



**Template for the review of the draft standards and guidelines  
associated with the draft regulations on exploitation of mineral resources in the Area**

**TEMPLATE FOR COMMENTS**

<i>Document reviewed</i>	
<b>Title of the draft being reviewed:</b>	Draft Guidelines for the preparation of environmental management and monitoring plans
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<i>General Comments</i>	
<b>Standard</b>	
<p>The Draft Guideline is stated as being non-prescriptive; however, the Draft Regulations place strict requirements for an Environmental Management and Monitoring Plan (EMMP) on Contractors. The Draft Guideline and Contractors would benefit from an EMMP Standard that sets out mandatory elements and bridges the gap between the Guideline and the regulatory requirements. The mandatory elements should in part be drawn from what is established as good/best industry practice so that some minimum requirements for the EMMP are set out.</p>	
<b>Public or Stakeholder Consultation</b>	
<p>The Draft Guideline makes no mention of public or stakeholder consultation in preparing the EMMP even though eventually the EMMP, as part of the application for a Plan of Work, will become a public document. The Draft Guideline does refer (Paragraph 6, lines 66 to 67) to following Good Industry Practice, which would include such consultation. The need for and benefits of stakeholder consultation in preparing the EMMP should be specifically emphasized e.g., in Section III Preparing an EMMP for Submission with a Plan of Work. We have made similar comments have been made to the EIS Guideline and EIA S&amp;Gs.</p>	
<b>Continuous Improvement</b>	
<p>Continuous improvement is a fundamental concept and key objective of environmental</p>	

management, but this concept only gets a passing mention (Paragraph 50, line 441). It is partially implicit in some elements of the draft Guideline but should be spelled out more where it is first mentioned and how it will be implemented, e.g., through a Plan-Do-Check-Act process (as advocated by ISO, OGP-IPIECA and others).

### **Performance Assessment**

As noted in the specific comments (Paragraphs 45, 46 and 58) ‘performance assessment’ is envisaged in different ways. The Guideline should clearly distinguish between these as follows –

- The EMMP is a legal document that sets out what a Contractor is required to do to comply with the terms of its contract. The formal periodic performance review reported under Regulation 52 to the ISA addresses this compliance.
- Good Industry Practice implementation of the various individual measures contained in an EMMP involves ‘performance assessment’ of each measure on an on-going basis as part of continuous improvement.

### **Best Available Techniques, equipment design, environmental performance standards and EMMP**

In comparable other sectors a project design will aim to achieve a pre-defined set of codes and standards that have been set by regulators and industry standards bodies (noise control, emissions etc.). The operational EMMP (or similar) for such activities therefore focuses on demonstrating that a facility is operating in accordance with its design codes and standards and meeting regulatory requirements.

A contractor’s mining vessels and equipment will arrive on site at the beginning of the project with the majority of environmental mitigation and management measures hard-wired into their design. In the absence of design codes and standards these environmental mitigation and management measures could vary materially between contractors. This also means that the EMMP cannot influence front-end engineering and design of operational facilities. For example, attempting to apply Best Available Technology requirements at or after EMMP approval stage could mean replacing very expensive equipment or suspending operations for some time to improve the equipment.

The main environmental impacts of seabed mining (the ecological effects from loss of and disturbance of habitat from direct extraction and the plume/sedimentation) will therefore be most influenced by equipment design, with implementation of the EMMP only monitoring rather than managing and monitoring the effects. Therefore, successful management of adverse effects on the seabed environment will need to be addressed by coupling the setting of environmental design standards for seabed mining equipment, together with the implementation of the EMMP to demonstrate that the equipment is performing environmentally as planned. The EMMP can also then have a strong focus on monitoring and managing the residual uncertainties from the EIA process and the associated adaptive management.

For this reason, the EMMP Guideline should be written in conjunction with:

- setting environmental thresholds, Standards and Guidelines; and
- developing ISA Guidelines on mining technology design, and/or indicative examples or definitions of BAT for the purposes of equipment design.

These are required (as soon as possible) to inform Contractors’ machinery design.

**Adaptive Management**

The Guideline supports adaptive management without setting clear limits and rules around when adaptive management is appropriate and when it would lead to a watering down of environmental protection.

Science-based adaptive management is a key mechanism for the EMMP. This involves working to reduce uncertainties that remain from the EIA process over time and responding flexibly to new learning by changing management responses i.e., continual monitoring and re-adjustment.

Note that adaptive management is not a mechanism that should be used as a justification to approve otherwise environmentally risky activities. A precautionary approach should be taken to the issue of Exploitation contracts, and Contractors should be able to evidence sufficiently to the ISA’s satisfaction that environmental standards can be met. Then adaptive management can be employed by the ISA and Contractors as an enhancement to precaution. It can be expected that there will be significant scientific and technical advances over the 30-year (plus extensions) term envisaged for Exploitation contracts. The ISA regime should be designed to respond to that.

Regulations and contracts should not be continually revised, for reasons of practicality, as well as legality, and commercial fairness. But a Contractor can be required via the EMMP to strive for continual self-assessment and adjustment, in pursuit of ever minimizing the adverse environmental footprint of the project. Taking steps (when the Contract is granted) that contemplate ongoing changes to management practices (as part of an EMMP) serves to avoid the need for revisions to the Plan of Work /the Contract, which would require the Contractor and the ISA to consent.

The table below makes specific suggestions for improvements, although meaningful changes will need to be made to a binding document.

<i>Specific Comments</i>		
<b>Page</b>	<b>Line</b>	<b>Comment</b>
1	30	Regarding Para. 1 No mention is made of an EMMP Standard - see general comment “Standard”
1	44	Regarding Para. 3 The Guideline “is not intended to be prescriptive” and so in the absence of a Standard, Contractors are not given a clear benchmark to aim for in terms of producing their EMMPs. This risks the production by different Contractors of EMMPs that vary widely in terms of detail and quality. In the absence of a Standard, a sentence should be added similar to: While the Guideline below is not intended to be prescriptive,

		Contractors must justify any deviation from this Guideline and good industry practice in the production of an EMMP.
1	53	Regarding Para. 4 Environmental objectives’ are referenced a few times in the draft Regulations [DR 2(e)(i), DR46(2)(a), DR48(1), and Annex VII paragraph 2(a)]. The meaning of that term is not elaborated, but from the nature of those references, it appears they refer to and envisage every Contractor developing its own environmental objectives for each Plan of Work. Elaboration of when and how these objectives are set would be helpful.
1	51	Regarding “Scope and Purpose”  The EMMP also serves as a reference document to support ongoing work. It should: <ul style="list-style-type: none"> <li>• document environmental concerns and appropriate protection measures;</li> <li>• provide concise and clear instructions to project personnel and contractors regarding procedures for protecting the environment and minimizing environmental impact;</li> <li>• provide a reference document for personnel when planning and/or conducting specific activities;</li> <li>• provide contingency plans for accidental events; and</li> <li>• provide a reference to applicable legislative requirements.</li> </ul>
1	59	Regarding “cumulative effect” Cumulative effects should be defined to include not only cumulative effects from other mining impacts but also other human impacts on the ocean, e.g fishing, cables, climate change.
1	62	Add: “for monitoring the environmental effects of mining,” after “procedures”
2	120	Replace “EIA, EIS, and EMMP” with “EIA, EIS, EMMP and relevant REMP and Standards”
2	121	Regarding “living document” The EMMP is correctly described as a living document. It would be helpful to go a step further and recommend that its life begins early in the EIA (and project planning and design) process as opposed to being derived from the EIA at a late stage.
3	125-134	Replace para 14 with (changes in red): An EMMP should: <ul style="list-style-type: none"> <li>● Be balanced and objective allowing independent verification;</li> <li>● State any limitations that apply to the use of the information;</li> <li>● Provide sufficient detail to allow effective implementation.</li> <li>● Identify scientific uncertainties and include adaptive management strategies for managing uncertainty, where appropriate;</li> <li>● Contain committed measures to address the significant</li> </ul>

		<p>environmental effects that are auditable and measurable outcomes and clear timeframes;</p> <ul style="list-style-type: none"> <li>● Clearly explain technical terms and acronyms used;</li> <li>● Clearly define responsibilities and roles; and</li> <li>● Be reviewed and updated in accordance with Regulation 52.</li> </ul>
3	154	Replace: “Approval” with “application”
3	155	Replace: “in the form of a contract with” with “to”
3	160	<p>In para. 18 An EMMP checklist in Appendix C is referred to. While checklists are useful, they risk loss of emphasis on what matters most. Many of the matters on the checklist will have been addressed fully in the EIA/EIS. The most important parts of the EMMP are the mitigation measures that have been assessed in the EIA, the methods whereby they will be implemented, where, who by, when, how often, how their effectiveness will be monitored, and the actions to be taken if monitoring shows an outcome different from that predicted in the EIS. This is not sufficiently emphasized.</p> <p>The checklist also has flaws and needs to be fully reviewed for appropriateness.</p> <p>For example, it asks the question: Does the EMMP contain a stand-alone Emergency Response Plan?</p> <p>Under the Draft Regulations Annex V the Emergency Response and Contingency Plan is a completely separate document from the EMMP and required as part of the Plan of Work submission.</p>
3	176	There will be people and organizations who think an EMS and EMMP are the same thing. An EMMP is project or site-specific and an EMS is organization specific. This should be clearly explained along with how the EMS and EMMP are related.
4	190	<p>The role of the development of operational procedures and working methods as part of equipment design and mine planning respectively needs to be mentioned as they will strongly influence the operational environmental management. The EMMP measures will not simply derive from the EIA/EIS but also the project decision-making, equipment design and mine planning processes (</p> <p>see general comments – “Best Available Techniques...”</p>
4	198	The ‘Monitoring and Management Program’ should contain an additional section about ensuring that the measures set out in the EMMP should, where required, be aligned with equipment design, working methods and operational procedures. See for example the section on ‘Asset Design and Integrity’ of the ‘Operating Management System Framework, published by OGP-IPIECA (2014)

4	213	<p>The section on Adaptive Management is an important one and could be improved by spelling out why it will be such an important consideration in the EMMPs for deep-sea mining and the aspects of mining it might apply to. Suggested added para. to introduce the section:</p> <p>“25bis. The measures in the EMMPs will be based on EIA findings (along with design factors etc.). Where there is uncertainty in the EIA process, this will be addressed by adopting precautionary approaches which will be carried into control measures in the EMMP. This allows the activity to proceed under caution (e.g., the mitigation measure may be more than is eventually required once uncertainty is resolved) as opposed to disallowing it from proceeding at all. Monitoring to determine what actually happens in these areas of uncertainty may require controls to be tightened, added to, left the same, relaxed or removed entirely.”</p>
4	218	<p>Add new bullet:</p> <p>“can only be applied where the contractor and the ISA have been able to set clear and measurable environmental goals, objectives, targets, indicators, and thresholds and designed a monitoring programme that can demonstrate, with statistical confidence, that the strategic objectives, targets, indicators, and thresholds are achieved”</p>
5	275	<p>Regarding “The parameters identified to be monitored and/or sampled during an EIA/EIS”</p> <p>It should be noted that the EMMP sets out the monitoring strategy for the entire project, which could extend for decades beyond the EIA/EIS. The parameter list should take this into consideration</p>
5	277-279	<p>Replace bullet with (changes in red)</p> <ul style="list-style-type: none"> <li>● “Some monitoring will be of equipment performance (e.g., ‘end of pipe’) and may be on a continuous basis or highly frequent, whereas other monitoring (ambient environment) will require scientific survey campaigns to be mobilized at a suitable frequency to sample at specific stations and subsequently analyze, interpret, and report findings.</li> <li>● Proposed environmental monitoring/sampling methodology, including standards, protocols, methodologies, and procedures for collecting, analyzing, interpreting and communicating data, and the details of the proposed monitoring stations across the project area.”</li> </ul>
5	280	Regarding “Performance Standards”

		Clarify what is meant by the term through discussion of environmental thresholds, action trigger points etc. This would help clarify what contractors should be monitoring for. Unclear if performance standards here is more about quality control/assurance.
7	298	Regarding “non-significant” It is confusing what non-significant means in this context. Clarify how significance will be assessed. Significance also has a specific statistical meaning, and this can only be assessed by the monitoring programme, and likely not in the EIS.
7	302	Regarding “significance” Need a definition (or reference to another document) for what is a significant environmental effect vs a non-significant environmental effect. The previous parts of the document talk about assessing the significance of the effect, but this implies that effects will be grouped into "significant" and "non-significant" - this requires a robust decision-making framework that needs to be specified (or clearly outlined as a requirement for the EMMP).
7	317	Regarding “Compliance Monitoring” To provide a level playing field, all compliance monitoring should be conducted periodically with the same timing for all projects in the contract area (and ideally region) to ensure that the prescribed mitigation measures are effective in reducing the residual impacts to acceptable levels.
7	327	Regarding “Long-term Monitoring” The details of long-term monitoring (para. 38) may be developed in accordance with the Closure Plan, but their timescale beyond the closure of the mine has to be determined by the presence of statistically significant differences between IRZ and PRZ due to environmental impacts of mining activities (e.g. to allow for final estimation of reparations by the contractor).
8	347	Paragraph 41 should require the collection and storage of samples (as required during exploration monitoring, for example) for future and external studies.
8	361	Add “, including raw data, metadata and physical specimens” after “procedures”
8	366-367	For using real time electrical compliance monitoring technology, it would be useful to say the purpose intended for these systems.
9	386	Monitoring Stations should also look at the effects of plumes and other mining impacts on the marine environment. Suggest adding that to this list.

9	398	<p>Regarding “Planning Performance Assessments”</p> <p>It is implied here that the performance assessment covers the entirety of the EMMP, which in turn addresses the entirety of a mining operation and its impacts. Regulation 52 provides for circulation of the performance assessment 30 days in advance of the next meeting of the LTC. This implies a timeframe of at least 30 days plus an indeterminate period before an EMMP performance assessment is acted on.</p> <p>See also para. 58.</p>
9	413-414	<p>Appendix A Environmental Monitoring and Management Plan (EMMP) [Example Table of Contents/Form of Performance Assessment] was not available to review.</p>
10	455-459	<p>Where can the trigger values for corrective action mentioned in paras 52 and 53 be found? Recommend referencing the relevant Standard and REMP here</p>
11	496	<p>In advising the “frequency of the performance assessment” the need for the assessment is linked to individual risks, impacts and control measures in contrast to paras 45 and 46 which link the performance assessment to the entirety of the EMMP. Overall, there is some confusion that possibly stems from using the term ‘Performance Assessment’ to address both assessing the performance of an individual control measure and the overall implementation of the EMMP. It would be helpful to make clear distinctions.</p> <p>see general comments - “Best Available Techniques, equipment design, environmental performance standards and EMMP”</p>
11	506	<p>Do non-scheduled performance assessments (para. 59) make sense when they are based entirely on information provided by the contractor?</p>
12	518	<p>Para. 60 contradicts para. 76.</p> <p>Performance assessments can be done by an applicant using a competent person or persons as an ongoing exercise to gain its own internal assurance that the EMMP is performing as it should and being properly implemented. For reporting to the ISA and to the public the assessment (or compliance review) should, in accordance with good industry practice, be by a qualified independent party.</p>
12	524	<p>The prescription to the area-based management tools that are key to environmental impact assessment and to contractor performance assessment (para. 61) appears to be rather wanting and falling short of all cardinal information, e.g., how is the contractor supposed to fit IRZ and PRZ into the highly fragmented claim areas for massive sulphides (PMS) and cobalt crusts (CRC).</p>

12	532	Recommend this section on mining discharges (paras 63-71) should clearly prohibit the dumping of chemical additives (e.g., flocculation agents etc.).
12	543	The “Mining Discharge Guideline” is still outstanding
13	581	What is “Guideline 5”?
15	635	The use of the term independent competent person implies an individual. It is more normal (e.g., in the oil and gas industry) that this would be done by a suitably qualified organization. Given the complexities of deep-sea mining it is likely that several suitable qualified individuals or competent persons would be required.  Also note contradiction with paragraph 60.
16	677-678	Requiring Contractors to ‘also discuss with the authority’ is rather weak. Reporting on longer term effects should be mandatory and the intervals specified.
34	Table	Row “Environmental Management System” Column “Do the Components of the EMMP Meet These Requirements”  Recommend adding “Is there a clear route for reporting to senior management to ensure regular evaluation of the monitoring and management?”
37	Table	Row “Monitoring Methodology” Column “Do the Components of the EMMP Meet These Requirements”  Recommend adding - Is there an appropriate mechanism to store monitoring data and metadata in a way that allows for independent evaluation of changes over time?
38	Table	First cell in Column “Do the Components of the EMMP Meet These Requirements”  Recommend Adding  Does the sampling arrangement allow for the detection of expected effects using the best available knowledge of impacts and the environment of the project?  Does the sampling arrangement allow the differentiation between impacts caused by the mining project from those caused by other changes, such as climate change?
38	Table	Last Cell in Column “Do the Components of the EMMP Meet These Requirements”

		Add “, thresholds” after “values”
41	Table	Row “Consultation and Research” Column “Do the Components of the EMMP Meet These Requirements”  Does the EMMP provide an approach for identifying important information gaps and targeting research to fill these?
43	Table	Add new row to “reporting”  In Column “does the EMMP contain” Recommend adding “EMMP documentation for operational use”  In Column “Do the Components of the EMMP Meet These Requirements” Recommend adding “Is the EMMP accessible and presented in a format that allows contractor personnel and contractors to understand the purpose and procedures, particularly in the case of actions to be taken if thresholds are exceeded?”
<i>Additional rows can be added to this table by selecting “Table” followed by “insert” and “rows below”</i>		

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