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Agenda item 9
Consideration, with a view to approval, of applications for a plan of work for exploration, if any

Report and recommendations of the Legal and Technical Commission to the Council relating to an application for approval of a plan of work for exploration for polymetallic nodules by the Beijing Pioneer Hi-Tech Development Corporation

I. Introduction

1. On 24 December 2018, the Secretary-General of the International Seabed Authority received an application for the approval of a plan of work for exploration for polymetallic nodules in the Area. The application was submitted, pursuant to the regulations on prospecting and exploration for polymetallic nodules in the Area (ISBA/19/C/17, annex), by the Beijing Pioneer Hi-Tech Development Corporation.

2. On 11 January 2019, in accordance with regulation 20, paragraph 1 (c), the Secretary-General notified the members of the Authority of the receipt of the application and circulated information of a general nature regarding the application. On the same date, the Secretary-General also notified the members of the Legal and Technical Commission and placed consideration of the application as an item on the agenda of the Commission for its first session in 2019, to be held from 4 to 15 March.

II. Methodology and consideration of the application by the Legal and Technical Commission

A. General methodology applied by the Commission in consideration of the application

3. In its consideration of the application, the Commission noted that, in keeping with the provisions of article 6 of annex III to the United Nations Convention on the Law of the Sea, it was first required to make an objective determination as to whether the applicant had fulfilled the requirements contained in the regulations, in particular

with respect to the form of the application; whether the applicant had given the necessary undertakings and assurances specified in regulation 14; and whether it had the financial and technical capabilities necessary to carry out the proposed plan of work for exploration and, as relevant, had satisfactorily discharged its obligations under any previous contract with the Authority. The Commission was then required to determine, in accordance with regulation 21, paragraph 4, and its procedures, whether the proposed plan of work would provide for effective protection of human health and safety and effective protection and preservation of the marine environment, and ensure that installations are not established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity. Regulation 21, paragraph 5, further provides that, if the Commission makes the determinations specified in regulation 21, paragraph 3, and determines that the proposed plan of work for exploration meets the requirements of regulation 21, paragraph 4, it shall recommend approval of the plan of work for exploration to the Council.

4. In considering the proposed plan of work for exploration for polymetallic nodules, the Commission took into account the principles, policies and objectives relating to activities in the Area, as provided for in part XI of and annex III, to the Convention and in the 1994 Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982.

B. Consideration of the application

5. The Commission considered the application on 5, 6, 7, 11 and 12 March and from 1 to 3 July 2019.

6. Prior to commencing a detailed examination of the application, the Commission invited a delegation from the applicant to present the application on 5 March. Members of the Commission then asked questions about certain aspects of the application to seek clarification. The Commission set up three working groups to evaluate the application, namely, a legal and financial group, a geological and technological group, and an environmental and training group.

7. Following its initial consideration, the Commission requested the presence of the applicant's delegation to answer further questions raised by the working groups on 6 March.

8. On 7 March, the Commission sent a set of written questions to the applicant, which submitted written responses on 11 March. After reviewing the responses, the Commission sent a second set of written questions to the applicant, which resulted in a new set of written responses, received on 14 March. However, owing to its full agenda, the Commission deferred consideration of those responses to the second part of its session, in July. The Commission was of the view that its consideration of the proposed plan of work was substantially enhanced by the greater level of detail and the clarification of the issues raised in the question and answer process with the applicant.

9. From 1 to 3 July, the Commission continued its consideration of the application. It was satisfied with the written responses received and evaluated the application in accordance with the procedure contained in ISBA/18/LTC/7/Rev.1.

III. Summary of basic information regarding the application

A. Identification of the applicant

10. Name of applicant: Beijing Pioneer Hi-Tech Development Corporation

11. Address of the applicant:

(a) Street address: Yinhai Building, No. 10A Zhongguancun South Avenue, Haidian District, Beijing, China

(b) Postal address: Room 611, North Section, Yinhai Building, No. 10A Zhongguancun South Avenue, Haidian District, Beijing, China, 100081

(c) Telephone number: +86-10-68949001

(d) Fax number: +86-10-68910798

(e) Email address: deepseapioneer@sina.com

12. Name of applicant's designated representative:

(a) Zelong Chen

(b) Street address: same as above

(c) Postal address: same as above

(d) Telephone number: same as above

(e) Fax number: same as above

(f) Email address: same as above

13. As a juridical person, the applicant's:

(a) Place of registration: Beijing, China

(b) Principal place of business/domicile: Room 611, North Section, Yinhai Building, No. 10A Zhongguancun South Avenue, Haidian District, Beijing, China

B. Sponsorship

14. The sponsoring State: China

15. The date of deposit of the instrument of ratification by China of the Convention on the Law of the Sea is 7 June 1996, and the date of the consent of China to be bound by the 1994 Agreement is 7 June 1996.

C. Area of application

16. The application area is located in the western Pacific Ocean and covers a total area of 148,250 km^2. It consists of nine blocks (C-1, C-2, C-3, C-4, C-5, M-1, M-2, M-3 and M-4). Block C-1 covers an area of 26,112 km^2; block C-2, 11,370 km^2; block C-3, 14,620 km^2; block C-4, 7,337 km^2; block C-5, 5,725 km^2; block M-1, 12,903 km^2; block M-2, 23,667 km^2; block M-3, 33,322 km^2; and block M-4, 13,194 km^2.

17. The application area is divided into two parts (A and B). One of them is to be designated by the Authority as its reserved area.

18. Part A consists of four blocks, with a total area of 74,052 km^2 (C-1, C-2, M-1 and M-2). Part B consists of five blocks, with a total area of 74,198 km^2 (C-3, C-4, C-5, M-3 and M-4). The coordinates and general location of the areas under application are shown in the annexes to the present document.

19. The application area is a part of the Area and lies beyond the limits of the national jurisdiction of any State.

20. The Commission notes that the area of the application does not overlap with reserved areas already delineated or with contract areas.

D. Other information

21. China is also the sponsoring State of the China Ocean Mineral Resources Research and Development Association and China Minmetals Corporation.

22. The applicant enclosed a written undertaking signed by the applicant's designated representative, in compliance with regulation 14.

23. The applicant paid a fee of $500,000, in accordance with regulation 19, paragraph 1.

IV. Examination of information and technical data submitted by the applicant

24. The following technical documents and information were provided in the application:

(a) Information relating to the area under application, namely:

(i) Charts of the location of the blocks;

(ii) A list of the coordinates of the corners of blocks under application, in accordance with the World Geodetic System 1984;

(b) Information to enable the Council to determine whether the applicant is financially capable of carrying out the proposed plan of work for exploration;

(c) Information to enable the Council to determine whether the applicant is technically capable of carrying out the proposed plan of work for exploration;

(d) Information, including data available to the applicant, to enable the Council to designate a reserved area based on the estimated commercial value of the two parts of the area under application, including data on the location, survey and evaluation of the polymetallic nodules in the area under application, including:

(i) A description of the technology related to the recovery and processing of polymetallic nodules;

(ii) Maps of bathymetry, slope and backscattered echo intensity and information used for quality evaluation;

(iii) Data on the inferred abundance of polymetallic nodules, with an associated abundance map;

(iv) Description of the method of inferred mineral resource estimation and of evaluation of the equal estimated commercial value between the two parts of the application area;

(v) Data on the average elemental content of metals of economic interest (grade) based on chemical assays in (dry) weight percentage and associated grade maps;

(e) A plan of work for exploration;

(f) A training programme;

(g) Written undertakings by the applicant;

(h) Written responses to the questions raised by the Commission.

V. Consideration of financial and technical qualifications of the applicant

A. Financial capability

25. The applicant has submitted a certificate of financial capability signed by its designated representative certifying that the applicant has the necessary funds to meet the estimated minimum expenditure under the proposed plan of work for exploration and to fulfil its financial obligations to the Authority.

B. Technical capability

26. In evaluating the technical capability of the applicant, the Commission noted that applicant is an enterprise engaged in the research, development and manufacturing of deep sea equipment for projects for the investigation of and exploration for deep sea resources. It has developed deep sea exploration equipment, including TV-grab technology, a drilling system, a transient electromagnetic system and a towed camera sled. It has also cooperated with relevant universities, research institutes and enterprises in China to develop deep sea high-tech equipment, such as remotely operated vehicles, autonomous underwater vehicles and deep-towed acoustic equipment. The applicant possesses a number of patents and software copyrights, and several national, provincial and ministerial awards for its achievements in deep sea technology. Its technical team has provided technical support for 24 Chinese deep sea research cruises, and its products have become the main equipment utilized by China in deep sea exploration for polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts, accounting for more than 70 per cent of the market share of related products in China.

General description of equipment and methods

27. The applicant provided information regarding the planned operation to carry out the proposed plan of work for exploration, as well as on the methods and instruments to be used for that purpose, including a detailed list of equipment to be utilized each year for the first five-year programme of activities. The applicant has advised that the equipment and technology that it would use would include the following:

(a) Multibeam echo sounding: the bathymetry and backscattered echo intensity are to be used to study topography and seabed type;

(b) Sub-bottom profiler systems: the acoustic data are to be used to study the thickness and physical characteristics of subsurface sediment;

(c) Towed camera sled: video and photograph profiling are to be used to acquire data, for example, regarding the coverage of polymetallic nodules and the megafauna;

(d) Autonomous underwater vehicles: optical and acoustic surveys are to be undertaken to acquire data, for example, regarding the coverage of polymetallic nodules, the microrelief and the seabed type;

(e) Box-corers: to be used to collect samples of polymetallic nodules and surface sediments to study the type, abundance, coverage and main metal contents of polymetallic nodules, to analyse the type, geo-mechanical properties and chemical composition of sediments and to study macrofauna;

(f) Moorings: the inter-annual environmental parameters, such as seawater temperature, salinity, bottom current velocity and direction, are to be obtained to study environmental baselines and conduct environmental impact assessments and monitoring;

(g) Conductivity, temperature and depth rosettes: to be used to collect seawater samples at various depths and measure the parameters of temperature and salinity for the study of environmental baselines and conduct environmental impact assessments and monitoring;

(h) Plankton nets: to be used to obtain plankton samples from the upper 200 metre deep water column for the study of environmental baselines;

(i) Plankton multi-nets: to be used collect plankton samples at different depths while obtaining the parameters of sea water temperature, salinity and conductivity for the study of environmental baselines;

(j) Lander systems: to be used to obtain saprovore and video data for the study of environmental baselines and the assessment and monitoring of environmental impacts;

(k) Multi-corers: to be used to recover surface sediments for the study of sediment chemistry, meiofauna and macrobenthos and geo-mechanical properties;

(l) Dredges: to be used to recover polymetallic nodule samples for metallurgical testing;

(m) Epibenthic sleds: to be used to sample small megafauna and macrofauna on and above the seabed.

28. The applicant provided information related to the prevention, reduction and control of hazards to the marine environment and possible impacts thereon: specifically, prevention measures to combat pollution from ships, including an emergency response mechanism, shipboard control measures, ship oil spill management, marine pollution management and manuals for ship pollution prevention and control; and measures for the prevention, reduction and control of other hazards at sea.

VI. Consideration of data and information submitted for the designation of a reserved area and determination of equal estimated commercial value

A. Methodology used by the applicant for the calculation of the estimated commercial value

29. The applicant provided both raw data and methods for the inferred mineral resource estimation and evaluation of equal estimate commercial value of the two parts of the application area. The applicant believes that the two parts have equal commercial value on the basis of the comparison of total sizes of the ore-bearing area,

mineral resources, processing technology and metallurgical indicators of polymetallic nodules. The continuity of the geology and nodule abundance and metal contents were also considered.

B. Summary and conclusions relating to the determination of equal estimated commercial value

30. The Commission accepted the methodology presented by the applicant to classify parts A and B as two parts of equal estimated commercial value. Both parts are areas of abyssal floor between seamounts or ridges with steep slopes. On the basis of the data available for the region, the Commission recognized that there were similar concentrations of nickel, cobalt and copper in the two parts, but that there was a higher concentration of manganese in part B. Nodule abundance was comparable in the two parts, although slightly higher in part B. However, the abundance in part B had a more normal distribution and a higher linear correlation with the inferred abundance estimated from backscatter data than that in part A. In consideration of the aforementioned observations, the Commission therefore recommends that part B be the reserved area for the Authority.

VII. Consideration of data and information submitted for approval of the plan of work for exploration

31. As a result of its exchange with the Commission, the applicant advised the Commission that it would take into account the extent of spatial and temporal variability of the environmental and faunal communities across the contract area when finalizing its detailed sampling programme.

32. In accordance with regulation 18, the applicant submitted the following information, with a view to receiving approval of the plan of work for exploration:

(a) A general description and a schedule of the proposed exploration programme, including the programme of activities for the immediate five-year period;

(b) A description of the programme for oceanographic and environmental baseline studies in accordance with the regulations and any environmental rules, regulations and procedures established by the Authority that would enable an assessment of the potential environmental impact, including, but not restricted to, the impact on biodiversity of the proposed exploration activities, taking into account any recommendations issued by the Commission;

(c) A preliminary assessment of the possible impact of the proposed exploration activities on the marine environment;

(d) A description of proposed measures for the prevention, reduction and control of pollution and other hazards, as well as possible impacts, to the marine environment;

(e) Data necessary for the Council to make the determination that it is required to make in accordance with regulation 12, paragraph 1;

(f) A schedule of anticipated yearly expenditure in respect of the programme of activities for the immediate five-year period.

VIII. Training programme

33. The Commission noted that the applicant's proposed training programme for the first five years included five at-sea training opportunities and five on-land training opportunities relevant to trainees from various professional disciplines. The applicant also provided detailed information on the objectives and content of the training opportunities, clear qualification requirements for the candidates and the scheduling of the training.

34. The applicant stated that it was willing to create additional training opportunities through the Endowment Fund for Marine Scientific Research.

IX. Conclusion and recommendations

35. Having examined the particulars submitted by the applicant, as summarized in sections III to VIII above, the Commission is satisfied that the application has been duly submitted in accordance with the regulations and that the applicant is a qualified applicant as defined under annex III, article 4, to the Convention.

36. The Commission is satisfied that the information is sufficient to enable the Council to designate a reserved area pursuant to the regulations and that the two parts of the application area are of equal estimated commercial value. The Commission therefore recommends the designation of part B, consisting of five blocks with a total area of 74,198 km^2 (C-3, C-4, C-5, M-3 and M-4), as a reserved area.

37. The Commission is further satisfied that the applicant:

(a) Has complied with the provisions of the regulations;

(b) Has given the undertakings and assurances specified in regulation 14;

(c) Possesses the financial and technical capabilities to carry out the proposed plan of work for exploration.

38. The Commission is satisfied that none of the conditions in regulation 21, paragraph 6, apply.

39. The Commission is satisfied that the proposed plan of work for exploration will:

(a) Provide for effective protection of human health and safety;

(b) Provide for effective protection and preservation of the marine environment;

(c) Ensure that installations are not established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity.

40. Accordingly, pursuant to regulation 21, paragraph 5, the Commission recommends to the Council approval of the plan of work for exploration for polymetallic nodules submitted by the Beijing Pioneer Hi-Tech Development Corporation.

Annex I

List of coordinates of the area under application

Table 1
List of geographical coordinates of part A

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
	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

Block	Turning points	Longitude (E)			Latitude (N)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	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
	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

Table 2
List of geographical coordinates of part B

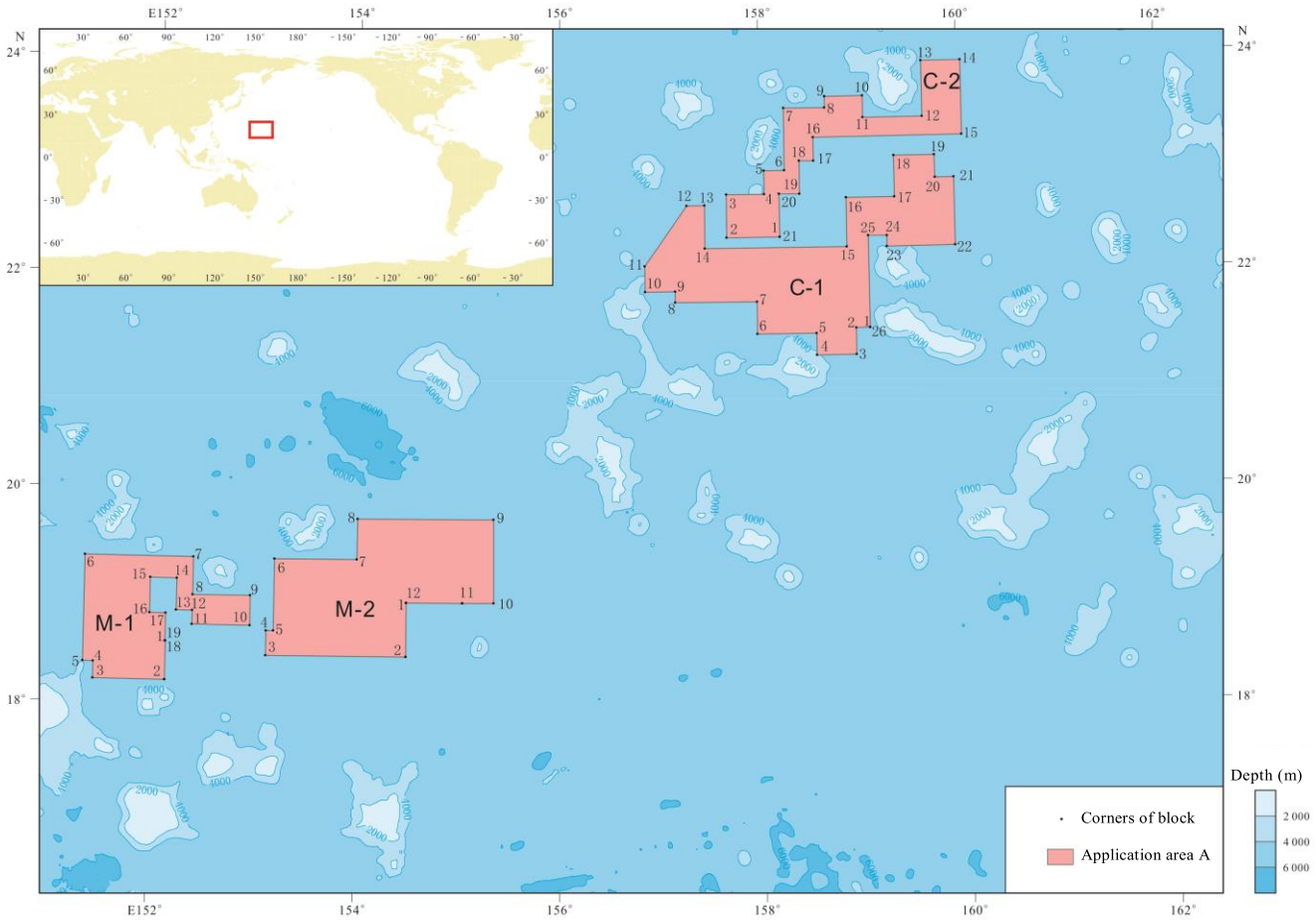
Block	*Turning points*	*Longitude (E)*			*Latitude (N)*		
		Degrees	*Minutes*	*Seconds*	*Degrees*	*Minutes*	*Seconds*
C-3	1	159	8	57.83	19	27	0.00
	2	159	8	57.83	19	39	7.20
	3	159	27	13.05	19	39	6.13
	4	159	27	13.04	19	50	52.36
	5	158	34	25.63	19	50	52.79
	6	158	34	25.65	19	18	53.99
	7	158	8	58.13	19	18	52.58
	8	158	8	59.23	19	50	41.98
	9	157	35	18.37	19	50	42.37
	10	157	35	18.36	20	3	5.34
	11	158	8	55.27	20	3	3.58
	12	158	8	55.27	20	10	47.98
	13	159	50	34.02	20	10	48.02
	14	159	50	33.18	19	23	22.09
	15	159	38	55.29	19	23	22.08
	16	159	38	54.38	19	32	59.66
	17	159	21	1.44	19	32	59.66
	18	159	21	2.85	19	3	28.63
	19	158	57	1.55	19	3	28.80
	20	158	57	1.54	19	27	0.37
	21	159	8	57.83	19	27	0.00
C-4	1	160	32	59.95	20	50	52.84
	2	160	32	55.97	20	32	59.68
	3	159	56	58.30	20	32	59.67
	4	159	56	58.28	21	3	0.02
	5	160	50	55.24	21	3	0.41
	6	160	50	55.22	21	38	59.69
	7	161	18	53.04	21	39	0.38
	8	161	18	53.05	21	16	29.18
	9	161	5	19.88	21	16	29.17
	10	161	5	19.89	20	50	59.70
	11	160	32	59.95	20	50	52.84
C-5	1	161	15	7.10	19	2	56.45
	2	161	15	7.07	20	0	25.59
	3	161	31	0.79	20	0	25.60
	4	161	31	0.79	19	55	47.24
	5	161	47	15.77	19	55	47.25
	6	161	47	14.81	19	2	55.36
	7	161	15	7.10	19	2	56.45

Block	Turning points	Longitude (E)			Latitude (N)		
		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
M-3	1	155	2	39.25	18	57	3.85
	2	155	2	39.09	18	23	35.99
	3	154	40	10.50	18	23	36.09
	4	154	40	12.00	18	2	42.00
	5	154	25	45.87	18	2	42.00
	6	154	25	45.87	17	39	6.74
	7	153	51	8.42	17	39	7.7
	8	153	51	7.20	16	33	27.52
	9	153	33	8.85	16	33	27.52
	10	153	33	7.71	16	51	3.60
	11	152	51	39.61	16	51	3.60
	12	152	51	41.38	16	33	28.80
	13	152	33	0.00	16	33	28.80
	14	152	33	0.00	17	12	9.57
	15	153	21	19.09	17	12	9.57
	16	153	21	19.09	17	51	17.48
	17	152	16	56.85	17	51	20.20
	18	152	16	56.85	18	12	30.08
	19	152	8	59.68	18	12	30.08
	20	152	8	59.68	18	34	4.81
	21	152	41	0.94	18	34	4.81
	22	152	41	0.94	18	26	52.80
	23	154	29	45.34	18	26	52.80
	24	154	29	45.34	18	57	3.62
	25	155	2	39.25	18	57	3.85
M-4	1	154	40	40.80	16	40	31.44
	2	154	40	40.86	17	48	8.72
	3	155	19	16.52	17	48	7.20
	4	155	19	16.52	17	20	42.00
	5	156	14	52.08	17	20	40.81
	6	156	14	52.08	16	57	38.30
	7	154	40	40.80	16	40	31.44

Annex II

Map of the general location of the Area under application

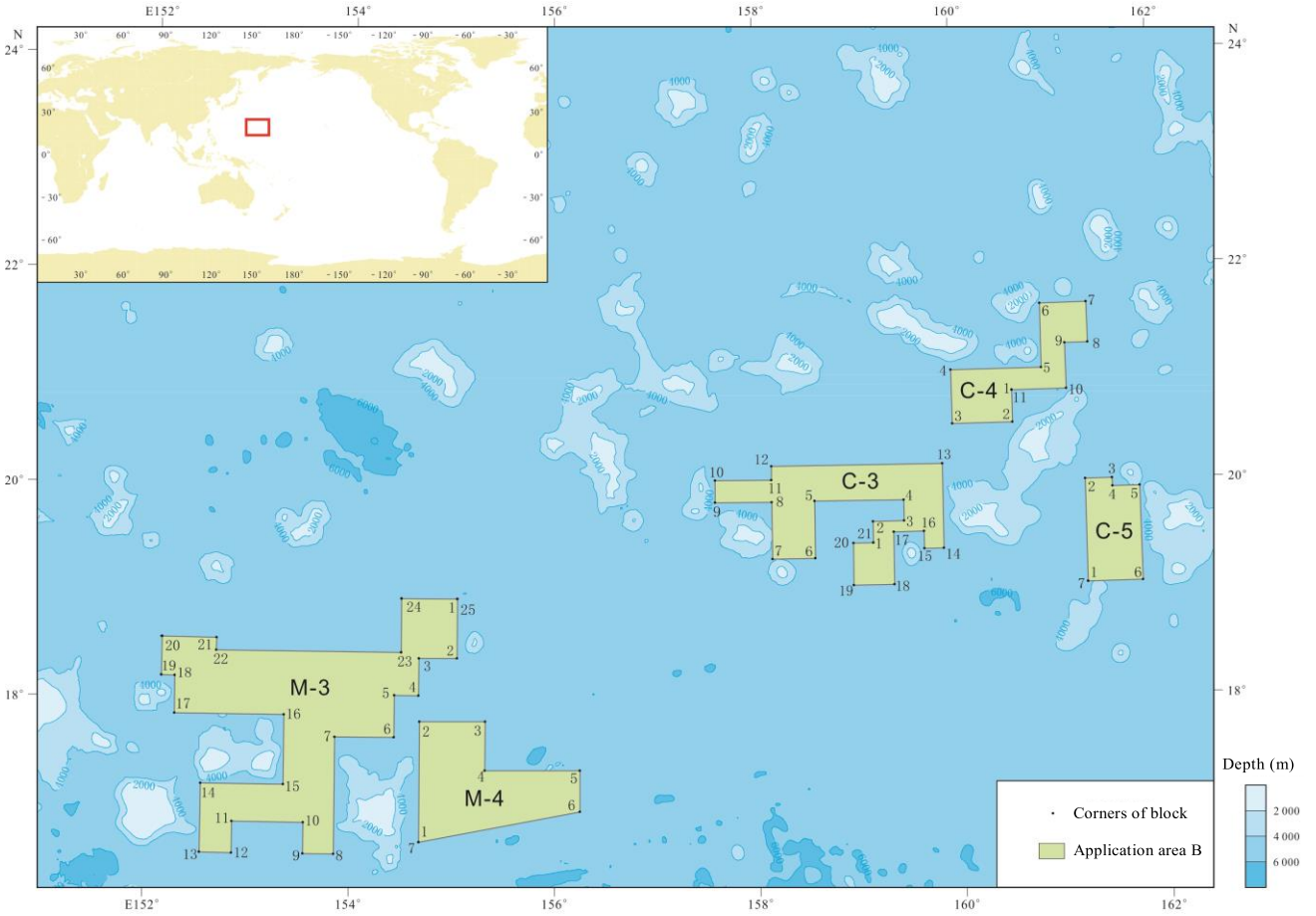
Map 1
Map of part A



Datum: WGS-84 Scale 1:5 300 000

Universal Transverse Mercator projection (central meridian: 156°E)

Map 2
Map of part B



Datum: WGS-84 Scale 1:5 300 000

Universal Transverse Mercator projection (central meridian: 156°E)