AGREEMENT ON THE EXTENSION OF THE CONTRACT FOR EXPLORATION FOR POLYMETALLIC NODULES

BETWEEN

THE INTERNATIONAL SEABED AUTHORITY

AND

THE FEDERAL INSTITUTE FOR GEOSCIENCES AND NATURAL RESOURCES OF THE FEDERAL REPUBLIC OF GERMANY

AGREEMENT BETWEEN THE INTERNATIONAL SEABED AUTHORITY AND THE FEDERAL INSTITUTE FOR GEOSCIENCES AND NATURAL RESOURCES OF THE FEDERAL REPUBLIC OF GERMANY CONCERNING THE EXTENSION OF THE CONTRACT FOR EXPLORATION FOR POLYMETALLIC NODULES BETWEEN THE INTERNATIONAL SEABED AUTHORITY AND THE FEDERAL INSTITUTE FOR GEOSCIENCES AND NATURAL RESOURCES OF THE FEDERAL REPUBLIC OF GERMANY

The International Seabed Authority, represented by its Secretary-General (hereinafter referred to as "the Authority"), and the Federal Institute for Geosciences and Natural Resources of the Federal Republic of Germany, represented by its President (hereinafter referred to as "the Contractor"), agree that the Contract for Exploration for Polymetallic Nodules between the Authority and the Contractor signed on 19 July 2006 at Berlin, Germany, for a period of 15 years from 19 July 2006, together with related annexes, is extended for a period of five years to 18 July 2026, subject to the following amendments.

1. Schedule 2 of the Contract shall be replaced by the programme of activities attached to this agreement as annex I.

2. Schedule 3 of the Contract shall be replaced by the training programme attached to this agreement as annex II.

3. The standard clauses referred to in operative paragraph 1 of the Contract shall be replaced by the standard clauses attached to this agreement as annex III, which shall be incorporated into the Contract and shall have effect as if set out therein at length.

Subject to the above amendments, the Contract shall continue in all other respects with full force and effect. This amendment will enter into force on 19 July 2021.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto by the respective parties, have signed this agreement at Hannover, Germany, on the 12 day of December 2022 and at Kingston, Jamaica on the 7 day of November 2022.

For International Seabed Authority

Michael LODGE
Secretary-General

For the Federal Institute for Geosciences and Natural Resources of the Federal Republic of Germany

Ralph WATZEL
President

ANNEX I

PROGRAMME OF ACTIVITIES FOR THE EXTENSION PERIOD

I. Introduction

The figure below provides an overview of the major goals of Contractor's work programme for the extension period from 2021 to 2026 in the form of a timeline. The milestones are grouped into four categories: (1) database development, (2) development of a metallurgical processing route for manganese nodules, (3) geological exploration and (4) studies on biodiversity and the physico-chemical environment. Blue dots above the timeline mark planned expeditions to the contract area and the red triangles mark the beginning and end of the extension period.

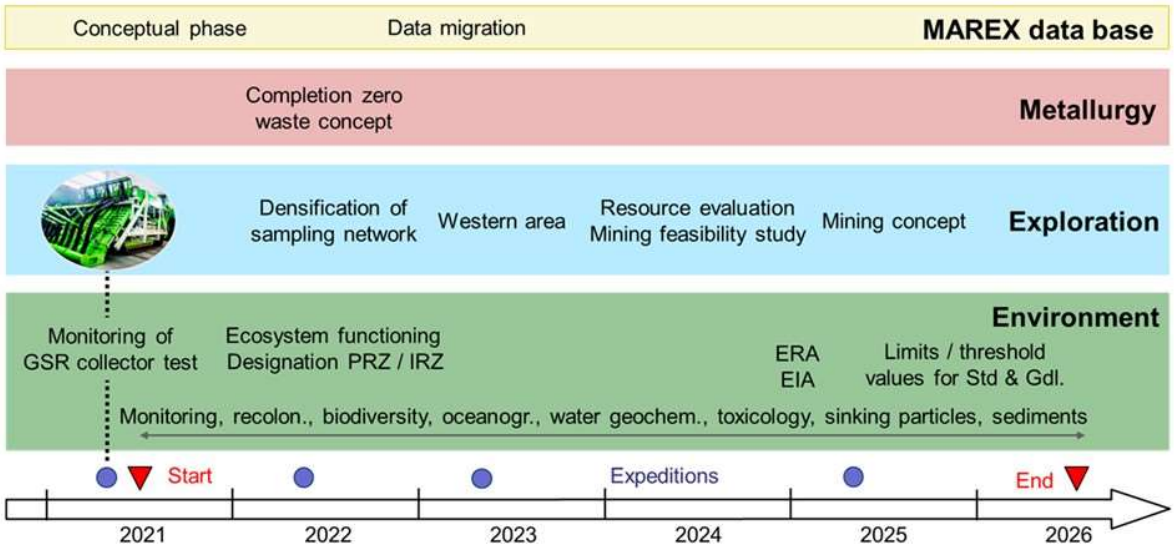

Figure 1:Summary of the planned programme of activities for the extension period

II. Year 1 (2021)

Overview: An exploration cruise will be carried out to monitor the environmental impact of a pre-prototype collector built by the Belgian company and contractor Global Sea Mineral Resources NV (GSR). The environmental monitoring will be carried out in close collaboration with European research institutes from the JPIO MiningImpact Consortium and the data and samples obtained during this cruise will be evaluated as a joint effort to reach the aims of the research project and ultimately to develop standardisation, monitoring and mitigation recommendations for the Authority. In addition, cumulative interpretations and assessments of data gathered during this and previous cruises will be continued by the Contractor, especially regarding (i) deep water geochemistry, and (ii) near-bottom current activity, particle flux and plume dispersion. Furthermore, the development of the metallurgical zero-waste processing route is being continued. In detail, the following work is planned:

1) *Exploration cruise to the eastern contract area* **Estimated cost: 5,000,000 EUR**

A 42-day-cruise with a ship-of-opportunity to the eastern contract area and the GSR contract area will be undertaken in April/May 2021 to monitor the environmental impacts caused by the testing of GSR's pre-prototype collector vehicle. An ROV for megafauna and sediment sampling, monitoring of the sediment plume, photographic analysis of blanketing and the manual distribution and recovery of tripod oceanographic sensors, micro-profilers and recolonization frames will be chartered with the ship. Furthermore, comprehensive monitoring equipment of the Contractor and all involved research partners will be on board, including AUV, photo sledge, CTD-Rosette, bottom water sampler and 40 – 50 oceanographic and sediment transport sensors and cameras in the form of tripods or moorings.

2) *Oceanography & sediment particle fluxes* **Estimated cost 20,000 EUR**

Oceanographic evaluation of baseline conditions as well as the impact and post-impact physical conditions (particle fluxes, plume dispersion) close to the seafloor in association with the collector test will be undertaken. This includes but is not restricted to analysis of collected long- and short-term data from current meters and sediment traps; analysis of the spread and intensity of the sediment plume; implications for industrial-scale mining.

3) *Chemical Oceanography and sediment biogeochemistry* **Estimated cost 50,000 EUR**

Geochemical analysis and evaluation of baseline and impact-affected bottom water obtained in 2020 and 2021 will be conducted. Investigations will focus on trace metal distribution and particulate matter, including the mineralogical and geochemical characterisation of the sediment plume material. Together with new data for baseline and post-impact benthic pore water fluxes, these investigations aim at understanding the geochemical processes controlling mobilisation and fate of potentially toxic trace metals at the sediment-seawater interface and within mining-induced sediment plumes in the water column. Studies with passive samplers as potential monitoring tools to assess trace metal bioavailability will be continued.

4) *Ultrasound system for detection of nodule abundance* **Estimated cost 160,000 EUR**

First steps for the development of deep-towed ultrasound technology for the volumetric analysis and determination of nodule abundance on the seafloor have been undertaken and ex-situ tests will occur to test the feasibility of the technology as a potential seafloor resource assessment tool.

5) *Development of the database system MAREX* **Estimated cost 20,000 EUR**

A GIS-based database system will be developed further in order to store, organise and process all geoscientific and biological data, photos, videos, reports, etc. that have been collected, developed and analysed during the exploration period.

6) Metallurgical study **Estimated cost 75,000 EUR**

The Contractor is conducting a laboratory-scale leaching study as part of the development of the

metallurgical zero-waste process to assess the efficiency of recovering various metals using different nodules: (synthetic) pyrite mixtures and sulphuric acid as a leaching agent.

7) *Preparation of a cruise in 2022* **Estimated cost 20,000 EUR**

The Contractor is planning to carry out an exploration/monitoring cruise with a vessel-of-opportunity in 2022. The technical preparation and the submission of a call for tender to charter a vessel will start in 2021. The focus of this cruise will be the monitoring of the collector test one year after the disturbance. For these purposes, the vessel-of-opportunity must meet certain technical requirements, i.e., deck's space, lifting gear, cables and wires, laboratories, dynamic positioning, etc. A careful planning of the call for tender as well as negotiating the tender and contracting a vessel operator are necessary. Related costs during the preparation period include personnel, tender costs and travel costs.

III. Year 2 (2022)

Overview: An exploration cruise was planned to monitor the environmental impact of the collector test one year after the disturbance and to carry out more ground-truthing for the resource assessments that have been undertaken in Contractor's prospective areas PA1, PA2 and PA3. Instead, the Contractor will participate in a German research cruise led by GEOMAR to the test area. In addition, cumulative interpretations and assessments of data gathered during this and previous cruises will be continued, especially regarding (i) deep water geochemistry, and (ii) biodiversity, recolonization and ecosystem functioning, including the pelagic realm. Metallurgical tests to validate the zero-waste concept for processing of manganese nodules will be continued and finalised. In detail, the following work is planned:

1) Exploration cruise to the eastern contract area **Estimated cost 500,000 EUR**

The Contractor will participate in a research campaign on the German research vessel SONNE, scheduled to revisit the GSR and Contractor's collector test sites for a post-impact monitoring from October to December 2022. Although this campaign is not organised by the Contractor (led by the German GEOMAR institute), the monitoring obligations will be complied with. The scientific consortium onboard is almost the same one that participated in the cruise during the collector tests carried out in 2021. The SONNE cruise will be funded by the German Federal Ministry of Education and Research.

2) Chemical Oceanography and sediment biogeochemistry **Estimated cost 50,000 EUR**

Ongoing analyses and evaluation of water and surface sediment samples obtained in 2021 and 2022 for the impact assessment one year after the collector test will be conducted, focussing on impact monitoring at the sediment-seawater interface.

3) Plume dispersal model for chemically active compounds **Estimated cost 300,000 EUR**

A numerical reactive transport model integrating chemical reaction kinetics into a numerical hydrodynamic plume dispersal model will be developed. The coupling of chemical reactions (such as

dissolution/precipitation, surface complexation, reduction/oxidation, sorption/desorption) with mass transport and fluid dynamics is needed to understand the transport and mobility of potentially toxic trace metals in sediment plumes and to predict their dispersal in space and time. The model will use published thermodynamic datasets and integrate empirical results from laboratory experiments addressing trace metal reaction kinetics in sediment plumes. Field data on trace metal concentrations and their physical and chemical speciation will be used for model validation.

4) Biodiversity, ecosystem functioning **Estimated cost 350,000 EUR**

Baseline data and impact-related data on benthic faunal distribution and density as well as recovery (all faunal size classes), including differences in respiration and ecosystem functioning between non-impacted and impacted areas, will be analysed to evaluate and determine gradients of harm associated with the collector test. Implications for environmental monitoring and management will be assessed. The baseline analysis of the pelagic realm (whole water column) will be continued.

5) Designation of PRZ(s) and IRZ(s) **Estimated cost 50,000 EUR**

The results on habitat mapping, faunal distributions, resource potential, connectivity of taxa/species and expected drift and sedimentation of a mining-induced sediment plume will be used to designate appropriate PRZs and IRZs in the contract area.

6) Metallurgical "zero-waste" processing technique **Estimated cost 2,000,000 EUR**

Continuation of metallurgical experimentation to improve our knowledge on "zero-waste" processing techniques for manganese nodules with respect to increasing the efficiency of recovery of the main metals (Cu, Ni, Co, Mn) and for investigating possible techniques for the recovery of rare metals (Mo, Li, REE). The pyrometallurgical route of the zero-waste metallurgical concept for the processing of manganese nodules will be finalised (i.e., the production of ferromanganese, silicomanganese and a final mineral product), including proof for its industrial applicability and economic viability as well as the incorporation of products that comply with international standards. Furthermore, an upscaling of the hydrometallurgical processing of the metal alloy produced during the large-scale pyrometallurgical trials is planned for proof of its industrial-scale applicability in a similar way to the pyrometallurgical route.

7) Expansion of the database system MAREX **Estimated cost 50,000 EUR**

The GIS-based database system to store, organise and process all geoscientific and biological data, photos, videos, reports, etc. that have been collected, developed and analysed during the exploration period will be further enhanced.

8) Scoping and Environmental Risk Assessment (ERA) **Estimated cost 150,000 EUR**

This initial scoping exercise will aim at identifying the main activities and impacts relevant to a potential mining project in the contract area. It involves developing an initial desktop study of the current environment and identifying all possible impacts through a qualitative (Level 1) Risk Assessment (e.g., risk

matrix). The Contractor assumes that the experiences and results obtained from the collector test will form the primary inputs of this risk assessment. The ERA should emphasise the activities of high risk but will also identify elements of low risk. This exercise should help to identify the key environmental issues and terms of reference for a potential future project-related EIA/EIS and will help focus sampling goals and strategies for further environmental baseline analyses.

9) Preparation of a cruise in 2023 **Estimated cost 10,000 EUR**

The Contractor is planning to carry out an exploration cruise with a ship of opportunity in 2023. The technical preparation will start in 2022 and a tender is currently prepared. The focus of this cruise will be the exploration of the western contract area, with some additional post-impact monitoring occurring in the eastern contract area two years after the disturbance. Related costs during the preparation period include personnel and travel costs.

10) Training opportunities **Estimated cost 30,000 EUR**

The contractor will cover the costs of four trainee opportunities offered in the online-training programme "Deep Dive" carried out by the International Seabed Authority.

IV. Year 3 (2023)

Overview: An exploration cruise is planned to carry out a detailed exploration of the western contract area (geology and environment), but also to carry out additional monitoring of the environmental impact of the collector test two years after the disturbance in the eastern contract area. In addition, cumulative interpretations and assessments of data gathered during this and previous cruises will be continued, especially regarding (i) geological and geochemical analysis of the resource, (ii) chemical oceanography and sediment geochemistry, and (iii) biodiversity and connectivity. In detail, the following work is planned:

1) *Exploration cruise to the eastern and western contract area* **Estimated cost 3,000,000 EUR**

A 42–day cruise with a ship-of-opportunity, mainly to the western part of the contract area, is planned both for resource assessment of a prospective area (with a focus on the acquisition of nodule samples using a box corer, video mapping of the seafloor using a video sledge, acquisition of high-resolution seafloor topographic data using the deep-towed, multibeam system HOMESIDE) and for environmental baseline analysis (sediment analysis including in-situ flux measurements of POC and oxygen penetration, biodiversity studies, oceanographic data acquisition (CTD, sediment traps, ADCPs)). Furthermore, monitoring of the collector test area in the eastern part of the contract area two years after the disturbance is planned, as well as gathering more specific data based on the results of the ERA (2022) and gap analyses. Four trainee positions for participation in the exploration cruise will be available.

2) *Nodule geochemistry* **Estimated cost 20,000 EUR**

Geochemical analyses of Mn nodules sampled during the 2023 cruise (ICP-OES/MS; XRF) will be conducted; approximately 200 analyses.

3) *Chemical Oceanography and sediment biogeochemistry* **Estimated cost 80,000 EUR**

Analysis and evaluation of water column and pore water geochemistry in the western contract area will focus on spatial variability of particle fluxes and trace metal speciation (chemical and physical speciation), as well as on the characterization of biogeochemical conditions in surface sediment. Evaluation of geochemical data obtained in the eastern contract area two years after disturbance will be used to identify indicator variables for impact monitoring.

4) *Biodiversity and connectivity* **Estimated cost 200,000 EUR**

Baseline data on benthic and pelagic faunal distribution and density will be retrieved with a special emphasis on using metabarcoding for more rapid community assessment. The results are expected to shed more light on the connectivity of species across the CCZ region as detailed comparisons between the eastern and western contract areas as well as with other contractor areas can be made that will also help validate or adjust area-wide predictions of taxon abundances and distribution. Such results can greatly contribute to inform spatial management issues and the implementation of the Environmental Management Plan for the CCZ in line with Decision of the Council of the International Seabed Authority relating to the review of the environmental management plan for the Clarion-Clipperton Zone, ISBA/26/C/58.

5) *Completion of the database system MAREX* **Estimated cost 20,000 EUR**

The GIS-based database system to store, organise and process all geoscientific and biological data, photos, videos, reports, etc. that have been collected, developed and analysed during the exploration period will be completed and kept up to date with newly collected data.

6) *Training opportunities* **Estimated cost 70,000 EUR**

Four training opportunities will be made available for participation in the cruise and a 4-week post-cruise training at the Contractor's facility in Hannover.

V. Year 4 (2024)

Overview: No exploration cruise will be carried out in 2024. The exploration work will focus on the comprehensive analysis of data for the development of concepts and studies that will be required should technical developments be such that mining equipment and systems can be tested in the German contract area towards the end of the exploration phase. In addition, cumulative interpretations and assessments of geological and environmental data gathered during previous cruises will be continued, especially regarding (i) final metal resource estimations in both parts of the contract area, and (ii) spatial management issues. In detail, the following work is planned:

1) *Final metal resource assessments* **Estimated cost 150,000 EUR**

Based on all available data, a final model for the distribution of nodule coverage and metal grades as well as the inferred tonnage and tonnage distribution will be developed. Methods of neuronal networks and conventional geostatistics that enable the inclusion of all kinds of relevant data such as bathymetry, seafloor

properties, video analyses, metal contents, sediment characteristics, environmental properties, etc. will be utilised. The development of robust analytical methods already started five years ago, and these methods are being and will be continuously improved.

2) *Feasibility study* **Estimated cost 150,000 EUR**

Based on the assumption that the at-sea exploration work will have been successfully completed and that the zero-waste metallurgical processing concept delivers robust cost predictions, an initial mining feasibility study will be outlined utilising the most recent data. If this preliminary feasibility assessment leads to positive conclusions, further conceptual and design work will be devoted to the mining process.

3) *Area-based management tools for the contract area* **Estimated cost 100,000 EUR**

A study on useful management tools for the contract area (e.g., final designation of IRZs and PRZs) based on habitat mapping, biodiversity, connectivity and knowledge on spatial ranges of mining-related impacts will be undertaken.

4) *Preparation of a cruise in 2025* **Estimated cost 20,000 EUR**

The Contractor is planning to carry out an exploration/monitoring cruise with a vessel-of-opportunity in 2025. The technical preparation and the submission of a call for tender to charter a vessel will start in 2024. The focus of this cruise will be on water column geochemistry (with focus on trace metals) and the geochemistry of artificially created in situ sediment plumes using ultra-clean CTD, Rosette samplers, in situ pumps, bottom water samplers and passive sampling techniques. For these purposes, the vessel-of-opportunity has to meet certain technical requirements, i.e., deck space, lifting gear, Kevlar cable and a special winch, clean lab laboratories, dynamic positioning, etc. A careful planning of the call for tender as well as negotiating the tender and contracting a vessel operator are necessary. Related costs during the preparation period include personnel, tender costs and travel costs.

VI. Year 5 (2025/2026)

Overview: An exploration cruise is planned in 2025 to carry out a detailed geochemical analysis of the water column and the sediment-seawater interface (benthic boundary layer), with focus on trace metals, in the eastern contract area, but also to carry out additional monitoring of the environmental impact of the collector test four years after the disturbance. In addition, cumulative interpretations and assessments of all data gathered during this and previous cruises and studies will be continued to develop a comprehensive mining concept for the contract area. In detail, the following work is planned:

1) *Exploration cruise to the eastern contract area* **Estimated cost 3,500,000 EUR**

A 42-day-cruise with a ship-of-opportunity to the eastern contract area will be undertaken in 2025 to carry out a detailed geochemical assessment of the water column (trace metals) and of the benthic boundary layer including respective spatial variability, both as baseline and because of the artificial mobilization of sediments

in seafloor sediment plumes. An ultra- clean, metal-free CTD/Rosette and a metal-free cable (Kevlar) will be required and will form part of the ship charter. Further equipment for in situ flux measurements and time-resolved sampling at the sediment-seawater interface needs to include in situ pumps, a bottom water sampler, benthic chambers, micro-profilers, passive sampler deployments. The collector test area will also be monitored four years after disturbance.

2) *Chemical Oceanography and sediment biogeochemistry* **Estimated cost 100,000 EUR**

Based on data obtained between 2021 and 2025, the baseline water column and surface sediment biogeochemistry in the eastern contract area will be characterised, with a focus on spatial variability. Data will be used for a holistic assessment of chemical parameters throughout the water column and their vertical and spatial variability, including POC flux and POC lability, oxygen, nutrients, carbonate system, radioisotopes, trace metal concentration and speciation. Data derived between 2021 and 2025 in the collector test area will be used to assess the biogeochemical conditions in surface sediments up to 4 years after impact.

3) *Ecotoxicology study* **Estimated cost 200,000 EUR**

To quantify the potential eco-toxicological risk of operational and discharge plumes, an ecotoxicology study will be conducted. The study needs to integrate field data for trace metal physical and chemical speciation, baseline concentrations of metals and potential organic contaminants in key benthic, abysso- and bathypelagic species recovered from the impact and reference zones, and sediment physico-chemical properties; bioaccumulation of metals in indicator species; sub-lethal effects/biomarkers in indicator species; and laboratory eco-toxicological bioassays. Together with model results for plume dispersal (see point (4) in 2022), these parameters feed into Weight of Evidence (WoE) models for risk assessment. A coupled experimental assessment of trace metal speciation and bio-uptake will be used to better constrain the bioavailability/toxicological risk of chemical species and to identify useful techniques to monitor fluxes of potentially toxic metal fractions in mining areas.

4) *Environmental Risk and Impact Assessment* **Estimated cost 200,000 EUR**

The qualitative ERA carried out in 2022 will be supplemented by results obtained from the environmental baseline studies in the contract area as well as published results from relevant studies carried out in the wider region of the CCZ to develop a comprehensive and (semi-) quantitative ERA, taking all relevant ISA regulations, recommendations and guidelines into consideration. The analysis of all possible site-specific and mining-related ecological and environmental impacts and possible mitigation measures as well as possible management and monitoring strategies will be completed.

5) *Development of a mining concept* **Estimated cost 100,000 EUR**

Once final data processing has been completed and evaluation of cruise and archive data is completed, and the feasibility study of 2024 has come to a positive conclusion, a mining concept will be developed considering all relevant data. The relevant data includes nodule coverage, grade, extent of feasible mining areas, water depths, topographic elements, extent and severity of environmental impacts (results ERA), potential locations

of IRZs and PRZs, suggested mitigation strategies, etc. These are prerequisite for the development of an integrated mining concept, provided that information on feasible mining technology is available at this stage.

6) *Studies on market trends / land-based mining developments* **Estimated cost 100,000 EUR**

As the work on nodule exploration evolves and comes to the stage where a transition to exploitation appears to be economically and environmentally viable, studies on the evolution of land-based mine sites and market analyses focusing on intermediate trend development will be undertaken.

7) *Training opportunities* **Estimated cost 70,000 EUR**

Four training opportunities will be made available for participation in the cruise and a 4-week post cruise training at the Contractor's facility in Hannover.

VII. Total estimated expenditure for the five-year extension period

The total estimated expenditure per year and per main exploration category (geological exploration and resource assessment, environmental studies, metallurgical studies and training) is shown in the table below in Euro. Two-thirds of the expected total expenditure will be dedicated to environmental studies and analyses.

Year	Geological exploration	Environmental studies	Metallurgy	Training	Other costs*	Total costs
2021	170,000	5,080,000	75,000	-	90,000	5,415,000
2022	10,000	1,400,000	2,000,000	30,000	130,000	3,570,000
2023	1,520,000	1,780,000	-	70,000	100,000	3,470,000
2024	310,000	110,000	-	-	80,000	500,000
2025/26	200,000	4,000,000	-	70,000	80,000	4,350,000
Total	**2,210,000**	**12,370,000**	**2,075,000**	**170,000**	**480,000**	**17,305,000**

Table 1: Total estimated expenditure for the five-year extension period

* Annual contractor fees to ISA; MAREX database development

VIII. Statement on completion for proceeding to the exploitation stage

With an additional 5-year phase to further exploration activities, the Contractor will complete the exploration of its three prospective areas in the eastern contract area and one prospective area in the western contract area, providing total tonnages of > 60 million tonnes of nodules (dry weight) with the status of "inferred resource" that would last for > 20 years of mining for a single mining company.

The currently still incomplete knowledge regarding the environmental impacts leads to anxiety and a low social acceptance for deep-sea mining amongst the public, scientists and politicians, thereby representing a considerable project risk. An extension of the exploration contract is therefore necessary to close existing gaps in knowledge. Through scoping and initial as well as more advanced ERAs, the primary inputs for a project-based EIA/EIS can be identified, and research capacities focussed more specifically to address those matters. In particular, the collector test in the eastern contract area planned for 2021 will deliver valuable insights into the spread of a mining-induced sediment plume, and recurrent monitoring of the area and its surroundings will provide information on the temporal and spatial scales of impact on and recovery of different faunal components. Furthermore, we anticipate that the results of the test will provide excellent scientific input to the definition and development of impact threshold values that can contribute significantly to the further development of ISA environmental standards and guidelines.

There is a requirement to designate preservation reference zones (PRZ) and impact reference zones (IRZ) within the contract area to fulfil monitoring obligations and allow an unbiased analysis of natural vs. mining-related change in potential future mining areas. The designation of a PRZ to the east of Prospective Area #1 (PA1) in 2013 based on preliminary geological and environmental data has, after years of temporal analysis, proven to be insufficient in terms of faunal diversity and standing stocks as well as geochemical conditions. Thus, all current results on habitat mapping, faunal distributions, resource potential, connectivity of taxa/species and expected drift and sedimentation of a mining-induced sediment plume now need to be combined to designate appropriate PRZs and IRZs and help set out management objectives for the area.

The zero-waste metallurgical concept for the processing of manganese nodules at an industrial scale will be finalised by 2022, including delivery of proof of concept for its industrial applicability and economic viability as well as the incorporation of products that comply with international standards.

Once all of the above aims and milestones have been achieved, a state-of-the-art feasibility study and mining concept can be developed, provided that suitable mining technologies are being conceptualised or built by that stage of exploration.

Discussions between German government and industry to support and fund a Pilot Mining Test (PMT) in the contract area are ongoing but are very dependent on decision-making processes of both the Federal Ministry of Economic Affairs and Climate Action (BMWK, former BMWi) and the Federal Ministry of Research and Education (BMBF). Furthermore, there is currently low interest of industry for the technological development of a mining system / components for manganese nodule extraction at a national level. European or international partnerships between and with technology developers could be viable alternatives, as shown by

the close collaboration with DEME-GSR on the testing and monitoring of the Patania II collector vehicle. Presently, developments remain premature and so efforts to achieve a full-blown PMT activity are not included in this five-year exploration extension plan.

ANNEX II

TRAINING PROGRAMME FOR THE EXTENSION PERIOD

I. Introduction

Pursuant to article 15 of annex III to the Convention and in accordance with Regulation 27 of ISBA/19/C/17 and with ISBA/19/LTC/14, the Contractor will fund and carry out a practical programme for the training of personnel of ISA and developing States. The programme will focus on training in the conduct of exploration and will provide for full participation of the trainees in all activities covered by the contract, including the participation in offshore exploration activities in the contract area.

The Contractor will provide ten training opportunities within the five-year extension period. According to the previous 15-year contract with ISA, two training placements are still pending due to the worldwide travel restrictions caused by the COVID-19 pandemic. The Contractor and the ISA secretariat agreed to shift these two additional training placements to the extension period. Accordingly, the Contractor will provide twelve training opportunities in total during the extension period, including onboard training for eight trainees and online training, carried out by the ISA and paid for by the BGR, for four trainees.

The actual implementation of the proposed onboard training programme will depend on the availability of vessels-of-opportunity and the further development of the COVID-19 pandemic. Prerequisites are that the current travel restrictions are lifted and that the trainees are eligible for visas to the countries where the exploration cruises start and end.

II. Onboard training programme

The onboard training programme that the Contractor carried out during the previous exploration period was well-rated by the trainees due to its high practical component. The Contractor therefore plans to continue the programme in its present form, that is, to carry out an onboard training, which will be complemented by a subsequent four-week training programme at the Contractor's facility in Hannover. Onboard the vessels, the trainees will be fully integrated into the daily work routine and lectures will be given by members of the scientific team who will provide an overview on the most important aspects regarding deep-sea mineral exploration.

In particular, the trainees will participate in the following exploration activities onboard:

- Instructions in vessel navigation techniques and planning of an exploration survey;
- Operation of the box corer for nodule and sediment sampling;
- Determination of nodule abundance, nodule description and measuring for statistical evaluation;
- Sediment description and processing for shear strength measurements;
- Operation of chain-bag dredge to recover nodule mass samples;
- Operation of the multi-corer and epibenthic sledge for biological sampling;

- Processing of biological samples for biodiversity studies;
- Preservation of different samples for geochemical and biological analyses in home laboratories;
- Introduction into geophysical mapping techniques (swath bathymetric profiling, backscatter mapping, sediment echo sounding, magnetic profiling for the reconstruction of crustal ages and plate tectonics);
- Initial interpretation of results; and
- Preparation of cruise report.

According to the current schedule, two exploration cruises in 2023 and 2025 are planned during the five-year extension period and the Contractor plans to provide four training opportunities for each of the two cruises, depending on the capacity of the ship. Should the Contractor have difficulties accommodating all the trainees on board of the vessel, the training of at most four out of the eight trainees may be substituted by an eight-week training programme at the Contractor's facility.

The post-cruise training at the Contractor's facility will focus on key survey and sampling methods for manganese nodule exploration, as well as on laboratory work and the processing of data previously acquired during the exploration cruises. The work in the laboratories and the courses will include:

- Determination of sediment dry bulk densities;
- Sample preparation of nodules for X-ray fluorescence and bulk geochemical analyses;
- Scanning electron microscope utilisation for the investigation of sediment components;
- Microprobe analyses for high-resolution investigations of internal geochemical structures of manganese nodules;
- Introduction to grain size analysis; and
- Introduction to X-ray fluorescence analysis for determination of metal concentration of Mn nodules and sediments.

The Contractor will cover the costs for travel (economy class ticket) and accommodation for participating in the exploration cruises and for the stay in Hannover. Furthermore, a daily allowance according to German law for travel expenses will be provided.

General Requirements

General qualification of candidates shall include:

- Bachelor's degree or master'sdegree of science, marine geology, marine geophysics, marine biology/ecology/environment, oceanography or an equivalent education
- At least one-year practical experience in the candidate's specialised field
- A sound knowledge of English verified by a language certificate
- Good state of health both physically and mentally.

III. Online training programme via the "Deep Dive" e-learning platform of the ISA

Four training opportunities will be covered via the e-learning platform "Deep Dive" of the ISA. The online training will be carried out as from September to December 2022 and will focus on all aspects pertaining to the governance/activities in the Area. It is structured around five modules:

1. UNCLOS and governance of the Area
2. Marine mineral resources of the Area
3. Protection of the marine environment from activities carried out in the Area
4. Marine scientific research in the Area
5. Technology development and innovation in relation to the sustainable development of mineral resources of the Area

Each module will be comprised of a minimum of five lessons of 25-minute lectures presented by international experts including materials and interactive webinars and sessions.

The ISA will carry out the online training including all the above modules at a total cost of USD 30,000 for four trainees (4 x USD 7,500), which will be covered by the BGR.

ANNEX III
STANDARD CLAUSES FOR EXPLORATION CONTRACT

SECTION 1

DEFINITIONS

1.1 In the following clauses:

(a) "Exploration area" means that part of the Area allocated to the Contractor for exploration, described in schedule 1 hereto, as the same may be reduced from time to time in accordance with this contract and the Regulations;

(b) "Programme of activities" means the programme of activities which is set out in schedule 2 hereto as the same may be adjusted from time to time in accordance with sections 4.3 and 4.4 hereof;

(c) "Regulations" means the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, adopted by the Authority.

1.2 Terms and phrases defined in the Regulations shall have the same meaning in these standard clauses.

1.3 In accordance with the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, its provisions and Part XI of the Convention are to be interpreted and applied together as a single instrument; this contract and references in this contract to the Convention are to be interpreted and applied accordingly.

1.4 This contract includes the schedules to this contract, which shall be an integral part hereof.

SECTION 2
SECURITY OF TENURE

2.1 The Contractor shall have security of tenure and this contract shall not be suspended, terminated or revised except in accordance with sections 20, 21 and 24 hereof.

2.2 The Contractor shall have the exclusive right to explore for polymetallic nodules in the exploration area in accordance with the terms and conditions of this contract. The Authority shall ensure that no other entity operates in the exploration area for a different category of resources in a manner that might unreasonably interfere with the operations of the Contractor.

2.3 The Contractor, by notice to the Authority, shall have the right at any time to renounce without penalty the whole or part of its rights in the exploration area, provided that the Contractor shall remain liable for all obligations accrued prior to the date of such renunciation in respect of the area renounced.

2.4 Nothing in this contract shall be deemed to confer any right on the Contractor other than those rights expressly granted herein. The Authority reserves the right to enter into contracts with respect to resources other than polymetallic nodules with third parties in the area covered by this contract.

SECTION 3
CONTRACT TERM

3.1 This contract shall enter into force on signature by both parties and shall remain in force for a period of fifteen years thereafter unless:

(a) The Contractor obtains a contract for exploitation in the exploration area which enters into force before the expiration of such period of fifteen years; or

(b) The contract is sooner terminated, provided that the term of the contract may be extended in accordance with sections 3.2 and 17.2 hereof.

3.2 Upon application by the Contractor, not later than six months before the expiration of this contract, this contract may be extended for periods of not more than five years each on such terms and conditions as the Authority and the Contractor may then agree in accordance with the Regulations. Such extensions shall be approved if the Contractor has made efforts in good faith to comply with the requirements of this contract but for reasons beyond the Contractor's control has been unable to complete the necessary preparatory work for proceeding to the exploitation stage or if the prevailing economic circumstances do not justify proceeding to the exploitation stage.[1]

3.3 Notwithstanding the expiration of this contract in accordance with section 3.1 hereof, if the Contractor has, at least 90 days prior to the date of expiration, applied for a contract for exploitation, the Contractor's rights and obligations under this contract shall continue until such time as the application has been considered and a contract for exploitation has been issued or refused.

SECTION 4
EXPLORATION

4.1 The Contractor shall commence exploration in accordance with the time schedule stipulated in the programme of activities set out in schedule 2 hereto and shall adhere to such time periods or any modification thereto as provided for by this contract.

4.2 The Contractor shall carry out the programme of activities set out in schedule 2 hereto. In carrying out such activities the Contractor shall spend in each contract year not less than the amount specified in such programme, or any agreed review thereof, in actual and direct exploration expenditures.

[1]Pursuant to the decision of the Council contained in ISBA/26/C/55, the Contract for exploration for polymetallic nodules between the Federal Institute for Geosciences and Natural Resources of the Federal Republic of Germany and the International Seabed Authority is extended for a period of five years.

4.3 The Contractor, with the consent of the Authority, which consent shall not be unreasonably withheld, may from time to time make such changes in the programme of activities and the expenditures specified therein as may be necessary and prudent in accordance with good mining industry practice, and taking into account the market conditions for the metals contained in polymetallic nodules and other relevant global economic conditions.

4.4 Not later than 90 days prior to the expiration of each five-year period from the date on which this contract enters into force in accordance with section 3 hereof, the Contractor and the Secretary-General shall jointly undertake a review of the implementation of the plan of work for exploration under this contract. The Secretary-General may require the Contractor to submit such additional data and information as may be necessary for the purposes of the review. In the light of the review, the Contractor shall make such adjustments to its plan of work as are necessary and shall indicate its programme of activities for the following five-year period, including a revised schedule of anticipated yearly expenditures. Schedule 2 hereto shall be adjusted accordingly.

SECTION 5
ENVIRONMENTAL MONITORING

5.1 The Contractor shall take necessary measures to prevent, reduce and control pollution and other hazards to the marine environment arising from its activities in the Area as far as reasonably possible applying a precautionary approach and best environmental practices.

5.2 Prior to the commencement of exploration activities, the Contractor shall submit to the Authority:

(a) An impact assessment of the potential effects on the marine environment of the proposed activities;

(b) A proposal for a monitoring programme to determine the potential effect on the marine environment of the proposed activities; and

(c) Data that could be used to establish an environmental baseline against which to assess the effect of the proposed activities.

5.3 The Contractor shall, in accordance with the Regulations, gather environmental baseline data as exploration activities progress and develop and shall establish environmental baselines against which to assess the likely effects of the Contractor's activities on the marine environment.

5.4 The Contractor shall, in accordance with the Regulations, establish and carry out a programme to monitor and report on such effects on the marine environment. The Contractor shall cooperate with the Authority in the implementation of such monitoring.

5.5 The Contractor shall, within 90 days of the end of each calendar year, report to the Secretary-General on the implementation and results of the monitoring programme referred to in section 5.4 hereof and shall submit data and information in accordance with the Regulations.

SECTION 6
CONTINGENCY PLANS AND EMERGENCIES

6.1 The Contractor shall, prior to the commencement of its programme of activities under this contract, submit to the Secretary-General a contingency plan to respond effectively to incidents that are likely to cause serious harm or a threat of serious harm to the marine environment arising from the Contractor's activities at sea in the exploration area. Such contingency plan shall establish special procedures and provide for adequate and appropriate equipment to deal with such incidents and, in particular, shall include arrangements for:

(a) The immediate raising of a general alarm in the area of the exploration activities;

(b) Immediate notification to the Secretary-General;

(c) The warning of ships which might be about to enter the immediate vicinity;

(d) A continuing flow of full information to the Secretary-General relating to particulars of the contingency measures already taken and further actions required;

(e) The removal, as appropriate, of polluting substances;

(f) The reduction and, so far as reasonably possible, prevention of serious harm to the marine environment, as well as mitigation of such effects;

(g) As appropriate, cooperation with other contractors with the Authority to respond to an emergency; and

(h) Periodic emergency response exercises.

6.2 The Contractor shall promptly report to the Secretary-General any incident arising from its activities that has caused, is causing or poses a threat of serious harm to the marine environment. Each such report shall contain the details of such incident, including, inter alia:

(a) The coordinates of the area affected or which can reasonably be anticipated to be affected;

(b) The description of the action being taken by the Contractor to prevent, contain, minimize and repair the serious harm or threat of serious harm to the marine environment;

(c) A description of the action being taken by the Contractor to monitor the effects of the incident on the marine environment; and

(d) Such supplementary information as may reasonably be required by the Secretary-General.

6.3 The Contractor shall comply with emergency orders issued by the Council and immediate measures of a temporary nature issued by the Secretary-General in accordance with the Regulations, to prevent, contain, minimize or repair serious harm or the threat of serious harm to the marine environment, which may include orders to the Contractor to immediately suspend or adjust any activities in the exploration area.

6.4 If the Contractor does not promptly comply with such emergency orders or immediate measures of a temporary nature, the Council may take such reasonable measures as are necessary to prevent, contain, minimize or repair any such serious harm or the threat of serious harm to the marine environment at the Contractor's expense. The Contractor shall promptly reimburse the Authority the amount of such expenses. Such expenses shall be in addition to any monetary penalties which may be imposed on the Contractor pursuant to the terms of this contract or the Regulations.

SECTION 7
HUMAN REMAINS AND OBJECTS AND SITES OF AN ARCHAEOLOGICAL OR HISTORICAL NATURE

The Contractor shall immediately notify the Secretary-General in writing of any finding in the exploration area of any human remains of an archaeological or historical nature, or any object or site of a similar nature and its location, including the preservation and protection measures taken. The Secretary-General shall transmit such information to the Director General of the United Nations Educational, Scientific and Cultural Organization and any other competent international organization. Following the finding of any such human remains, object or site in the exploration area, and in order to avoid disturbing such human remains, object or site, no further prospecting or exploration shall take place, within a reasonable radius, until such time as the Council decides otherwise after taking account of the views of the Director General of the United Nations Educational, Scientific and Cultural Organization or any other competent international organization.

SECTION 8
TRAINING

8.1 In accordance with the Regulations, the Contractor shall, prior to the commencement of exploration under this contract, submit to the Authority for approval proposed training programmes for the training of personnel of the Authority and developing States, including the participation of such personnel in all of the Contractor's activities under this contract.

8.2 The scope and financing of the training programme shall be subject to negotiation between the Contractor, the Authority and the sponsoring State or States.

8.3 The Contractor shall conduct training programmes in accordance with the specific programme for the training of personnel referred to in section 8.1 hereof approved by the Authority in accordance with the Regulations, which programme, as revised and developed from time to time, shall become a part of this contract as schedule 3.

SECTION 9
BOOKS AND RECORDS

The Contractor shall keep a complete and proper set of books, accounts and financial records, consistent with internationally accepted accounting principles. Such books, accounts and financial records shall include information which will fully disclose the actual and direct expenditures for exploration and such other information as will facilitate an effective audit of such expenditures.

SECTION 10
ANNUAL REPORTS

10.1 The Contractor shall, within 90 days of the end of each calendar year, submit a report to the Secretary-General in such format as may be recommended from time to time by the Legal and Technical Commission covering its programme of activities in the exploration area and containing, as applicable, information in sufficient detail on:

(a) The exploration work carried out during the calendar year, including maps, charts and graphs illustrating the work that has been done and the results obtained;

(b) The equipment used to carry out the exploration work, including the results of tests conducted of proposed mining technologies, but not equipment design data; and

(c) The implementation of training programmes, including any proposed revisions to or developments of such programmes.

10.2 Such reports shall also contain:

(a) The results obtained from environmental monitoring programmes, including observations, measurements, evaluations and analyses of environmental parameters;

(b) A statement of the quantity of polymetallic nodules recovered as samples or for the purpose of testing;

(c) A statement, in conformity with internationally accepted accounting principles and certified by a duly qualified firm of public accountants, or, where the Contractor is a State or a State enterprise, by the sponsoring State, of the actual and direct exploration expenditures of the Contractor in carrying out the programme of activities during the Contractor's accounting year. Such expenditures may be claimed by

the contractor as part of the contractor's development costs incurred prior to the commencement of commercial production; and

(d) Details of any proposed adjustments to the programme of activities and the reasons for such adjustments.

10.3 The Contractor shall also submit such additional information to supplement the reports referred to in sections 10.1 and 10.2 hereof as the Secretary-General may from time to time reasonably require in order to carry out the Authority's functions under the Convention, the Regulations and this contract.

10.4 The Contractor shall keep, in good condition, a representative portion of samples of the polymetallic nodules obtained in the course of exploration until the expiration of this contract. The Authority may request the Contractor in writing to deliver to it for analysis a portion of any such sample obtained during the course of exploration.

10.5 The contractor shall pay at the time of submission of the annual report an annual overhead charge of $47,000 (or such sum as may be fixed in accordance with section 10.6 hereof) to cover the Authority's costs of the administration and supervision of this contract and of reviewing the reports submitted in accordance with section 10.1 hereof.

10.6 The amount of the annual overhead charge may be revised by the Authority to reflect its costs actually and reasonably incurred.[2]

SECTION 11
DATA AND INFORMATION TO BE SUBMITTED ON EXPIRATION OF THE CONTRACT

11.1 The Contractor shall transfer to the Authority all data and information that are both necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area in accordance with the provisions of this section.

11.2 Upon expiration or termination of this contract the Contractor, if it has not already done so, shall submit the following data and information to the Secretary-General:

(a) Copies of geological, environmental, geochemical and geophysical data acquired by the Contractor in the course of carrying out the programme of activities that are necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area;

[2]It is recalled that the Council, in its decision relating to the budget of the Authority for the financial period 2019-2020 (see ISBA/24/C/21), decided to increase the annual overhead charge referred to in section 10.5 of the standard clauses for exploration contracts from $47,000 to $60,000, effective 1 January 2019. Most recently, the Council, in its decision relating to the annual overhead charge referred to in section 10.5 of the standard clauses for exploration contracts (See ISBA/26/C/28), decided to increase the annual overhead charge from $60,000 to $80,000, effective 1 January 2022.

(b) The estimation of mineable areas, when such areas have been identified, which shall include details of the grade and quantity of the proven, probable and possible polymetallic nodule reserves and the anticipated mining conditions;

(c) Copies of geological, technical, financial and economic reports made by or for the Contractor that are necessary for and relevant to the effective exercise of the powers and functions of the Authority in respect of the exploration area;

(d) Information in sufficient detail on the equipment used to carry out the exploration work, including the results of tests conducted of proposed mining technologies, but not equipment design data;

(e) A statement of the quantity of polymetallic nodules recovered as samples or for the purpose of testing; and

(f) A statement on how and where samples are archived and their availability to the Authority.

11.3 The data and information referred to in section 11.2 hereof shall also be submitted to the Secretary-General if, prior to the expiration of this contract, the Contractor applies for approval of a plan of work for exploitation or if the Contractor renounces its rights in the exploration area to the extent that such data and information relates to the renounced area.

SECTION 12
CONFIDENTIALITY

Data and information transferred to the Authority in accordance with this contract shall be treated as confidential in accordance with the provisions of the Regulations.

SECTION 13
UNDERTAKINGS

13.1 The Contractor shall carry out exploration in accordance with the terms and conditions of this contract, the Regulations, Part XI of the Convention, the Agreement and other rules of international law not incompatible with the Convention.

13.2 The Contractor undertakes:

(a) To accept as enforceable and comply with the terms of this contract;

(b) To comply with the applicable obligations created by the provisions of the Convention, the rules, regulations and procedures of the Authority and the decisions of the relevant organs of the Authority;

(c) To accept control by the Authority of activities in the Area as authorized by the Convention;

(d) To fulfil its obligations under this contract in good faith; and

(e) To observe, as far as reasonably practicable, any recommendations which may be issued from time to time by the Legal and Technical Commission.

13.3 The Contractor shall actively carry out the programme of activities:

(a) With due diligence, efficiency and economy;

(b) With due regard to the impact of its activities on the marine environment; and

(c) With reasonable regard for other activities in the marine environment.

13.4 The Authority undertakes to fulfil in good faith its powers and functions under the Convention and the Agreement in accordance with article 157 of the Convention.

SECTION 14
INSPECTION

14.1 The Contractor shall permit the Authority to send its inspectors on board vessels and installations used by the Contractor to carry out activities in the exploration area to:

(a) Monitor the Contractor's compliance with the terms and conditions of this contract and the Regulations; and

(b) Monitor the effects of such activities on the marine environment.

14.2 The Secretary-General shall give reasonable notice to the Contractor of the projected time and duration of inspections, the name of the inspectors and any activities the inspectors are to perform that are likely to require the availability of special equipment or special assistance from personnel of the Contractor.

14.3 Such inspectors shall have the authority to inspect any vessel or installation, including its log, equipment, records, facilities, all other recorded data and any relevant documents which are necessary to monitor the Contractor's compliance.

14.4 The Contractor, its agents and employees shall assist the inspectors in the performance of their duties and shall:

(a) Accept and facilitate prompt and safe boarding of vessels and installations by inspectors;

(b) Cooperate with and assist in the inspection of any vessel or installation conducted pursuant to these procedures;

(c) Provide access to all relevant equipment, facilities and personnel on vessels and installations at all reasonable times;

(d) Not obstruct, intimidate or interfere with inspectors in the performance of their duties;

(e) Provide reasonable facilities, including, where appropriate, food and accommodation, to inspectors; and

(f) Facilitate safe disembarkation by inspectors.

14.5 Inspectors shall avoid interference with the safe and normal operations on board vessels and installations used by the Contractor to carry out activities in the area visited and shall act in accordance with the Regulations and the measures adopted to protect confidentiality of data and information.

14.6 The Secretary-General and any duly authorized representatives of the Secretary-General, shall have access, for purposes of audit and examination, to any books, documents, papers and records of the Contractor which are necessary and directly pertinent to verify the expenditures referred to in section 10.2 (c).

14.7 The Secretary-General shall provide relevant information contained in the reports of inspectors to the Contractor and its sponsoring State or States where action is necessary.

14.8 If for any reason the Contractor does not pursue exploration and does not request a contract for exploitation, it shall, before withdrawing from the exploration area, notify the Secretary-General in writing in order to permit the Authority, if it so decides, to carry out an inspection pursuant to this section.

SECTION 15
SAFETY, LABOUR AND HEALTH STANDARDS

15.1 The Contractor shall comply with the generally accepted international rules and standards established by competent international organizations or general diplomatic conferences concerning the safety of life at sea, and the prevention of collisions and such rules, regulations and procedures as may be adopted by the Authority relating to safety at sea. Each vessel used for carrying out activities in the Area shall possess current valid certificates required by and issued pursuant to such international rules and standards.

15.2 The Contractor shall, in carrying out exploration under this contract, observe and comply with such rules, regulations and procedures as may be adopted by the Authority relating to protection against discrimination in employment, occupational safety and health, labour relations, social security, employment security and living conditions at the work site. Such rules, regulations and procedures shall take into account conventions and recommendations of the International Labour Organization and other competent international organizations.

SECTION 16
RESPONSIBILITY AND LIABILITY

16.1 The Contractor shall be liable for the actual amount of any damage, including damage to the marine environment, arising out of its wrongful acts or omissions, and those of its employees, subcontractors, agents and all persons engaged in working or acting for them in the conduct of its operations under this contract, including the costs of reasonable measures to prevent or limit damage to the marine environment, account being taken of any contributory acts or omissions by the Authority.

16.2 The Contractor shall indemnify the Authority, its employees, subcontractors and agents against all claims and liabilities of any third party arising out of any wrongful acts or omissions of the Contractor and its employees, agents and subcontractors, and all persons engaged in working or acting for them in the conduct of its operations under this contract.

16.3 The Authority shall be liable for the actual amount of any damage to the Contractor arising out of its wrongful acts in the exercise of its powers and functions, including violations under article 168 (2) of the Convention, account being taken of contributory acts or omissions by the Contractor, its employees, agents and subcontractors, and all persons engaged in working or acting for them in the conduct of its operations under this contract.

16.4 The Authority shall indemnify the Contractor, its employees, subcontractors, agents and all persons engaged in working or acting for them in the conduct of its operations under this contract, against all claims and liabilities of any third party arising out of any wrongful acts or omissions in the exercise of its powers and functions hereunder, including violations under article 168 (2) of the Convention.

16.5 The Contractor shall maintain appropriate insurance policies with internationally recognized carriers, in accordance with generally accepted international maritime practice.

SECTION 17
FORCE MAJEURE

17.1 The Contractor shall not be liable for an unavoidable delay or failure to perform any of its obligations under this contract due to force majeure. For the purposes of this contract, force majeure shall mean an event or condition that the Contractor could not reasonably be expected to prevent or control; provided that the event or condition was not caused by negligence or by a failure to observe good mining industry practice.

17.2 The Contractor shall, upon request, be granted a time extension equal to the period by which performance was delayed hereunder by force majeure and the term of this contract shall be extended accordingly.

17.3 In the event of force majeure, the Contractor shall take all reasonable measures to remove its inability to perform and comply with the terms and conditions of this contract with a minimum of delay.

17.4 The Contractor shall give notice to the Authority of the occurrence of an event of force majeure as soon as reasonably possible, and similarly give notice to the Authority of the restoration of normal conditions.

SECTION 18
DISCLAIMER

Neither the Contractor nor any affiliated company or subcontractor shall in any manner claim or suggest, whether expressly or by implication, that the Authority or any official thereof has, or has expressed, any opinion with respect to polymetallic nodules in the exploration area and a statement to that effect shall not be included in or endorsed on any prospectus, notice, circular, advertisement, press release or similar document issued by the Contractor, any affiliated company or any subcontractor that refers directly or indirectly to this contract. For the purposes of this section, an "affiliated company" means any person, firm or company or State-owned entity controlling, controlled by, or under common control with, the Contractor.

SECTION 19
RENUNCIATION OF RIGHTS

The Contractor, by notice to the Authority, shall have the right to renounce its rights and terminate this contract without penalty, provided that the Contractor shall remain liable for all obligations accrued prior to the date of such renunciation and those obligations required to be fulfilled after termination in accordance with the Regulations.

SECTION 20
TERMINATION OF SPONSORSHIP

20.1 If the nationality or control of the Contractor changes or the Contractor's sponsoring State, as defined in the Regulations, terminates its sponsorship, the Contractor shall promptly notify the Authority forthwith.

20.2 In either such event, if the Contractor does not obtain another sponsor meeting the requirements prescribed in the Regulations which submits to the Authority a certificate of sponsorship for the Contractor in the prescribed form within the time specified in the Regulations, this contract shall terminate forthwith.

SECTION 21
SUSPENSION AND TERMINATION OF CONTRACT AND PENALTIES

21.1 The Council may suspend or terminate this contract, without prejudice to any other rights that the Authority may have, if any of the following events should occur:

(a) If, in spite of written warnings by the Authority, the Contractor has conducted its activities in such a way as to result in serious persistent and wilful violations of the fundamental terms of this contract, Part XI of the Convention, the Agreement and the rules, regulations and procedures of the Authority; or

(b) If the Contractor has failed to comply with a final binding decision of the dispute settlement body applicable to it; or

(c) If the Contractor becomes insolvent or commits an act of bankruptcy or enters into any agreement for composition with its creditors or goes into liquidation or receivership, whether compulsory or voluntary, or petitions or applies to any tribunal for the appointment of a receiver or a trustee or receiver for itself or commences any proceedings relating to itself under any bankruptcy, insolvency or readjustment of debt law, whether now or hereafter in effect, other than for the purpose of reconstruction.

21.2 The Council may, without prejudice to section 17, after consultation with the Contractor, suspend or terminate this contract, without prejudice to any other rights that the Authority may have, if the Contractor is prevented from performing its obligations under this contract by reason of an event or condition of force majeure, as described in section 17.1, which has persisted for a continuous period exceeding two years, despite the Contractor having taken all reasonable measures to overcome its inability to perform and comply with the terms and conditions of this contract with minimum delay.

21.3 Any suspension or termination shall be by notice, through the Secretary-General, which shall include a statement of the reasons for taking such action. The suspension or termination shall be effective 60 days after such notice, unless the Contractor within such period disputes the Authority's right to suspend or terminate this contract in accordance with Part XI, section 5, of the Convention.

21.4 If the Contractor takes such action, this contract shall only be suspended or terminated in accordance with a final binding decision in accordance with Part XI, section 5, of the Convention.

21.5 If the Council has suspended this contract, the Council may by notice require the Contractor to resume its operations and comply with the terms and conditions of this contract, not later than 60 days after such notice.

21.6 In the case of any violation of this contract not covered by section 21.1 (a) hereof, or in lieu of suspension or termination under section 21.1 hereof, the Council may impose upon the Contractor monetary penalties proportionate to the seriousness of the violation.

21.7 The Council may not execute a decision involving monetary penalties until the Contractor has been accorded a reasonable opportunity to exhaust the judicial remedies available to it pursuant to Part XI, section 5, of the Convention.

21.8 In the event of termination or expiration of this contract, the Contractor shall comply with the Regulations and shall remove all installations, plant, equipment and materials in the exploration area and shall make the area safe so as not to constitute a danger to persons, shipping or to the marine environment.

SECTION 22
TRANSFER OF RIGHTS AND OBLIGATIONS

22.1 The rights and obligations of the Contractor under this contract may be transferred in whole or in part only with the consent of the Authority and in accordance with the Regulations.

22.2 The Authority shall not unreasonably withhold consent to the transfer if the proposed transferee is in all respects a qualified applicant in accordance with the Regulations and assumes all of the obligations of the Contractor and if the transfer does not confer to the transferee a plan of work, the approval of which would be forbidden by article 6, paragraph 3 (c), of annex III to the Convention.

22.3 The terms, undertakings and conditions of this contract shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

SECTION 23
NO WAIVER

No waiver by either party of any rights pursuant to a breach of the terms and conditions of this contract to be performed by the other party shall be construed as a waiver by the party of any succeeding breach of the same or any other term or condition to be performed by the other party.

SECTION 24
REVISION

24.1 When circumstances have arisen or are likely to arise which, in the opinion of the Authority or the Contractor, would render this contract inequitable or make it impracticable or impossible to achieve the objectives set out in this contract or in Part XI of the Convention or the Agreement, the parties shall enter into negotiations to revise it accordingly.

24.2 This contract may also be revised by agreement between the Contractor and the Authority to facilitate the application of any rules, regulations and procedures adopted by the Authority subsequent to the entry into force of this contract.

24.3 This contract may be revised, amended or otherwise modified only with the consent of the Contractor and the Authority by an appropriate instrument signed by the authorized representatives of the parties.

SECTION 25
DISPUTES

25.1 Any dispute between the parties concerning the interpretation or application of this contract shall be settled in accordance with Part XI, section 5, of the Convention.

25.2 In accordance with article 21 (2) of Annex III to the Convention, any final decision rendered by a court or tribunal having jurisdiction under the Convention relating to the rights and obligations of the Authority and of the Contractor shall be enforceable in the territory of any State party to the Convention affected thereby.

SECTION 26
NOTICE

26.1 Any application, request, notice, report, consent, approval, waiver, direction or instruction hereunder shall be made by the Secretary-General or by the designated representative of the Contractor, as the case may be, in writing. Service shall be by hand, or by telex, fax, registered airmail or e-mail containing an authorized signature to the Secretary-General at the headquarters of the Authority or to the designated representative. The requirement to provide any information in writing under these Regulations is satisfied by the provision of the information in an e-mail containing a digital signature.

26.2 Either party shall be entitled to change any such address to any other address by not less than ten days' notice to the other party.

26.3 Delivery by hand shall be effective when made. Delivery by telex shall be deemed to be effective on the business day following the day when the "answer back" appears on the sender's telex machine. Delivery by fax shall be effective when the "transmit confirmation report" confirming the transmission to the recipient's published fax number is received by the transmitter. Delivery by registered airmail shall be deemed to be effective 21 days after posting. An e-mail is presumed to have been received by the addressee when it enters an information system designated or used by the addressee for the purpose of receiving documents of the type sent and it is capable of being retrieved and processed by the addressee.

26.4 Notice to the designated representative of the Contractor shall constitute effective notice to the Contractor for all purposes under this contract, and the designated representative shall be the Contractor's agent for the service of process or notification in any proceeding of any court or tribunal having jurisdiction.

26.5 Notice to the Secretary-General shall constitute effective notice to the Authority for all purposes under this contract, and the Secretary-General shall be the Authority's agent for the service of process or notification in any proceeding of any court or tribunal having jurisdiction.

SECTION 27
APPLICABLE LAW

27.1 This contract shall be governed by the terms of this contract, the rules, regulations and procedures of the Authority, Part XI of the Convention, the Agreement and other rules of international law not incompatible with the Convention.

27.2 The Contractor, its employees, subcontractors, agents and all persons engaged in working or acting for them in the conduct of its operations under this contract shall observe the applicable law referred to in section 27.1 hereof and shall not engage in any transaction, directly or indirectly, prohibited by the applicable law.

27.3 Nothing contained in this contract shall be deemed an exemption from the necessity of applying for and obtaining any permit or authority that may be required for any activities under this contract.

SECTION 28
INTERPRETATION

The division of this contract into sections and subsections and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation hereof.

SECTION 29
ADDITIONAL DOCUMENTS

Each party hereto agrees to execute and deliver all such further instruments, and to do and perform all such further acts and things as may be necessary or expedient to give effect to the provisions of this contract.