I. ANNEX

ISA Contract for Exploration – Public Information Template

	Type of resource: Polymetallic Nodules
	Name of Contractor: Deep Ocean Resources Development Co., Ltd.
	Contract Start: June 20, 2001 (1st Extension Start: June 20, 2016, 2nd Extension Start: June 20, 2021)
Sponsoring State: [Japan]	Contract End: June 19, 2016 (Expansion End: June 19,2026 (2nd))
	Location: Clarion-Clipperton Fracture Zone

Contents

Introduction

The information contained in this ISA Contract for Exploration – Public Information Template is made available to the public in response to the request by the Council of the ISA to make contracts publicly available, subject to restrictions on confidential information, industrial secrets and proprietary data.

The content of the present template is in accordance with the Regulations on Prospecting and Exploration for [*Polymetallic Nodules in the Area*] [*ISBA/19/C/17*] (the "Regulations").

1. Contract Information

Annex III of the Regulations.

Type of resource	Polymetallic Nodules
Name of Contractor	Deep Ocean Resources Development Co., Ltd.
Contract Start	June 20, 2001 (2nd Extension: June 20, 2021)
Contract End	June 19, 2026 (2nd Extension)
Location	Clarion-Clipperton Fracture Zone
Contract Area (km^2)	75,000

2. Coordinates and Illustrative Chart of the Exploration Area

Schedule 1 of Annex III of the Regulations.

Exploration area located between [coordinates]

Exploration areas are located as follows:

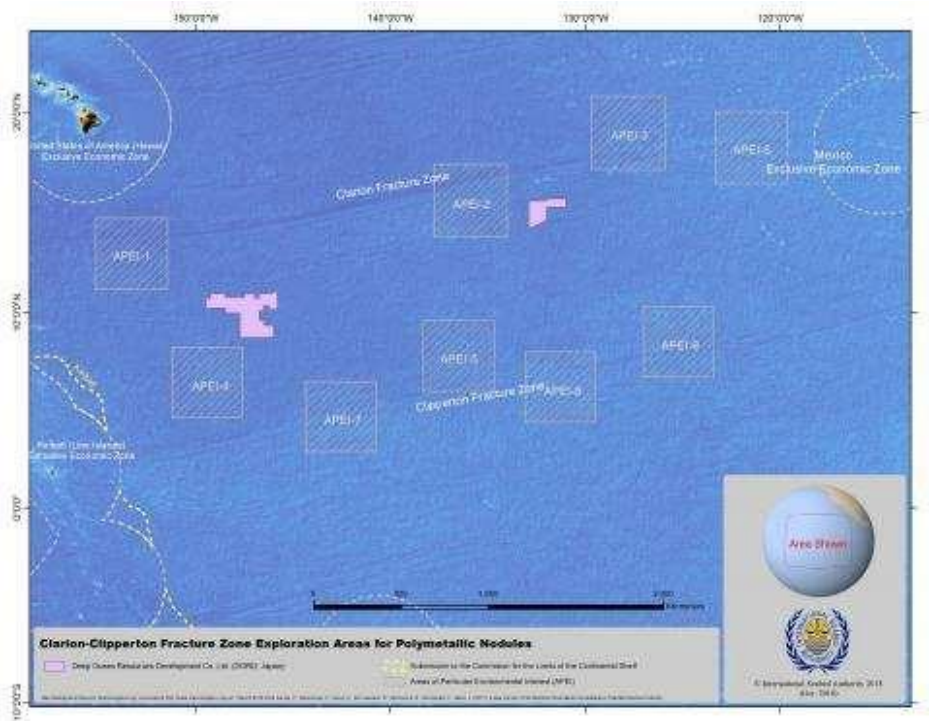
West Area

Turning Points	Latitude(N)	Longitude (W)
1	11° 00’	149° 15’
2	11° 00’	148° 30’
3	10° 48.75’	148° 30’
4	10° 48.75’	147° 30’
5	11° 00’	147° 30’
6	11° 00’	147° 00’
7	10° 45’	147° 00’
8	10° 45’	146° 45’
9	11° 00’	146° 45’
10	11° 00’	146° 07.5’
11	11° 03.75’	146° 07.5’
12	11° 03.75’	145° 48.75’
13	10° 11.25’	145° 48.75’
14	10° 11.25’	146° 15’
15	10° 22.5’	146° 15’
16	10° 22. 5’	146° 32’
17	10° 07.5’	146° 32’
18	10° 07.5’	146° 45’
19	09° 37.5’	146° 45’
20	09° 37.5’	146° 30’
21	09° 22.5’	146° 30’
22	09° 22.5’	146° 00’
23	08° 45’	146° 00’
24	08° 45’	147° 44.8’
25	10° 00’	147° 44.8’
26	10° 00’	148° 30’
27	10° 15’	148° 30’
28	10° 15’	149° 30’
29	10° 45’	149° 30’
30	10° 45’	149° 15’
1	11° 00’	149° 15’

East Area

Turning Points	Latitude(N)	Longitude (W)
1	15° 39’	132° 55’
2	15° 39’	132° 00’
3	15° 45’	132° 00’
4	15° 45’	131° 00’
5	15° 20’	131° 00’
6	15° 20’	132° 00’
7	14° 40’	132° 00’
8	14° 17.4’	132° 48’
9	14° 17.4’	132° 55’
1	15° 39’	132° 55’

(shapefile format as shown in the ISA https://www.isa.org.jm/maps)



3. Plan of Work

Summary

Through the steady implementation of the following activities, the Contractor's objective in the five-year extension period is to implement the feasibility assessment using highly reliable data to progress transition to the exploitation stage.

Activity	2021	2022	2023	2024	2025
Survey Cruise	○			○	
Resource survey	○	○	○	○	○
Environmental survey	○	○	○	○	○
Mining system & technology	○	○	○	○	○
Processing	○	○	○	○	○
Training programme		○	○		

Table 1: Schedule of programme of activities

Resource Surveys

The Contractor has selected a High Abundance Area (HAA) as a first targeted area and through resource surveys and the development of a detailed topographic map of identified seabed areas and mineral resources for development. To transition to the exploitation phase, it will be necessary to advance to an indicated resource category in the targeted area. Therefore, the Contractor will conduct more precise estimates of the mineral resources through survey cruise(s), improvement of standard operation procedures (SOPs) for onboard sampling and chemical analysis, etc. Moreover, a desk-top study will be undertaken for investigations on potential target areas other than HAA to secure additional future resources. The Contractor will implement the feasibility assessment while achieving these.

Environmental Surveys

The Contractor will conduct selection of impact reference zones (IRZ) to develop an environmental management and monitoring plan (EMMP), expansion of baseline studies in the preservation reference zone (PRZ) and evaluation of impacts (e.g., noise, etc.) concerned, other than plumes, that should be implemented for exploitation in the future. Data of various impacts including noise will be obtained when a locomotion test as stated later is carried out. Thus, a considerable degree of information for an environmental impact assessment (EIA) which should be collected ahead of development will be prepared. At the same time, the Contractor will contribute to an effective implementation of the Clarion-Clipperton Zone Regional Environmental Management Plan (CCZ-REMP) by implementing surveys in areas of particular environmental interest (APEIs) from the viewpoint of international cooperation, which are common issues for ISA and the Contractor.

Mining System

Based on the knowledge acquired in the national project conducted between 1981 and 1997, the Contractor completed the selection of a drive system for the collector (crawler type), a lifting system (hybrid-type riser), and a ground locomotion test of Prototype I. The Contractor will produce an improved

version (Prototype II) to operate for shallow water to advance the previous activities and identify issues in underwater stability through a shallow sea locomotion test of the Prototype II. The Contractor will design the whole system including the collector and lifting systems using simulations of the lifting system and pumps and prepare for the construction of actual haul and conveyor systems. At the same time, it will prepare a feasibility assessment by updating CAPEX and OPEX data.

Processing Technology

The smelting and chlorine leaching (SCL) method was selected from several smelting methods and optimal conditions, issues for scaleup, slow cooling conditions of refined matte have been clarified. The Contractor will conduct a scale-up test for the SCL method and update the material balance that was developed in 2014. Necessary information for feasibility assessment, including the estimation of the recovery percentage of metals, understanding the optimum conditions and flow for phase separation by a preliminary mineral dressing test, and identifying various issues in refining and related processes will be accumulated from this test.

4. Programme of Activities and Exploration Expenditure

Section 4.1 of Annex IV of the Regulations and Schedule 2 of Annex III of the Regulations.

I. Agreed 5-year Programme of Activities

5-year Programme of Activities	First	Second	Third	Extension
General Objectives	**Objective**	**Description**		
	• Resource surveys • Environmental surveys • Mining system & technology • Processing • Training programme	Resource surveys: - Efforts regarding issues pointed in the technical report, and making a survey cruise plan - Improvement of SOP - Improvement of accuracy of resource estimation - Re-estimation of mineral resource by a third-party organization - Consideration on potential target areas other than HAA (High Abundance Area) Environmental surveys: - Selection of IRZ (Impact Reference Zone) and additional research in PRZ (Preservation Reservation Zone) - Research of other environmental impact factors and provisional EIA - Development of a comprehensive environmental management plan - Contribution to CCZ-REMP of ISA - Mining system & technology - Production of improved Prototype II and travelling tests in shallow sea areas - Lifting system - Review of overall system and update of OPEX and CAPEX - Processing - Examination of recovery rate, etc., based on a scale up test results - Phase separation in refined matte using mineral dressing -		

		Training Programme - At-sea training consisting of on-board training programme in collaboration with AIST*'s research cruise and pre- and post- cruise programmes *AIST (The National Institute of Advanced Industrial Science and Technology) - On-land training provided in cooperation with Japanese institutions relating to ocean resources development which are specialized in exploration technology and marine science

II. Results achieved during reported year [#]: [year]

Annual objectives and activities			
Year	**No.**	**Agreed Objectives**	**Objective: Completed, Modified, Postponed or Replaced**
2021/2022	1	Conduct of survey cruise, resource surveys, environmental surveys, mining system & technology and processing	The Objectives for 2021/2022 was completed.
2022/2023	2	Conduct of resource surveys, environmental surveys, mining system & technology, processing, and training programme	The objectives for 2022/2023 was completed.
2023/2024	3	Conduct of survey cruise, resource surveys, environmental surveys, mining system & technology and processing	The objectives for 2023/2024, except for the survey cruise, were completed. The survey cruise (objective for 2023/2024) was replaced with the Training program (objective for 2024/2025), and the training program was completed.
2024/2025	4	Conduct of resource surveys, environmental surveys, mining system & technology, processing, and training programme	The objectives for 2024/2025 including survey cruise (objective for 2023/2024) are in progress

2025/2026	5	Conduct of resource surveys, environmental surveys, mining system & technology and processing	To be completed

5. Training Programme

Schedule 3 of Annex III of the Regulations.

I. Training Programme

Type of training	At-Sea training programme	On-land training programme
Institutions	**AIST: National Institute of Advanced Industrial Science and Technology**	Japanese institution(s) related to science of mineral resources of ocean
Duration	**18 days (2022), 11 days(2023)**	**12 days (2022), 28 days(2023)**
Scope	Capacity building of trainees from the Authority and developing states through on-board works and environmental survey	Capacity building of trainees from developing states through classroom lecture courses in the field of marine science and technology
Fields	Marine resources/ environmental survey technique	Research skills for ocean development
Qualification required	- Hold a graduate degree in science or engineering in the relevant field of geology, geophysics, mineral processing, mining or have an equivalent educational background; - Have at least one year of work experience in the relevant field; - Have sufficient knowledge of English for daily conversation and training; - Be less than 45 years of age; and Have seagoing experience	- Hold a graduate degree in science or engineering in the relevant field of geology, geophysics, mineral processing, mining or have an equivalent educational background; - Have at least one year of work experience in the relevant field; - Have sufficient knowledge of English for daily conversation and training; - Be less than 45 years of age; and Have seagoing experience
Financing	To be borne by DORD	To be borne by DORD

II. Trainings conducted up to reported year [#]: [year]

Start year	End Year	Name of Trainee	Nationality	Gender	Type of Programme	Details	Duration
2022	2022	Simataa Charlene	Namibia	Female	Both at-sea training and on-land training	The training programme consisted of on land and at sea. As for on-land training, classroom	40days
		Tara Godfrey	Tanzania	Male			
		Haileka Kelongo	Namibian	Male			
		Farah Abdirizak	Somali	Male			

		Bauro Tokabai	Kiribati	Female		lectures were primarily conducted in Tokyo. The at-sea training was conducted in the seas near Nagasaki Prefecture with cooperation by the National Institute of Advanced Industrial Sciecne and Technology (AIST)	
2023	2023	Md. Jahangir Alam	Bangladesh	Male	Both at-sea training and on-land training	The training programme consisted of on land and at sea. As for on-land training, classroom lectures were primarily conducted in Tokyo. The at-sea training was conducted in the seas near Nagasaki Prefecture with cooperation by the National Institute of Advanced Industrial Sciecne and Technology (AIST)	40days
		Ijeoma Orji	Nigeria	Female			
		Camila Stempels Bautista	Argentina	Female			
		Patience Makungu	Kenya	Female			
		Sapolu Tetoa	Tuvalu	Male			

III. Completed Trainings per Year

	At-sea training programme	**On-land training programme**
Year 1	n/a	n/a
Year 2 (2022)	Completed	Completed
Year 3 (2023)	Completed	Completed
Year 4	n/a	n/a
Year 5	n/a	n/a

6. Standard clauses

Annex IV of the Regulations.

Please find available online at page 36 of : https://www.isa.org.jm/wp-content/uploads/2022/04/isba-19c-17_0.pdf