Draft Guidelines for the preparation of an environmental impact statement
Developed by the Legal and Technical Commission

DRAFT FOR STAKEHOLDER CONSULTATION (DO NOT QUOTE OR CITE)

Background

1. During the continuation of the twenty-sixth session, the Commission considered draft guidelines for the preparation of an environmental impact statement pursuant to regulation 47 and annex IV of the draft regulations on exploitation of mineral resources in the Area (ISBA/25/C/WP.1) as prepared by a technical working group of the Commission.

2. Draft regulation 47 requires an applicant or contractor, as the case may be, to prepare an Environmental Impact Statement in accordance with annex IV that is: (i) inclusive of a prior environmental risk assessment; (ii) based on the results of the environmental impact assessment; (iii) in accordance with the objective and measures of the relevant regional environmental management plan; and (iv) prepared in the applicable Guidelines, Good Industry Practice, Best Available Scientific Evidence, Best Environmental Practices and Best Available Techniques.

3. To give effect to the requirements contained in draft regulation 47, including annex IV, the Commission considered that it was necessary to prepare: (i) Guidelines (Appendix I) for the preparation of an environmental impact statement

Appendix I

Draft Guidelines for the preparation of an environmental impact statement

CONTENT

I. INTRODUCTION

1. This guideline has been developed to provide practical and technical guidance on preparing an Environmental Impact Statement (EIS) for exploitation of mineral resources in the Area, as specified in regulation 47 and Annex IV of the Exploitation Regulations.

A. Purpose

2. The purpose of the EIS is to document and report the results of the EIA. In accordance with the Exploitation Regulations, the EIS shall cover the main aspects prescribed in Annex IV and shall be:

(a) "Inclusive of a prior environmental risk assessment;

(b) Based on the results of the environmental impact assessment;

(c) In accordance with the objectives and measures of the relevant regional environmental management plan; and

(d) Prepared in accordance with the applicable guidelines, good industry practice, best available scientific evidence, best environmental practices, and best available techniques."

3. The EIS provides documentation of the reporting process followed during implementation of and the results from the EIA, and provides impact assessment for the environmental effects identified by the EIA, with measures to manage such effects within acceptable levels. As such, the EIS is nested within the broader EIA process. However, while the Standard and Guideline produced for the EIA process includes the Reporting stage (the EIS) this Guideline has been produced to stand-alone and address specifically the EIS template provided asAnnex IV of the Exploitation Regulations. That annex provides a high-level EIS template to provide Contractors with recommendations for achieving EIA consistency and standardization.

4. This Guideline should be read in conjunction with the Exploitation Regulations, the relevant Exploration Regulations as well as other relevant Standards and Guidelines of the International Seabed Authority, including but not limited to those related to:

- Application for approval of Plan of Work in the form of a contract (to conduct exploitation activities in the Area);
- Environmental Impact Assessment process;
- Environmental Management and Monitoring Plans;
- Environmental Management Systems;
- Expected Scope and Standard of Baseline Data Collection;
- Hazard Identification and Risk Assessment.

5. These Guidelines strongly encourage an applicant or Contractor to have recourse to the Guidelines on the Expected Scope and Standard of Baseline Data Collection in the preparation of an EIS. The Guidelines on the Expected Scope and Standard of Baseline Data Collection will assist an applicant or Contractor compile and collate the

necessary baseline data that forms a critical part of the EIS, including the description of existing conditions and the assessment of impacts of activities.

6. The applicable Regional Environmental Management Plan (REMP) should also be considered by the applicant or Contractor in the EIA process and any management approaches outlined in the REMP incorporated into the management and mitigation methodologies of the EIA/EIS.

B. Terminology

7. Environmental Impact Assessment (EIA) is "the process of identifying, predicting, evaluating and mitigating the physicochemical, biological, socioeconomic, and other relevant effects of development proposals prior to major decisions being taken and commitments made".1 This includes all potential effects, both positive and negative, and encompasses natural and anthropogenic receptors.

8. Environmental Impact Statement (EIS) is the documentation of the EIA process, which describes the predicted effects of the project on the environment (and their significance), the measures that the applicant is committed to taking to avoid, minimise and reduce them where possible, and the residual (remaining) effects that cannot be avoided.

9. Environmental Risk Assessment (ERA) is a process to identify, analyse and evaluate the nature and extent of activities and the level of risk to characteristics of the environment.

10. Except as otherwise specified herein, terms and phrases defined in the Exploitation Regulations have the same meaning in this Guideline.

II. ENVIRONMENTAL IMPACT STATEMENT

A. EIS Template

11. The applicant or Contractor should prepare an EIS following the template provided in Annex IV of the Exploitation Regulations. The format is intended to "provide the Authority, its member States and other stakeholders with unambiguous documentation of the potential environmental effects on which the Authority can base its assessment, and any subsequent approval that may be granted."

12. The EIS template is a recommended format meant to provide guidance on the format and general content of an EIS, and recognizes that details of methodology or thresholds are likely to be resource- and project-specific. The table of contents recommended in the Annex is reproduced below, along with the corresponding subsection of this guideline that provides guidance on the specific EIS content:

[1] As defined by the International Association for Impact Assessment (IAIA) https://www.iaia.org/

EIS Section	Guideline Section
Executive Summary	2.1.1
Introduction	2.1.2
Policy, legal, and administrative context	2.1.3
Description of the proposed project	2.1.4
Description of the existing physicochemical environment	2.1.5
Description of the existing biological environment	
Description of the existing socioeconomic environment	
Assessment of impacts on the physicochemical environment and proposed Mitigation	2.1.6
Assessment of impacts on the biological environment and proposed Mitigation	
Assessment of impacts on the socioeconomic environment and proposed Mitigation	
Accidental events and natural hazards	2.1.7
Environmental management, monitoring, and reporting	2.1.8
Product Stewardship	2.1.9
Consultation	2.1.10
Glossary and Abbreviations	2.1.11
Study Team	2.1.12
References	2.1.13
Appendices	

1. Executive Summary

13. The executive summary is intended to be a non-technical summary that provides a concise overview of the EIA, and should provide an initial view of the potential issues associated with the proposed exploitation activity by interested stakeholders. The following elements should be included:

- Description of the proposed project and its objectives;
- Economic, financial, and other benefits to be derived from the project;
- Anticipated impacts of the activity (physicochemical, biological, and socioeconomic impacts);
- Recommended mitigation measures to avoid, remedy, or minimize environmental impacts;
- Linkages with the development of the EMMP and Closure Plan; and
- Description of consultation with stakeholders and interested parties.

14. The topics should be covered as succinctly as possible, and follow a sequence in the main report tro facilitate finding more detail easily.

15. The Contractor should prepare the executive summary in a manner that it could form a stand-alone document. The executive summary should provide sufficient detail

to allow the user to form a basic understanding of the key areas, such that users reading the individual sections of the entire EIS document can use the details in these sections to clarify the details of the decision points.

16. Prioritization of impacts discussed in the executive summary should align with magnitude of impact, which may be determined by consideration of the following:

- Size of the project footprint and differentiating area of potential impact vs. area of anticipated impact; and
- Impacts to the marine ecosystem, with specific regard to the significant findings for physiochemical, biological, and socioeconomic environments during the EIA process.

2. Introduction

17. The purpose of the Introduction section is to set the scene for the EIA. It contains introductory background to the proposal, a summary of the proposed activity (with reference to more detail to come), and outlines the EIA format so that readers understand where to look for certain information. The introduction will rely heavily on information contained in the Plan of Work relavant to the context and findings of the EIA.

18. This section should contain enough detail for a reader to form an overall impression of the proposed project and how it has developed, and understand how the EIA is structured. As this section mainly provides a ‘roadmap’ to more detailed material in the EIA, it may be relatively short.

a) Background

19. The background section should include a short description of the proposed project, including all main activities and locations, and background on work conducted prior to the EIA (e.g., environmental baseline studies, risk assessments performed as part of prospecting or exploration, and previous consultation with stakeholders).

20. The background should contain highlights from the previous activities and refer the reader to appropriate sections in the EIS for more information.

b) Project Viability

21. This section will present and discuss detail around the economic context of the project, provide justification for project execution, and description of benefits. The section will refer to the Plan of Work and likely focus on ecosystem management aspects (i.e., physiochemical, biological, and socioeconomic considerations). The determination of project viability may include a summary of feasibility investigations related to geophysical, engineering, geotechnical, oceanographic, biologic, and other components of project operations.

c) Project History

22. The Contractor should summarize work conducted prior to the EIA. A brief description of the following may be included:

- Resource discovery
- Exploration undertaken
- Component testing conducted, if applicable.
  (Note: If component testing was conducted, reports are to be included in an appendix to the EIS).

23. Details of resource discovery and exploration undertaken, depth zones, and physical location may be presented in a narrative form and accompanied by figures. The time, location, and parties involved in exploration work should be included for each content area.

d) Project Proponent

24. The project proponent section of the introduction will summarize credentials of the proponent for the Contract, including major shareholders, other contracts or licenses held (including in other jurisdictions), previous and existing contracts with the Authority, and the proponent's environmental record. This section should also cover technological and environmental expertise, capacity, and financial resources of the proponent (note that discussion of the technical expertise and experience of individuals performing the EIS is covered in another section of the EIS, as discussed below in Section 2.1.14).

25. The project proponent discussion in the EIS can be brief and focus on aspects that lend support to the commitments made by the Contractor in the executive summary and in the EMMP.

e) Scope and Layout of Report

26. The subsection entitled "This Report" in the Annex IV template should constitute a guide for users of the EIS on how to effectively use the information contained in the EIS. The section includes:

- ***Scope:*** The subsection should include a discussion of what is included in the EIS, and what is considered to be out of scope, based on earlier work. An important aspect here is a link to other supporting information, including previous risk assessments that evaluated low-risk activities and those that received less emphasis in the EIA. Sufficient information will need to be provided for a user to understand the conclusions, or direct the user to the information used to form the risk determination and allow the user to independently evaluate the risk. The applicant or Contractor should highlight the activities determined in risk assessments to be higher risk and hence the focus of the EIA.

- ***Report Structure:*** This subsection should link with the prescribed structure of the template, but also where to find information that is not obvious from the table of contents, for example in cases where the EIS covers a larger project containing several Mining Areas within the Contract Area or for EISs that contain multiple volumes of information.

3. Policy, Legal, and Administrative Context

27. Relevant policies, legislation, agreements, standards and guidelines that are applicable to the proposed mining operation are essential to discuss in the EIS to demonstrate understanding of national and international expectations for the Contractor's proposed mining project. This is relatively straight-forward, but at the same time it is important to make sure this section is clear and complete.

28. The Contractor should outline the following aspects that may apply to the proposed activities, and indicate how the they will comply with them:

- National or international legislation, regulation, or guidelines that apply to the proposed exploitation activities;
- Non-mining related legislation, policies, or regulations that may be relevant to the proposed exploration activities (e.g., shipping regulations, maritime declarations, marine scientific research, climate change policies, sustainable development goals);
- International agreements, including UNCLOS, the International Convention for the Safety of Life at Sea (SOLAS), the International Convention for the Prevention of Pollution from Ships (MARPOL), and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention);
- Regional agreements that are relevant to the area of operation, especially the appropriate ISA REMP.
- Standards and guidelines that will be adhered to during the life of Contract, including the standards and guidelines of the Authority; the Equator Principles; environmental and risk management standards of the International Organization for Standardization (ISO); environmental management standard of the International Marine Minerals Society (IMMS); and performance standards on environmental and social sustainability of the International Finance Corporation IFC).

4. Project Description

29. The EIS needs to contain a description of the proposed exploitation, which provides details of the proposed activities, including relevant diagrams and drawings. The template headings and sub-headings mean that description of the proposed exploitation should cover the following information:

- A statement of the objectives sought by the project, including the underlying purpose and need of the proposed action;
- The precise location and boundaries of the proposed project (including the Mining Area(s) and the Contract Area), preferably on a detailed bathymetric map, along with the general location of the project on a regional map;
- The size, shape, tonnage, and grade of the mineral deposit;
- The spatial and temporal scale of the mining operation, including the mining sequence and anticipated technologies for exploitation activities;
- Volumes of material to be recovered, processed, and deposited and/or discharged into the water column or back to the seabed;

- Depth of penetration into the seabed and the proposed mineral collection technique;
- The likely extent of any secondary impacts such as sediment plumes;
- Method(s) for transporting recovered minerals to the surface;
- Proposed shipboard method(s) for separation of the mineral resource and seafloor sediment;
- Method(s) for trans-shipment or transfers at sea of mineral-bearing ore;
- Proposed waste management, transportation, and disposal activities for materials or effluents to be discharged into the marine environment, and management and transportation of shipboard wastes to be transported to shore-based disposal facilities;
- Construction and operation standards for equipment to be used in mining activities;
- The workforce, including procedures for preserving the health and safety of the personnel involved in the exploitation activities;
- Commitments made by the Contractor for capacity-building;
- Commissioning and decommissioning procedures; and
- Proposed details of any practicable restoration of the project area.

30. Background information such as project phases, facilities and machinery, and process flow diagrams may be provided as appendices.

31. A key aspect of this section is the description of mining methodologies. Most oil and gas operations utilise well known techniques, equipment and overall operating procedures, whereas mining of seabed minerals is new, and there is no standard methodology. Methodologies will vary with mineral type and depth. Where the technology is new or untested, this section needs to be very detailed, as it is fundamental to understanding what the impacts are likely to be. This should include the operation at the seafloor, as well as water column activities (e.g. riser pipe transfer) as well as the methods of disposal of processing water, fine sediment, and other by-products. If there are national or international “best practices” that are relevant, it is useful to include an assessment of how the proposed operation will align with them.

32. Description of the overall timetable, from construction through to decommissioning and closure of operations, is important to scope the nature and extent of various environmental impacts. The description should include the major phases of the operation, as well as the milestone dates on which relevant tasks and activities are expected to be completed. Information on the development timetable provided under this section should clearly communicate the different phases in the development proposal. For reasons of clarity, a flow chart or Gantt chart should be used where appropriate.

33. In the final section, the Contractor should provide an alternatives analysis demonstrating that reasonable alternatives to the proposed project were rigorously explored and objectively evaluated. Alternative screening criteria typically include the following:

- Environmental impacts

- Technical factors
- Logistics
- Financial feasibility
- Stakeholder support

34. The analysis summary could include a brief description of the preferred alternative and the rationale for its identification, and direct readers to sections of the EIS or other document sections containing full details of the process that led to identification of the preferred option and discussion of eliminated alternatives and the reasons for elimination.

5. Description of the Existing Physiochemical, Biological, and Socioeconomic Environments

35. This section provides regional and site-specific information on the various environmental conditions at the activity site(s). The applicant or Contractor should provide a description of the baseline condition of the physiochemical, biological, and socioeconomic environments. The aim is to provide a robust environmental assessment against which impacts will be assessed.While the template in Annex IV of the Exploitation Regulations provides for a separate section for each of these parameters, the Contractor should consider the interrelationship of these parameters and the potential impacts of the proposed project on each of the parameters.

36. For each of the three parameters (physiochemical, biological, and socioeconomic), the EIS will need to provide a detailed account of the Contractor's knowledge of the baseline conditions in the proposed Contract Area. These descriptions should be based on both primary data from baseline studies completed in the proposed Contract Area (e.g., as part of exploration activities) and secondary information from a review of existing literature and scientific studies for the surrounding region. The Contractor should make use of information maintained in the Authority's DeepData database to examine characteristics of the surrounding area. Maps, diagrams, and photographs should be used in each section to clarify and illustrate existing conditions, and relevant prior work in the proposed Contract Area should be included in the appendices to the EIS.

37. The details in these sections should be based on site-specific ERAs and regional environmental risk assessments that identified the higher-risk impacts emphasized in performance of the EIA. Each section should provide a robust environmental assessment against which impacts can be assessed (see Section 2.1.6 below). The level of detail in each section should be commensurate with the scale and intensity of the proposed activity.

38. Each section will include the following descriptions and discussions:

- Key messages (overview of the main findings, covered in six bullets or less);
- Regional overview (general environmental conditions within a broader regional context, including a regional reference map);

- Studies completed (including environmental reference baseline data collected in accordance with the exploration contract and contained in the DeepData database); and
- A summary of the existing (physiochemical, biological, or socioeconomic) environment (including key findings and notes on special considerations, and more extensive than the key message section).

39. Information specific to each of the three environments is described further below.

a) Aspects Specific to the Description of the Existing Physiochemical Environment

40. This section of the EIS should also include a discussion of aspects specific to the existing physiochemical environment, including:

- Meteorology and air quality (overview of climatology and description of air quality, including chemical characteristics);
- Geological setting (general geological landscape and topography, and nature and extent of the resource);
- Physical oceanographic regional and site-specific setting (general oceanographic aspects such as stratification and sediment rates, as well as notable characteristics such as hydrothermal vents, seamounts, and canyons);
- Chemical oceanographic setting (water mass characteristics at various depths, such as nutrients, particle loads, temperature, turbidity, etc.);
- Seabed substrate characteristics (substrate composition including pore-water profiles, grains size, sediment mechanics, and sediment composition);
- Natural hazards (potential hazards for the region, including seismic activity, volcanic activity, and cyclones, hurricanes, or tsunamis);
- Noise and light (ambient levels, and influence of existing maritime, exploration, and exploitation activity in and around the proposed Contract Area); and
- Greenhouse gas emissions and climate change (gas and chemical emissions from natural and anthropogenic activities in the region and affecting the sea floor and water column chemistry).

b) Aspects Specific to the Description of the Existing Biological Environment

41. In addition to the discussion topics listed in Section 2.1.5, this section will include a discussion of aspects specific to the existing biological environment. The Contractor should divide the discussions by depth regime (surface, midwater, and benthic, where appropriate) and include a discussion of the various biological components and communities that are present or utilize the area in and around the proposed Contract Area. By presenting the biological conditions by depth, the users of the EIS can assess linkages between observed or anticipated impacts and the source and location of such impacts.

42. The discussion will address the diversity, abundance, biomass, connectivity, trophic relationships, resilience, ecosystem function, and temporal variability of the

communities present at each depth. Community-level analyses, previous work with ecosystem models and ecosystem indications should also be included in this discussion.

43. The Contractor should provide as comprehensive a list of known species in and around the proposed Contract Area as possible. Taxonomic/ecological groups (ranging from microbial communities to megafauna) that should be included at each depth include:

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- Surface (from the surface to approximately 200 meters (m) deep) – phytoplankton, zooplankton, surface fish, near surface fish, seabirds, turtles, and marine mammals
- Midwater (from approximately 200m deep to approximately 50m above the seafloor) – zooplankton, nekton, mesopelagic and bathypelagic fish, and deep-diving mammals)
- Benthic (from approximately 50m above the seafloor to the seafloor's surface) – benthic invertebrates and fish communities, including infauna and demersal fish

44. It is expected that much of this will collate data from the Contractors own research and baseline data collection during exploration, but tcan also bring in other data sources, including:

- a literature review to uncover all published records.
- museum, university or research institute collection specimen records
- research databases available from national or international institutes (and including the ISA Deep Data db for the region
- global biodiversity databases, available online (e.g. www.iobis.org, www.fishbase.org for invertebrates and fishes respectively).

45. The Contractor should include a description of species composition and abundance that include the size of the faunal and the life-history stages of fauna (e.g., larval and juvenile stages which differ from adults). Considerations of species richness, faunal densities, and community structures and connectivity should be specifically be included. Discussions of species should include considerations of whether they are endemic (restricted to just the site, resource substrate, or region) or are known to be rare, threatened, or endangered.

46. In addition, this section should include a summary of existing studies of the ecosystems and communities across depths, and integrate elements of the above, including life-history stages, recruitment, and behavioral information. Food energy linkages and the complexity of the food web should be included, with consideration to the impacts that can result from contaminants or other disruptions to the food chain. Given the emphasis on the ecosystem approach to management, it is important to consider wider community relationships where information exists which enables assessments to move beyond community descriptions to incorporate potential changes in ecosystem function (e.g., Armstrong et al. 2012, Tuck et al. 2014, Thurber et al. 2015). It is common to have multivariate grouping/clustering type analyses for benthic invertebrate fauna in particular. However, where analyses may span the depth-based habitats, they should be included in the ecosystem/community section. There should, at the least, be a description and assessment of information on trophic interactions and the linkages of both food energy, and contaminants, in the food chain. Emphasis might be placed on knowledge of trophic levels, the degree of interaction between benthic and

pelagic communities, whether there are specialised predators that could be more vulnerable than generalists, and how complex the food web and species interactions are to give an idea of resilience of the system to disturbances. Scientific interests may also look at going further and developing models to quantify the trophic structure, and energy flows through the ecosystem. There are a number of ecosystem models that could be considered, as data are collected during exploration phases. Such data can begin to support a trophic model structure that quantifies the transfer of organic material through a food web, such as that based on the widely used mass-balance Ecopath trophic model (Christensen and Walters, 2004). Modelling is likely to become a more common feature of EIAs, whereby mining-like perturbations to the system can be modelled and assessed (e.g., Chatham Rock Phosphate Ltd, 2014).

47. Given there are several available resources to assist the Contractor in evaluating the above aspects, they are not duplicated here. Section 3.2 provides a list of helpful resources that can be used in presenting the existing biological environment.

c) Aspects Specific to the Description of the Existing Socioeconomic Environment

48. In addition to the discussion topics listed in Section 2.1.5 above, this section of the EIS should include a discussion of aspects specific to the existing socioeconomic environment, especially related to the ecosystem services in and around the proposed Contract Area that might be affected by the proposed project. Because the proposed projects will take place in the Area, direct socioeconomic impacts to specific communities are not expected. However, potential impacts to ecosystem services is included in the Exploitation Regulations for preparing an EIS.

49. As such, this section can discuss existing uses that comprise the ecosystem services for the proposed Mining Areas or Contract Area, including but not limited to:

- Fisheries (e.g., surface level spawning grounds, nursery areas, or feeding sites, as applicable)
- Marine traffic (i.e., non-Contract-related marine traffic occurring at or near the proposed Contract Area)
- Tourism (e.g., cruise line routes or areas used for game fishing, sightseeing, marine mammal watching, or other relevant tourism activities)
- Marine scientific research (i.e., any scientific research being conducted in or around the proposed Contract Area outside of environmental studies or sampling performed for the EIA/EIS or proposed by the EMMP)
- Area-based data management tools such as the DeepData
- Other uses of the area in and around the proposed Contract Area (e.g., submarine cables, exploration projects, or other exploitation projects)
- Sites of archeological or historical significance located in or around the proposed Contract Area

50. Contractors should also consider characteristics of and issues specific to the proposed workforce as part of the existing socioeconomic environment, including topics such as the health, safety, and well-being of personnel involved with exploitation

activities, and any commitments made by the Contractor with regard to capacity-building in the Area.

6. Assessment of Impacts on the Physiochemical, Biological, and Socioeconomic Environments and Proposed Mitigation

51. The Contractor should provide an assessment of potential impact to the physiochemical, biological, and socioeconomic environments. While the EIS template provides for a separate section for each of these parameters, the Contractor should also consider the interrelationship of these parameters and the potential impacts of the proposed project each of the parameters

52. For each of the parameters (physiochemical, biological, and socioeconomic), the EIS should provide a detailed description and evaluation of the potential impacts that could result from the proposed project. The discussion should consider potential impacts from all phases of the proposed mining activities, as well as from potential accidental events. For each of these phases of mining (including accidental events) and for each of the potentially affected environments (physiochemical, biological, or socioeconomic, or a combination thereof), the Contractor should include a discussion of the following:

- The nature and extent of any actual or potential impact;
- Measures that will be taken to avoid, remedy or mitigate such impacts; and
- Any unavoidable (residual) impacts that may remain.

53. The key objective of these sections is for the Contractor to clearly communicate the nature and extent of residual impacts, the length of time of impact from them, and whether or not the environment is expected to recover (and in what time frame, following disturbance). Each section should focus on the elements identified in the prior ERA that highlighted the higher risk impacts of the proposed mining activity.

54. The level of detail in each section should be commensurate with the scale and intensity of the proposed activity.[2]

55. Each section should include the following discussions:

- Key messages (overview of the main findings);
- Description of impacts:
  - The nature and extent of any actual or potential impact, including indirect and cumulative impacts, and interactions across impacts;
  - Measures that will be taken to avoid, remedy, or mitigate such impacts (and that will be addressed in the EMMP);
  - Unavoidable (residual) impacts that will remain;
- A specific discussion of cumulative impacts, including such impacts from proposed operations by the Contractor and other operations in the region; and
- A summary of the residual effects (e.g., in a tabular format).

56. The Contractor should discuss the expected time to recover following disturbance and the longevity of residual effects.

[2] Clark et al.

57. Information specific to each of the three environments (physiochemical, biological, and socioeconomic) is described further below.

a) Aspects Specific to the Assessment of Impacts on the Physiochemical Environment

58. In addition to the discussion topics listed in Section 2.1.6 above, this section of the EIS should also include a discussion of aspects specific to the existing physiochemical environment, including:

- Meteorology and air quality
- Geological setting
- Physical oceanographic setting
- Chemical oceanographic setting
- Seabed substrate characteristics
- Natural hazards
- Noise and light
- Greenhouse gas emissions and climate change
- Maritime safety and interactions with shipping
- Waste management
- Other issues

59. The Contractor should provide a description and evaluation of potential impacts of the proposed project on the physical environment described in associated previous section on existing conditions. Sources of potential impact may include (but are not limited to) physical disturbance of the seabed during mining activities, sediment plume(s) that could disperse beyond the footprint of the Contract Area, and potential impact from material transport and processing activities conducted at the surface in the Contract Area.

60. Cross-references with other sections of the EIS should be provided to provide the user with cause and effect linkages.

b) Aspects Specific to the Assessment of Impacts on the Biological Environment

61. In addition to the discussion topics listed in Section 4.2.6 above, this section of the EIS should also include a discussion of aspects specific to the existing biological environment, including:

- Surface
- Midwater
- Benthic
- Ecosystem/community level

62. The Contractor should provide a description and evaluation of potential impacts of the proposed project on the biological environment described in the previous section on existing conditions. Sources of potential impact should be discussed by depth regime and at a community and ecosystem level. Sources of potential impact may include (but

are not limited to) increased vessel activities and potential pollution from these vessels; changes in water composition, clarity, or noise affecting the food chain and availability of prey; potential oxygen depletion; sediment plume effects in the water column; and bioaccumulation of toxic metals and other contaminants. Temporal and spatial impacts should be discussed in each subsection.

63. The final ERA associated with the EIA process will be important to consider in this section. Impacts of the mining or drilling operations will be resource, site, and method dependent, and there are many potential impacts, but some of the key effects on biological structure and function that this section should always consider include:

<u>Potential surface impacts (0–200 m)</u>

- increased vessel activities and potential pollution (from vessel discharges and wastes) of the surrounding area
- reduction in primary production (e.g., through shading by discharges) (in shallow or clear deeper water this may affect macroalgae or microalgae on the seafloor)
- stimulation of primary production by increased nutrient release (e.g., nitrogen, iron in discharges) in photic depths
- reduction in the availability of prey (through either changes in abundance, displacement, or visibility)effects (e.g. displacement) on surface/deep-diving mammals and birds, fish and mobile pelagic invertebrates(e.g., through changes in water composition and clarity or noise/lights)
- this includes vessel-based effects above the actual sea surface

<u>Potential water column impacts (200–50 m above seafloor)</u>

- plankton/mesopelagic fish mortality
- toxic effects with metal and other contaminants (e.g., ammonia, sulphides, pH reduction) release
- bioaccumulation of toxic metals though the midwater food chain
- sediment plume effects through water column (e.g., visual clarity reduction for feeding)
- potential oxygen depletion at depth
- effects on deep-diving marine mammals
- potential noise effects (direct avoidance, masking faunal communication, feeding disruption)

<u>Potential benthic impacts (seafloor to 50 m above)</u>

- direct physical impact of mining/sampling gear
- smothering/burying of animals by sediment
- clogging of suspension feeding structures
- toxic effects with metal and other contaminants (e.g., ammonia, sulphides) release
- loss of essential habitat (e.g., spawning/nursery, feeding grounds)
- loss of other habitats and/or communities of particular biological importance

64. Cross-references with other sections of the EIS should be provided to provide the user with cause and effect linkages.

c) Aspects Specific to the Assessment of Impacts on the Socioeconomic Environment

65. In addition to the discussion topics listed above, this section of the EIS should also include a discussion of aspects specific to the existing socioeconomic environment, including:

- Fisheries
- Marine traffic
- Tourism
- Marine scientific research
- Area-based management tools
- Other

66. The Contractor can include a consideration of desirable outcomes (e.g., beneficial impacts) and should include the scale of the effects, expected duration of such effects, and an assessment of whether the effects are likely to be cumulative. Potential adverse impacts should be presented using the same format. The Contractor should include a discussion of the probable socioeconomic impacts in comparison to predicted conditions without the proposed project.

67. Cross-references with other sections of the EIS should be provided to provide the user with cause and effect linkages.

7. Accidental events and natural hazards

68. A stand-alone ERP should be developed as part of the development of the EMMP, as specified in the Exploitation Regulations: “The Emergency Response Plan is to be current and based on identified potential hazards, with established procedures for managing environmental emergencies. In addition, the Emergency Response Plan should also state the important emergency contacts that handle environmental emergencies related to the mining activities and the contact details”. The ERP should include responses to natural hazards, extreme weather, and accidents.

69. The EIS should refer users to the ERP and include a discussion on environmentally hazardous discharges that could result from accidents or extreme natural events, as these are fundamentally different from normal operational discharges of wastes and wastewaters. The discussion should outline the probability of accidental discharges occurring and the impact they could have, and the measures that will be taken to prevent or respond to such an event. Residual impacts should such an event occur should also be included.

8. Environmental management, monitoring, and reporting

70. The EMMP is a separate document from the EIS that is submitted with the Plan of Work, and is discussed in further detail in a separate Standard & Guideline. The EIS should refer users to the EMMP and need include only a brief discussion highlighting key issues that will be addressed in the EMMP, including:

- Organizational Structure and responsibilities
- Environmental management system(s)
- Environmental Objectives
- Mitigation and management
- Monitoring plan
- Corrective procedures
- Closure plan
- Reporting for monitoring activities
- Incident reporting

71. Nevertheless, the EIS is where the impacts of the proposed Project are detailed, and sufficient information needs to be provided to enable the Authority to anticipate possible environmental management, monitoring and reporting requirements for an environmental approval. Information listed should reflect the proponent's environmental policy and the translation of that policy to meet the requirements of this section and previous sections during different stages of the project life (i.e., from construction to decommissioning and closure).

9. Product Stewardship

72. The principles of product stewardship encourage those who design, produce, sell, or use a product to take responsibility for reducing negative impacts to the environment, public health, worker safety, and the economy. The EIS should contain a description of the intended use of the mineral-bearing ore. This description should address how the Contractor will minimize health, safety, environmental, and socioeconomic effects of the intended product(s), and should address the following potential impacts:

- Energy and materials consumption
- Waste generation
- Toxic substances
- Air and water emissions

73. Proposed product stewardship should align with the United Nations Sustainable Development Goals (SDGs), as applicable. In particular, responsible production and consumption patterns should be established. This entails ensuring that the proposed project does not lead to environmental degradation or over taxation of natural resources while reducing waste and improving resource efficiency.

10. Consultation

74. This section of the EIS should describe stakeholder engagement activities that took place during the process of the EIA (refer to Guideline on the EIA Process), as well as any stakeholder consultation activities anticipated after the Plan of Work is provided to the Authority.

75. The EIS should include a description of the nature and extent of any consultations conducted as part of the EIA, and any consultations expected as part of the EIS public comment period and/or review by the Authority. This discussion should include a description of the process by which stakeholders were identified.

76. The Contractor should include a description of the protocol used for collecting, logging, and responding to stakeholder comments and concerns. The EIS should include an evaluation of how the consultations performed aligned with relevant consultation obligations, if any.

77. The Contractor should list authorizations and other approvals required to implement the project (national as well as international), and a list of related environmental review and consultation requirements under applicable regulations, standards, or policies..

11. Glossary and abbreviations

78. The EIS should include a glossary of terms used in the EIS, as well as a list of any acronyms and abbreviations used throughout the document. The EIS should also include definitions for specific key terms used in the EIS, regardless of whether they appear in the Exploitation Regulations. This will help ensure that users of the EIS, including the decision-makers and relevant stakeholders, have a clear understanding of the intention behind the use of certain terms in the EIS. The glossary should be included in the table of contents for the EIS and referenced in the introduction section of the EIS.

12. Study Team

79. The EIS shall list the names of the persons who were primarily responsible for preparing the statement and/or significant background papers, including basic components of the statement. Where possible, the persons who were responsible for a particular analysis, including analyses in background papers, shall be identified.

80. The list of preparers and contributors shall also state their qualifications, including:

- Expertise
- Experience
- Education
- Professional discipline(s)
- Relevant registration(s)

81. Resumes of key members of the study team can be included in the appendices if the Contractor determines this information would be useful to stakeholders reviewing the EIS.

13. References

82. Throughout the EIS, evidence provided from outside sources should be documented via footnote or other suitable reference mechanism. In addition, all references used in preparation of the EIS (including those specifically referenced in the body of the document) should be listed in bibliography format and include the full details of the reference sources (including website urls if applicable). This enables a user of the EIS to independently review the supporting documentation.

14. Appendices

83. The appendices section should include a list of all technical reports carried out for parts of the EIA or that are used in support of any aspect of the EIA (e.g., prior risk assessments or monitoring activities conducted as part of exploration contracts). Copies of these reports should be provided as appendices to the report, with clear indications as to which aspect of the EIS the document is provided to support.

III. INFORMATION SOURCES

A. References

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Durden, J.M.; Murphy, K.; Jaeckel, A.; Van Dover, C.L.; Christiansen, S.; Gjerde, K.; Ortega, A.; Jones, D.O.B. (2017). A procedural framework for robust environmental management of deep-sea mining projects using a conceptual model. *Marine Policy 84*: 193-201. <http://dx.doi.org/10.1016/j.marpol.2017.07.002>

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International Seabed Authority. "ISA DeepData." DeepData, January 6, 2020. https://data.isa.org.jm/isa/map/.

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International Seabed Authority, Legal and Technical Commission, and Legal and Technical Commission. "ISBA/25/LTC/6 - Recommendations for the Guidance of Contractors for the Assessment of Possible Environmental Impacts Arising from Exploration for Marine Minerals in the Area," April 18, 2019.
New South Wales Department of Infrastructure Planning & Natural Resources, and Planning & Natural Resources Department of Infrastructure. *Guideline for the Preparation of Environmental Management Plans*. Sydney, NSW, Australia 2000: Department of Infrastructure, Planning and Natural Resources, 2004.
Sharma, Rahul. *Environmental Issues of Deep-Sea Mining: Impacts, Consequences and Policy Perspectives*, 2019. https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=2120255.
Unit, Biosafety. "Rio Declaration on Environment and Development," November 13, 2006. https://www.cbd.int/doc/ref/rio-declaration.shtml.

B. Selected useful links

Topic	URL	Comments
Databases		
Ocean Biogeographic Information System (OBIS)	http://obis.org	Open-access data and information house on marine biodiversity
FishBase	http://fishbase.org/search	Database of fish species, distribution and biology
International Union for Conservation of Nature (IUNC)	https://www.iucnredlist.org/	Red List of Threatened Species
Bird Life International	http://www.birdlife.org/	Conservation of bird species
Swiss Seismological Service (SED)	http://www.seismo.ethz.ch/en/home/	Seismological information worldwide

Topic	URL	Comments
PBS and The Ocean Alliance	http://www.seismo.ethz.ch/en/home/	Baseline Data Gathering Program. The program is called the Voyage of the Odyssey. A 5 year program designed to
ARGO	http://www.usgodae.org/argo/argo.html	ARGO Data for oceanographic
CORIOLIS	http://www.coriolis.eu.org/	The Coriolis project provide operational oceanography data to monitor and forecast the ocean behaviour. Includes : Sea-surface observation; In situ measurements; and
Rules, Regulations, and Procedures		
International Seabed Authority	https://www.isa.org.jm/mining-code/Regulations	The mining code
International Marine Minerals Society	https://www.immsoc.org/IMMS_downloads/2011_SEPT_16_IMMS_Code.pdf	Code for Environmental Management of Marine Mining
International Marine Minerals Society	https://www.immsoc.org/IMMS_code.htm	Code for Environmental Management
Det Norske Veritas (DNV)-GL	https://www.dnvgl.com/maritime/index.html	Shipping Compliance and pollution reduction
Standards and Guidelines		
Equator Principals	https://equator-principles.com/best-practice-resources/	Equator Principals and Association Governance Rules
ISO	https://www.iso.org/iso-14001-environmental-management.html	The Environmental Management Standards of the International Organization of

Topic	URL	Comments
International Finance Corporation (IFC)	https://www.ifc.org/wps/wcm/connect/c02c2e86-e6cd-4b55-95a2-b3395d204279/IFC_Performance_Standards.pdf?MOD=AJPERES&CVID=kTjHBzk	The Performance Standards on Environmental and Social Sustainability of the International

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IV. APPENDICES

Review Form: EIS Content.

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Executive Summary	Is a description of the EIA and its objectives included? Does the description contain: (a) the goals of the EIA? (b) the overall objectives? (c) a summary of the relationship between physiochemical, biological, and socioeconomic environments?	2.1.1	
	Are the predicted physicochemical, biological, and socioeconomic impacts of the activity described? Are the residual impacts prioritized based on the magnitude of impact?		
	Does the Executive Summary summarize the recommended mitigation measures to avoid, remedy, or minimize environmental impacts?		
	Does the Executive Summary include a discussion of the economic, financial, and other benefits to be derived from the project?		
	Is a statement of commitment to conservation, preservation, and risk mitigation included?		
	Does the Executive Summary summarize the dialogue between the Contractor with stakeholders and interested parties?		
	Is a statement of commitment in accordance with the draft regulations included in the Executive Summary?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Introduction 1.1 – 1.5	Does the Introduction provide the context for the sections of the report?Does it outline were additional information for the EIS can be found?	2.1.2	
	Does the Introduction summarize the proposed project rather than the EIA?		
	Is a background section included in the Introduction? Is information regarding previous activities included?		
	Does the Introduction discuss the project viability by providing details regarding: (a)the economic context (b) justification for the project execution (c) the benefits		
	Is a summary of the work conducted prior to the EIA included?		
	Are details regarding the credentials of the proponent for the Contract discussed, including the following: (a) major shareholders (b) other contracts (c) licenses held (d) technological expertise (e) environmental expertise (f) capacity (g) financial resources		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	Is a description of the scope and report structure included in the Introduction?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Policy, Legal, and Administrative Context 2.1 – 2.4	Does the EIS discuss how the contractor will address international and national legislation, regulation, or guidelines that apply to the proposed exploitation activities?	2.1.3	
	Does the EIS discuss how the contractor will address relevant non-mining related legislation, policies, or regulations?		
	Does the EIS discuss how the contractor will address International agreements such as: (a) UNCLOS (b) International Convention for the Safety of Life at Sea (SOLAS) (c) International Convention for the Prevention of Pollution from Ships (MARPOL) (d) Convention on the Prevention of Marin Pollution by Dumping of Wastes and Other Matter (London Convention)		
	Does the EIS discuss how the contractor will address standards and guidelines that will be adhered to during the life of Contract from groups such as: (a) the Authority (b) the Equator Principles (c) the International Organization for Standardization (ISO) (d) the International Marine Minerals Society (IMMS)		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	(e) the International Finance Corporation (IFC) (f) the Extractive Industries Transparency Initiative		
Description of the Proposed Development 3.1 – 3.8	Does the EIS contain a description of the proposed exploitation, including details of proposed activities and relevant diagrams and drawings?	2.1.4	
	Does the EIS include a Contractor alternatives analysis demonstrating reasonable alternatives to the proposed project were explored and objectively evaluated?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Description of the Existing Physicochemical Environment 4.1 – 4.12	Does the EIS include an overview of the main findings, covered in six bullets or less?	2.1.5	
	Does the EIS include an overview of the regional context and regional reference maps for the Contract Area?		
	Does the EIS provide a description of all studies completed, including environmental reference baseline data collected under the Exploration contract?	2.1.5	
	Does the EIS include scientific data contained in the Authority's DeepData database both for the Contract Area and for the regional context?		
	Does the EIS discuss meteorology and air quality, including: (a) an overview of the climatology (b) description of existing air quality (including chemical characteristics)		
	Does the EIS discuss the geological setting, including: (a) general geological landscape and topography (b) nature and extent of the resource		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	Does the EIS discuss the physical oceanographic regional and site-specific setting, including: (a) general oceanographic aspects such as stratification and sediment rates (b) notable characteristics such as hydrothermal vents, seamounts, and canyons		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Description of the Existing Physicochemical Environment 4.1 – 4.12 (cont.)	Does the EIS discuss the sea substrate characteristics and substrate composition, including: (a) pore-water profiles (b) grains size (c) sediment mechanics (d) sediment composition	2.1.5	
	Does the EIS discuss potential natural hazards for the region, including: (a) seismic activity (b) volcanic activity (c) cyclones, hurricanes, or tsunamis		
	Does the EIS discuss noise and light conditions, including: (a) ambient levels (b) influence of existing maritime, exploration, and exploitation activity in and around the proposed Contract Area		
	Does the EIS discuss greenhouse gas emissions and climate change considerations, including: (a) gas emissions from natural and anthropogenic activities in the region and affecting the sea floor and water column chemistry (b) chemical emissions from natural and anthropogenic activities in the region and affecting the sea floor and water column chemistry		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	Does the EIS document the use of Best Available Scientific Evidence and Best Available Techniques in studying the above conditions?		
	Does the EIS contain a summary that expands on the key messages above for the physiochemical environment, which includes key findings as well as special considerations?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Description of the Existing Biological Environment 5.1 – 5.5	Does the EIS include an overview of the main findings, covered in six bullets or less?	2.1.5	
	Does the EIS include an overview of the regional context and regional reference maps for the Contract Area?		
	Does the EIS provide a description of all studies completed, including environmental reference baseline data collected under the Exploration contract?		
	Does the EIS include scientific data contained in the Authority's DeepData database both for the Contract Area and for the regional context?		
	For the surface depth (surface to approximately 200 m deep), does the EIS discuss the following taxonomic/ecological groups: (a) phytoplankton (b) zooplankton (c) surface fish (d) near surface fish (e) seabirds (f) turtles (g) marine mammals		
	For the midwater depth (approximately 200 m deep to approximately 50m above the seafloor), does the EIS discuss the following taxonomic/ecological groups: (a) zooplankton		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	(b) nekton (c) mesopelagic and bathypelagic fish (d) deep-diving mammals		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Description of the Existing Biological Environment 5.1 – 5.5 (cont.)	For the taxonomic/ecological groups listed above, does the EIS discuss: (a) diversity (b) biomass (c) species composition (d) species richness (e) species abundance (f) size of the faunal (g) temporal variability (h) ecosystem function (i) resilience (j) trophic relationships (k) life-history stages of fauna (e.g., larval and juvenile stages which differ from adults) (l) community structures and connectivity (including recruitment and behavioral information) (m) considerations of endemic species (n) considerations for species that known to be rare, threatened, or endangered	2.1.5	
	Does the EIS document the use of Best Available Scientific Evidence and Best Available Techniques in studying the above conditions?		
	Does the EIS contain a summary that expands on the key messages above for the biological environment, which includes key findings as well as special considerations?		
Description of the Existing	Does the EIS include an overview of the main findings, covered in six bullets or less?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Socioeconomic Environment 6.1 – 6.4	Does the EIS include an overview of the regional context and regional reference maps for the Contract Area?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Description of the Existing Socioeconomic Environment 6.1 – 6.4 (cont.)	Does the EIS discuss the following aspects of ecosystem services: (a) Fisheries (e.g., surface level spawning grounds, nursery areas, or feeding sites, as applicable) (b) Marine traffic (i.e., non-Contract-related marine traffic occurring at or near the proposed Contract Area) (c) Tourism (e.g., cruise line routes or areas used for game fishing, sightseeing, marine mammal watching, or other relevant tourism activities) (d) Marine scientific research (i.e., any scientific research being conducted in or around the proposed Contract Area outside of environmental studies or sampling performed for the EIA/EIS or proposed by the EMMP) (e) Area-based data management tools such as the DeepData (f) Other uses of the area in and around the proposed Contract Area (e.g., submarine cables, exploration projects, or other exploitation projects) (g) Sites of archeological or historical significance located in or around the proposed Contract Area	2.1.5	
	Does the EIS document the use of Best Available Scientific Evidence and Best Available Techniques in studying the above conditions?		
	Does the EIS contain a summary that expands on the key messages above for the socioeconomic environment, which includes key findings as well as special considerations?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Assessment of Impacts on the Physiochemical Environment and Proposed Mitigation 7.1 – 7.15	For the physiochemical environment, does the EIS include a description of direct, indirect, and cumulative impacts: (a) the nature and extent of any or potential impacts (b) measures that will be taken to avoid, remedy, or mitigate such impacts (c) remaining (residual) impacts	2.1.6	
	For the physiochemical environment, does the EIS include a discussion of: (a) Key messages (overview of the main findings) (b) Description of impacts • The nature and extent of any actual or potential impact, including indirect and cumulative impacts, and interactions across impacts • Measures that will be taken to avoid, remedy, or mitigate such impacts (and that will be addressed in the EMMP) • Unavoidable (residual) impacts that will remain (c) Specific discussion of cumulative impacts, including such impacts from proposed operations by the Contractor and other operations in the region		
	Does the EIS discuss the following aspects specific to potential impacts on the physiochemical environment: (a) Meteorology and air quality (b) Geological setting (c) Physical oceanographic setting (d) Chemical oceanographic setting (e) Seabed substrate characteristics (f) Natural hazards (g) Noise and light		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	(h) Greenhouse gas emissions and climate change (i) Maritime safety and interactions with shipping (j) Waste management (k) Other issues		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Assessment of Impacts on the Physiochemical Environment and Proposed Mitigation 7.1 – 7.15 (cont.)	Does the EIS discuss, at a minimum, sources of potential impact that include: (a) physical disturbance of the seabed during mining activities (b) sediment plume(s) that could disperse beyond the footprint of the Contract Area (c) potential impact from material transport and processing activities conducted at the surface in the Contract Area	2.1.6	
	Does the discussion provide cross-references with other sections of the EIS to provide the user with cause and effect linkages?		
	Does the discussion include the expected time to recover following disturbance and the longevity of residual effects?		
	Does EIS include a summary of the residual effects in a tabular format?		
Assessment of Impacts on the Biological Environment and Proposed Mitigation 8.1 – 8.8	For the biological environment, does the EIS discuss a description of direct, indirect, and cumulative impacts: (a) the nature and extent of any or potential impacts (b) measures that will be taken to avoid, remedy, or mitigate such impacts (c) remaining (residual) impacts		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	For the biological environment, does the EIS include a discussion of: (a) Key messages (overview of the main findings) (b) Description of impacts • The nature and extent of any actual or potential impact, including indirect and cumulative impacts, and interactions across impacts • Measures that will be taken to avoid, remedy, or mitigate such impacts (and that will be addressed in the EMMP) • Unavoidable (residual) impacts that will remain (c) Specific discussion of cumulative impacts, including such impacts from proposed operations by the Contractor and other operations in the region		
Assessment of Impacts on the Biological Environment and Proposed Mitigation 8.1 – 8.8 (cont.)	Does the EIS discuss aspects specific to the existing biological environment considering the following : (a) Depth • surface • midwater • benthic (b) Ecosystem(s) (c) Community(ies) This section should also include a summary of existing studies of the ecosystems and communities, and temporal and spatial impacts should be discussed in each subsection.	2.1.6	

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	For each aspect listed above, does the EIS discuss potential impacts that include: (a) impacts from increased vessel activities and potential pollution from these vessels (b) impacts from changes in water composition, clarity, or noise, affecting the food chain and availability of prey (c) potential oxygen depletion impacts (d) sediment plume effects in the water column (e) bioaccumulation of toxic metals and other contaminants (f) temporal and spatial impacts		
	Does the discussion provide cross-references with other sections of the EIS to provide the user with cause and effect linkages?		
	Does the discussion include the expected time to recover following disturbance and the longevity of residual effects?		
	Does EIS include a summary of the residual effects in a tabular format?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Assessment of Impacts on the Socioeconomic Environment and Proposed Mitigation 9.1 – 9.5	For the socioeconomic environment, does the EIS include a description of direct, indirect, and cumulative impacts: (a) the nature and extent of any or potential impacts (b) measures that will be taken to avoid, remedy, or mitigate such impacts (c) remaining (residual) impacts	2.1.6	
	For the socioeconomic environment, does the EIS include a discussion of: (a) Key messages (overview of the main findings) (b) Description of impacts • The nature and extent of any actual or potential impact, including indirect and cumulative impacts, and interactions across impacts • Measures that will be taken to avoid, remedy, or mitigate such impacts (and that will be addressed in the EMMP) • Unavoidable (residual) impacts that will remain (c) Specific discussion of cumulative impacts, including such impacts from proposed operations by the Contractor and other operations in the region		
	For the socioeconomic environment, does the EIS include a discussion of: (a) Fisheries (b) Marine traffic (c) Tourism (d) Marine scientific research (e) Area-based management tools (f) Other considerations		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
	Does the EIS include a discussion of desirable outcomes or beneficial impacts as wells as potential adverse impacts for the socioeconomic environment?		
	Does the EIS include a discussion of the scale of the effects, expected duration of such effects, and an assessment of whether the effects are likely to be cumulative?		
	Does this section provide cross-references with other sections of the EIS to provide the user with cause and effect linkages?		
	Does EIS include a summary of the residual effects in a tabular format?		

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Accidental Events and Natural Hazards 10.1 – 10.3	Does the EIS refer users to a stand-alone Emergency Response Plan, which details identified potential hazards and established procedures for managing environmental emergencies? Does the EIS include a discussion on environmentally hazardous discharges, including probability of occurrence and proposed measures to prevent or respond to such an event?	2.1.7	
Environmental Management, Monitoring, and Reporting 11.1 – 11.4	Does the EIS refer users to the EMMP and include a brief discussion of key issues addressed in the EMMP, including: (a) organizational structure and responsibilities (b) environmental management systems (c) environmental objectives (d) mitigation and management (e) monitoring plan (f) corrective procedures (g) closure plan (h) reporting for monitoring activities (i) incident reporting	2.1.8	
Product Stewardship 12	Does the EIS contain a description of the intended use of the mineral-bearing ore and address how health, safety, environmental, and socioeconomic effects of the intended product(s) will be minimized, including the potential impacts of: (a) energy and materials consumption (b) waste generation (c) toxic substances (d) air and water emissions	2.1.9	

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
Consultation 13.1 – 13.4	Does the EIS clearly identify the stakeholders for the project and their role relevant to approvals and/or consultation? Does the EIS discuss the nature and extent of any consultations conducted as part of the EIS?	2.1.10	
	Does the EIS include a description of the protocol used for collecting, logging, and responding to stakeholder comments and concerns, and an evaluation of how consultations aligned with relevant consultation obligations, if any?		
	Does the EIS contain a statement describing the intended use of the EIS, including a list of stakeholders anticipated to use the EIS? This section should list authorizations and other approvals required to implement the project and a list of related environmental review and consultation requirements.		
Glossary and Abbreviations 14	Does the EIS include a glossary of terms used in the EIS, as well as a list of any acronyms and abbreviations used throughout the documents?	2.1.11	
Study Team 15	Does the EIS list the names of persons responsible for preparing the statement? The list should include the qualifications of the preparers and contributors, including: (a) expertise (b) experience (c) education (d) professional discipline(s) (e) relevant registration(s) Are resumes of key members included in appendices?	2.1.12	

EIS Section / Annex IV Section	Do the Components of the EIS Meet These Requirements?	Relevant Section in Guideline	Describe how the EIS Meets These Criteria
References 16	Is all evidence from outside sources provided in the EIS documented via footnote or other suitable reference mechanism? All references used in preparation of the EIS (including those specifically referenced in the body of the document) listed in bibliography format, including the full details of the reference sources?	2.1.13	
Appendices 17	Does the EIS include an appendices section with a list of all technical reports carried out for parts of the EIA or that were used in support of any aspect of the EIA or EIS?		