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Report on the status of the contracts for exploration and periodic reviews of the implementation of plans of work for exploration.

Recommendations for the guidance of contractors in the preparation of a five-year periodic review report for exploration contracts

Issued by the Legal and Technical Commission

In this document the Commission formalises a template structure, providing headings and annotations to help guide the contractor in completing a five-year periodic review report. The template emphasizes the periodic review report as being a stand-alone document which synthesises and summarises work done in the last 5 years and assesses how data collection and analyses are developing towards an understanding of the resource and environmental baselines, and how the next 5-year plan will fill gaps in this knowledge. It is noted that the periodic review report should be concise.[1] It is not intended to be a compilation of the text, data and information presented by contractors in the reports submitted annually.

Template

I. Executive summary

1. This section contains a brief overview of the programme of activities over the period, changes to this programme and underlying reasons for the changes. It also includes a summary of the work done to achieve the programme of activities, the status of gaps in

[1] Contractors are requested to apply good judgement on how to effectively meet the requirements in preparing periodic reviews. The Commission suggests from experience reports around 100 pages have provided the best balance of brevity and completeness.

required knowledge, and planned activities for the next 5-year period to progress the overall plan of work for the exploration contract and address the identified knowledge gaps.

II. General

2. This section gives a brief introduction of the exploration contract area and surrounding region, with the inclusion of one or several high-resolution and clearly readable maps showing the location of the area/areas. Further, it describes the programme of activities for the previous five years, its main aims and intended methods, and changes, if any, to that programme of activities.

III. Result of exploration work and readiness to proceed to exploitation (where applicable)

3. This section evaluates the degree to which the programme of activities was implemented during the previous five years:

i. Inclusion of a description of the main activities undertaken, including survey work and resource evaluation, together with an indication of the spatial coverage, analysis and synthesis of the main results;

ii. Analysis regarding progress towards the completion of the proposed overall plan of work for the exploration contract (for the entire contract period of 15 years) and readiness to proceed to exploitation where applicable;

iii. Reserves definition and evaluation with indication of their distribution as potential mining site (or sites) where/when applicable;

iv. Economic assessment of the exploitation of the identified deposit/mining site (or sites) and marine ecosystem protection costs evaluation where/when applicable

v. Indication of how the programme of activities for the next five years will fill any identified knowledge gaps, particularly regarding the classification and estimation of the resource and the identification of the mining site (or sites) to support a comprehensive prefeasibility study according to the definition given in ISBA/21/LTC/15 by the end of the contract.

IV. Environmental baseline studies (monitoring and assessment)

4. This section enables an evaluation of the degree to which the programme of activities was implemented during the previous five years. It should include:

i. A description of the main activities, the nature and spatial and temporal extent of survey work, a brief account of sampling equipment and methods, and sampling

station distribution. It should also include high-resolution and clearly readable maps of the locations of the main activities undertaken.

ii. A description of the analyses done and a synthesis of the main results, summarizing the sampling programme across environmental categories, particularly taking into account the Recommendations issued by the Commission for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration activities (ISBA/25/LTC/6.rev3). Note that:

- This analysis and synthesis should describe trends in the spatial and temporal range within the contract area and beyond, if wider sampling or surveying has been done, to evaluate progress towards completion of the environmental baseline.

- The level of detail should be appropriate so the report can be an adequate stand-alone document, where the main data sources, analyses, trends and patterns are described (with appropriate summary tables and figures), but not going into the level of detail of the annual reports. Any substantive publications covering multiple year results should be listed.

iii. Gap analysis of the status of environmental data, with a focus on requirements to proceed to exploitation where applicable. This evaluates the acquisition of statistically sound data and information at appropriate spatial and temporal scales to support a robust environmental baseline, which can be used to assess the future, potential impacts of exploitation. There are many ways a gap analysis can be carried out. We do not prescribe a particular method for this, but a checklist table has been prepared to help contractors identify gaps in the range of studies and parameters listed in the Commission's Recommendations documents (the most recent being ISBA/25/LTC/6.rev3). This Gap Analysis checklist is attached as Annex II.

iv. A description of how the programme of activities for the next five years will work towards filling the identified gaps in relation to the status of environmental data, as well as ensuring appropriate intensity, methodology, spatial and temporal scale of sampling. This should include an indication of the temporal and spatial distribution of intended sampling sites and the type of sampling to be done. It is understood that these future plans might not be fully evolved at the time of the review, but what is needed to address gaps in knowledge should be understood, and hence the main sampling requirements should be able to be described. This section links closely to Section X of the Review report but is focused here specifically on progressing a robust environmental baseline.

V. Mining tests and proposed mining technologies

5. This section should integrate the aspects related to:

i. The degree to which the programme of activities was implemented during the previous five years;

ii. Analysis and synthesis of the main results;

iii. Analysis regarding progress towards the completion of the plan of work and readiness to proceed to exploitation where applicable; and

iv. How the programme of activities for the next five years will fill any identified gaps?

VI. Mineral processing and metallurgy technologies and tests

6. This section is highlighting aspects focused on:

i. Analysis and synthesis of the mineral processing technologies and tests;

ii. Analysis and synthesis of metallurgical technologies and tests; and

iii. Processing and metallurgy technologies envisaged for the next 5-years where/when applicable and how to address the eventual gaps identified to enhance recoveries of metals.

VII. Training programme

7. This section is highlighting aspects focused on:

i. Whether the programme of activities was fully implemented during the previous five years;

ii. Analysis of the main achievements, including challenges faced in the implementation of training programmes; and

iii. Elaborate on the intended training programme for the next 5 years.

VIII. International cooperation achieved during the previous five-year period

8. List the substantive international-level efforts undertaken in the previous 5 years. These may include presentations at conferences, engagement in ISA and other workshops and meetings, collaborations with other contractors. Regarding the latter, initiatives to collaborate in ways to standardize sampling, sample and data processing, and data analysis are important in a regional context as these will facilitate the establishment or review of REMPs.

IX. Summary of Actual and Projected Expenditure under the Contract

9. Include a description of whether the projected expenditure was spent during the previous five years; if not, provide the reason for this and plans to compensate for any reduced level of achievement of the programme of activities.

X. Programme of activities for the next five-year period

10. This covers the Programme of activities for the next five-year period, but in less detail than described for each of the different sections above. It should enable the reader to see how the planned tasks integrate across the required work under each of the separate exploration, environmental, and mining themes, and contribute towards completion of the overall Plan of Work under the exploration contract. The activities and associated financial budget should be presented individually for each year.

XI. Additional information provided by the contractor

11. Include the periodic reporting summary checklist, which is a breakdown table that lists intended tasks under the Programme of Activities, changes to these (if any), and achievements per year (Annex I) and other information as necessary.

XII. Legal Assessments

12. This section should give:

i. Information on transactions completed or envisaged/under completion when/where applicable;

ii. Information on shareholders involved and new shareholders/under acquisition of shares when/where applicable; and

iii. Description of shares repartition among shareholders (when/where applicable)

XIII. Summary of matters to be resolved with the Contractor

13. This section is for the use of the Secretariat and the Commission. It will summarise issues/suggestions/comments to be discussed with the contractor by the Secretary General following review of the Report.

ANNEXES

I. Periodic Reporting Checklist for the proposed program of activities
II. Gap analysis checklist for Environmental Baseline and environmental impacts

APPENDIX I
Periodic Reporting Summary Checklist

Original Programme of Activities	Adjustment	Achieved	Comments
1st Year 1. 2. 3. 4. 5. 6.			
2nd Year 1. 2. 3. 4. 5.			
3rd Year 1. 2. 3. 4. 5.			
4th Year 1. 2. 3. 4. 5.			
5th Year 1. 2. 3. 4.			

APPENDIX II

Gap analysis checklist:

This table summarizes recommendations for key baseline environmental data and parameters (grouped into 6 categories highlighted in grey) based on ISBA/25/LTC/6.Rev.3 (2023), as well as preceding LTC guidance documents. It is intended as a guide to assist identifying gaps in the environmental baseline.

Parameter	**Data availability (i.e., what data and information has been generated and quality-checked)**	**Spatial variability (S), Depth profile (D), Temporal variability (T) measured** [2]	**Statistical robustness (e.g., NG, not good; G, good; M, mixed quality)**	**Plans for future data acquisition**
Physical oceanography assessment of the natural background (baseline) physical oceanography conditions through the water column and particularly near the seafloor.				
Vertical measurements, e.g.:				
Temperature				
Salinity				
Turbidity				
Currents (direction and velocity)				
Optical properties				
Oceanographic model for target area				
Satellite data – sea surface temperature				
Satellite data – primary productivity (ocean color)				
Chemical oceanography provision of information on vertical profiles in water-column chemistry, including the water overlaying the mineral resource				
Heavy metals				
Trace elements				
Additional chemicals that may be released in the discharge plume following processing of the resource during test mining				
Dissolved oxygen concentration				
Nutrients				
Total organic carbon				
Chlorophyll-a				
Particulate and dissolved organic matter				
Alkalinity/Carbonate system/pH				
Geological properties are targeted to determine the heterogeneity of the environment and assist in the placement of suitable sampling locations to characterize the distribution and composition of faunal communities. This includes sediment properties to characterize the surficial sediment deposits which are the potential source of benthic plumes.				
high- resolution multibeam bathymetry, including backscatter				
Sediment properties				
Grain size				

[2] See ISBA/19/LTC/8 para 13, 14

Sediment depth of change from oxic to suboxic conditions.				
Particulate and dissolved organic carbon concentrations				
Particulate and dissolved inorganic carbon concentrations				
Pore water nutrient concentrations				
Total organic matter concentrations				
Concentrations of metals and other potentially harmful chemicals that are naturally present and that may be released during test mining and their concentrations;				
Geochemistry of pore water sediments, including the redox				
Biological communities: Gather data on biological communities, taking samples representative of the variability of bottom topography, sediment characteristics, abundance and types of mineral.				
Sightings of marine mammals, other near-surface large animals				
Genetic connectivity of key species				
Main faunal groups: assess distribution, abundance, diversity, biomass etc				
Megafauna (>1 or 2 cm)				
Macrofauna (>250 or 300 μm)				
Meiofauna (>32μm),				
Microbiology (micro-organisms, bacteria, Archaea, Fungi, viruses)				
Microeukaryotes (specifically Foraminifera)				
Biota associated with the mineral resource				
Demersal fish and scavengers				
Pelagic communities				
Phytoplankton				
Zooplankton				
Nekton				
Vertical migration				
Bacterial plankton				
Ecosystem functioning – food web structure				
Ecotoxicology – trace metals found in dominant species.				
Bioturbation and mixing of sediments: gather data on the mixing of sediments by organisms				
Rate and depth of bioturbation				
Fluxes to the sediment: important for modelling plume dynamics and assessing impacts of disturbance				
Flux of particulate materials from the upper water column into the deep sea. Mooring deployments.				