


I. ANNEX

ISA Contract for Exploration – Public Information Template

	Type of resource: Polymetallic nodules
	Name of Contractor: Beijing Pioneer Hi-tech. Development Corporation Ltd.
	Contract Start: 18 Oct 2019
Sponsoring State: China	Contract End: 17 Oct 2034
	Location: Western Pacific Ocean

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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	Beijing Pioneer Hi-tech. Development Corporation Ltd.
Contract Start	18 Oct 2019
Contract End	17 Oct 2034
Location	Western Pacific Ocean
Contract Area (km²)	74,052

2. Coordinates and Illustrative Chart of the Exploration Area

1. List of coordinates

The area allocated to the Contractor is bounded by lines joining the following turning points, the coordinates of which are listed below in degrees, minutes, seconds following the World Geodetic System 1984 geographical projection system.

Table 1 Coordinates of the area under exploration

Block	Turning Points	Longitude (E)			Latitude (N)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
C-1	1	159	5	1.59	21	29	52.99
	2	158	56	56.53	21	29	51.39
	3	158	56	55.96	21	14	52.80
	4	158	33	11.67	21	14	52.79
	5	158	33	11.67	21	27	0.00
	6	157	57	46.80	21	27	1.19
	7	157	57	46.70	21	45	0.31
	8	157	8	55.95	21	44	59.95
	9	157	8	55.95	21	50	59.59
	10	156	50	55.22	21	50	59.59
	11	156	50	55.57	22	5	11.18
	12	157	16	11.09	22	38	54.80
	13	157	26	55.55	22	38	54.81
	14	157	26	55.56	22	15	0.32
	15	158	52	0.76	22	15	0.00
	16	158	52	1.20	22	42	25.35
	17	159	21	9.95	22	42	26.90
	18	159	21	9.94	23	5	29.50
	19	159	45	41.92	23	5	29.51
	20	159	45	41.92	22	52	48.00
	21	159	57	3.87	22	52	48.03
	22	159	57	3.60	22	14	56.40
	23	159	16	8.40	22	14	56.40
	24	159	16	9.22	22	21	1.34
	25	159	5	1.56	22	21	0.00
	26	159	5	1.59	21	29	52.99
C-2	1	158	11	55.46	22	20	59.62
	2	157	39	56.76	22	20	59.96
	3	157	39	58.17	22	45	0.33
	4	158	2	55.19	22	45	0.34
	5	158	2	55.54	22	58	9.00

Block	Turning Points	Longitude (E)			Latitude (N)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	6	158	15	2.74	22	58	9.01
	7	158	15	7.61	23	32	47.54
	8	158	40	3.52	23	32	47.55
	9	158	40	3.52	23	39	0.36
	10	159	2	55.88	23	39	0.37
	11	159	2	57.64	23	27	0.00
	12	159	38	50.47	23	27	0.02
	13	159	38	55.15	23	57	55.61
	14	160	2	33.95	23	57	55.62
	15	160	2	33.93	23	16	22.83
	16	158	32	55.71	23	16	23.74
	17	158	32	55.90	23	3	16.91
	18	158	24	11.18	23	3	16.91
	19	158	24	11.19	22	44	59.63
	20	158	11	50.05	22	44	59.63
	21	158	11	55.46	22	20	59.62
M-1	1	152	8	59.67	18	34	4.80
	2	152	8	59.67	18	12	30.08
	3	151	26	59.64	18	12	30.08
	4	151	27	0.00	18	22	4.79
	5	151	20	59.64	18	22	4.79
	6	151	20	59.64	19	21	19.45
	7	152	24	33.56	19	21	19.92
	8	152	24	33.56	19	0	16.46
	9	152	58	15.60	19	0	18.00
	10	152	58	15.79	18	43	32.19
	11	152	24	20.65	18	43	32.19
	12	152	24	21.60	18	51	21.60
	13	152	14	59.65	18	51	21.60
	14	152	14	59.65	19	9	18.73
	15	151	59	31.69	19	9	19.09
	16	151	59	31.20	18	49	35.71
	17	152	8	50.61	18	49	35.71
	18	152	8	49.20	18	34	4.80
	19	152	8	59.67	18	34	4.80
M-2	1	154	29	45.34	18	57	3.62
	2	154	29	45.34	18	26	52.80
	3	153	7	45.28	18	26	53.12
	4	153	7	45.28	18	40	48.01

Block	Turning Points	Longitude (E)			Latitude (N)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	5	153	12	7.21	18	40	48.87
	6	153	12	5.85	19	21	0.00
	7	154	0	40.34	19	21	0.14
	8	154	0	40.34	19	43	44.41
	9	155	21	0.00	19	43	45.14
	10	155	20	59.31	18	57	3.98
	11	155	2	39.25	18	57	3.85
	12	154	29	45.34	18	57	3.62

2. Illustrative chart of the exploration area

The area allocated to the Contractor covers a surface area of 74,052 km² in the western Pacific Ocean. The area consists of four blocks and are referred to on the following map as C-1 (26,112 km²), C-2 (11,370 km²), M-1 (12,903 km²) and M-2 (23,667 km²) as shown in Fig.1.

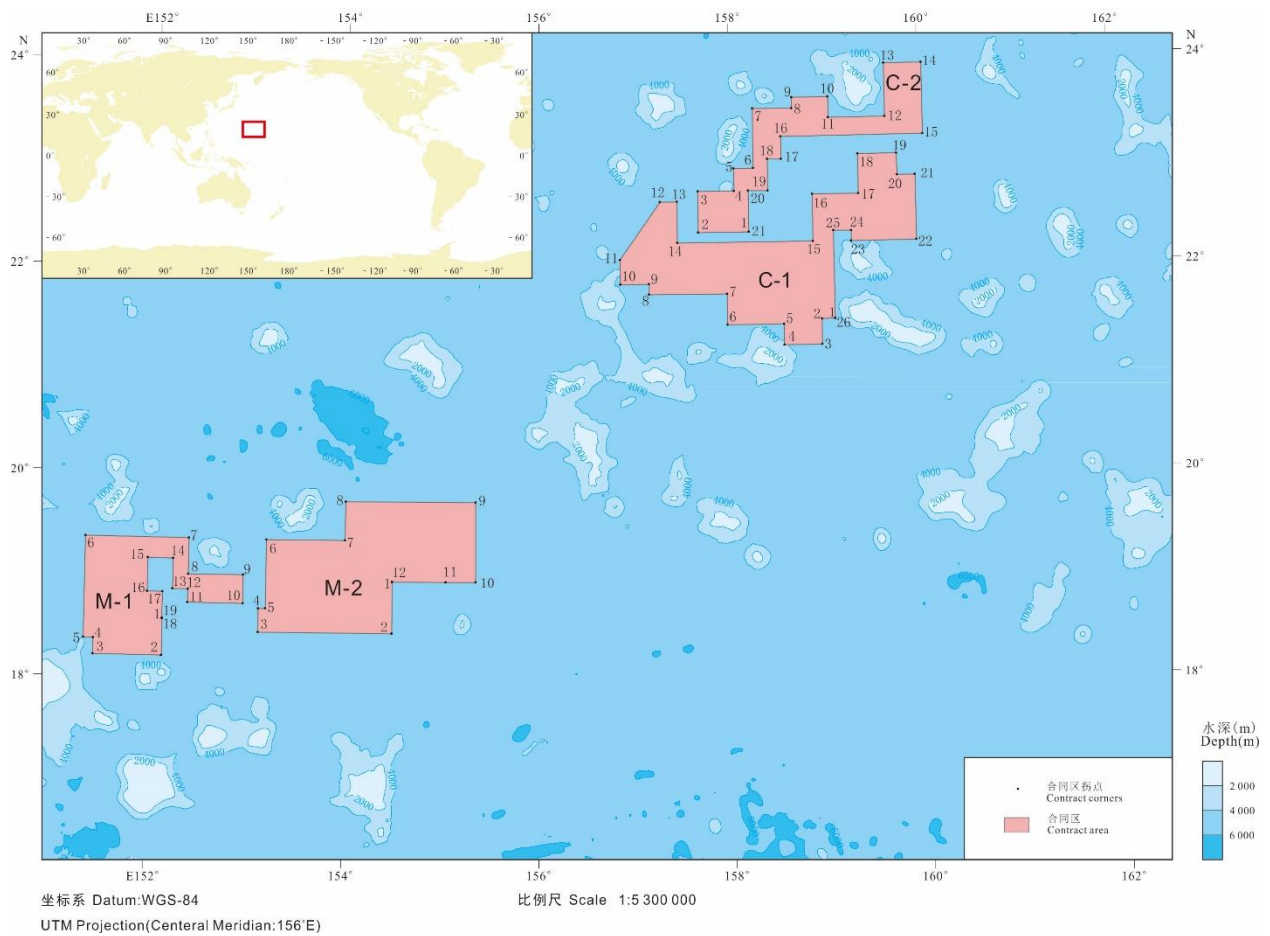


Fig.1 Illustrative chart of the contract area

3. Plan of Work

During the first 5-year period (2020-2024), the Contractor will:

- undertake exploration and evaluation of polymetallic nodules in the contract area; conduct research on the distribution of polymetallic nodules; delineate mining areas; estimate the indicated and measured resource within certain domain; and delineate mining test areas;
- carry out environmental investigation survey and assessment in the contract area; conduct research on the features of physical, chemical, biological, geological and sedimentary baselines and their scope of natural variability; and establish environmental baselines;
- establish test platforms for key mining technologies and equipment performance experiments in laboratory; conduct verification tests for key technologies; and complete the design of a commercial mining system of polymetallic nodules;
- undertake tests on and evaluate the ore beneficiability of polymetallic nodules; develop metallurgical process technology; conduct research on the comprehensive recovery technology for associated rare elements; and carry out laboratory tests on metallurgical processes; and
- perform analysis on the market dynamics of the metals including Mn, Cu, Co and Ni; and carry out a scoping study for polymetallic nodules resources in the contract area.

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	
	Exploration and evaluation of mineral resources		Undertake at-sea exploration for polymetallic nodules for a total 365 days; ascertain distribution patterns of polymetallic nodules in the contract area; delineate regions with a high abundance of polymetallic nodules (meaning the specific areas with good resource potential for polymetallic nodules); improve exploration technologies and methods; estimate the indicated and measured resources within certain domains; and delineate mining test areas.	
	Environmental investigation and assessment		Conduct a 60-day, at-sea survey to establish the environmental baseline and describe the biodiversity in the contract areas; gather and analyse data on resources and the environment of the related area; determine the physical, chemical, biological, geological and sedimentary parameters of the contract area on a preliminary basis; and establish the environmental baselines of the contract area.	
	Mining technology development and testing		Develop conceptual designs, an operation model, and a business operation model of a commercial mining system; complete technical verification experiments of mining collector; complete verification of environmental monitoring and assessment; and complete a preliminary demonstration of technical and economic feasibility.	
Metallurgical technology testing and evaluation		Develop metallurgical processes and comprehensive utilization technology suitable for polymetallic nodules; and		

		complete the laboratory test of metallurgical processes.
	Techno-economic evaluation	Develop a techno-economic evaluation model; undertake a scoping study and commercial prospect analysis on the development and utilization of polymetallic nodule resources; and, develop a preliminary proposal for a commercial exploitation model in order to be technically prepared for mining tests.

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

Annual objectives and activities			
Year	No.	Agreed Objectives	Objective: Completed, Modified, Postponed or Replaced
Year 1	2020	<ul style="list-style-type: none"> Preparation for the implementation of the programme of activities Research on commercial mining system and mining model Research on standards for a deep-sea collector system Research on metallurgical processes and comprehensive utilization technology suitable for polymetallic nodules 	<ul style="list-style-type: none"> Completed Completed Completed Completed
Year 2	2021	<ul style="list-style-type: none"> Resources exploration of the polymetallic nodules Environmental investigation and assessment Mining technology development Preparation for the training programme 	<ul style="list-style-type: none"> Completed Completed Completed Completed

5. Training Programme

Schedule 3 of Annex III of the Regulations.

I. Training Programme

Type of training	At-sea exploration	Fellowship	Engineering
Institutions	Beijing Pioneer Hi-tech. Development Corporation Ltd.	Beijing Pioneer Hi-tech. Development Corporation Ltd.	Beijing Pioneer Hi-tech. Development Corporation Ltd.
Duration	About 40 days	About 3 months	About 1 month
Scope	Environmental survey, geological survey and	Marine geology, biology and	Mining and metallurgical

	geophysical survey (Due to the severe impact of the current COVID-19 pandemic, Beijing Pioneer is now communicating with ISA to conduct the training program in a virtual format. Online courses will include Fundamentals, Policies and Regulations, Environmental survey, geological survey and geophysical survey modules.)	environment research	processing engineering
Fields	On board (Due to the severe impact of the current COVID-19 pandemic, Beijing Pioneer is now communicating with ISA to conduct the training program in a virtual format)	Beijing, Guangzhou, Hangzhou, Changsha or other cities in China	Beijing, Guangzhou, Hangzhou, Changsha or other cities in China
Qualification required	The candidates for the at-sea training programme should hold either a bachelor's or master's degree in geology or some other aspect of the marine environment (such as biology, ecology, or similar educational background). Experienced young scientists and marine technology managers will be given priority for admission.	The candidates for the fellowship programme should hold a bachelor's degree in geology, geophysics, and environment or have a similar educational background.	The candidates for the engineering training programme shall hold either a bachelor's or master's degree in mineral processing, metallurgy or mining engineering.
Financing	The Contractor will cover all of the relevant costs associated with the training for the	The Contractor will cover the trainees' tuition, the cost of travel to and from the institution, as well as	

	trainees. These will include medical insurance, meals, accommodations, living allowances, and travel costs for transportation to and within China.	accommodations while receiving training.	
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II. Trainings conducted up to reported year [#]: [year]

Start year	End Year	Name of Trainee	Nationality	Gender	Type of Programme	Details	Duration
[-]	[-]	[-]	[-]	[-]	[-]	[-]	[-]

III. Completed Trainings per Year

	At-sea exploration	Fellowship	Engineering
Year 1 (2020)			
Year 2 (2021)			
Year 3 (2022)	5 trainees		
Year 4 (2023)		3 trainees	2 trainees
Year 5 (2024)			

6. Standard clauses

Annex IV of the Regulations,
ISBA/19/C/17