

FACTS ABOUT

An Information Update from the IADC

A SAFE CULTURE IN DREDGING

WHAT ARE THE MAIN CHALLENGES ABOUT SAFETY FACING DREDGING OPERATIONS?

For many industries where heavy machinery is being used, safety, health and environment have steadily gained more attention. Often jobs are undertaken in changing weather conditions, with many subcontractors and stakeholders in a multi-cultural project setting. Ensuring that all personnel working on a job, from both the contractor and subcontractors, are well trained and informed has become a crucial challenge in the safe execution of a project.

To maintain and continually improve levels of quality assurance, safety, health and environment, modern dredging companies have implemented training programs aimed at teamwork and communication. These safety programs try to ensure that workers are aware of how to avoid risky situations and how to protect themselves and their co-workers. On-the-job safety demands constant training and coaching of all personnel to improve risk awareness. The ultimate goal of safety focus is to eliminate, incidents and accidents and create a safe working environment.

Safety at sea applies to all vessels and personnel working in the maritime sector. Safety also extends to the protection of the marine environment, waterborne global trade and consequently in all these aspects to the dredging industry. Safety on dredging vessels and during dredging operations embraces an overall approach towards ensuring the safety and health of personnel, the safety of the ships and the care for the environment and its inhabitants.

This attention to safety means that international dredging contractors adhere to applicable maritime regulations and participate in regular audits conducted by trained company employees, as well as external audits by certifying authorities throughout the world. Safety standards are applied during

All images in this document shows that all crew are wearing PPE (Personal Protective Equipment) on board of a dredging vessel or crew transfer. These are some of the many safety measures which aim to prepare a crew for emergencies, reduce incidents and limit employee exposure to hazards.

every phase of a dredging project, paying close attention to the safety of ships, crews and all other personnel as well as marine life. Ships, operations and offices must comply with the strictest of international standards regarding Quality, Health, Safety and Environment (QHSE), such as ISO 9001 for the execution of quality assurance; ISO 14001 for the execution of environmental protection; SCC and OHSAS 18001 for the execution of occupational health and safety; ISM for the execution of safety at sea and marine-environmental protection; and ISPS for the execution of security on vessels.

HOW DID SAFETY STANDARDS BECOME CODIFIED?

Since the maritime sector has always been an international industry, it has always drawn cross-border attention. The International Convention for the Safety of Life at Sea (SOLAS) is an international maritime safety treaty. The SOLAS Convention in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version of the treaty was passed in 1914 in response to the sinking of the RMS Titanic. It prescribed the numbers of lifeboats and other emergency equipment along with safety procedures, including continuous radio watches. Today, most nations realise that the best way of improving safety is to develop international regulations to which all seafaring nations agree.

WHAT IS THE ROLE OF THE INTERNATIONAL MARITIME ORGANIZATION?

In 1959 when the International Maritime Organization (IMO) came into existence it immediately adopted a new version of the International Convention for the Safety of Life at Sea (SOLAS). Thereafter the IMO developed and adopted international collision regulations and global standards for seafarers (COLREG), as well as international conventions and codes relating to search and rescue, the facilitation of international maritime traffic, load lines, the carriage of dangerous goods and tonnage measurement.

Another convention under the IMO is MARPOL 73/78, the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978. ("MARPOL 73/78" is an abbreviation for marine pollution and 73/78 for the years 1973 and 1978.) MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from routine operations or accidental causes and has been updated by several amendments over the course of time.

WHAT ARE SOME OF THE NATIONAL AND INTERNATIONAL SAFETY REGULATORY AGENCIES?

The standards of quality, health, safety and environmental awareness are often defined by the list of ISO/SCC/OHSAS/ISM and ISPS certificates for which a company has been certified. ISO codes originate from the International Organization for Standards which provides a wide range of certification for safety and quality. For instance, ISO 9001 covers issues such as the execution of Quality Assurance, Quality Management Systems and Requirements. ISO 14001 regulates the execution of Environmental Protection, Environmental Management Systems and Requirements with guidance for use.

WHAT IS THE SCC?

SCC (Safety Checklist Contractors) is an organisation, which created a Safety Checklist for Contractors and verifies that companies and their employees have implemented a safety management system. The SCC certification process has similarities to the ISO 9001 systems and audits. SCC also supports management systems and audits, such as ISO 14001 and OHSAS 18001.

WHAT IS THE ISPS CODE?

The International Ship and Port Facility Security (ISPS) Code is an amendment to the Safety of Life at Sea (SOLAS) Convention (1974/1988) on minimum security arrangements for ships, ports and government agencies. It came into force in 2004, and prescribes responsibilities to governments, shipping companies, shipboard personnel, and port/facility personnel to "detect security threats and take preventative measures against security incidents affecting ships or port facilities used in international trade covers the execution of security on vessels".

WHAT IS THE ROLE OF THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION?

ISO standards are developed according to the principles of voluntary, industry-wide consensus. The views of all interest groups are taken into account: manufacturers, vendors and users, consumer groups, testing laboratories, governments, engineering professions and research organisations with the aim to find global solutions which satisfy industries and customers worldwide. International standardisation is thus enriched with a wide variety of knowledge and experience.

HOW WAS OHSAS CREATED?

OHSAS 18001 was created through a concerted effort from a number of the world's leading national standards bodies, certification bodies, and specialist consultancies. A main

driver for this was to try to remove confusion in the workplace from the proliferation of certifiable workplace from the proliferation of certifiable OH&S specifications. The participants ranged from organisations from Ireland, Australia, South Africa, the U.S., U.K., Spain, Malaysia and many other respected international groups.

OHSAS 18001 helps an organisation systematically minimise the risk of incidents and work-related illnesses through a planning and managing program known as Occupational Health and Safety Management System (OHSMS). The internationally recognised standard OHSAS 18001 works within an organisation's existing management system to introduce a systematic approach to occupational health and safety, assessing workplace hazards and implementing preventative measures as part of daily operations. Certification to OHSAS 18001 can help an organisation more easily achieve compliance with both current and future occupational health and safety laws. It can also help an organisation systematically minimise the risk of accidents and work-related illnesses.

Through OHSAS 18001, Occupational Health and Safety Management Systems requirements have been developed to be compatible with the ISO 9001 (Quality) and ISO 14001 (Environmental) management systems standards, in order to facilitate the integration of quality, environmental and occupational health and safety management systems by organisations. In 2015 all ISO standards have been aligned to have the same High Level Structure (HLS) for describing generic topics like the context of the organization, leadership, planning, support, execution, evaluation of results and continuous improvement. The (OHSAS) specification gives requirements for an occupational health and safety (OH&S) management system, to enable an organisation to control its OH&S risks and improve its performance. It does not state specific OH&S performance criteria, nor does it give detailed specifications for the design of a management system.

WHAT IS THE ISM CODE?

After some very serious incidents occurred in the late 1980s, in which human error including management faults were identified as contributing factors, the IMO adopted Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention. In 1995 the Guidelines on implementation of the International Safety Management (ISM) Code by Administrations were adopted by the IMO. The Guidelines have regularly been revised (2001/2009). The Guidelines recognise the existing international instruments as the most important means of preventing maritime casualties and pollution of the sea and include sections on management as well as safety and environment.

The ISM Code was made mandatory in 1998 through the International Convention for the Safety of Life at Sea (SOLAS). The ISM Code establishes an international standard for the safe management and operation of ships and for the implementation of a safety management system (SMS). Effective implementation of the ISM Code aims to stimulate pro-active and conscious compliance with external rules to



create a self-regulation of safety and the development of a 'safety culture'. A safety culture should involve each and every employee, from top management to workers, on board ships and on shore, to feel responsible for safety and performance and to take actions that manifest this. Every company is expected "to designate a person or persons ashore having direct access to the highest level of management".

HOW IMPORTANT ARE TRAINING PROGRAMS AT DREDGING COMPANIES?

Very important. Rules and regulations mean nothing if workers and management are not on the same page about carefulness, expertise and attention to detail. Contractors provide intensive safety training, coaching and leadership programs for all personnel including management. These can be both seminars and workshops as well as "Toolbox talks" which are meetings or presentations organised on the job, just before work begins, that is, close to the toolbox. They usually focus on a specific working method, safety rule or job planning. Toolbox talks may be organised when new activities are being undertaken on projects or when working methods have been adapted or altered. However, such talks are best held more often, even without changes to working methods or activities. Issues that may arise regularly at Toolbox talks are lifting operations, working at height, working with pipelines, chemicals, lifeboats, excavations, mooring lines, household causing slip, trips and falls, and just about every aspect of a dredging operation.

WHAT IS PPE?

Personal Protective Equipment (PPE) is a crucial part of worker safety and can include face shields, safety glasses, hard hats, safety shoes and high visibility clothes. Additional PPE may also include life vests, high-visibility fleeces, and raincoats and trousers. This type of equipment has become standard for the dredging industry and has accounted for a significant reduction in accidents and incidents that could endanger a worker. In each case the type of PPE to be used is determined through a risk assessment.

HOW DO DREDGING CONTRACTORS ENSURE COMPLIANCE WITH SAFETY REGULATIONS?

Ongoing efforts are being examined all the time as dredging companies are always seeking better working methods and increased teamwork, also between client and (sub) contractors. Compliance audits are one method. Depending

on the particular operation a dredging project can expect to be audited by an external entity usually appointed by the client. For instance, an Occupational Safety and Health Suitability Audit, Occupational Safety and Health Compliance Audit and /or a Site Safety Survey Report might take place. Also ISM / ISPS audits may be undertaken. In addition, depending on the size of the operation, a QHSE stimulate pro-active and conscious compliance with external rules to create a self-regulation of safety and the development of a 'safety culture'. A safety culture should involve each and every employee, from top management to workers, on board ships and on shore, to feel responsible for safety and performance and to take actions that manifest this. Every company is expected "to designate a person or persons ashore having direct access to the highest level of management".

WHY DOES SAFETY REMAIN SUCH AN URGENT AND IMPORTANT ISSUE?

With every new job and every new set of employees, the safety situation needs to be re-assessed and thus implementing safety measures is an ongoing activity. The application of thorough training, compliance with internationally recognised standards and constant vigilance regarding Health, Safety and Environment (HSE) has resulted in fewer accidents, healthier employees, improved performance and the delivery of socially responsible projects. It supports the quality of the projects delivered. A win-win for client and contractors, employers and employees.

HOW DO DREDGING CONTRACTORS APPROACH THE ISSUE OF SAFETY?

Generally, Safety policies are divided into four categories: health and human resources, quality assessment, environment and security of vessels. All major international dredging contractors abide by the recognised standard international codes and have established systems for avoiding unnecessary risk and limiting the number of injuries and incidents. These programs require a major effort from management and staff as well as a commitment to investments in training and workshops in order to bring complete awareness to both management and the work floor. The aim is to reduce incidents, which leads to a more efficient operation and lower risks for employees.

FOR FURTHER READING AND INFORMATION

Bardelmeijer, Wilko (2010). "The Road Show SHE-Q Bus: 'Safety is as Important as Operations'. Terra et Aqua 118, March.

Bray, R.N., Bates, A.D. and Land, J.M. (1997). Dredging: A Handbook for Engineers. 2nd Edition. Arnold Publishers, London, UK.

Council for Dredging and Marine Construction Safety. <http://cdmcs.org/>

"Creating a 'Culture of Safety': The 2008 IADC Safety Award" (2008). Terra et Aqua 112, September.

"IADC Annual Safety Award: Work Safe - An Innovative System of Safe Work Practices" (2011). Terra et Aqua 125, December.

IMO (2001). Waste Assessment Guidance (WAG) Training Set. "Part 3, Waste Specific Guidelines".

IMO/WODA/CEDA (2012). Waste Assessment Guidelines Training Set Extension for the Application of Low-technology Techniques for Assessing Dredged Material. www.dredging.org.

Ogbo, J. (2008). "The Hansje Brinker Safety Award". Terra et Aqua 110, March.

OSHA. U.S. Department of Labor's Occupational Safety and Health Administration. www.osha.gov.

"Safety First: The IADC Safety Award" (2007). Terra et Aqua 109, December.

Simonelli, David (2009). "An Incident and Injury Free Culture: Changing the Face of Project Operations". Terra et Aqua 117, December.

The IADC Knowledge Center: <https://www.iadc-dredging.com/en/knowledge-base>

Branches safety behaviour programs like:

<https://nina.boskalis.com/>

<https://www.vanoord.com/nl/safety>

<https://ita.jandenul.com/>

<https://www.deme-group.com/safety>

www.imo.org/OurWork/HumanElement/SafetyManagement/Pages/Default.aspx

www.iso.org

www.scc-sekretariat.de/faq/SCCFlyerEnglisch.pdf

<https://www.arbocataloguswaterbouw.nl/p/doku.php>

<https://www.imca-int.com/publications/resilience/>



Facts About is presented by the International Association of Dredging Companies whose members offer the highest quality and professionalism in dredging and maritime construction. The information presented here is part of an on-going effort to support clients and others in understanding the fundamental principles of dredging and maritime construction.

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