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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 the present document, the Legal and Technical Commission formalizes a template structure, providing headings and annotations to help to guide the contractor in completing a five-year periodic review report for exploration contracts. The template emphasizes the fact that the periodic review report is a stand-alone document that synthesizes and summarizes work done in the previous five years and provides an assessment of the extent to which data collection and analysis can provide an understanding of resource and environmental baselines, and how the next five-year plan will fill any gaps in that knowledge. It is noted that the periodic review report should be concise.[1] The report 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 should contain a brief overview of the programme of activities over the period, any changes to that programme and underlying reasons for those changes. It should also include a summary of the work done to carry out the programme of activities, the status of gaps in required knowledge, and planned activities for the next five-year period to advance the overall plan of work for the exploration contract and address the identified knowledge gaps.

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

II. General

2. This section should contain a brief introduction to 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. Furthermore, it should include a description of 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 should contain an evaluation of the degree to which the programme of activities was implemented during the previous five years, namely:

(a) 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;

(b) 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;

(c) A definition and evaluation of reserves, with an indication of their distribution as potential mining site or sites, where or when applicable;

(d) An economic assessment of the exploitation of the identified deposit or mining site or sites and an evaluation of marine ecosystem protection costs, where or when applicable;

(e) An indication of how the programme of activities for the next five years will fill any identified knowledge gaps, in particular regarding the classification and estimation of the resource and the identification of any mining sites in order to support a comprehensive pre-feasibility study, according to the definition given in the recommendations for the guidance of contractors on the content, format and structure of annual reports (ISBA/21/LTC/15 and ISBA/21/LTC/15/Corr.1), by the end of the contract.

IV. Environmental baseline studies (monitoring and assessment)

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

(a) 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;

(b) A description of the analysis done and a synthesis of the main results, summarizing the sampling programme across environmental categories, in particular 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 for marine minerals in the Area (ISBA/25/LTC/6/Rev.3). It is important to note that:

(i) The 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;

(ii) The level of detail should be such that the report can be an adequate stand-alone document, in which the main data sources, analysis, trends and patterns are described (with appropriate summary tables and figures) but not with as high a level of detail as the annual reports. Any substantive publications covering results for multiple years should be listed;

(c) A gap analysis of the status of environmental data, with a focus on requirements for proceeding to exploitation, where applicable. The analysis should evaluate 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 in which a gap analysis can be carried out, and therefore no specific method has been prescribed. A checklist has been prepared to help contractors to identify gaps in the range of studies and parameters listed in the documents containing the Commission's recommendations (the most recent being ISBA/25/LTC/6/Rev.3). The gap analysis checklist is provided in annex II;

(d) A description of how the programme of activities for the next five years will help to fill the identified gaps in relation to the status of environmental data, as well as ensure appropriate intensity, methodology and spatial and temporal scale of sampling. The description 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 there should be an understanding of what is needed to address gaps in knowledge, and therefore it should be possible to describe the main sampling requirements. This section is closely linked to section X of the review report, on the programme of activities for the next five-year period, and should focus specifically on ensuring a robust environmental baseline.

V. Mining tests and proposed mining technologies

5. This section should include the following aspects:

(a) The degree to which the programme of activities was implemented during the previous five years;

(b) An analysis and synthesis of the main results;

(c) An analysis of the progress made in completing the plan of work and readiness to proceed to exploitation, where applicable;

(d) 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 should include the following:

(a) An analysis and synthesis of mineral processing technologies and tests;

(b) An analysis and synthesis of metallurgical technologies and tests;

(c) The processing and metallurgy technologies envisaged for the next five years, where or when applicable and ways of addressing the eventual gaps identified in order to enhance recoveries of metals.

VII. Training programme

7. This section should include the following:

(a) Whether the programme of activities was fully implemented during the previous five years;

(b) An analysis of the main achievements, including challenges faced in the implementation of training programmes;

(c) An elaboration of the intended training programme for the next five years.

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

8. This section should contain a list of the substantive efforts undertaken in the previous five years at the international level. These may include presentations at conferences, engagement with the International Seabed Authority and other workshops and meetings, and collaborations with other contractors. Regarding the latter, initiatives for collaboration for standardizing sampling, sample and data processing, and data analysis are important in a regional context, as they will facilitate the establishment or review of regional environmental management plans.

IX. Summary of actual and projected expenditure under the contract

9. This section should include a description of whether or not the projected expenditure was spent during the previous five years; if not, the reason should be stated and plans should be included for compensating for any reduced level of achievement of the programme of activities.

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

10. This section should cover the programme of activities for the next five-year period but in less detail than in the other sections above. It should enable the reader to see how the planned tasks integrate the work required under each of the separate exploration, environmental and mining themes and contribute to the 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. This section should include the periodic reporting summary checklist, which provides in the form of a table a breakdown of the intended tasks under the programme of activities, any changes to those tasks, and the associated achievements in each year (see annex I), as well as any other relevant information.

XII. Legal assessments

12. This section should provide the following:

(a) Information on transactions completed, envisaged or/under completion, when or where applicable;

(b) Information on shareholders involved and any new shareholders due to acquire shares, when or where applicable;

(c) A description of the repartition of shares among shareholders, when or 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 provides a summary of issues, suggestions and comments to be discussed with the contractor by the Secretary-General following the review of the report.

Annex I

Periodic reporting summary checklist

Original programme of activities	*Adjustment*	*Achieved*	*Comments*
First year			
1.			
2.			
3.			
4.			
5.			
6.			
Second year			
1.			
2.			
3.			
4.			
5.			
Third year			
1.			
2.			
3.			
4.			
5.			
Fourth year			
1.			
2.			
3.			
4.			
5.			
Fifth year			
1.			
2.			

Original programme of activities	*Adjustment*	*Achieved*	*Comments*
3.			
4.			

Annex II

Gap analysis checklist

The table below provides a summary of the recommendations for key baseline environmental data and parameters (grouped into six categories and highlighted in grey) based on the recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area (ISBA/25/LTC/6/Rev.3) and on previous Legal and Technical Commission guidance documents. It is intended as a guide to assist in identifying gaps in the environmental baseline.

Parameter	*Data availability (i.e. what data and information have been generated and quality-checked)*	*Spatial variability (S), depth profile (D) and temporal variability (T) measured*[a]	*Statistical robustness(e.g. good (G), not good (NG) or mixed quality (M))*	*Plans for future data acquisition*
Physical oceanography: assessment of the natural background (baseline) physical oceanography conditions through the water column and, in particular, 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 colour)				
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				

Parameter	*Data availability (i.e. what data and information have been generated and quality-checked)*	*Spatial variability (S), depth profile (D) and temporal variability (T) measured*[a]	*Statistical robustness(e.g. good (G), not good (NG) or mixed quality (M))*	*Plans for future data acquisition*
Chlorophyll-a				
Particulate and dissolved organic matter				
Alkalinity/carbonate system/pH				
Geological properties: information relevant for determining the heterogeneity of the environment and assisting in the placement of suitable sampling locations to characterize the distribution and composition of faunal communities. This includes sediment properties for characterizing the surficial sediment deposits, which are the potential source of benthic plumes				
High-resolution multibeam bathymetry, including backscatter				
Sediment properties				
Grain size				
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				

Parameter	*Data availability (i.e. what data and information have been generated and quality-checked)*	*Spatial variability (S), depth profile (D) and temporal variability (T) measured*[a]	*Statistical robustness(e.g. good (G), not good (NG) or mixed quality (M))*	*Plans for future data acquisition*
Biological communities: data gathered on biological communities, including samples representative of the variability of bottom topography, sediment characteristics, abundance and types of mineral				
Sightings of marine mammals and other near-surface large animals				
Genetic connectivity of key species				
Main faunal groups, including distribution, abundance, diversity and biomass				
Megafauna (>1 or 2 cm)				
Macrofauna (>250 or 300 μm)				
Meiofauna (>32 μm)				
Microbiology (microorganisms, bacteria, archaea, fungi and viruses)				
Microeukaryotes (specifically foraminifera)				
Biota associated with 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.				

Parameter	*Data availability (i.e. what data and information have been generated and quality-checked)*	*Spatial variability (S), depth profile (D) and temporal variability (T) measured*[a]	*Statistical robustness(e.g. good (G), not good (NG) or mixed quality (M))*	*Plans for future data acquisition*
Bioturbation and mixing of sediments: data gathered on the mixing of sediments by organisms				
Rate and depth of bioturbation				
Fluxes to the sediment: information for modelling plume dynamics and assessing impacts of disturbance				
Flux of particulate materials from the upper water column into the deep sea. Mooring deployments.				

[a] See ISBA/19/LTC/8, paras. 13 and 14.