

<i>Document reviewed</i>		
<b>Title of the draft being reviewed:</b>	Draft Guidelines on tools and techniques for hazard identification and risk assessments	
<i>Contact information</i>		
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<i>General Comments</i>		
1. On the whole, it has a strong macroscopicity. We can also consider further increasing the quantitative content and the reference form for each process of risk assessment, so as to enhance the guidance and operability of the Guidelines.		
2. Considering that the exploitation activities of mining area contractors in the same "Area" have many common risks, or involve the same relevant countries, organizations and other stakeholders, it is suggested that the ISA should timely organize all parties to carry out risk assessment and discussion on the same "Area" activities (such as CC Area), so as to avoid repeated communication between contractors on the same issues or objects; Or provide stakeholder information and communication platform (such as country / organization name, contact information, scope of "Area", etc.) to facilitate communication between contractors and stakeholders.		
3. At present, in addition to environmental risk assessment, there should also be technical and economic risks in the risk assessment information of deep-sea mining. For example, nuclear energy and other technologies to be used to solve the long-term high-power operation demand will have the risk of leakage, so it should be strictly assessed at the technical level.		
4. It is suggested to clarify the relationship between the "risk management method" repeatedly mentioned in the guidelines and the "preventive method" stipulated in the draft Exploitation Regulations.		
5. It is suggested to define the standard of stakeholders.		
6. All the discussions in the document are based on the assumption that there are no previous pollution accidents, and whether the pollution degree of the sea water in the initial period should be pre-evaluated. At the same time, because of the mobility of the sea water, "the world's oceans are one", it is necessary to discuss the pollution sources from outside the exploitation area and take more strict measures to control them. For example, in all discussions, it is necessary to carefully consider the key issues of the Japanese government's plan to discharge the wastewater from the Fukushima nuclear power plant to the Pacific Ocean in 2020-2021, and deal with the pollution assessment and relief or related liability exemption and deduction of the contracted waters after the discharge of the wastewater from the Fukushima nuclear power plant.		
7. Based on the characteristics of ocean flow, the long-term and short-term effects are superimposed on each other, and there are too many unknown factors in the development of marine mineral resources. The best technology in the future is not clear. Who will judge, enforce the law, monitor, and how to determine the risk assessment level.		
<i>Specific Comments</i>		
<b>Page</b>	<b>Line</b>	<b>Comment</b>
1	46-49	Here " to the point where the cost of further risk reduction would be grossly disproportionate to the benefits of such reduction", what is the appropriate proportion? How to define the proportion? It is suggested to be further clarified.
2	73	Please replace "five sections" with "six sections".
2	91-92	Please replace "Section 5: Provides references and links to additional sources of information useful for hazard identification and risk assessment." with "Section 5: Provides Abbreviations, Acronyms and definitions related to this Guidelines. Section 6: Provides references and links to additional sources of information useful for hazard identification and risk assessment."
2	102	Please replace "Section 5" with "Section 6"

3	138-141	Please add "What factors can mitigate risk consequences or reduce risk likelihood?"
5	Table, row 3	The Guidelines number involved here refers to ISBA/25/C/19/Add.1 document in 2019, but it is inconsistent with the actual Guidelines sequence published on the website of the ISA ( <a href="https://isa.org.jm/mining-code/standards-and-guidelines">https://isa.org.jm/mining-code/standards-and-guidelines</a> ), so it needs to be checked and clarified.
5	Table, row 4	It is recommended that this content and format requirements be included in the <i>Recommendations for the guidance of contractors on the content, format and structure of annual reports</i> .
6	Table, row 5	Please replace "at least 12 months prior to the planned end of production." with "at least 12 months prior to the planned end of production, or as soon as is reasonably practicable in the case of any unexpected cessation."
7	248	Please add "the mining equipment".
7	263	It is suggested to add "legal issues could violate United Nations Convention on the Law of the Sea" in parentheses after Socioeconomic issues.
8	296-297	Please replace "This can be accomplished using both quantitative and qualitative methods." with "This can be accomplished using qualitative, semi-quantitative, quantitative, or a combination of the above methods."
8	304-308	Please move the relevant contents of "Q""SQ""QRA" here to the end of paragraph 24.
10	343	The expression of "suitably qualified, experienced and of sufficient seniority" that decision-makers should have is more general, and it is suggested to clarify the participation conditions of decision-makers.
12	417	Please replace "Section 5.2" with "Section 6.2"
12	419	It is suggested that violation of relevant national laws or UN Convention on the Law of the Sea should be added in consequence assessment.
13	455	Please replace "probability assessment" with "consequence assessment"
13	455-458	Only one example is provided here. It is suggested to compile a reference table for each conventional factor and list the consequence level examples of each common factor, so as to unify the reference standard as much as possible.
13	459	Please replace "the water concentration and/or sediment concentration" with "the concentration of contaminants in seawater and sediment".
13	459	It is a qualitative distinction to distinguish the grades by the degree of negative impact (no, low, considerable, large and severe). It is suggested to add the quantitative index description for reference in each grade, such as the multiple of pollutant concentration exceeding the long-term observation background value, duration, toxicity and so on.
13	462	Please replace "Section 5.2" with "Section 6.2"
14	480	The preliminary approach and principles of preliminary approach are only general provisions in principle. It is suggested to further clarify the specific contents, methods or measures.
14	482	It is suggested to add "at the same time, it is necessary to assess the technical risks".
14	490-491	The draft EIA and EIS guidelines have been formulated separately by the ISA. The guidelines number here needs to be modified according to the actual guidelines number.
15	542	Please replace "Section 5.2" with "Section 6.2"
18	635	It is suggested to give the definition of "substantive adjustment" or give some reference examples.
18	648	With regard to "Ensure that the auditors are competent", it is suggested to clarify what kind of professional and technical ability the auditors should have?
18	658-694	In the section of Risk Communication Process, the contractor should be further defined as the leader of the communication process, so as to avoid multi-party wrangling, buck passing or inefficient communication, and improve the efficiency and actual effect of communication decision-making.
19	697	Please replace "Section 2.2" with "Section 2.3". It is easy for the contractor to obtain the information of the Sponsoring States, subcontractor and other organizations directly related

		to them, but it is not easy to obtain the information of other Member States, groups, contractors and other potential stakeholders. Therefore, it is suggested that the ISA provide the information of stakeholders or provide a communication platform.
19	714-715	In addition to "very simple assessment", it is suggested to clarify the specific scope or standard of "very simple assessment"; On the other hand, it is suggested to make it clear that "very simple assessment" means that the content of the report may not be prepared in accordance with the guidelines, or there is no need to prepare the report or other forms.
20	744-745	Please replace "Section 5.2" with "Section 6.2".
<i>Additional rows can be added to this table by selecting "Table" followed by "insert" and "rows below"</i>		

<i>Document reviewed</i>		
<b>Title of the draft being reviewed:</b>	Draft standard and guidelines for the preparation and implementation of emergency response and contingency plans	
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<i>General Comments</i>		
<p>1. It is suggested that the purpose of the emergency response and contingency plan standard and guidelines should be further clarified. Generally, the emergency response and contingency plan should be corresponding to the risks, and a targeted emergency response plan should be formulated according to the risks assessed in the "Area". However, in general, the emergency response to environmental accidents (such as oil spill), work safety incidents, shore based emergency, and fire emergency should be within the scope of emergency response plan, and the involved emergency response plan should run through the whole guidelines. How to determine the emergency level and whether it corresponds to the risk assessment.</p>		
<p>2. Marine mining has its unique characteristics, as well as the uncertainty of mining technology, it is suggested to analyze the characteristics of marine mining in the identification of accidents; On the other hand, the consumption of ship power energy is large, which is a risk source to be focused on. It is suggested to increase the identification of accidental leakage of ship power energy.</p>		
<p>3. It is suggested that there should be a clear boundary between the guidelines and the standards. The guidelines are instructive and the standards should stipulate the known contents. The purpose and basis for the formulation of guidelines and standards should be clarified.</p>		
<i>Specific Comments</i>		
Page	Line	Comment
3	56-58	It is suggested to add "the purpose of this standard is also to establish a set of unified and coordinated mechanism.
3	72	The Contractor is hereby required to prepare an emergency preparedness manual, it is recommended that the ISA provide standard templates for the docking methods, procedures and content when the Contractor connects with the ISA.
4	83	In the contingency plan, the Contractor shall consider and cover the main scenarios expected to occur: the most frequent "typhoon" of the sea should be increased.
4	98	Please replace "output" with "input", to align with those in Figure 2.1.
6	156-157	Please clarify whether it needs to be determined with the ISA and other stakeholders before implementation.
6	161	It is suggested to supplement the marine environment and resources, including hydrometeorology, marine water environment, marine ecology and fishery resources, for reference.
7	206	At present, this section mainly focuses on barrier management, and it is suggested to add relevant principles and requirements of on-site emergency disposal.
7	228	Is "emergency response organization" and "emergency preparedness organization" the same organization? What is the relationship between them? Although the "emergency response organization" is described in paragraph 33, there are still some unclear aspects, such as whether the organization is temporary or fixed? It is suggested to add "the emergency organization has the responsibility to count the feasible emergency rescue organization as a supplement on the basis of the emergency plan provided by the contractor".
8	252-253	It is suggested to provide a specific template for drawing the chart of communication procedure, so as to provide clearer guidance to the contractor.

8	269-274	It is suggested that the training and exercises conducted by contractors and staff should be carried out "regularly".
8	278	"Emergency preparedness resources that are integrated to be used are operational and available", this is a brief description of emergency preparedness resources. As the material carrier of emergency preparedness and response, it is suggested to further express the relevant principles of emergency resource allocation.
8	282	At present, there are three types of audit procedures, which will bring unnecessary burden to contractors, especially subcontractors. It is suggested to reduce audit procedures and pay attention to audit effect. In addition, it is suggested to discuss the necessity of audit. The audit of subcontractors can be divided into on-demand audit rather than necessary audit.
9	300-304	Please clarify who organizes the external audit and what are the auditor qualifications and audit standards.
13	466	Contact with shore based organizations is a must and words like "also important" should not be used.
14	517	"Should, as far as possible" is inappropriate. Drills is a prescribed step. It is suggested to use mandatory words, such as "must".
15-16	605-608	"Blowout" is the accident in offshore oil and gas operation. It is suggested to delete the relevant contents.
<i>Additional rows can be added to this table by selecting "Table" followed by "insert" and "rows below"</i>		