://www.jandenul.com>

4 POINTS OF ATTENTION PLAN

ROYAL IHC



The 4 Points of Attention Plan is a policy of weekly assessments covering four high-risk working areas. The policy engages individuals within many levels of the company, starting with employee assessment of weekly performance, implementation of changes among all parties, confirmation of compliance with the Safety Department and reporting results to senior management.

To improve daily safety operations on its shipyards, Royal IHC tasked a multi-disciplinary team of representatives from senior and

operational management, the work floor and Safety Department with identifying high-risk working areas: safe working at height on scaffolding, orderliness and cleanliness by proper housekeeping, safe use of certified tools and equipment and personal protective equipment compliance. Entitled the 4 Points of Attention Plan, a policy of weekly assessments covering these four areas was issued company-wide.

Employees must individually assess the week's performance – on a scale of one (poor) to ten (excellent) – in advance of an operational meeting held every Friday. By 7:30 Monday morning, an individual must implement all discussed changes which are then checked by the Safety Department for compliance and finally the results are reported to senior management.

Based on the reduction of incidents, the desired result of increased safety awareness and an instilled culture of individual accountability and responsibility were produced by the weekly assessment process motivated by its reward system.

ROYAL IHC enables its customers to execute complex projects from sea level to ocean floor in the most challenging of maritime environments. We are a reliable supplier of innovative and efficient equipment, vessels and services for the offshore, dredging and wet mining markets. With a history steeped in Dutch shipbuilding since the mid-17th century, we have in-depth knowledge and expertise of engineering and manufacturing high-performance integrated vessels and equipment, and providing sustainable services.

From our head office in The Netherlands and with more than 2,700 employees working from sites and offices on a global basis, we are able to ensure a local presence and support on every continent. With our commitment to technological innovation, we strive to continuously meet the specific needs of each customer in a rapidly evolving world.

Find more information at:
<https://www.royalihc.com>

HEALTH, SAFETY AND ENVIRONMENT RISK MANAGEMENT TOOL

VAN OORD



Used to train operational personnel, Van Oord's PowerPoint-powered tool divides the subjects of risk management into modules which display information through a combination of audio, photos and text.

Risk management is the basis of work done by Van Oord's employees and the term itself immediately is associated with being a complicated and time-consuming task. To stamp out the negative association and turn the burden into a simpler task, an interactive tool was developed to present information in both a practical and understandable manner.

Divided into modules, the PowerPoint-powered tool displays a combination of audio, photos and text to train operational personnel on the subject of risk management. Feedback given at the conclusion of each training has been positive, showing that text-heavy formats are no longer the preferred format for consuming information. By displaying important instructions or material in an efficient way, employees are more receptive to the information no matter what the subject and this leads to a safer working environment.

VAN OORD is a leading international EPC contractor specialising in dredging, marine engineering and offshore projects (oil, gas and wind). We are an innovative partner for our clients and, for over one hundred years, have been helping to create the infrastructure for the world of tomorrow. Van Oord is a Dutch-based, independent family business, which is characterised by visible leadership, long-term vision and a sound financial position. Substantial investments in people and equipment are made with great care to ensure the continuity of our business. Our staff are committed, entrepreneurial

professionals who are passionate about water and technology. Marine ingenuity is what sets Van Oord apart. In just two words, we show in the clearest possible terms what we do, how we do it, and what makes us different. A passionate, smart, shrewd, international marine contractor – that is how we see ourselves. We find innovative solutions designed to meet our clients' and business partners' challenges.

Find more information at:
<https://www.vanoord.com>

MOORING ACTUATOR

BOSKALIS



After a steel ball is 'caught' by the U-shaped bollard along a barge's edge, a Constant Tension winch rolls up the line, providing increased stability to the barge.

Secured to a backhoe's bollards with heavy lines, a barge assists with the transport of material dredged by the backhoe. Conventionally, two crew members must drag and manoeuvre the heavy lines, manually mooring the separate units alongside each other. During the loading of material, the barge lowers into the water, requiring the lines to be incrementally paid out, and all the while the risk of line breakage is omnipresent. Mooring is a time-costly and injury-prone procedure. In its quest for a safer, more economical and faster alternative, Boskalis devised the Mooring Actuator, an automated twist on the process. A backhoe is fitted out with two rotating arms from which two steel balls are suspended from chains.

Placed along the barge's edge, U-shaped bollards catch the approaching steel balls. Working a safe distance away from the 'line of fire', one crew member uses a remote control to moor the dredger and barge by

swivelling the arms to set the steel balls inside the U-shaped bollards. Once secured, especially developed Constant Tension winches begin to roll up the lines, providing increased stability to the barge than was possible before the Mooring Actuator. The amount of time it takes to execute the mooring process is reduced by ten minutes and crew safety during the activity increases for good.

ROYAL BOSKALIS WESTMINSTER N.V. is a leading global services provider operating in the dredging, maritime infrastructure and maritime services sectors. We provide creative and innovative all-round solutions to infrastructural challenges in the maritime, coastal and delta regions of the world with the construction and maintenance of ports and waterways, land reclamation, coastal defense and riverbank protection. In addition, we offer a wide variety of marine services and contracting for the offshore energy sector including subsea, heavy transport, lift and installation (through Boskalis Offshore and Dockwise) and towage and salvage (through SMIT).

Boskalis also has strategic partnerships in the Middle East (Archirodon) and in terminal services (Smit Lamnalco). With a versatile fleet of over 1,100 units we operate in around 75 countries across six continents. Including a share in partnerships, Boskalis has around 15,600 employees.

Find more information at:
<https://boskalis.com>



CCTV-SYSTEM

DAMEN SHIPREPAIR



A 24/7 surveillance system makes it possible for one person is able to monitor all 20 high-risk locations from a Mobile Command Unit, requiring less static safety consultants on site.

In an effort to reduce the dangers to crew both inside and outside a vessel, Damen Shiprepair entrusted a CCTV-system (installed by RBC Industrial & Maritime safety) with overseeing activities taking place in high-risk locations, including the engine, pump and turret rooms as well as confined spaces. Running 24 hours a day, 7 days a week, Damen's linked camera surveillance, access control, gas detection, audio/visual alarm and open radio transmission system lets one person continuously monitor 20 high-risk locations all at once from a Mobile Command Unit, detecting and acting upon hazards as they arise, in real time.

At the onset, hazardous situations increased significantly but with this information, Damen was able to improve the safety management system and guarantee worker's safety. The cameras will soon be wireless, but until then the installation needs a 220V power source and cable to connect with the central supervision unit. The system reduces operational costs by 20 to 50 per cent by requiring less static safety consultants on site.

DAMEN SHIPREPAIR & CONVERSION has decades of experience in repair, conversion, maintenance, refit and harbour & voyage projects, completing more than 1,500 jobs annually for all types of vessels and platforms. In addition, Damen Shipyards Group delivers up to 180 vessels each year and has built more than 6,000 ships since 1969. By maintaining an average stock of 200 hulls –

some already with basic outfitting – quick delivery times can be guaranteed. By cooperating on a large scale, the company is able to streamline its activities and realise objectives such as safe working conditions, competitive prices, short lead times, high quality workmanship and an overall reliability through its service.

Find more information at:
<http://www.damenshiprepair.com>

CONTROLLED CONNECTION OF FLOATING PIPELINES

JAN DE NUL GROUP



A pair of catamaran pontoons hold the connection ends of the floating pipeline strings.

The manual process of connecting floating pipelines has always been a risky task. Calm water conditions and competent skippers, deckhands and crane operators are required to prevent possible incidents or injuries. Jan De Nul Group developed the controlled alternative following multiple technical reviews and trials with crew. The connection ends of the floating pipeline strings are set up within a pair of catamaran pontoons. Between the Cutter Suction Dredger and floating pipelines, the connection process involves an especially-engineered tool in the pipe ring's lug to keep the ring straight while a fibre rope pulls the ends of the pipelines closer. The ends are secured together with a hydraulic quick fit connection.

With the process limited by 120 metre-long pipeline strings at the end of pontoons, the result is easier access within the pontoon work space, leading to better project planning and reduced risk of open water operations. Although the overall system is 10 per cent

more expensive, the combination of reducing interrupted production periods due to bad weather conditions and employee accidents has led to its welcomed reception by crew in field operations. Ongoing tests and user feedback have already led to planned innovations such as making the process remote controllable and using solar-powered hydraulic packs for added efficiency and sustainability.

Find more information at:

<http://www.jandenul.com>

SUPERVISOR HEALTH AND SAFETY PERFORMANCE IMPROVEMENT PROGRAM

NATIONAL MARINE DREDGING COMPANY



SHIP intends to establish a standard measure for safety awareness in working environments as well as increase staff reporting of incidents over a minimum period of four years.

To promote the 'safety first' mentality among all of its employees, management of National Marine Dredging Company (NMDC) launched the Supervisor Health and Safety Performance Improvement Program (SHIP) in 2016. The programme's goal was to establish a standard measure for safety awareness in working environments and increase the staff reporting of incidents through the introduction of four easily accessible tools over a minimum period of four years.

Two tools are the Health, Safety and Environment (HSE) supervisory campaign and a personal HSE performance action programme, the latter of which lets employees tailor their activities in either electronic or hard copy format so a supervisor can check and confirm and individual's compliance. The final two tools are the HSE

Awareness and Training Program for Supervisors & Foreman as well as the HSE pocket book which can be easily taken on site visits and includes diagrams, policies, a STOP card for observations and a Site Walk-through Check List. Following SHIP's implementation, observational reporting by project and technical personnel is on track to exceed a 27 per cent improvement.

NATIONAL MARINE DREDGING COMPANY

operates out of a fully equipped yard in Abu Dhabi with state-of-the-art workshops and a 300-metre jetty. NMDC aspires to become a leading Marine Contractor in the ME region. The core activities are Dredging and Reclamation works. NMDC aims to become a full-fledged Marine Contractor including civil marine, and off-shore activities. With a well-planned expansion of the dredging fleet and backed by a restructuring of its internal processes to improve on quality, marketing and talent acquisition, NMDC is set for the next quantum leap. Quality, Health, Safety and Environment (QHSE) has been extensively promoted as a corporate culture within the organisation.

Find more information at:

<http://www.nmdc.com>

TRANSPORT OF PIPELINES OPTIMISATION

JAN DE NUL GROUP



The collective use of Dhatec cradles, modular spreaders and C-pipe hooks in combination with soft slings improves safety during handling and transport, efficiency of the job, and both the safety and ergonomics for riggers

A common activity on reclamation sites and logistics yards is the transport of landlines with trucks. Jan De Nul Group optimised and

enhanced the handling and transport of dredge pipes by means of three techniques: the use of Dhatec cradles, modular spreaders and C-pipe hooks in combination with soft slings. The combination of all three changes improves efficiency of the job, safety during the handling and transport, and both the safety and ergonomics for riggers. The Dhatec cradles are mounted on the truck platform – adjustable to the pipeline diameter – and with lashing straps the load is secured on the truck. The C-pipe hooks are attached to a soft sling which makes it safer and ergonomically easier for the rigger to handle.

And thanks to the use of the spreader beam, the soft slings with attached C-pipe hooks are positioned optimally by using taglines so that the riggers can easily attach the load from the ground. The revised method is being implemented across Jan De Nul's global activities as it has proven to be beneficial to all parties associated with pipeline transport.

Find more information at:

<http://www.jandenul.com>

PLASTIC BOMB GRID

BOSKALIS



Weighing 15 kilos, a plastic bomb grid is a lightweight alternative to its steel predecessor with the added benefit of a hassle-free installation which takes just 30 minutes.

The presence of unexploded ordnance (UXO) and the high risk of explosions is a pervasive hazard to dredging activities. To minimise damage which can be caused to a hopper dredger's drag head, a steel bomb grid is mounted to prevent UXOs from entering the suction pipe during operation. Weighing in at a whopping 80 kilos, the attachment is

cumbersome to install, taking between three and four hours to secure. This is especially problematic since frequent cleaning is necessary throughout operation. Searching for a better solution, a works manager from Boskalis consulted knowledgeable captains and crew.

The solution emerged to swap out steel for plastic, the grid's weight was trimmed down to 15 kilos. The lightweight substitute offers a hassle-free installation, and takes a mere 30 minutes to install. Although three times more expensive to manufacture, the plastic alternative reduces the amount of time and injuries associated with the installation process.

Additionally, cutting down a vessel's weight equates to more sand in its hopper, making plastic bomb grids a much more favourable cost-effective choice both in terms of bottom line and performance.

Find more information at:
<https://boskalis.com>

WAVE PREDICTOR

NEXT OCEAN



Next Ocean developed a wave prediction technology which has been proven in field tests to give an average of 140 seconds notice, reducing risk in operations such as the lifting of equipment and goods between ships and platform or subsea structures. Allseas was the first customer to implement the technology in its activities.

Irregular and unpredictable, severe waves have a detrimental impact on the safe execution of offshore operations. A statistical approach can determine the probability of a limiting wave event but even in safe conditions, the possibility of a high wave which endangers people, environment and equipment is always there.

Knowing if a wave is coming with enough lead time is critical to be able to plan ahead and reduce risk in operations such as personnel transfer between ships and structures, the lifting of equipment and goods between ships and platform or subsea structures, and helicopter operations.

Next Ocean developed a wave prediction technology which has been proven in field tests to give an average of 140 seconds notice. Raw radar video plugs into a vessel's own navigation radar system and scans the sea surface surrounding the ship for a radius of a few miles. An algorithm generates a complete model of the sea surface and wave disturbances are translated into the ship's reaction in terms of movements.

The information is sent to a traffic light system, displaying green when operating conditions are ideal and red when workers should stop and prepare for a severe wave event. With minutes of advanced notice, crew are given enough time to react, for example lifting spud piles to prevent damage during the project, preventing what would be a costly and time-consuming endeavour. The predictor system's adage of 'Less Risk, More Uptime' is a clear-cut advantage to the dredging industry.

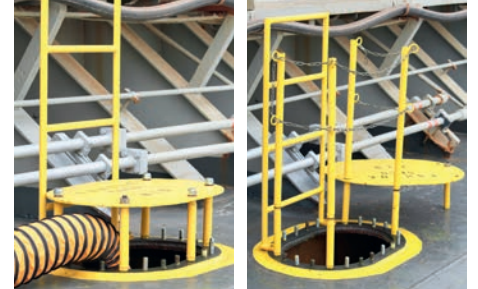
NEXT OCEAN is a start-up with roots at TU Delft. Next Ocean's recent research led to the development of a technology which enables the prediction of waves before reaching a ship by monitoring the surrounding wave field with standard navigation radar.

Next Ocean provides on-board wave and wave-induced ship motion prediction in order to reduce risks and increase uptime for offshore operations. In order to enter the market, Next Ocean needs to build a track record. The envisioned way to do this is by offering a low CAPEX and low-risk opportunity for clients to use the prediction technology on board: with an easy-to-install and set-up hardware and software which can be rented on project basis.

Find more information at:
<https://www.nwo.nl/en/research-and-results/research-projects/i/32/28032.html>

MANHOLE VENTILATION AND COVER

JAN DE NUL GROUP



When left open to ventilate tanks, a deck's manholes presents a safety hazard to crew but with stanchions mounted over the manhole, the cover is held in place in the opened position.

A deck's manholes which have been left open to ventilate tanks presents a safety hazard to crew. Not to mention the tank becomes a receptacle for dropped objects and the loose cover lies around, taking up valuable deck space. The crew of Jan De Nul Group's trailing suction hopper dredger Capitan Nuñez optimised the pervasive situation with a covering which allows ventilation without wasting additional space. Stanchions are mounted over the manhole to hold the cover in place in the opened position. When the cover needs to be removed, an extension ladder with railings fits onto the bolts of the removed cover.

Employees can then enter the enclosed space without hindering the use of a rescue tripod. When not in use, confined space equipment is conveniently stored in a box on deck. The recurring hazard of unsealed manholes on the decks of many vessels can be resolved with this single solution.

Find more information at:
<http://www.jandenul.com>

WORLDWIDE SAFETY STAND DOWN

DEME GROUP



DEME's CEO temporarily and simultaneously halted all of DEME's field and office operations around the world on Thursday 30 March 2017. At the conclusion of the two hour duration, each employee signed a personal Safety Charter in an effort to empower individuals to stop any unsafe or unprepared job.

DEME actively addresses safety and since 2008, its safety department has dedicated itself to instil a company-wide 'Safety Culture' through its self-initiated cultural and behavioural safety programme 'Colleagues, Help Injuries to Leave DEME' (CHILD). After eight years, the initiative was taken to the next level with CHILDS5, which emphasises four pillars necessary for safety: engagement, collaboration, communication and leadership. One of the programme's noteworthy components was the Worldwide Safety Stand Down.

On Thursday 30 March 2017, DEME's CEO simultaneously halted all of DEME's field and office operations around the world for two hours. During the long time frame, every DEME employee, as well as many independent contractors working on stopped projects, watched a video which presented a recent incident and detailed the results of an investigation into its causes. A refresher video of the CEO's 'Stop Work Authority' followed in an effort to empower employees to stop any unsafe or unprepared job. Afterwards, employees used a tool called Hazard Hunt to identify unsafe conditions in their working area and at the conclusion of the two hours, signed a personal Safety Charter. Although the event involved monumental costs and resources in terms of planning and execution, its disruptive approach has led to a significant decline in incidents ever since.

DEME GROUP is a Belgian dredging and hydraulic engineering group which has won a prominent position on the world market in a number of highly specialised and complex hydraulic disciplines. The company fosters a strong innovative approach throughout its history and has executed major works of marine engineering infrastructure such as new ports, waterways, airports and artificial islands on all continents. In support of its dredging activities, DEME has become a global solutions provider developing a whole range of new activities in the field of energy and mining such as installation of offshore wind farms and sea aggregate winning.

DEME has created a worldwide network of branch offices and agencies. DEME companies can rely on a permanent workforce of 4,200 dedicated people and a fleet of 90 main vessels backed by a broad range of auxiliary equipment. DEME offers global solutions for tomorrow's needs.

Find more information at:
<http://www.deme-group.com>

STAY TUNED

In September 2017, the IADC Board of Directors will reveal the winner of this year's Safety Award at the IADC Annual General Meeting in Marseille, France. The victorious nomination will be featured in greater detail in *Terra et Aqua* December 2017 issue.

WANT TO BE CONSIDERED FOR NEXT YEAR'S AWARD?

The Safety Award invites submissions from all companies participating in the dredging industry to submit safety-related innovations. There is no limit to the amount of submissions per company for consideration in the selection process.

For further information visit:
<https://www.iadc-dredging.com/en/46/awards/safety-award>

