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Draft regulations on exploitation of mineral resources in the Area

Draft standard and guidelines for the safe management and operation of mining vessels and installations

Prepared by the Legal and Technical Commission

Standard for the safe management and operation of mining vessels and installations

1. The safe management and operation of mining vessels and Installations is part of the safety management system to be implemented and maintained by the Contractor in accordance with the regulations on exploitation of mineral resources in the Area. For the purposes of the present standard, "mining vessels and Installations" means the vessels and Installations used in the support and conduct of mining in the Area.

2. The Contractor shall ensure that the management and operation of all mining vessels and Installations engaged in exploitation of mineral resources in the Area are safe and comply with applicable international rules, regulations and standards.

3. The Contractor shall ensure the development of a safety, security and environmental protection management system that:

(a) Ensures the safety of personnel, the protection of the marine environment and the safety of mining vessels and Installations, and property;

(b) Includes risk analyses and emergency preparedness analyses to provide a balanced and comprehensive picture of the risk associated with exploitation and ensure that the risk of incidents is reduced to as low as is reasonably practicable;

(c) Applies recognized international standards and systems, including the International Management Code for the Safe Operation of Ships and for Pollution Prevention and the approaches adopted in International Organization for Standardization (ISO) standards and guidance, in particular ISO 31000:2018 – Risk Management – Guidelines, ISO 9001:2015 – Quality management systems – Requirements, and ISO 19901-6:2009 – Petroleum and natural gas industries – Specific Requirements for offshore structures – Part 6: Marine operations, or equivalent;

* ISBA/27/C/L.1.

(d) Is consistent with International Seabed Authority rules, regulations and procedures, and other related international regulations, such as the International Convention for the Prevention of Pollution from Ships (MARPOL) and the International Convention for the Safety of Life at Sea (SOLAS).

Guidelines for the safe management and operation of mining vessels and installations

Contents

I. Introduction

1. These guidelines contain guidance on the safe management and operation of vessels and Installations used in the support and conduct of exploitation in the Area. “Vessels” means the vessels that are stationary on the mining site during the mining operations to run and support the marine and submarine operations involved, including the temporary storage and transfer of mined material to cargo vessels for transport away from the mining site. Such vessels and Installations are hereinafter termed “mining vessels and Installations”.

A. Scope

2. These guidelines apply to mining vessels and Installations intended to be deployed for exploitation in the Area. The guidelines are based on good industry practice and are recommendations for the implementation of the applicable mandatory requirements contained in the regulations on exploitation of mineral resources in the Area (regulations on exploitation) and should be read in conjunction with the standard.

B. Purpose

3. The purpose of these guidelines is to describe how a Contractor can achieve the safe management and operation of mining vessels and Installations engaged in the Area by minimizing risk and ensuring the protection of:

(a) Human life at sea;

(b) Marine environment;

(c) Mining vessels and Installations, and property.

4. Safe management and operation require the identification and understanding of the risks to human life and property at sea and the marine environment, together with a system of planning, controls, training and compliance with applicable internationally recognized rules and regulations and national laws.

5. These guidelines shall also be read in conjunction with the regulations on exploitation, as well as other relevant International Seabed Authority standards and guidelines, including but not limited to those related to:

(a) Emergency response and contingency planning;

(b) Environmental impact assessments and environmental impact statements;

(c) Environmental management and monitoring planning;

(d) Scope and standard of baseline data collection;

(e) Hazard identification and risk assessment.

II. Safety management process

A. Introduction

6. The objective of the process of development and implementation of safe management of mining vessels and Installations is to ensure that the Contractor, Subcontractors and all associated parties and personnel engaged in supporting exploitation in the Area comply with the same level of safety during operations.

B. Description of the process

7. Prior to the deployment of a mining vessel or installation, the Contractor should, in its application to the Authority for approval of a plan of work, document the operational intent and profile following the topics set out in figure I and providing relevant documentation as necessary.

Figure I
Overview of topics to be considered in the safe management and operation plan

Part	Topic	Content
Part 1	Compliance	Outlines the approach and methods used to describe and demonstrate compliance with the relevant regulations, as well as the requirements and expectations of operators and external stakeholders.
Part 2	Management system	Provides a description of the operator's management system to ensure that health, safety and environmental risks are reduced to a tolerable (as low as reasonably practicable) level. The methods to reduce risk must be considered in part 4.
Part 3	Asset description	Provides a description of the asset, its operations, and the equipment and systems necessary to reduce risk to a tolerable level, following the as low as reasonably practicable principle, and to fulfil the requirements of the applicant's scope of operations. The equipment and systems must be considered in part 4.
Part 4	Risk management	Provides a description of the risk management process for assuring that the risks associated with the proposed scope of operations are reduced to a level that is tolerable, following the as low as reasonably practicable principle, to the operator and other stakeholders. The risk management process must consider the elements described in part 2 and the systems and equipment described in part 3.
Part 5	Emergency response	Provides a description of emergency response arrangements and plans. These should be described based on the risk management process outlined in part 4.
Part 6	Performance monitoring	Provides a description of monitoring arrangements to ensure that the risk management measures identified in part 4 are implemented, maintained and effective in the workplace.

III. Regulatory framework

8. The regulations on exploitation and the standard require that the management and operation of all mining vessels and Installations comply with applicable international rules and standards; the rules, regulations and procedures of the Authority; the national laws of the flag State relating to vessel standards and crew safety in the case of vessels or of the sponsoring State or States in the case of Installations; and the national laws of the sponsoring State or States in relation to any matters that fall outside the jurisdiction of the flag State, such as worker rights for non-crew members and human health and safety that pertains to the mining process rather than to ship operations.

9. Compliance shall be demonstrated by means of processes, procedures and documented actions that conform to these rules, regulations and required safety standards.

10. Depending on the type of vessels and operations, existing industry guidelines that would assist such compliance include the following:

(a) Guidelines for the Safe Management and Operation of Offshore Support Vessels, issued by United Kingdom Offshore Operators Association and the Chamber of Shipping;[1]

[1] See www.libramar.net/news/guidelines_for_the_safe_management_and_operation_of_offshore_support_vessels/2017-07-29-1314.

(b) Guidelines for Offshore Marine Operations, issued by Norwegian Shipowners' Association, Norwegian Oil and Gas Association, Netherlands Oil and Gas Exploration and Production Association, Danish Shipowners' Association, Oil & Gas UK and United Kingdom Chamber of Shipping;[2]

(c) Code of Safety for Special Purpose Ships, 2008;[3]

(d) ISO 19901-6:2009 Marine Operations;[4]

(e) NORSOK Standard J-003 Marine Operations (Rev. 2, Aug. 1997) (withdrawn but may be used as supplement to ISO 19901-6), issued by Norwegian Oil Industry Association and Federation of Norwegian Engineering Industries.[5]

A. Introduction

11. The operator of the mining vessels and Installations is responsible for implementing the various requirements by means of procedures, documentation, drawings, analysis reports, etc.

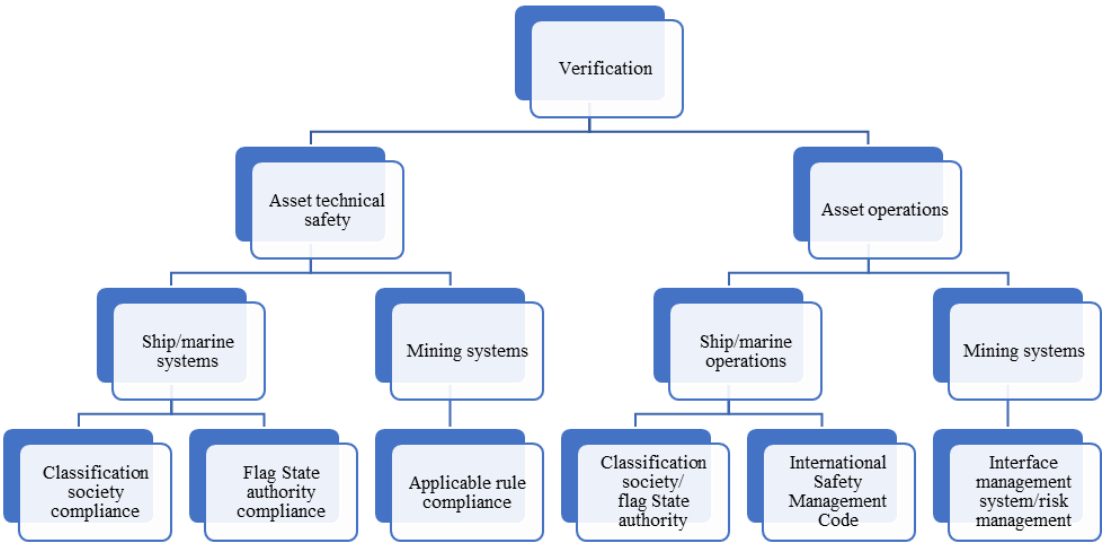
12. The Contractor is responsible for ensuring that the regulatory regime is followed by means of verifications, spot checks, periodic reviews, audits, etc.

13. The ultimate responsibility lies with the Contractor.

B. Technical and operational safety regime

14. Figure II provides an overview of the technical and operational compliance requirements for mining vessels and Installations.

Figure II
Overview of technical and operational compliance of mining vessels and Installations



[2] See http://g-omo.info/wp-content/uploads/2021/11/GOMO-Complete-Document-November-2021.pdf.
[3] See www.cdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.266(84).pdf and www.cdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.408(96).pdf.
[4] See www.iso.org/standard/34591.html.
[5] See www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/J-Marine-Operation/j-003/.

15. For the ship/marine system part of mining vessels and Installations, the design and outfitting should comply with classification rules and the relevant national laws of the flag State or sponsoring States. During operation, the mining vessels and Installations should follow the classification society and flag State and sponsoring States supervision schemes and comply with the International Safety Management Code.

16. For the mining system part of the mining vessels and Installations, it is recommended that the mining specific equipment be certified according to applicable rules.

17. The Contractor should ensure that the mining vessels and Installations engaged in mining operations have an adequate management system covering the interface for marine and mining operations.

IV. Safe management of operations

18. This section covers the requirements that a Contractor should fulfil in addition to the technical and operational safety regime mentioned in section III of these guidelines.

A. Compliance management

19. Compliance management is an important part of the safe management of operations.

20. Compliance with the rules and regulations (including for those aspects covered in section III B, on the technical and operational safety regime) is key to maintaining a minimum level of safety both at the design stage as well as in operations. The Contractor should establish a system that ensures continued compliance with applicable rules, regulations and standards.

21. While the existing rules and regulations cover most parts of the mining vessels and Installations in terms of design and operations for the marine side, there are gaps when it comes to the operational side of mining systems and the interface with the marine systems. The Contractor, together with the operator, should establish a safety case compliance demonstration on how the requirements pertaining to health, safety and the environment are intended to be met.

22. The compliance demonstration should be proportionate to the magnitude of risk. The primary objectives of a risk assessment in this context are to identify and rank the risks across the range of components covered under the design and operation of mining vessels and Installations so that they can be adequately managed through the evaluation and implementation of appropriate risk reduction measures. In this regard, guidance on approaches to hazard identification and risk assessment, on what constitutes a suitable and sufficient risk assessment, and on risk management best practice are provided in the guidelines on tools and techniques for hazard identification and risk assessments.

23. The Contractor should have ultimate responsibility for any risk study carried out on their undertaking. The Contractor is responsible for:

(a) Initiating the process of risk assessment;

(b) Scoping the risk assessment (given the knowledge of the asset, stage in the life cycle, etc.). This should include the context and purpose of the work, the processes and parts of the installation to be included, the approach or depth of risk assessment to be employed and the format of the report;

(c) Subcontracting specialist contractors to handle appropriate aspects, e.g. leadership of hazard identification, quantification, as appropriate;

(d) Providing the necessary inputs and members of brainstorming teams to the subcontractors;

(e) Providing all necessary resources and support;

(f) Reviewing the outputs so as to ensure that details of the installation and its operation are appropriate and to obtain an understanding of the hazards, potential consequences and risks;

(g) Making use of the results of the risk assessment as part of the continuous improvement of safety, e.g. by using it to identify and evaluate possible remedial measures;

(h) Reviewing the risk assessment periodically and updating it as required. The ownership of the risk assessment needs to be retained by the Contractor who will therefore need to carefully consider how to supply the data input required by the Subcontractor, including details of the asset and its operation. In all cases, personnel carrying out the risk assessment should have a knowledge of the:

(i) Equipment, process and/or activity to be assessed;

(ii) Hazards present;

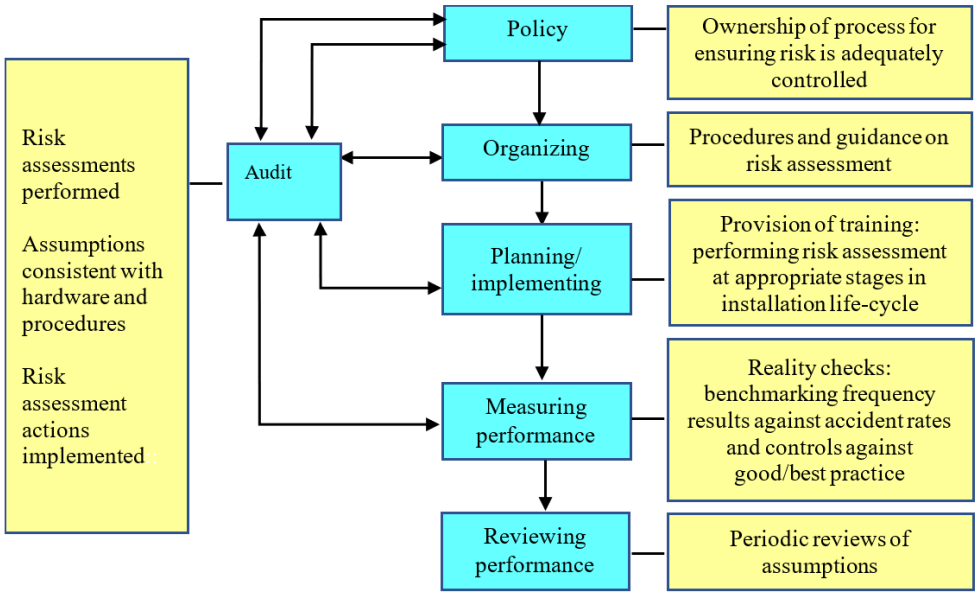
(iii) Probability/likelihood of the failure scenarios realizing a hazard;

(iv) Consequences of exposure to the hazards present or produced;

(i) Producing a risk assessment that is fully appropriate for the installation and purpose, rather than a generic risk assessment for the type of vessel and installation (unless it can be demonstrated that the generic study is adequate and conservative and does not fail to address significant issues which are specific to the asset).

24. The relationship between the risk assessment and the Contractor's safety management system is shown in figure III below.

Figure III
Risk assessment as part of safety management



25. Risks are reduced to as low as is practicable by employing risk assessments to help focus and maximize the process of continual improvement within the safety

management system. Ongoing review as part of the process can help determine whether additional controls are required or justified, thereby providing assurance to management that both safety and business risks are adequately managed and controlled. Active engagement across all levels of the workforce in the process of risk assessment is to be encouraged, with a view to gaining an understanding, and thus greater acceptance, of the risks and their relative priorities. Risk assessment is an essential part of any safety management system.

B. Contingency plans

26. Plans and procedures for emergency situations should be established and maintained based on a systematic evaluation of possible scenarios. Depending on the commercial importance of the mining system, plans and procedures for contingency repair should also be established. More details are provided in the standard for the preparation and implementation of emergency response and contingency plans.

C. Working environment

27. The Maritime Labour Convention, 2006, and the International Labour Organization requirements currently in force apply to marine crew. However, similar documents that describe the working environment for mining crew and crew that are not part of the marine crew should be established. Such documents should outline the working environment measures relating to the health, safety and environment standards that shall be followed and should be prepared in accordance with the Health and Safety Plan.

28. The documents should also describe the occupational health services, the measures for assessing physical activity, the employer's obligation to undergo training in health, safety and environment work, the rest and recovery periods, etc. The requirements that apply to the working environment should also be part of this document, which should describe the general requirements relating to the working environment, the physical and psychosocial working environment, chemical and biological health hazards etc. Such requirement may follow an existing international standard.

D. Audit and review

29. Audits and reviews of the vessel and mining system should be conducted regularly. The frequency should be defined by those responsible for the operation of the vessel and mining Installations. The main objective of the reviews should be to:

(a) Assess the effectiveness and suitability of the safety management system

(b) Establish the improvement needs

30. The main objective of the audits should be to:

(a) Assess compliance with regulations and company requirements

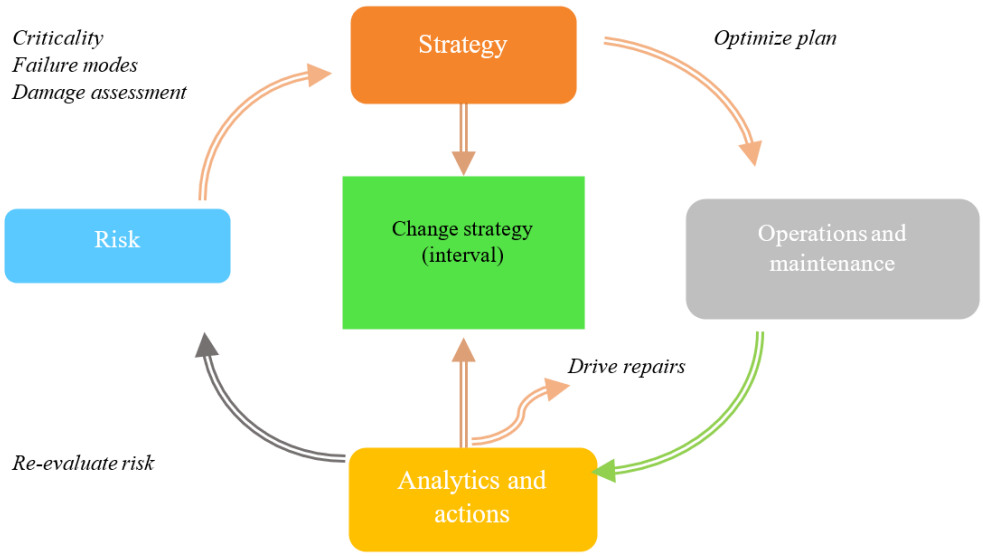
(b) Establish rectification needs

E. Performance monitoring

31. A visible framework for performance management should be developed and maintained where information sharing and application integration among operations and maintenance to provide a comprehensive view of production, technical performance and product quality. This will be the basis for improving integration

between production management and the management of vessels and Installations. Performance monitoring is recommended to reduce unplanned downtime, decrease maintenance costs and reduce health, safety and environment risks. An effective performance management strategy should be in place to drive safer, more reliable operations, while facilitating optimal performance at a lower sustainable cost. An example of a risk-based strategy and performance monitoring framework is indicated in figure IV.

Figure IV
Performance monitoring framework



F. Information management

32. A system for the collection of life cycle information should be established and maintained in order to ensure access to the relevant documentation throughout the systems service life. Life cycle information shall include:

- Documents from the project phase
- Operational procedures/manuals
- Operational data
- Documents covering any modifications or events
- Inspection, monitoring and testing records and reports
- Reports covering any assessments or analyses