2 February 2026

Report of the Informal Working Group on Test Mining“ (IWG TM) on the Intersessional Period July – December 2025

This report intends to summarize and report back on the work of the IWG TM and main aspects of the discussions held intersessionally between the 30th and 31st Session of the International Seabed Authority. The report is not intended to be exhaustive.

This IWG TM is co-chaired jointly by representatives of Germany, Belgium and China. The mailing list of the IWG TM at present entails about 200 entries with a good regional representation.

The Co-Facilitators of the IWG TM wish to express their gratitude to all members of the working group who have actively engaged in the deliberations throughout the intersessional period between July and December 2025 and propose to allocate appropriate time during the 31st Session of the ISA to continue addressing and resolving in particular those substantive aspects and open issues with regard to regulating Test Mining and Pilot Mining that are enlisted in section (3) of this report.

(1) Background

The IWG TM has continuously worked on the establishment of rules and regulations in the Mining Code for the testing of mining equipment as part of the approval process for a Plan of Work. The Co-Facilitators have conducted a series of virtual working group meetings over the past four years and regularly reported to Council meetings on progress. In December 2024, Belgium and Germany have organized an in-person workshop (in Bremen/Germany) to discuss specific aspects of test mining.

The work of the IWG TM resulted in a revised version of draft regulation 48ter on “Test Mining”. In parallel, China had submitted draft regulation 48ter Alt. (then called “Pilot Mining”), as an alternative to the original proposal. In this context, Pilot Mining has been described as a test phase *after* a Plan of Work is approved and *before* Commercial Exploitation begins.

At the sidelines of Part I of the 30th session of the ISA in March 2025, the delegations of Germany, Belgium and China have cooperated and produced a “Joint Proposal” (Appendix 1), by merging the aspects of test mining and pilot mining and proposing a two-phased approach. This proposal was presented to an informal meeting during the Council meeting in March 2025, where initial feedback was collected.

Another virtual meeting took place in June 2025 to further elaborate upon the Joint Proposal and in particular, any open questions/issues. General feedback was also received in written format by a few delegations. The report of this meeting, including all submissions, can be found on the Council webpages[1] relating to Part II of the 30th Session.

[1] https://www.isa.org.jm/wp-content/uploads/2025/07/Report-of-a-virtual-meeting-of-the-Intersessional-Working-Group-on-Test-Mining.pdf (Report) & https://www.isa.org.jm/wp-content/uploads/2025/07/Feedback-compilation.pdf (Submissions)

On the basis of this exchange and in response to the feedback received, GER/BEL/CHN have met twice at the sidelines of the Council meeting in July 2025 and further discussed the remaining open issues. The result of this trilateral discussions has also been submitted to Council as a brief non-paper[2].

Unfortunately, no time could be allocated at Part II of the Council meeting in July 2025 to present and discuss the outcome of deliberations, work progress or open issues.

(2) Intersessional Period July 2025 – December 2025

Subsequent to Part II of the 30th Session of the ISA in July 2025, the Co-Facilitators of the IWG TM have organized and moderated the following process:

Online meeting on 10 October 2025

This meeting was co-facilitated by GER/BEL/CHN and attended by 52 participants.

The Co-Facilitators presented the state of work by that time, focussing on the Joint Proposal prepared by GER/BEL/CHN. The Joint Proposal has merged the two approaches contained in former "48ter" (as proposed by Germany and Belgium) and former "48ter Alt." (as proposed by China) into one framework, now contained in "DR 48ter Alt.2". The Joint Proposal consequently sets out a two-phased approach with Test Mining (TM) and subsequent Pilot Mining (PM).

Participants were invited to comment on the Joint Proposal. Furthermore, a number of questions have been raised by members of the IWG TM and answered to the extent possible by the Co-Facilitators. The discussion confirmed a number of open issues.

Participants agreed that the Co-Facilitators should develop a revised text proposal on the basis of feed-back received from members of the IWG TM.

Exchange between Co-Facilitators in October 2025

Contrary to the ambition expressed at the online meeting, the Co-Facilitators were unfortunately not in a position to present a revised working document and instead agreed to put to written consultation the original text proposal jointly submitted by GER/BEL/CHN for the 1st Part of the 30th Session of the Council in March 2025.

Written procedure on the Joint Proposal in November 2025

Members of the IWG TM have been invited to review the Joint Proposal and provide any comments and specific proposals for amending the text. Corresponding feed-back has been received from states, contractors and observers. All responses received are presented in Appendix II.

Exchange between Co-Facilitators & submission of a revised text proposal in December 2025

The Co-Facilitators have thoroughly discussed all of the feed-back received by members of the IWG TM on the Joint Proposal but could not find agreement to include all specific text proposals in the draft text.

The Co-Facilitators acknowledged that there were still a number of open issues and diverging views between participants of the working group that warrant further exchanges.

[2] https://www.isa.org.jm/wp-content/uploads/2025/07/20250718-Openissues-TM-PM_rev_clean.pdf

Nevertheless, a revised proposal with a number of suggestions on those draft regulations that are under the scope of the IWG TM has been prepared and submitted to the ISA Secretariat on 8th of December 2025 (Appendix III).

Some of the open issues have been highlighted by either inserting square bracketed text or – where more substantial discussions are deemed necessary – by noting such issues in an explanatory text box for DR 48ter Alt. 2 that the Co-Facilitators suggested to be inserted in the Further Revised Consolidated Text.

As these explanatory notes have so far not been included in the Further Revised Consolidated Text (issued 23rd of December 2025)[3], the following section sets out issues that still need to be addressed by the IWG TM or Council.

(3) Substantive Aspects / Open Issues

Throughout the intersessional period, the Co-Facilitators have received a number of general comments, apart from specific text proposals, from members of the working group that continue to reflect divergent views and the need to address a number of substantive aspects with regards to regulating both TM and PM.

(3.1) General Views and Suggestions by Individual Members of the IWG TM

- It was suggested that TM and PM must be adequately regulated, sequenced and assessed to ensure that no harmful effects occur to marine environment before any Plan of Work can be approved.
- To ensure consistency, it was considered to be important that the TM (though taking place during the exploration phase) is made subject to the same rigor of EIA/EIS requirements as will be required under the Exploitation Regulations. It was suggested that TM - under an exploration contract - could take a more gradual approach and be broken into clearly delineated stages to gradually build up system maturity and reduce risks. By progressively reducing uncertainty, this approach would support generating empirical data, evidence-based decision-making, and would maintain flexibility for the ISA to respond if things go wrong while allowing contractors to mature their technology and business case.
- It was suggested to include in the proposal a TM Standard (developing simultaneously with the Regulations) that would include standardized criteria for each phase to ensure legal clarity, build in decision points at each phase for the ISA to retain the ability to pause, adapt, or even terminate further phases. Scale, duration, maximum volumes extracted, use of the minerals extracted, and procedures (e.g., if impacts more significant than those envisaged, maximum number of trials) should be clearly defined in a respective TM and PM standard. Furthermore, PM and TM reports' content should be defined in the respective standard subject to third party / scientific independent review and made publicly available.

[3] Germany has contacted the ISA Secretariat as Co-Facilitator on 26 January 2026 kindly requesting a revised version of the "Further Revised Consolidated Text" that adequately reflects the proposal submitted by the Co-Facilitators of the IWG on Test Mining as submitted on 8 December 2025.

- Safeguards should be included to prevent TM and PM becoming a pathway to hidden commercial exploitation.
- Monitoring should take place during and after TM and PM, including independent review and verification of the outcomes.
- Given the novel and unprecedent nature of the industry, TM exemptions should not be allowed in a first phase when the industry starts. Once technology matures, potential exemptions may be allowed subject to strict and clear conditions, taking into account the heterogeneity of ecosystems.
- The Exploration regulations likely require revision to improve the ISA's process for permitting and oversight for TM during exploration. It was suggested that this can be done through the Exploitation Regulations and subsidiary instruments - Exploration regulations would not need to be reopened.
- TM is an activity that will be performed during the exploration phase. It was therefore considered appropriate to regulate detailed requirements for TM as part of the Exploration regulations, e.g., through recommendations or standards under the Exploration regulations. Regulation of TM in the exploitation regulations should be limited to requirements with respect to documenting that necessary testing has been performed.
- A full ramp-up of different scales of testing of mining systems would need to be completed prior to commercial production commencing.
- Mining systems testing should comprise:

  (1) component testing (which is currently provided for in the Exploration Regulations),

  (2) full system testing (as per DR48 ter) which will require a standalone test mining contract before a Plan of Work is approved, then

  (3) full scale testing after a Plan of Work is approved (which is considered to overlap with the 'feasibility study' in DR25, and the process described in DR 48ter alt).
- Once commercial production is permitted to start, there should be a 4th stage – validation monitoring, to confirm whether the predicted outcomes of the Plan of Work are as expected, much of which is provided for in the Environmental and Monitoring Plan and annual reporting requirements.
- Concern was expressed that a regime would be developed that would be more appropriate for a mature sector with known impacts and mitigation measures operating under a tried and tested regulator. Accordingly, the Council was urged to construct an Exploitation regime at the outset that gives the ISA the best chance of discharging its legal duties successfully. For TM/PM that means requiring as much data and clear demonstration of technical abilities before awarding the first Exploitation contract(s) – not afterwards. So, it was suggested to strengthen the TM aspect of the proposal, with more detailed requirements than are currently provided. It would make sense for these to be housed in a Standard, so they can be detailed and also subject to revision as the knowledge base grows. This is a Standard that would need to be developed concurrently with the Regulations, to ensure all aspects are comprehensively covered.
- A view has been expressed, that TM should take place under Exploration. Hence, proposals have been requested for strengthening the EIA and oversight regime for TM. An instruction under the Exploration Regulations that contractors / LTC should follow relevant procedures

described in the Exploitation regulations, for TM, as proposed by ACOPS – would be an interesting idea addressing a number of concerns without re-opening the exploration regulations.

- It was considered essential that the ISA remains in full supervisory control. This would include retaining powers to (a) independently verify the results of TM and PM, and (b) prevent a contractor moving to Commercial Production in the event that PM does not evidence acceptable impacts/productivity/safety etc. The current proposal would benefit from inclusion and strengthening of both those aspects.

(3.2) Issues raised by Individual Members of the IWG TM related to Test Mining & Pilot Mining that need to be addressed

- Clarification is requested on whether the regulations on TM target nodules only, or also sulphides and crust mining.
- It has been stated, that there would still be a need to establish a clear obligation in the regulations to perform TM. Such obligation would belong in the exploration regulations. For the purpose of the exploitation regulations, it should be sufficient that such obligation is made implicit through the requirement to include a TM report in the PoW application in accordance with Regulation 7.
- Clarification is required regarding the distinction between TM and PM, including their respective purpose and scope (so as to avoid duplications).
- Clarification is required regarding the division of institutional responsibilities, in particular between the Council and the Commission.
- The Joint Proposal was interpreted that it would require TM to be undertaken at the Exploration phase, ahead of an application for a Plan of Work. Clarification is being sought on any legal or environmental risks of requiring fully integrated TM under an Exploration contract.
- Clarification is required whether a two-stage contract (i.e., a pre-production contract for PM under the Exploitation Regulations), prior to the application of a Plan of Work for Commercial Production, would have been considered.
- Clarification is required whether it is appropriate to define "Test Mining" in the regulations on exploitation if TM is supposed to take place during the exploration phase.
- Clarification is required on what the ownership status and obligations for storage/use of any minerals extracted during TM or PM would be?
- A query has been raised, if there would be any limits imposed on the volume of minerals that could be extracted during TM or PM.
- Clarification is sought on what would constitute appropriate time requirements for environmental monitoring and reporting post-TM and post-PM, and whether these would have been factored into the procedural aspects of the proposal.
- Clarification is required whether the Feasibility Study and approval process are to be considered separate from PM and its approval process. If that would be the case, the question is being asked what the Feasibility Study would cover that PM would not cover.
- The PM phase is considered to clearly relate to the draft definition for the Commencement of Commercial Production, which is currently included in DR 27. Currently, the proposed

definition expresses commencement of commercial production in terms of a certain % of production capacity sustained over a certain number of consecutive days. With a PM phase, the parameters of the definition would likely need to be at lower levels since the assumption is that significant integrated system testing would have already occurred prior to commercial production. Regardless, the two topics are linked and should be considered in conjunction.

- Further discussions are needed on whether a specific standard should be developed for TM, and whether that would apply to the Exploration or Exploitation Regulations, or both.
- Further discussions are needed on whether exemptions from the obligation to conduct TM and PM should be allowed, and, if so, under what conditions.
- Clarification is required whether PM is to be conducted after Plan of Work for Exploitation is submitted and approved; it is not clear if PM activities must specifically be approved after a Plan of Work has been approved but before activities actually begin.
- Clarification is required whether there is a prescribed or recommended duration for the PM phase in order to validate the operation of the integrated system and what would happen if the PM Report is not approved.
- Further discussions are needed on whether TM - under an exploration contract - could take a more gradual approach, while there was broader support for the two-phase approach for TM and PM. One delegation suggested a two-stage contract before commercial exploitation.
- Clarification is required on the process that would be undertaken if the Council does not find the PM Report and/or the updated Environmental Plans sufficient, and the duration of the period allowed to undertake PM.
- Further discussions are needed on the concept of "gains" from mineral resources collected during PM and the ownership status and obligations for storage/use of any minerals extracted during TM and PM.
- Clarification is required whether monitoring should take place during and after TM and PM, including independent review and validation/verification of the outcomes and how the suggested validation monitoring relates to environmental monitoring.
- Clarification is required regarding the relation between the PM phase and the draft definition for the Commencement of Commercial Production (cf. DR 27).

(3.3) Proposals by the Co-Facilitators on Prioritisation of Open Issues to be addressed during the 31st Session of the ISA

The Co-Facilitators propose to address the following questions & open issues as a matter of priority in the course of deliberations during the 31st Session of the ISA:

a) Differences between Test Mining and Pilot Mining: what are the substantive differences between TM and PM, including with regards to their respective purpose, scope, scale and duration and where will these specific requirements be further specified? Should there be minimum and maximum scales set for both TM and PM?

b) Obligation to conduct Test Mining: where and how should an obligation to conduct TM be established (considering that TM would be undertaken during the exploration phase)?

c) Exemptions from the obligation to conduct Test and/or Pilot Mining: should the regulatory framework allow for exemptions from the obligation to conduct TM and/or PM? If yes, what would be relevant criteria/conditions to be considered and where will they be specified?

d) Standard for the conduct of Test Mining: should a standard be developed for TM? If a standard is needed, should it be developed simultaneously with the regulations for TM? Should such a standard apply to exploration or exploitation regulations, or both?

e) Overall process & roles and responsibilities of both the Council and the Commission: what would be appropriate time requirements for conducting TM and PM as well as environmental monitoring and reporting post-TM and post-PM? What would happen if the Council does not find a Test or Pilot Mining Report and/or an updated Environmental Plans sufficient? In this context, also the respective institutional responsibilities of both the Council and the Commission should be considered and clarified.

f) Monitoring: what sort of monitoring should take place during and after TM and PM, including independent review and validation/verification of the outcomes and how would the suggested validation monitoring relate to environmental monitoring?

g) The concept of "gains" from mineral resources collected during Pilot Mining: how would "gains" be defined considering that the costs of conducting PM are presumably high so that net benefits cannot be assumed? How to avoid unequal treatment of contractors (state-owned vs. commercial contractors), considering the assumption that commercial contractors rely on revenues? How would any "gains" by used or shared?

h) Relation between the Pilot Mining phase and the draft definition for the Commencement of Commercial Production: currently, the proposed definition expresses commencement of commercial production in terms of a certain percentage of production capacity sustained over a certain number of consecutive days. With a PM phase, we would likely need to set the parameters of the definition at lower levels since the assumption is that significant integrated system testing would have already occurred prior to commercial production. What would then constitute appropriate parameters of the definition for the PM phase?