

Dr. Harald Ginzky - Germany

Lead for Intersessional Work on „Test Mining“

14 March 2024

Report
on the outcomes of the deliberations
of the Intersessional Working Group on „Test Mining“ (IWG TM)
October 2023 to February 2024

This report intends to summarize and report back the main aspects of the discussions held intersessionally. It is not intended to be exhaustive.

Procedural aspects

- (1) The mailing list of the Intersessional Working Group (IWG) entailed more than 60 entries with a good regional representation.
- (2) The group met twice in January and February 2024.
- (3) As no consensus was reached, a continuation of the intersessional work could be considered.

Substantive aspects

- (1) Starting point for discussions in this IWG was the joint draft of the co-leads of intersessional work on TM (BEL/GER) prepared prior to the meeting of the Council in July 2023. Furthermore, the group used the report prepared prior to the meeting of the Council in October 2023 as a basis for discussions in this intersessional period. The latter report is attached.
- (2) The IWG had raised three aspects in the report prepared prior to the October session for which more in-depth discussions were seen as required. The IWG focussed its discussions on these three aspects.
 - Aspect 1:
How does the approval procedure for a test mining project fit with the UNCLOS concept of exploration and exploitation?
 - Aspect 2: The concept of a „validation monitoring system“ (VMS) after the approval was regarded as necessary: How does such a VMS fit into the regular monitoring system? How does this approach fit to TM? What needs to be taken into account?
 - Aspect 3: The economic benefits, which contractors may receive through the collection of mineral resources during TM (addressed in Paragraph 5): What has to be transferred to the Authority? Only royalties or the full profit? At which stage in the overall process?

(3) Aspect 1 was intensively discussed by the IWG.

- Norway explained their legal interpretation which is documented in [Norway-DR48ter.pdf \(isa.org.jm\)](#). Norway is of the view that a test mining project is to be regarded as “an activity in the Area” which, according to UNCLOS, needs an approval by the ISA either under the regime for exploration or under the regime of exploitation and which needs to be undertaken in the frame of a contract.
- There was broad agreement in the group on this interpretation.
- A scientific study on the legal and scientific aspects of test mining commissioned by the German Environment Agency¹ was also shared with the group as further reading.
- Germany then proposed a regulatory approach explained by a short paper (attached) by which it could be ensured that TM has to be undertaken before applying for a PoW. The intention is to ensure that field data are gathered that can be used for the Environmental Impact Assessment.
- Germany’s proposal was discussed by the IWG, but no consensus was reached.
- Some stated a preference for TM to be conducted before the application for a PoW. Other viewed TM to take place after the approval as an alternative or a supplementary means.

(4) Aspect 2 was shortly discussed by the IWG.

- GSR submitted a short paper with regard to the Valuation monitoring system (VMS).
- The concept of a “Valuation monitoring system” is an already applied concept for other extractive industries. VMS is normally applied after the commercial production has started in order to monitor the “real system” and to control whether all requirements are complied with.
- Some viewed VMS as TM after the approval of a PoW. In this sense, VMS would be an alternative to an obligation to undertake TM before an application for a PoW could be submitted.
- Others raised the point, that if TM potentially is conducted via VMS only after the approval of a PoW, clear stopping mechanisms will be required at a later stage in case of non-compliance. In other words, the Authority must retain the power to stop the contractor to move to/to continue commercial production if the TM demonstrates unsatisfactory outcomes. They stressed that such stopping mechanisms are not yet foreseen in the draft exploitation regulations in binding and explicit language.
- In response, some argued that such a regulatory approach would pose a high economic risk on the contractors.

(5) Aspect 3 was hardly discussed by the IWG due the lack of time.

- TMC has submitted some conceptual ideas to the IWG. The paper is attached and requires further consideration.

¹ Pradeep Singh and Sabine Christiansen (2021) „Test mining in the Area: Legal, regulatory, environmental governance and scientific perspectives“. Available at: https://www.umweltbundesamt.de/sites/default/files/medien/2875/dokumente/draft_pmt_scientific_report_final_teilbericht_1_pdf.pdf

Appendix I

Dr. Harald Ginzky - Germany

Lead for Intersessional Work on „Test Mining“

14 September 2023

Report on the outcomes of the deliberations of the Intersessional Work on „Test Mining“ (TM)

This report intends to summarize and report back the main aspects of the discussions held intersessionally. It is not intended to be exhaustive.

Procedural aspects

- (1) The mailing list of the intersessional group entailed more than 60 entries with a good regional representation.
- (2) The group met twice, on 22 of August and on 12 of September 2023. The meetings were attended by 30 to 40 participants.

Substantive aspects

- (1) Basis for our discussions was the joint draft of the leads of intersessional work on TM (BEL/GER) before the July meeting.
- (2) Most participants stressed that they did not have a mandate to formally negotiate. Thus, all following deliberations need to be understood as an initial and informal exchange of views.
- (3) Almost all participants were of the view, that TM as an in-situ testing of the techniques is necessary in order to provide the required evidence to inform the application for a plan of work.
- (4) One country argued that testing under artificial circumstances would also be sufficient.
- (5) Most countries and other stakeholders were of the view that TM should be undertaken before the submission of an application for a PoW.
- (6) One country argued that the effects of a mining operation on the environment could only be tested under full scale conditions. Thus, TM should be a requirement only before commercial production is about to commence.
- (7) The majority were of the view that TM should be undertaken to inform the application as a whole. Thus, amendments to paragraph 1 and 3 were proposed and supported by most participants. For paragraph 3, a reference to all requirements set in Draft regulation 13 was proposed and included.

(8) One country, supported by others, stated that it should be expressed that the primary focus of TM is to provide evidence with regard to the potential effects on the marine environment. See the addition in paragraph 1.

(9) One country, supported by some, raised the point, that cumulative effects cannot be detected through TM. Others were of the view, that an initial detection should be undertaken.

(10) The IWG TM raised three aspects which still need more in-depth discussions. Some countries saw a need also for an in depth legal analysis with regard to these three aspects:

- The placement of TM in the overall procedure and the need for an approval procedure for TM projects was supported by most.
How does the approval procedure for a test mining project fit with the UNCLOS concept of exploration and exploitation? Is there a need for an intermediate phase during which the approval procedure can take place? Is there a need for a specific contract for TM project in case the existing exploration contract does not foresee a mandatory TM project? Or should a provisional exploitation contract be concluded for the TM project?

What are the criteria for granting an approval for TM project? What are the procedural requirements (EIA, EIS, stakeholder involvement) ?

- The concept of a „validation monitoring system” after the approval was regarded as necessary: How does such a VMS fit into the regular monitoring system? Aspects which need further deliberations: Deadline ? Endpoint ? Special monitoring phase for validation needed? Is there a need for specific measures in case of non-compliance? Is the regulation on Test mining the appropriate place to regulate the VMS ?

One contractor stated that [ISBA/27/C/6](#) (Draft guidelines for the preparation of Environmental Management and Monitoring Plans) should be consulted in this context.

- The economic benefits which contractors may receive through the collection of mineral resources during TM (addressed in Paragraph 5): What has to be transferred to the Authority ? Only royalties or the full profit? At which stage in the overall process?

One contractor stated that the revenue will be very small.

The group was of the view that the Finance Committee and/or the OWEG should be involved in further discussions on this matter.

(11) In the Annex, additional textual suggestions are shown.

Appendix II

Germany

Feb 2024

Germany's view on Norway's proposal and legal arguments

- 1) Germany agrees that TM is an 'activity in the Area' in the sense of UNCLOS which needs a permission and must be undertaken under a contract with the ISA.
- 2) Germany is of the view that it is legally possible to require that TM is undertaken during the exploration phase and under an exploration contract.
- 3) Germany believes it is necessary that TM is undertaken during the exploration phase in order to ensure that in situ field data on the equipment and the effects of the operation of such equipment on the environment (not only modelling data) is available before an application is submitted for an exploitation POW.
 - This is especially important at this stage of the industry, when we have limited scientific knowledge and the precautionary approach should inform the ISA's decision-making.
 - The ISA is also required to assess an applicant's 'technical capability' before awarding an exploitation contract. The prior performance of TM will facilitate the ISA to implement this duty appropriately.
- 4) Germany thinks that the data mentioned under (3) should form the basis for the EIA and the EIS and thereby for application for a plan of work for exploitation.
- 5) In order to achieve this objective, the following regulations are necessary in the exploitation regulations:
 - Mandatory requirement in the regulations and template relating to EIA/EIS that the EIA/EIS has to be based on in situ field data gathered by TM
 - A legal definition of 'test-mining' as is now entailed in DR 48 para 1
 - Technical and procedural standards to be developed for TM which further specify the legal definition in DR 48 para 1

These aspects will ensure a level playing-field for all contractors, mutual understanding about requirements across all stakeholders, and appropriate information type and data confidence for the ISA to inform its decision-making.

- 6) Contractors would have to comply with these legally binding requirements if they intend to submit an application for an exploitation PoW. They would hence have to ensure that TM is appropriately permitted during the exploration phase which would require its own EIA since "test mining is mining".
- 7) The current exploration regulations foresee TM being conducted under an exploration contract¹, and include a specific EIA and permitting procedure for TM via the relevant LTC Recommendations for the Guidance of Contractors (ISBA/25/LTC/6/Rev.1)

¹ The Exploration Regulations include 'the use and testing of recovery systems and equipment' in the definition of 'Exploration' and specifically require contractors to take certain steps before and after such tests.

- 8) Germany shares the view that this EIA procedure for TM at the exploration stage needs revisiting. Whether this should be done through an amendment of the exploration regulations or in the draft exploitation regulation needs to be discussed further. Both is legally possible. In any case, as has been mentioned by several delegations, the ISA should revisit the exploration regulations to make any necessary revisions in order to ensure consistency and conformity with the exploitation regime once the draft exploitation regulations are more advanced.
- 9) In our view, delaying TM until after award of an exploitation contract, as would be the case in Norway's proposal, has the following drawbacks:
- The EIA/EIS submitted to inform the ISA's decision whether or not to grant an exploitation contract would only be based on modelling data which renders the result disputable and does not deliver an appropriate basis for decision-making by the ISA.
 - If TM is conducted during the exploitation phase there would be a need for an additional control mechanism within ISA's procedures including the opportunity to stop the exploitation activity, although a contract has already been granted. This entails a high economic risk for the contractor, and a high regulatory risk for the ISA.
 - Requiring prior test mining also ensures that only "serious" applicants that have the actual capacity will ultimately be the ones that decide to move forward from exploration to exploitation.
 - The post permit control mechanism would have to follow the same substantial and procedural requirements as the approval process for the approval of a POW. In that sense, it would be largely duplicating the approval process, requiring additional resources on both sides (contractor and ISA).
- 10) The already discussed aspects such as the sharing of the revenues gained through TM and the option that TM is not required due to previous TM (inter alia) need to be included in the regulation proposed.
- 11) Notwithstanding the above views, Germany remains open to discussing the topic and to explore all options on the table.

Appendix III

Validation Monitoring in the Exploitation period

Note Submitted by: Dr. Samantha Smith (on behalf of Global Sea Mineral Resources nv)

Introduction

Whether or not a full system integration test ('test mining') occurs under an exploration contract with the ISA, **it should be considered whether test mining is the only, or necessarily the best, avenue for achieving the currently stated goals for test mining**, i.e., i. to ensure that the proposed mining equipment is technically appropriate, ii. that the Marine Environment is effectively protected from harmful effects, including the cumulative effects, as far as possible, in accordance with Article 145 of the Convention and iii. that the effects could be monitored.

Should test mining occur during the exploration phase, it will not entail the selling or processing of nodules, only their collection. With nowhere to go, the nodules will likely need to be stored on the vessel conducting the test mining. While the total duration of a system integration test is expected to be on the order of six to eight weeks (to test various set-ups and scenarios), the amount of time that could be spent collecting nodules would be limited to a total of two to three days. This is because within two to three days, the nodule storage holds of the test mining vessel would be full and unable to take on any more nodules. **Thus, the duration limit of 'true' test mining – involving nodule collection - under an exploration contract is on the order of only 2 to 3 days.** This practical limit of test mining under an exploration contract is important to consider.

It is also important to understand that test mining might also entail trialing various mining patterns and equipment set-ups to establish the most efficient, effective, and most environmentally responsible settings for future mining. What this means is that **"test mining" may not (fully) resemble steady-state mining patterns or mining operations** in terms of nodule removal, movement on the seafloor or levels of pressures exerted on the sediment, habitats, or water column.

Given these limitations, it is important to consider whether the stated environmental goals of test mining can be achieved with a test that has a duration of only two to three days, and which might also include tests that do not fully resemble mining.

GSR recommends the consideration of an approach that may be **more environmentally thorough, equitable, and fiscally responsible to achieve the stated environmental goals.** This would occur through **validation monitoring** occurring during a period at the **beginning of commercial operations, after an Exploitation Contract has been agreed.**

There are several reasons for considering this option.

Use of Validation Monitoring

Validation monitoring is a reason why test mining is not necessarily needed: a) as a requirement to meet environmental goals and b) to have the ability to stop operations should the contractor fail to meet its environmental obligations.

Firstly, it is noted that a validation monitoring period is already envisaged in the Draft guidelines for the preparation of Environmental Management and Monitoring Plans (ISBA/27/C/6) (see Box 1 below) and the concept is a normal part of many new developments associated with various industries (e.g., terrestrial mining, offshore oil and gas including deep water operations, dredging).

Furthermore, it may take some time (e.g., between 3-12 months) for a contractor, with all its mining equipment and associated infrastructure on site, to 'ramp up' to full-scale, steady-state mining / commercial operations (i.e. the time required to get all parts of the mining system and associated activities working at full-scale and at steady-state). During this 'ramp up' phase, environmental monitoring will need to occur to ensure compliance with the Environmental Impact Statement (EIS) and Environmental Management and Monitoring Plan (EMMP), however, it will unlikely represent a true validation monitoring phase. To truly validate the impacts/effects predicted in the EIS and EMMP, there will be a need to monitor steady-state operations for a period of time. Put another way, validation monitoring for the mining phase can only reliably occur once full-scale steady-state operations have been reached.

Box 1. Text on Validation Monitoring from the Draft guidelines for the preparation of Environmental Management and Monitoring Plans (ISBA/27/C/6):

38. The EMMP should describe the types of monitoring to be used through the various phases of Exploitation. Types of monitoring includes:

- **Validation Monitoring:** This monitoring should take place at the commencement of the project or activity and involves intensive, real time, and comprehensive monitoring to validate assumptions made in the baseline/EIA/EIS phase of the project. Upon the completion of the validation monitoring period, it is expected that uncertainty will be reduced, and the operation may enter into a 'steady state' compliance monitoring period, which may be less intense.

Once validation monitoring begins, which as stated above may be several months to a year after a contractor has arrived on site with the intention to start mining, it is recommended that the validation monitoring period itself should last on the order of 3 to 12 months after the contractor has reached steady-state operations and is carrying out its plan of work as per its contract for

exploitation. During this phase, it is expected that the contractor can process and refine nodules and can sell them and start to recover costs.

How does validation monitoring link with a safeguard / stop gate and ability to stop operations, if necessary?

The purpose of validation monitoring is to demonstrate whether the impacts/effects of mining fall within the predictions made in the approved EIS and EMMP. Assuming the Contract for Exploitation includes the requirement for the Contractor to operate in compliance with the EIS and EMMP, if validation monitoring shows non-compliance with the predictions made, then, as per Draft Regulation 52 8. (a) the ISA can issue a compliance notice under Draft Regulation 103; or (b) Require the Contractor to deliver a revised Environmental Management and Monitoring Plan. Under Draft Regulation 103, a compliance notice (warning), can be issued by the Authority if the Contractor is found to be in breach of the terms and conditions of its exploitation contract. If a Contractor disregards Authority warnings and persists in actions leading to serious, persistent, and willful violations of the contract terms, Part XI of the Convention, and Authority rules, regulations and procedures, the Council may suspend or terminate the exploitation contract by providing written notice to the Contractor as per the contract terms.

Validation monitoring could be made a condition of the Exploitation Contract, if this is not already achieved through EMMP-related Contract requirements (e.g. a contract condition that requires that the plan of work is carried out in accordance with the EMMP).

In summary: **Validation monitoring is a reason why test mining is not necessarily needed: a) as a requirement to meet environmental goals and b) to have the ability to stop operations should the contractor fail to meet its environmental obligations.**

Appendix IV

Regulation 48 ter [IWG ENV]

Test mining

1. Subject to this Regulation, an applicant shall conduct a “test mining” [prior] to submitting an application for a Plan of Work for Exploitation. Information gathered through “test-mining” shall be compiled in a test mining report in accordance with Annex IV, be in accordance with the applicable Standard and taking into account the Guideline to inform an Environmental Plans application for a Plan of Work for Exploitation pursuant to Regulation 11.

[2. “Test mining” means an *in situ* testing of the integrated system of all relevant equipment (e.g. collector, raiser and release techniques) and process steps (e.g. collector, raiser and release techniques) for an exploitation activities in a contract area under such technical, spatial and temporal conditions which allows “test mining” to provide to provide evidence to ensure demonstrate that the proposed mining equipment is technically and operationally appropriate, and that assumptions regarding impacts on whether the Marine Environment is effectively protected from Serious Harm, can be validated. Data collected during test mining can be used to validate numerical models and predict including the cumulative effects, in accordance with Article 145 of the Convention. and that the effects could be monitored.

[3. “Test mining” in the Area requires prior approval by the Commission and shall be carried out with reasonable regard for other activities in the Marine Environment, in accordance with articles 87 and 147 of the Convention, and in accordance with the [relevant] applicable Standard and taking into account any Guidelines and Recommendations, in particular to ensure that the Marine Environment is effectively protected from [Serious Harm].

4. Test mining does not have to be undertaken if the information contemplated by to Paragraph 1 has been provided through other “test-mining” by the applicant, by other contractors, or under another approved Plan of Work for exploration or exploitation. Where the applicant relies on such information, it shall compile the information in its “test-mining” report together with an explanation as to why this information is sufficient for the purposes of paragraph 2

4bis The Commission shall assess whether the information provided by the applicant in its test mining report pursuant to paragraph 4, demonstrates the requirements set out in paragraph 2 and shall report accordingly to the Council pursuant to Regulations 11-15.

[6 alt. Prior to the commencement of Commercial Production, the contractor shall provide the Secretary-General with a test mining royalties report containing the information specified in the applicable Standard and taking into account any Guidelines in respect of any minerals collected and sold during ‘test mining’. Royalties in respect of mineral resources that have been collected during ‘test mining’ shall be paid at the time the contractor makes its first payment of royalties after the date it commences Commercial Production.]

6 bis. In the event that an applicant which has conducted ‘test mining’ does not obtain an Exploitation Contract, it shall provide the Secretary-General with a test

Gelöscht: and take into account ...he relevant applicable Standard and taking into account the Guideline Guideline and shall...o inform on the ... [1]

Gelöscht: the ...test mining” to provide to provide for the provision of ...vidence to support the information provided by an applicant in its application for a Plan of Work for Exploitation, and to assist the Commission in its evaluation of the application ...o ensure demonstrate that the proposed mining equipment is technically and operationally appropriate, and that assumptions regarding impacts on whether the Marine Environment is effectively protected from Serious Harm harmful effects... can be validated. Data collected during test mining can be used to validate numerical models and predict including the cumulative effects, in accordance with Article 145 of the Convention. and that the effects could be monitored. “Test mining” should also be undertaken in order to optimize the integrated system with regard to its potential effects on the Marine Environment.]... [2]

Gelöscht: 2.alt.... The purpose of test mining is to ensure that effective protection of the marine environment from harmful effects is ensured. Test mining projects shall as a general rule provide evidence that appropriate equipment is available to ensure the effective protection of the Marine Environment in accordance with Article 145. ¶

3. “Test mining” in the Area requires a ...rior approval by the Commission the Authority consistent with the criteria in Regulation 13(1), ...nd shall be carried out with reasonable regard for other activities in the Marine Environment, in accordance with articles 87 and 147 of the Convention, and in accordance with the [relevant] applicable Standard and taking into account the ...ny relevant applicable ...uidelines and Recommendations, in particular to ensure that the Marine Environment is effectively protected from [harmful effects] ...Ss... [3]

Gelöscht: evidence...pursuant ...ontemplated by to Paragraph 1 has been provided through other “test-mining” n...y the applicant, by other contractors, or in the context of... under ...another approved Plan of Work exploration or exploitation. Where In such a case, ... [4]

Gelöscht: and ...t...e Commission shall assess whether the evidence ...nformation provided by the applicant in its test mining report pursuant to pP...ragraph 1 ... has been... demonstrated ...emonstrates the requirements set out in paragraph 2 in its review of the application ... [5]

Gelöscht: 5. After the approval of a Plan of Work, a validation monitoring system shall be established by the contractor, in line with the Environmental Management and Monitoring Plan, in order to monitor whether th ... [6]

Formatiert ... [7]

Gelöscht: Authority ...ecretary-General with a test mining royalties report containing the information specified in the applicable Standards...and ... [8]

Gelöscht: ¶

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mining royalties report within 12 months of the date that its exploration contract expires or is terminated. The test mining royalties report shall contain the information specified in the applicable Standard and take into account any Guidelines. The applicant shall pay any royalties in respect of any minerals recovered in accordance with the applicable Standard.

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7. Title and property to minerals recovered during 'test mining' shall pass to the applicant or Exploration Contractor upon their recovery of the minerals from the seabed, ocean floor or subsoil thereof.

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DRAFT

Draft Standard [OEWG]

In the present Standard:

First Period of Commercial Production means a period of 5 years following the date of commencement of Commercial Production.

Explanation / Comment

I invite views on whether it would be preferable for administrative purposes if the First Period of Commercial Production was to end at the end of a royalty return period.

Listed Price means:

1. For copper, nickel and cobalt: the price (in United States dollars), quoted for the Relevant Metal in the Official Listing relating to that Relevant Metal for the relevant period.
2. For manganese: the price (in United States dollars), quoted for manganese ore in the applicable Official Listing for the relevant period, the result of the following calculation:
$$(0.1 \times \text{EMM Price}) + (0.4 \times \text{LC FeMn Price}) + (0.4 \times \text{MC FeMn Price}) + (0.1 \times \text{HC FeMn Price})$$
 where:
 - ~~(a) EMM Price means the price (in United States dollars), quoted for electrolytic manganese metal in the applicable Official Listing for the relevant period;~~
 - ~~(b) LC FeMn Price means the price (in United States dollars), quoted for low-carbon ferromanganese in the applicable Official Listing for the relevant period;~~
 - ~~(c) MC FeMn Price means the price (in United States dollars), quoted for medium-carbon ferromanganese in the applicable Official Listing for the relevant period; and~~
 - ~~(d) HC FeMn Price means the price (in United States dollars), quoted for high-carbon ferromanganese in the applicable Official Listing for the relevant period.~~

Explanation / Comment

- Once the relevant indices have been settled, the applicable units for each quotation should be confirmed. It should also be confirmed that the relevant indices do in fact quote the prices for the relevant periods that are reflected by the draft Standards and Guidelines.
- To reflect the discussions of the OEWG, for manganese I have proposed text which features a manganese ore reference price. This also reflects the new work done by MIT in their updated modelling. I invite further discussion on this point, noting that some participants proposed using only the electrolytic manganese price as the reference price, while another submission proposed eventually moving to a nodule ore price as opposed to a composite based on individual

metals prices.

- To expand further on the relevant participant's proposal to use an official listing of EMM only rather than the composite calculation originally proposed based on MIT's earlier modelling, the explanation for that proposal is as follows: *The MIT model assumed, and included costs and royalty rates consistent with this assumption, that manganese was processed to the electrolytic manganese metal (EMM) grade. If the royalty rates proposed are levied on a base containing different/lower manganese prices then the conclusions from the MIT model are no longer relevant and the royalty rates should be revised upwards to maintain ISA revenues. Likewise, the proposed minimum acceptable royalty rates assume that the royalty is levied on a base using the EMM price. If there is a change to the manganese price used then the royalty base will be lower and payments to the ISA will be lower, and we will then revise its minimum acceptable royalty rates upwards to maintain acceptable revenues for humankind. It is important to understand that the regulations are not dictating what manganese grade processors process manganese to. The royalty regulations are simply determining a base on which the royalty is applied. There is no reason that the Draft Regulations cannot use the EMM price for that base. Trying to understand exactly what grade processors will process manganese to is likely to be a fruitless and unconstructive task that will only serve to delay the Draft Regulations. Reasons for this include: a.) some nodules may be processed to the EMM grade, while others will be processed to a lower grade, b.) different contractors will sell nodules to different processors, and not all processors will process nodules to the same grade, c.) some contractors may not even know the full downstream sales and processing chain. They will sell unprocessed nodules and are not legally responsible for what happens to the metal in those nodules downstream. In short, the main criteria for the royalty base are that it is simple to calculate, easy to audit and results in significant revenues for the ISA.* In addition review "Issue 3: The Valuation of Manganese" from the "African Group Speaking Notes on the Payment Regime" submitted on 15 January 2023, for further commentary to consider.

Official Listing means the quoted or published price of the Relevant Metals as specified for each Relevant Metal in the Guidelines.

Explanation / Comment

The reference to the Guidelines is to provide greater flexibility for future changes. The Guidelines also provide for a determination to be made by the Authority or Council (as determined during the negotiations) as to a new index, should the current one cease to be published.

Second Period of Commercial Production ~~means the period commencing on the day following the last day of the First Period of Commercial Production.~~ means [a period of [x] years commencing on the day following the last day of the First Period of Commercial Production.] [the period commencing on the day following the last day of the First Period of Commercial Production.]

[Third Period of Commercial Production means the period commencing on the day following the last day of the Second Period of Commercial

Production.]

Explanation / Comment

Participants have proposed to define all periods of Commercial Production. I have proposed text to this effect, although noting that currently ‘Third Period of Commercial Production’ is not used in the text.

As additional context, the two periods of Commercial Production were intended to reflect the two-stage ad valorem nature of Option 4, with the royalty rate increasing for the second period (namely the duration of the contract following an initial 5 year ramp up).

Shipment means each shipment of mineral-bearing ore by a vessel transporting the ore out of the Contract Area.

1. Relevant Metals

1. For the purpose of polymetallic nodules and appendix IV, [during the First Period of Commercial Production] Relevant Metals will be copper, nickel, cobalt and manganese [only].

2. During the Second Period of Commercial Production and subsequent periods of Commercial Production relevant metals will include copper, nickel, cobalt and manganese and may include other metals and substances, but only if there is substantial evidence that such other metals and substances are being processed from mineral-ore mined under the exploitation contract and are substantially increasing the value of polymetallic nodules mined in the area and in such case additional Standards will be published providing for the inclusion of these other metals and substances in aggregate relevant metal value.]

Explanation / Comment

- Participants have proposed different options for addressing additional metals. One proposal is to include text at Appendix IV. Another is here in the “Relevant Metals” section. Or such updates could be included within the broader review and update mechanism contemplated under DR 81 and 82.

2. Calculation of Average Grade

1. In respect of each Relevant Metal, the Average Grade shall be the metal content of that Relevant Metal expressed as a percentage per dry metric ton of mineral-bearing ore in a Shipment.

2. The metal content of each Relevant Metal shall be determined based on samples of the mineral bearing ore collected at the Valuation Point in accordance with the sampling and assaying procedures set out in the Standards and any Guidelines.

Explanation / Comment

- This provides for the royalty to be calculated based on the actual (sampled) metal content of each individual Shipment based on a number of samples taken at the Valuation Point during the loading of the transport vessel. This approach approximates the reality of the operations and the likely basis on which the product will be sold on a commercial basis.
- The MIT model assumes a consistent grade / content for each metal due to the fact that, for the purposes of analysing financials, MIT used the average composition and kept this constant. However, in practice the Contractors would need to measure actual composition for reporting and royalty calculations.
- Some participants have proposed removing the reference to Guidelines. I consider that while most matters could be included in the Standards, there is a role for Guidelines. Regulations 94 and 95 set out when Standards will be used and when Guidelines will be used. Guidelines can be more easily changed than Standards, and therefore should be used for administrative and operational matters (such as forms to use etc.) as they can be kept current with industry practice, to ensure that the Authority is applying best practice and most current industry practice. They may also be useful for matters such as worked examples.
- I consider that the original text proposal makes consideration the Guidelines (and therefore compliance with the Guidelines), binding, as it requires the Authority to consider the Guidelines, would make consideration of the Guidelines.

3. Calculation of Average Listed Price

The Average Listed Price for a Relevant Metal shall be the Listed Price for the Relevant Metal for the month during which loading of that Shipment commenced.

Explanation / Comment

- This calculates the royalty based on the market price applicable to each individual Shipment and avoids averaging market pricing across periods or Shipments. In calculating the price for each Shipment, it is preliminarily proposed that the average price is reported for that month (or some other period, if the OEWG agrees), on the basis that this approach is similar to that used in the pricing of bulk commodities in commercial contracts (i.e. the 'quotational period').
- The model uses a single price over a 12-month period because future price forecasts don't exist on a more granular basis; and it should be noted that the model makes no reference to the time periods for calculating royalties in practice. MIT's modelling has demonstrated that more accuracy (with respect to reflect actual market prices) is achieved by not averaging prices over long periods of time.

4. Calculation of Relevant Metal Value and Aggregate Relevant Metal Value

1. The value of the mineral-bearing ore for a royalty return period shall be the Aggregate Relevant Metal Value for that period.
2. The Aggregate Relevant Metal Value for a royalty return period shall be the aggregate of the Relevant Metal Values for each of the Relevant Metals for that

period.

3. The Relevant Metal Value for each Relevant Metal during the royalty return period shall be calculated as follows:

(a) For each Shipment:

Quantity x Average Grade of the Relevant Metal x Average Listed Price for the Relevant Metal

(b) For the royalty return period:

the aggregate of the Relevant Metal Values for each Shipment [which commenced loading] in the royalty return period

Where:

- (i) Quantity means the quantity (in dry metric tons) of the mineral-bearing ore in each Shipment [which commenced loading] in a royalty return period and calculated in the light of the applicable Guidelines.
- (ii) Average Grade is calculated in accordance with this Standard and in the light of the applicable Guidelines.
- (iii) Average Listed Price is calculated in accordance with this Standard and in the light of the applicable Guidelines.

5. Determination of the Applicable Royalty Rate

The Applicable Royalty Rate shall be:

~~Two stage variable ad valorem~~

~~1. For the First Period of Commercial Production, [2-3%]; and~~

~~[1alt For the First Period of Commercial Production, [12%]; and]~~

~~2. [For][From] the Second Period of Commercial Production, a rate no less than [5-7.5%] and no greater than [9-12.5%] determined by reference to the table below and the Notional Relevant Metal Value:~~

~~[2alt [For][From] the Second Period of Commercial Production, a rate no less than [12%] and no greater than [25%] determined by reference to the table below and the Notional Relevant Metal Value;]~~

Where:

- (a) Notional Relevant Metal Value means the [average Aggregate Relevant Metal Value per dry metric ton across all Shipments during the royalty return period].
- (b) The [average Aggregate Relevant Metal Value per dry metric ton across all Shipments during the royalty return period] shall be calculated by dividing

the Aggregate Relevant Metal Value for that royalty return period by the total Quantity shipped during that royalty return period.

Notional Relevant Metal Value <i>[(as may be adjusted in accordance with the Standards and Guidelines)]</i>	Applicable Royalty Rate [for][from] Second Period of Commercial Production
Less than [US\$850] [US\$ 510] per dry metric ton ($x < \frac{\text{US\$850}}{t}$ [US\$ 510/t])	[5-7.5 %] [alt [12%]]
Greater than or equal to [US\$850] [US\$ 510] per dry metric ton but less than [US\$925] [US\$ 580] per dry metric ton ($\frac{\text{US\$850}}{t} \leq x < \frac{\text{US\$925}}{t}$ [US\$ 580/t])	[6-8.75 %] [alt [15.3%]]
Greater than or equal to [US\$925] [US\$ 580] per dry metric ton but less than [US\$1,000] [US\$ 650] per dry metric ton ($\frac{\text{US\$925}}{t} \leq x < \frac{\text{US\$1,000}}{t}$ [US\$ 650/t])	[7-10 %] [alt [18.5%]]
Greater than or equal to [US\$1,000] [US\$ 650] per dry metric ton and less than [US\$1,075] [US\$ 720] per dry metric ton ($\frac{\text{US\$1,000}}{t} \leq x < \frac{\text{US\$1,075}}{t}$ [US\$ 720/t])	[8-11.25 %] [alt [21.8%]]
Greater than or equal to [US\$1,075] [US\$ 720] per dry metric ton ($\frac{\text{US\$1,075}}{t} \leq x$)	[9-12.5 %] [alt [25%]]

Explanation / Comment

- The applicable rates and thresholds provided are placeholders. I invite further discussion on this issue.
- The new proposed rates and thresholds reflect the new work done by MIT in the updated model, noting however that the rates and thresholds need to be considered alongside other proposals which still require further discussion, including that relating to an additional royalty, as proposed in the OEWG, and in two submissions received from participants.
- In particular, one participant proposed changes to the rates and to the proposal to move to a one-stage rather than two-stage model. The alternative text rates reflected here are based on that submission, which notably referenced an EMM price for the

manganese component, and also proposed an additional royalty. The proposed alternative rates should be considered in that context.

- The drafting here provides for the variable rate to be set based on the average market price per DMT for all Shipments during the 6-month royalty return period. Although the MIT model uses an annual price so that the rate is constant over the year and does not change for each Shipment, this was because the model was not intended to address the royalty calculation periods. In practice, applying this formulation, the rate will be re-calculated every six months to reflect market prices over that period.
- Reflection should be given to the issue as to whether the Guidelines should address inflationary (or other applicable) increases to the Notional Relevant Metal Value amounts specified in the table. Alternatively, another approach may be to simply amend the table in this Standard from time to time to reflect appropriate price increases in the future.

6. Commercial Production

1. Commercial Production shall commence on the date that recovery, for commercial purposes, of Minerals from the relevant Mining Area has reached at least [60%] of the design capacity outlined in the initial production phase of the Mining Work Plan for that Mining Area for [90] consecutive days.
2. Recovery, for the purposes of Commercial Production, shall take place at the point at which Minerals from the Mining Area are transferred to a vessel directly following collection or removal from the seabed and ocean floor and subsoil thereof.
3. Once ~~the Contractor determines that it is engaging in sustained large-scale recovery operations meet the criteria for the commencement of Commercial Production as set out in paragraph 1 above, which yield a quantity of materials in excess of the thresholds specified in the Standards,~~ the Contractor shall promptly notify the Secretary-General of the proposed date of commencement of Commercial Production together with supporting documentation and other evidence as specified in the Standards.
4. The Secretary-General shall transmit the notification and supporting documentation and evidence to the Commission, which shall consider the proposal and supporting materials and approve or reject the Contractor's proposed date.
5. Promptly following approval or rejection by the Commission, the Secretary-General shall, as applicable, confirm the date of commencement of Commercial Production to the Contractor, or notify the Contractor of the rejection and invite the Contractor to re-submit its proposed date of commencement of Commercial Production ~~under Regulation 27(2).~~
6. Upon confirmation, the Secretary-General shall notify members of the Authority, in particular coastal states [in close proximity] [adjacent] to the [Mining Area][Contract Area], that Commercial Production has ~~commenced begun~~ and the location of the Mining Area(s).
7. The date of commencement of Commercial Production, will be the date

confirmed to the Contractor according to paragraph 5. Regulation 27(3).

8. If the Authority [or Inspectorate] has reasonable grounds to believe that the Contractor's recovery rate does not achieve the level defined in their Plan of Work within [6 months] of the start of recovery operations, the Contractor shall be required to modify its Plan of Work in accordance with Regulation 57.
9. The Contractor shall submit any additional information requested by the Authority [or Inspectorate] within [30] days of any such request by the Authority.

Explanation / Comment
<ul style="list-style-type: none"> • These changes should be read in conjunction with Regulation 27. In July participants supported the text as drafted. One participant has now proposed deleting the relevant paragraphs from Regulation 27 and moving them to the Standards as set out here, with the changes proposed here in mark-up. <u>I invite comments.</u> • The applicable thresholds provided are placeholders as proposed by one participant. <u>I invite further discussion on this issue.</u> • I note that if the definition of Commercial Production in the Schedule to the Regulations is amended, this text may require consequential harmonization amendments.

7. Methodology for the review of Rates of Payments

1. In line with common practice in cross-country comparisons of fiscal regimes imposed on land-based mining operations, the Commission, when undertaking a review pursuant to this Standard, will use average Effective Tax Rate (AETR) to make comparisons between the rates of payments for deep-sea mining operations and land-based mining operations exploiting similar minerals.
2. In addition, the Commission will draw on established methodology routinely used by intergovernmental organizations conducting such comparisons – for example, the International Monetary Fund's Fiscal Analysis of Resource Industries (FARI) Methodology (see FARI Technical Notes & Manual, 2016).

<p>EFFECTIVE TAX RATE Mining in the Area of deepsea minerals</p> $\frac{\text{ISA Royalty} + \text{GovRev}}{\text{Pre-tax net cashflows}}$	<p>within range</p>	<p>EFFECTIVE TAX RATE Land-based mining of same or similar minerals</p> $\frac{\text{GovRev}}{\text{Pre-tax net cashflows}}$ <p>GovRev is all payments to government composed of royalty, income tax, resource rent tax, withholding taxes, and so on, as specified by the fiscal</p>
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regime.
Source: [IMF Technical Note on FARI Methodology, 2016](#)

3. The Commission will use the following information when conducting a review pursuant to this Standard:
- (a) Pre-tax net cashflows for a typical deep sea mining project;
 - (b) Authority and government revenue from deep-sea mining operations; and
 - (c) Government revenue from land-based mining operations exploiting the same or similar minerals.

Pre-tax net cashflows for a typical deep-sea mining project

4. The ISA Financial Model will be updated based on best available pre-tax net cashflows data for the five years preceding the most recent review of rates of payments.
5. The data referenced in paragraph 4 above will include prefeasibility studies submitted by Contractors as part of their exploitation contract application, feasibility studies submitted 12 months before the commencement of Commercial Production and any annual reporting required during Commercial Production.

Authority and government revenue from deep-sea mining operations

6. Along with royalty payments to the Authority, the Commission shall review the fiscal regimes of governments who either already generate revenue from Commercial Production undertaken by Contractor(s) in the Area or those governments who could generate such revenue in the future if Contractor(s) with existing Exploration contracts were to proceed with Commercial Production. For the purpose of information covered under this paragraph, the Commission will use the median rate of government revenue as the appropriate metric.

Government revenue from land-based mining operations exploiting the same or similar minerals

7. The Commission shall review the fiscal regimes of land-based mining jurisdictions that have accounted for at least 80% of global (excluding seabed mining) production of the same or similar minerals during the preceding five years. For example, when reviewing rates of payment for Contractors who exploit polymetallic nodules, the Commission will review land-based mining jurisdictions accounting for at least 80% of global (excluding seabed mining) nickel, copper, manganese, and cobalt mining production during the preceding five years. For the purpose of the information covered under this paragraph, the Commission will use the median rate of government revenue as the appropriate metric.

8. Subject to the review conducted pursuant to these Standards, if the AETR for mining in the Area is determined to differ from the AETR for land-based mining exploiting the same or similar minerals, the Commission shall propose a recommendation for consideration by the Council to adjust the rates of payments with a view to bringing the AETR for Contractors within the range of AETR for land-based mining operations exploiting the same or similar minerals.]

Explanation / Comment

- Two participants have proposed the above mechanism relating to the review of rates for payments under draft regulation 82. I invite comments.
- The following explanation has been provided by the participants:
The establishment of Standards for the review of the financial terms of exploitation contracts will enable the Authority to simplify the text of the regulations and move rates, deadlines, timelines, and technical considerations, etc. into a set of Standards that can be easily updated.
The establishment of Standards will ensure that there is a consistent, rigorous, transparent, and timely approach to the process by which the Authority will review the system of payments and the rates of payments.
The establishment of a defined review process will also ensure that the Authority can fulfil its mandate to organize and control all mineral-resources-related activities in the Area for the benefit of humankind as a whole.
Also, any review of the system of payments and rates of payments should consider the rates of payments across all financial mechanisms established by the Authority (e.g., potential additional tax, profit share mechanism, financial incentives, etc.) and be aligned with the review of the system of payments and rates of payments.
Finally, the establishment of a transparent review process by the Authority will ensure that member States and Contractors have confidence in the Authority's ability to manage the financial system of the Area for the benefit of humankind as a whole.

8. Payment of royalties for test mining in the absence of an exploitation contract

1. For the purpose of the payment of royalties associated with mineral resources recovered during 'test mining' pursuant to Regulation 48ter by an applicant or exploration contractor that does not obtain an Exploitation Contract, the applicant or exploration contractor shall pay a royalty in respect of any mineral-bearing ore sold or removed without sale from the Area ("test mining royalty") in accordance with this section, and as determined in Appendix IV of the Exploitation Regulations.
2. The applicant or exploration contractor shall pay the test mining royalty within [XX] days of the date that its test mining royalties report is lodged with the Authority and Paragraphs 2, 3 and 4 of Regulation 70 (Payment of royalty shown by royalty return) of the Exploitation Regulations shall apply, mutatis mutandis, to such payment.

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Kommentiert [A1]: Language based on DR64 - not directly applying DR64 as it specifies payments start on date of Commercial Production.

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Kommentiert [A2]: These paragraphs related to:
 (2) Currency of payment
 (3) Payments made net and free of any deductions, transmission fees, etc.
 (4) Council can approve payment by instalment.

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3. The following regulations in the Exploitation Regulations shall also apply, *mutatis mutandis*, to the payment of test mining royalties by an applicant or exploration contractor that does not obtain an Exploitation Contract:

(a) Regulation 62 (Equality of Treatment);

(b) Regulation 69 (Error or mistake in royalty return);

(c) Regulation 72 (Authority may request additional information);

(d) Regulation 73 (Overpayment of royalty), for which purpose the test mining royalties report shall be treated as a final royalty return;

(e) Regulation 76 (Assessment by the Authority);

(f) Regulation 79 (Interest on unpaid royalty); and

(g) Regulation 83 (Recording in Seabed Mining Register).

4. In applying the regulations referred to in paragraph 3 to test mining royalty payments by an applicant or exploration contractor that does not obtain an Exploitation Contract, references to a "royalty return" shall be read as referring to the "test mining royalties report", and references to a "Contractor" shall be read as referring to the "applicant" or "Exploration Contractor".

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Kommentiert [A3]: DR73 has a process for overpayments whereby the ISA can carry forward refunds as credit against future payments. To avoid this applying, I've added language here to deem the final royalty regime to apply (para 4 of DR73) which just says ISA to refund the amount within 90 days once determined refund is properly due.

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5. After the approval of a Plan of Work, a validation monitoring system shall be established by the contractor, in line with the Environmental Management and Monitoring Plan, in order to monitor whether the requirements of the Plan of Work are complied with. In case of non-compliance, Regulation 52 will apply.

6. The gains from mineral resources which have been collected during ‘test mining’ shall be paid to the Environmental Compensation Fund, as established by Regulation 54.

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