I. ANNEX

ISA Contract for Exploration - Public Information Template

SERVIÇO GEOLÓGICO DO BRASIL
CPRM

Type of resource:
Cobalt-rich Ferromanganese Crusts
Name of Contractor: CPRM
Contract Start: 2015
Contract End: 2030
Location: Rio Grande Rise
Sponsoring State: Federative Republic of Brazil

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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 [*Cobalt-rich Ferromanganese Crusts in the Area*] [*ISBA/18/A/11*] (the "Regulations").

1. Contract Information

Annex III of the Regulations.

Type of resource	Cobalt-rich Ferromanganese Crusts
Name of Contractor	CPRM
Contract Start	2015
Contract End	2030
Location	Rio Grande Rise
Contract Area (km^2)	3.000 km^2

2. Coordinates and Illustrative Chart of the Exploration Area

2.1. List of coordinates of the area under application List of coordinates of the blocks under application (in accordance with the World Geodetic System 84)

GEOGRAPHICAL COORDINATES - SECTOR 01

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 1	66	20	-30.78	-36.07	24J	780707.03	6590944.99
			-30.78	-36.12	24J	775712.71	6591207.93
			-30.74	-36.12	24J	775930.39	6595196.96
			-30.75	-36.07	24J	780917.00	6594934.30
SECTOR 1	67	20	-30.78	-36.01	24J	785701.03	6590668.61
			-30.78	-36.07	24J	780707.03	6590944.99
			-30.75	-36.07	24J	780917.00	6594934.30
			-30.75	-36.01	24J	785913.18	6594669.05
SECTOR 1	71	20	-30.72	-36.17	24J	771042.37	6597463.10
			-30.72	-36.27	24J	761058.15	6597999.12
			-30.70	-36.27	24J	761164.18	6599993.57
			-30.71	-36.17	24J	771150.26	6599457.59
SECTOR 1	72	20	-30.74	-36.12	24J	775930.39	6595196.96
			-30.74	-36.17	24J	770934.47	6595468.61
			-30.71	-36.17	24J	771150.26	6599457.59
			-30.71	-36.12	24J	776148.34	6599197.05
SECTOR 1	73	20	-30.75	-36.07	24J	780917.00	6594934.30
			-30.74	-36.12	24J	775930.39	6595196.96
			-30.71	-36.12	24J	776148.34	6599197.05
			-30.71	-36.06	24J	781136.53	6598923.34
SECTOR 1	79	20	-30.71	-36.22	24J	766162.02	6599726.63
			-30.70	-36.27	24J	761164.18	6599993.57
			-30.67	-36.27	24J	761386.07	6603993.33
			-30.67	-36.22	24J	766376.21	6603726.65
SECTOR 1	80	20	-30.71	-36.17	24J	771150.26	6599457.59
			-30.71	-36.22	24J	766162.02	6599726.63
			-30.67	-36.22	24J	766376.21	6603726.65
			-30.67	-36.17	24J	771366.31	6603457.64
SECTOR 1	81	20	-30.71	-36.12	24J	776148.34	6599197.05
			-30.71	-36.17	24J	771150.26	6599457.59
			-30.67	-36.17	24J	771366.31	6603457.64
			-30.67	-36.12	24J	776356.40	6603186.29
SECTOR 1	82	20	-30.71	-36.06	24J	781136.53	6598923.34
			-30.71	-36.12	24J	776148.34	6599197.05

			-30.67	-36.12	24J	776356.40	6603186.29
			-30.67	-36.06	24J	781346.74	6602923.71
SECTOR 1	83	20	-30.67	-36.27	24J	761386.07	6603993.33
			-30.67	-36.32	24J	756395.91	6604257.68
			-30.63	-36.32	24J	756606.07	6608246.53
			-30.63	-36.27	24J	761598.10	6607982.21
SECTOR 1	84	20	-30.67	-36.22	24J	766376.21	6603726.65
			-30.67	-36.27	24J	761386.07	6603993.33
			-30.63	-36.27	24J	761598.10	6607982.21
			-30.63	-36.22	24J	766590.09	6607715.56
SECTOR 1	85	20	-30.67	-36.17	24J	771366.31	6603457.64
			-30.67	-36.22	24J	766376.21	6603726.65
			-30.63	-36.22	24J	766590.09	6607715.56
			-30.63	-36.17	24J	771582.06	6607446.58
SECTOR 1	86	20	-30.67	-36.12	24J	776356.40	6603186.29
			-30.67	-36.17	24J	771366.31	6603457.64
			-30.63	-36.17	24J	771582.06	6607446.58
			-30.64	-36.11	24J	776574.29	6607186.36
SECTOR 1	87	20	-30.63	-36.37	24J	751614.27	6608519.61
			-30.63	-36.43	24J	746622.18	6608779.27
			-30.59	-36.43	24J	746838.45	6612778.92
			-30.59	-36.37	24J	751832.15	6612508.19
SECTOR 1	88	20	-30.63	-36.32	24J	756606.07	6608246.53
			-30.63	-36.37	24J	751614.27	6608519.61
			-30.59	-36.37	24J	751832.15	6612508.19
			-30.59	-36.32	24J	756816.48	6612246.45
SECTOR 1	89	20	-30.63	-36.27	24J	761598.10	6607982.21
			-30.63	-36.32	24J	756606.07	6608246.53
			-30.59	-36.32	24J	756816.48	6612246.45
			-30.60	-36.27	24J	761810.11	6611971.08
SECTOR 1	90	20	-30.63	-36.22	24J	766590.09	6607715.56
			-30.63	-36.27	24J	761598.10	6607982.21
			-30.60	-36.27	24J	761810.11	6611971.08
			-30.60	-36.22	24J	766803.96	6611704.46
SECTOR 1	91	20	-30.59	-36.37	24J	751832.15	6612508.19
			-30.59	-36.43	24J	746838.45	6612778.92
			-30.56	-36.42	24J	747054.47	6616767.47
			-30.56	-36.37	24J	752040.43	6616496.99
SECTOR 1	92	20	-30.59	-36.32	24J	756816.48	6612246.45
			-30.59	-36.37	24J	751832.15	6612508.19
			-30.56	-36.37	24J	752040.43	6616496.99

			-30.56	-36.32	24J	757036.21	6616235.05
SECTOR 1	93	20	-30.60	-36.27	24J	761810.11	6611971.08
			-30.59	-36.32	24J	756816.48	6612246.45
			-30.56	-36.32	24J	757036.21	6616235.05
			-30.56	-36.27	24J	762022.36	6615971.02
SECTOR 1	94	20	-30.60	-36.22	24J	766803.96	6611704.46
			-30.60	-36.27	24J	761810.11	6611971.08
			-30.56	-36.27	24J	762022.36	6615971.02
			-30.56	-36.22	24J	767018.08	6615704.43
SECTOR 1	95	20	-30.60	-36.17	24J	771788.48	6611446.85
			-30.60	-36.22	24J	766803.96	6611704.46
			-30.56	-36.22	24J	767018.08	6615704.43
			-30.56	-36.16	24J	772004.18	6615435.76
SECTOR 1	96	20	-30.56	-36.37	24J	752040.43	6616496.99
			-30.56	-36.42	24J	747054.47	6616767.47
			-30.52	-36.42	24J	747260.89	6620756.22
			-30.52	-36.37	24J	752258.56	6620496.63
SECTOR 1	97	20	-30.56	-36.16	24J	772004.18	6615435.76
			-30.56	-36.22	24J	767018.08	6615704.43
			-30.53	-36.22	24J	767222.31	6619693.54
			-30.53	-36.16	24J	772219.86	6619424.67
SECTOR 1	98	20	-30.57	-36.12	24J	775948.45	6614226.12
			-30.57	-36.16	24J	771950.26	6614438.54
			-30.53	-36.16	24J	772219.86	6619424.67
			-30.53	-36.12	24J	776210.32	6619212.53
SECTOR 1	99	20	-30.54	-36.42	24J	747140.48	6618429.45
			-30.54	-36.48		742153.45	6618686.52
			-30.50	-36.47		742358.26	6622686.33
			-30.51	-36.42		747356.49	6622417.98
SECTOR 1	100	20	-30.52	-36.37	24J	752258.56	6620496.63
			-30.52	-36.42		747260.89	6620756.22
			-30.48	-36.42		747477.15	6624755.83
			-30.49	-36.37		752466.81	6624485.40
SECTOR 1	101	20	-30.50	-36.47	24J	742358.26	6622686.33
			-30.50	-36.53		737369.59	6622952.15
			-30.47	-36.53		737581.89	6626940.62
			-30.47	-36.47		742572.42	6626674.82
SECTOR 1	102	20	-30.51	-36.42	24J	747356.49	6622417.98
			-30.50	-36.47		742358.26	6622686.33
			-30.47	-36.47		742572.42	6626674.82
			-30.47	-36.42		747562.89	6626406.71

SECTOR 1	103	20	-30.49	-36.37	24J	752466.81	6624485.40
			-30.48	-36.42		747477.15	6624755.83
			-30.45	-36.42		747693.14	6628744.33
			-30.45	-36.37		752675.05	6628474.14
SECTOR 1	104	20	-30.49	-36.32	24J	757456.70	6624223.74
			-30.49	-36.37		752466.81	6624485.40
			-30.45	-36.37		752675.05	6628474.14
			-30.45	-36.32		757666.79	6628212.52
SECTOR 1	105	20	-30.47	-36.47	24J	742572.42	6626674.82
			-30.47	-36.53		737581.89	6626940.62
			-30.43	-36.52		737794.20	6630929.07
			-30.43	-36.47		742786.57	6630663.29
SECTOR 1	106	20	-30.47	-36.42	24J	747562.89	6626406.71
			-30.47	-36.47		742572.42	6626674.82
			-30.43	-36.47		742786.57	6630663.29
			-30.43	-36.42		747778.89	6630395.21
SECTOR 1	107	20	-30.45	-36.37	24J	752675.05	6628474.14
			-30.45	-36.42		747693.14	6628744.33
			-30.41	-36.42		747899.53	6632733.04
			-30.41	-36.37		752893.15	6632473.74
SECTOR 1	108	20	-30.45	-36.32	24J	757666.79	6628212.52
			-30.45	-36.37		752675.05	6628474.14
			-30.41	-36.37		752893.15	6632473.74
			-30.41	-36.32		757876.86	6632201.28
SECTOR 1	109	20	-30.51	-36.30	24J	759347.02	6622115.16
			-30.50	-36.32		757351.39	6622218.26
			-30.41	-36.32		757876.86	6632201.28
			-30.42	-36.29		759874.34	6632098.21
SECTOR 1	111	20	-30.43	-36.47	24J	742786.57	6630663.29
			-30.43	-36.52		737794.20	6630929.07
			-30.39	-36.52		738006.50	6634917.51
			-30.40	-36.47		743000.96	6634662.84
SECTOR 1	112	20	-30.43	-36.42	24J	747778.89	6630395.21
			-30.43	-36.47		742786.57	6630663.29
			-30.40	-36.47		743000.96	6634662.84
			-30.40	-36.42		747985.52	6634394.99
SECTOR 1	113	20	-30.41	-36.37	24J	752893.15	6632473.74
			-30.41	-36.42		747899.53	6632733.04
			-30.38	-36.42		748115.77	6636732.59
			-30.38	-36.37		753101.36	6636462.46
SECTOR 1	115	20	-30.39	-36.52	24J	738006.50	6634917.51

			-30.39	-36.57		733022.09	6635191.84
			-30.36	-36.57		733232.56	6639180.24
			-30.36	-36.52		738219.04	6638917.02
SECTOR 1	116	20	-30.40	-36.47	24J	743000.96	6634662.84
			-30.39	-36.52		738006.50	6634917.51
			-30.36	-36.52		738219.04	6638917.02
			-30.36	-36.47		743215.10	6638651.28
SECTOR 1	117	20	-30.40	-36.42	24J	747985.52	6634394.99
			-30.40	-36.47		743000.96	6634662.84
			-30.36	-36.47		743215.10	6638651.28
			-30.36	-36.42		748201.50	6638383.46
SECTOR 1	118	20	-30.37	-36.57	24J	733134.03	6637274.63
			-30.37	-36.63		728138.76	6637535.77
			-30.34	-36.62		728357.00	6641523.94
			-30.34	-36.57		733344.50	6641263.02
SECTOR 1	120	20	-30.36	-36.52	24J	738219.04	6638917.02
			-30.36	-36.57		733232.56	6639180.24
			-30.32	-36.57		733443.02	6643168.63
			-30.32	-36.52		738431.34	6642905.42
SECTOR 1	121	20	-30.36	-36.47	24J	743215.10	6638651.28
			-30.36	-36.52		738219.04	6638917.02
			-30.32	-36.52		738431.34	6642905.42
			-30.32	-36.47		743419.62	6642639.92
SECTOR 1	122	20	-30.36	-36.42	24J	748201.50	6638383.46
			-30.36	-36.47		743215.10	6638651.28
			-30.32	-36.47		743419.62	6642639.92
			-30.33	-36.42		748407.85	6642372.13
SECTOR 1	123	20	-30.34	-36.62	24J	729154.67	6641485.02
			-30.34	-36.67		724157.75	6641755.29
			-30.30	-36.67		724374.45	6645743.44
			-30.30	-36.62		729363.60	6645473.38
SECTOR 1	125	20	-30.32	-36.67	24J	724251.24	6643494.59
			-30.32	-36.72		719263.07	6643762.36
			-30.28	-36.72		719477.94	6647750.50
			-30.28	-36.67		724467.95	6647482.73
SECTOR 1	126	20	-30.28	-36.72	24J	719477.94	6647750.50
			-30.28	-36.77		714487.88	6648015.97
			-30.24	-36.77		714700.94	6652004.07
			-30.25	-36.72		719692.83	6651738.61
SECTOR 1	127	20	-30.28	-36.68	24J	723468.03	6647536.51
			-30.28	-36.72		719477.94	6647750.50

			-30.24	-36.72		719741.75	6652735.73
			-30.24	-36.68		723733.66	6652521.76
SECTOR 1	130	20	-30.25	-36.74	24J	717038.20	6651880.32
			-30.24	-36.80		712046.26	6652144.56
			-30.21	-36.79		712258.37	6656132.65
			-30.21	-36.74		717252.12	6655868.42
SECTOR 1	133	20	-30.21	-36.89	24J	703204.71	6655605.72
			-30.21	-36.94		698221.05	6655874.45
			-30.18	-36.94		698428.05	6659862.50
			-30.18	-36.89		703423.37	6659604.68
SECTOR 1	134	20	-30.22	-36.85	24J	707197.53	6655397.85
			-30.21	-36.89		703204.71	6655605.72
			-30.17	-36.89		703470.76	6660601.78
			-30.17	-36.85		707465.20	6660382.83
SECTOR 1	135	20	-30.21	-36.80	24J	712239.11	6656133.02
			-30.21	-36.85		707254.91	6656394.77
			-30.17	-36.85		707465.20	6660382.83
			-30.17	-36.79		712451.22	6660121.09
SECTOR 1	136	20	-30.21	-36.74	24J	717223.24	6655868.99
			-30.21	-36.80		712239.11	6656133.02
			-30.17	-36.79		712451.22	6660121.09
			-30.17	-36.74		717437.17	6659857.06
SECTOR 1	138	20	-30.17	-36.79	24J	712451.22	6660121.09
			-30.17	-36.85		707465.20	6660382.83
			-30.13	-36.84		707675.71	6664381.96
			-30.14	-36.79		712663.34	6664109.14

GEOGRAPHICAL COORDINATES - SECTOR 02

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 2	110	20	-30.47	-35.94	25J	217255.71	6625912.31
			-30.46	-35.99		213257.09	6625907.15
			-30.42	-35.99		213249.83	6630911.56
			-30.42	-35.94		217250.57	6630905.50
SECTOR 2	114	20	-30.42	-35.96	24J 25J	216106.11	6630908.93
			-30.42	-36.01		787472.41	6630947.95
			-30.38	-36.01		787683.78	6634937.16
			-30.38	-35.95		216107.56	6634903.63
SECTOR 2	119	20	-30.38	-35.96	24J 25J	215280.20	6634904.20
			-30.38	-36.01		786857.56	6634981.18
			-30.35	-36.01		787068.88	6638981.46
			-30.35	-35.96		215271.63	6638909.74
SECTOR 2	124	20	-30.35	-36.00	24J 25J	211778.19	6638906.63
			-30.35	-36.05		783570.46	6639161.88
			-30.31	-36.05		783790.07	6643161.86
			-30.31	-36.00		211778.15	6642912.50
SECTOR 2	128	20	-30.28	-36.07	24J	781940.93	6646116.94
			-30.28	-36.12		776950.08	6646388.90
			-30.25	-36.12		777157.16	6650377.96
			-30.25	-36.07		782150.12	6650117.13
SECTOR 2	129	20	-30.33	-36.05	24J	783682.72	6641256.12
			-30.33	-36.07		781692.97	6641363.20
			-30.24	-36.07		782220.39	6651346.95
			-30.24	-36.05		784212.25	6651251.00
SECTOR 2	131	20	-30.26	-36.12	24J	777079.87	6648848.77
			-30.26	-36.17		772087.59	6649107.32
			-30.22	-36.17		772293.09	6653107.42
			-30.22	-36.12		777286.92	6652837.83
SECTOR 2	132	20	-30.24	-36.17	24J	772198.06	6651223.68
			-30.24	-36.22		767205.07	6651491.00
			-30.20	-36.22		767418.08	6655479.73
			-30.20	-36.17		772413.17	6655223.53
SECTOR 2	137	20	-30.20	-36.20	24J	769747.09	6655356.07
			-30.20	-36.25		764761.89	6655621.90
			-30.17	-36.25		764973.90	6659610.60
			-30.17	-36.20		769961.20	6659355.89
SECTOR 2	139	20	-30.17	-36.24	24J	765753.74	6659569.56
			-30.17	-36.29		760757.06	6659833.66

			-30.13	-36.29		760967.78	6663833.40
			-30.13	-36.24		765956.65	6663569.57
SECTOR 2	140	20	-30.13	-36.26	24J	763847.32	6663675.89
			-30.13	-36.31		758848.81	6663938.99
			-30.09	-36.31		759058.73	6667938.70
			-30.09	-36.26		764059.07	6667675.64
SECTOR 2	141	20	-30.09	-36.31	24J	759058.73	6667938.70
			-30.09	-36.36		754068.00	6668199.26
			-30.06	-36.36		754285.46	6672187.62
			-30.06	-36.31		759278.01	6671927.09
SECTOR 2	142	20	-30.06	-36.35	24J	755837.21	6672107.34
			-30.05	-36.40		750844.65	6672366.30
			-30.02	-36.40		751061.10	6676365.71
			-30.02	-36.35		756045.59	6676095.92
SECTOR 2	143	20	-30.02	-36.38	24J	752594.13	6676286.37
			-30.02	-36.43		747609.37	6676543.51
			-29.98	-36.43		747814.66	6680532.02
			-29.98	-36.38		752801.23	6680274.91
SECTOR 2	144	20	-30.02	-36.43	24J	747609.37	6676543.51
			-30.02	-36.45		745613.48	6676643.56
			-29.93	-36.45		746134.77	6686625.65
			-29.93	-36.43		748132.48	6686525.63
SECTOR 2	145	20	-30.00	-36.45	24J	745733.06	6678981.27
			-30.00	-36.47		743736.74	6679080.95
			-29.90	-36.47		744256.20	6689063.00
			-29.91	-36.45		746254.34	6688963.35
SECTOR 2	146	20	-29.93	-36.47	24J	744135.85	6686669.88
			-29.93	-36.52		739146.53	6686922.88
			-29.89	-36.52		739348.78	6690922.39
			-29.89	-36.47		744339.66	6690658.33
SECTOR 2	147	20	-29.89	-36.47	24J	744339.66	6690658.33
			-29.89	-36.52		739348.78	6690922.39
			-29.85	-36.52		739560.44	6694910.59
			-29.85	-36.47		744553.13	6694646.56
SECTOR 2	148	20	-29.85	-36.46	24J	745731.35	6694587.29
			-29.85	-36.51		740738.68	6694851.86
			-29.82	-36.51		740941.09	6698840.26
			-29.82	-36.46		745935.57	6698575.72
SECTOR 2	149	20	-29.82	-36.40	24J	750930.26	6698320.01
			-29.82	-36.46		745935.57	6698575.72
			-29.78	-36.45		746140.02	6702575.22

			-29.78	-36.40		751136.27	6702308.46
SECTOR 2	150	20	-29.78	-36.40	24J	751136.27	6702308.46
			-29.78	-36.45		746140.02	6702575.22
			-29.75	-36.45		746353.89	6706563.40
			-29.75	-36.40		751342.50	6706307.97

GEOGRAPHICAL COORDINATES - SECTOR 03

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 3	45	20	-30.96	-35.02	25J	306612.04	6573494.21
			-30.96	-35.08		301604.16	6573490.68
			-30.92	-35.08		301606.00	6577494.10
			-30.92	-35.02		306606.21	6577497.36
SECTOR 3	46	20	-30.95	-34.98	25J	310609.92	6573854.47
			-30.95	-35.02		306605.59	6573848.95
			-30.91	-35.02		306610.33	6578850.33
			-30.91	-34.98		310607.18	6578844.49
SECTOR 3	47	20	-30.92	-35.23	25J	286603.96	6577492.44
			-30.92	-35.29		281612.41	6577491.08
			-30.88	-35.28		281606.89	6581494.89
			-30.88	-35.23		286609.87	6581496.33
SECTOR 3	48	20	-30.92	-35.18	25J	291604.88	6577491.64
			-30.92	-35.23		286603.96	6577492.44
			-30.88	-35.23		286609.87	6581496.33
			-30.88	-35.18		291612.67	6581495.43
SECTOR 3	49	20	-30.92	-35.13	25J	296605.63	6577488.50
			-30.92	-35.18		291604.88	6577491.64
			-30.88	-35.18		291612.67	6581495.43
			-30.88	-35.13		296605.74	6581492.00
SECTOR 3	50	20	-30.92	-35.08	25J	301606.00	6577494.10
			-30.92	-35.13		296605.63	6577488.50
			-30.88	-35.13		296605.74	6581492.00
			-30.88	-35.08		301607.98	6581497.50
SECTOR 3	51	20	-30.92	-35.02	25J	306606.21	6577497.36
			-30.92	-35.08		301606.00	6577494.10
			-30.88	-35.08		301607.98	6581497.50
			-30.88	-35.02		306610.27	6581489.57
SECTOR 3	52	20	-30.88	-35.28	25J	281606.89	6581494.89
			-30.88	-35.34		276603.73	6581491.10
			-30.84	-35.34		276606.05	6585495.19
			-30.84	-35.28		281611.31	6585487.78
SECTOR 3	53	20	-30.88	-35.23	25J	286609.87	6581496.33
			-30.88	-35.28		281606.89	6581494.89
			-30.84	-35.28		281611.31	6585487.78
			-30.84	-35.23		286606.59	6585488.92
SECTOR 3	54	20	-30.88	-35.18	25J	291612.67	6581495.43

			-30.88	-35.23		286609.87	6581496.33
			-30.84	-35.23		286606.59	6585488.92
			-30.85	-35.18		291611.26	6585487.92
SECTOR 3	55	20	-30.88	-35.13	25J	296605.74	6581492.00
			-30.88	-35.18		291612.67	6581495.43
			-30.85	-35.18		291611.26	6585487.92
			-30.85	-35.13		296605.98	6585495.48
SECTOR 3	56	20	-30.88	-35.08	25J	301607.98	6581497.50
			-30.88	-35.13		296605.74	6581492.00
			-30.85	-35.13		296605.98	6585495.48
			-30.85	-35.07		301610.31	6585489.79
SECTOR 3	57	20	-30.84	-35.39	25J	271610.40	6585489.37
			-30.84	-35.44		266604.76	6585492.09
			-30.80	-35.44		266613.06	6589496.60
			-30.81	-35.39		271611.00	6589493.55
SECTOR 3	58	20	-30.84	-35.34	25J	276606.05	6585495.19
			-30.84	-35.39		271610.40	6585489.37
			-30.81	-35.39		271611.00	6589493.55
			-30.81	-35.34		276608.75	6589488.17
SECTOR 3	59	20	-30.84	-35.28	25J	281611.31	6585487.78
			-30.84	-35.34		276606.05	6585495.19
			-30.81	-35.34		276608.75	6589488.17
			-30.81	-35.28		281606.08	6589491.54
SECTOR 3	60	20	-30.84	-35.23	25J	286606.59	6585488.92
			-30.84	-35.28		281611.31	6585487.78
			-30.81	-35.28		281606.08	6589491.54
			-30.81	-35.23		286612.80	6589492.77
SECTOR 3	61	20	-30.85	-35.18	25J	291611.26	6585487.92
			-30.84	-35.23		286606.59	6585488.92
			-30.81	-35.23		286612.80	6589492.77
			-30.81	-35.18		291609.78	6589491.48
SECTOR 3	62	20	-30.80	-35.44	25J	266613.06	6589496.60
			-30.80	-35.49		261605.35	6589497.10
			-30.77	-35.49		261612.19	6593490.61
			-30.77	-35.44		266612.19	6593489.78
SECTOR 3	63	20	-30.81	-35.39	25J	271611.00	6589493.55
			-30.80	-35.44		266613.06	6589496.60
			-30.77	-35.44		266612.19	6593489.78
			-30.77	-35.39		271611.76	6593497.71
SECTOR 3	64	20	-30.81	-35.34	25J	276608.75	6589488.17
			-30.81	-35.39		271611.00	6589493.55

			-30.77	-35.39		271611.76	6593497.71
			-30.77	-35.33		276611.38	6593492.21
SECTOR 3	65	20	-30.80	-35.49	25J	261605.35	6589497.10
			-30.80	-35.53		257612.43	6589496.12
			-30.76	-35.53		257604.79	6594487.80
			-30.76	-35.49		261609.14	6594488.88
SECTOR 3	68	20	-30.77	-35.44	25J	266612.19	6593489.78
			-30.77	-35.49		261612.19	6593490.61
			-30.73	-35.49		261609.37	6597494.97
			-30.73	-35.44		266611.24	6597494.03
SECTOR 3	69	20	-30.77	-35.39	25J	271611.76	6593497.71
			-30.77	-35.44		266612.19	6593489.78
			-30.73	-35.44		266611.24	6597494.03
			-30.73	-35.39		271612.91	6597490.76
SECTOR 3	70	20	-30.77	-35.33	25J	276611.38	6593492.21
			-30.77	-35.39		271611.76	6593497.71
			-30.73	-35.39		271612.91	6597490.76
			-30.73	-35.33		276604.57	6597496.04
SECTOR 3	74	20	-30.76	-35.49	25J	261609.14	6594488.88
			-30.76	-35.53		257604.79	6594487.80
			-30.71	-35.53		257606.72	6599490.75
			-30.71	-35.49		261612.93	6599491.71
SECTOR 3	75	20	-30.81	-35.31	25J	278609.48	6589496.49
			-30.81	-35.34		276608.75	6589488.17
			-30.72	-35.33		276610.92	6599492.60
			-30.72	-35.31		278604.17	6599489.53
SECTOR 3	76	20	-30.73	-35.44	25J	266611.24	6597494.03
			-30.73	-35.49		261609.37	6597494.97
			-30.70	-35.49		261606.96	6601488.23
			-30.70	-35.44		266610.44	6601498.26
SECTOR 3	77	20	-30.73	-35.39	25J	271612.91	6597490.76
			-30.73	-35.44		266611.24	6597494.03
			-30.70	-35.44		266610.44	6601498.26
			-30.70	-35.38		271604.39	6601494.67
SECTOR 3	78	20	-30.73	-35.33	25J	276604.57	6597496.04
			-30.73	-35.39		271612.91	6597490.76
			-30.70	-35.38		271604.39	6601494.67
			-30.70	-35.33		276607.73	6601488.95

GEOGRAPHICAL COORDINATES - SECTOR 04

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 4	13	20	-31.21	-34.05	25J	400086.10	6546340.12
			-31.21	-34.10		395084.44	6546335.82
			-31.18	-34.10		395092.25	6550337.55
			-31.18	-34.05		400086.27	6550341.71
SECTOR 4	22	20	-31.18	-34.10	25J	395092.25	6550337.55
			-31.18	-34.15		390088.49	6550342.01
			-31.14	-34.15		390084.95	6554343.67
			-31.14	-34.10		395090.60	6554339.16
SECTOR 4	23	20	-31.18	-34.05	25J	400086.27	6550341.71
			-31.18	-34.10		395092.25	6550337.55
			-31.14	-34.10		395090.60	6554339.16
			-31.14	-34.05		400086.52	6554343.26
SECTOR 4	29	20	-31.14	-34.15	25J	390084.95	6554343.67
			-31.14	-34.21		385088.85	6554334.83
			-31.10	-34.21		385083.49	6558336.52
			-31.10	-34.15		390091.13	6558334.32
SECTOR 4	34	20	-31.14	-34.06	25J	399085.41	6554344.83
			-31.14	-34.10		395090.60	6554339.16
			-31.10	-34.10		395088.66	6559338.37
			-31.10	-34.06		399085.37	6559343.99
SECTOR 4	35	20	-31.10	-34.21	25J	385083.49	6558336.52
			-31.10	-34.26		380085.29	6558336.46
			-31.07	-34.26		380087.65	6562338.29
			-31.07	-34.20		385087.74	6562338.29
SECTOR 4	36	20	-31.10	-34.15	25J	390091.13	6558334.32
			-31.10	-34.21		385083.49	6558336.52
			-31.07	-34.20		385087.74	6562338.29
			-31.07	-34.15		390087.73	6562335.94
SECTOR 4	40	20	-31.10	-34.06	25J	399085.37	6559343.99
			-31.10	-34.10		395088.66	6559338.37
			-31.05	-34.10		395086.84	6564337.54
			-31.05	-34.06		399085.43	6564343.12
SECTOR 4	41	20	-31.07	-34.10	25J	395085.00	6561632.86
			-31.07	-34.15		390085.43	6561637.57
			-31.04	-34.15		390091.64	6565639.27
			-31.04	-34.10		395083.55	6565634.41

GEOGRAPHICAL COORDINATES - SECTOR 05

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 5	6	20	-31.54	-34.30	25J	376652.42	6509707.41
			-31.54	-34.35		371648.55	6509713.35
			-31.50	-34.35		371646.65	6513715.56
			-31.50	-34.30		376652.45	6513709.56
SECTOR 5	7	20	-31.52	-34.35	25J	371652.41	6511708.98
			-31.52	-34.40		366647.47	6511712.54
			-31.49	-34.40		366653.19	6515714.92
			-31.49	-34.35		371650.56	6515711.17
SECTOR 5	8	20	-31.49	-34.35	25J	371650.56	6515711.17
			-31.49	-34.40		366653.19	6515714.92
			-31.45	-34.40		366649.65	6519706.07
			-31.45	-34.35		371648.79	6519713.34
SECTOR 5	9	20	-31.48	-34.40	25J	366648.37	6516091.81
			-31.48	-34.45		362648.32	6516095.28
			-31.44	-34.45		362648.99	6521095.46
			-31.44	-34.40		366650.95	6521091.92
SECTOR 5	10	20	-31.44	-34.42	25J	365358.11	6521097.49
			-31.44	-34.47		360358.02	6521098.32
			-31.40	-34.47		360361.56	6525100.73
			-31.40	-34.42		365363.57	6525099.84
SECTOR 5	11	20	-31.40	-34.43	25J	363651.87	6525099.82
			-31.40	-34.49		358649.83	6525099.90
			-31.36	-34.49		358652.96	6529091.23
			-31.36	-34.43		363647.40	6529090.96

GEOGRAPHICAL COORDINATES - SECTOR 06

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 6	12	20	-31.20	-35.15	25J	295347.74	6546633.07
			-31.19	-35.25		285346.44	6546633.67
			-31.18	-35.25		285343.91	6548630.08
			-31.18	-35.15		295347.11	6548629.38
SECTOR 6	16	20	-31.18	-35.20	25J	290350.37	6548631.01
			-31.18	-35.25		285343.91	6548630.08
			-31.14	-35.25		285348.29	6552634.16
			-31.14	-35.20		290347.10	6552634.79
SECTOR 6	17	20	-31.18	-35.15	25J	295347.11	6548629.38
			-31.18	-35.20		290350.37	6548631.01
			-31.14	-35.20		290347.10	6552634.79
			-31.14	-35.15		295345.74	6552633.06
SECTOR 6	18	20	-31.18	-35.06	25J	303728.43	6548633.49
			-31.18	-35.11		298722.44	6548638.91
			-31.14	-35.11		298722.56	6552631.44
			-31.14	-35.06		303730.24	6552637.01
SECTOR 6	19	20	-31.18	-34.94	25J	314693.00	6548632.33
			-31.18	-35.00		309687.58	6548631.86
			-31.14	-35.00		309691.64	6552635.26
			-31.15	-34.94		314689.43	6552635.46
SECTOR 6	20	20	-31.18	-34.89	25J	319688.74	6548630.25
			-31.18	-34.94		314693.00	6548632.33
			-31.15	-34.94		314689.43	6552635.46
			-31.15	-34.89		319687.06	6552633.30
SECTOR 6	21	20	-31.18	-34.84	25J	324684.14	6548636.90
			-31.18	-34.89		319688.74	6548630.25
			-31.15	-34.89		319687.06	6552633.30
			-31.15	-34.84		324684.35	6552639.86
SECTOR 6	24	20	-31.15	-34.97	25J	312104.74	6552634.13
			-31.14	-35.08		302108.64	6552640.00
			-31.13	-35.08		302109.39	6554636.23
			-31.13	-34.97		312107.38	6554630.26
SECTOR 6	27	20	-31.14	-35.11	25J	298722.56	6552631.44
			-31.14	-35.16		293724.05	6552634.77
			-31.11	-35.16		293722.20	6556638.46
			-31.11	-35.11		298722.61	6556635.03
SECTOR 6	28	20	-31.13	-34.97	25J	312107.38	6554630.26

			-31.13	-35.08		302109.39	6554636.23
			-31.11	-35.08		302110.18	6556632.44
			-31.11	-34.97		312109.86	6556637.47

GEOGRAPHICAL COORDINATES - SECTOR 07

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 7	14	20	-31.20	-35.63	25J	249024.85	6545753.26
			-31.19	-35.68		245028.59	6545757.13
			-31.15	-35.67		245022.05	6550760.79
			-31.15	-35.63		249020.21	6550756.80
SECTOR 7	15	20	-31.20	-35.59	25J	253020.72	6545758.96
			-31.20	-35.63		249024.85	6545753.26
			-31.15	-35.63		249020.21	6550756.80
			-31.15	-35.59		253027.76	6550751.51
SECTOR 7	25	20	-31.15	-35.69	25J	244020.17	6550758.73
			-31.15	-35.74		239019.92	6550758.29
			-31.11	-35.74		239026.19	6554752.80
			-31.11	-35.68		244028.33	6554753.11
SECTOR 7	26	20	-31.15	-35.58	25J	254020.03	6550752.50
			-31.15	-35.63		249020.21	6550756.80
			-31.11	-35.63		249020.45	6554761.91
			-31.12	-35.58		254022.16	6554757.49
SECTOR 7	30	20	-31.11	-35.79	25J	234023.55	6554761.22
			-31.11	-35.84		229020.97	6554756.18
			-31.07	-35.84		229023.36	6558762.02
			-31.07	-35.79		234028.12	6558755.84
SECTOR 7	31	20	-31.11	-35.74	25J	239026.19	6554752.80
			-31.11	-35.79		234023.55	6554761.22
			-31.07	-35.79		234028.12	6558755.84
			-31.08	-35.74		239022.82	6558758.15
SECTOR 7	32	20	-31.11	-35.68	25J	244028.33	6554753.11
			-31.11	-35.74		239026.19	6554752.80
			-31.08	-35.74		239022.82	6558758.15
			-31.08	-35.68		244026.85	6558758.33
SECTOR 7	33	20	-31.11	-35.63	25J	249020.45	6554761.91
			-31.11	-35.68		244028.33	6554753.11
			-31.08	-35.68		244026.85	6558758.33
			-31.08	-35.63		249021.12	6558755.92

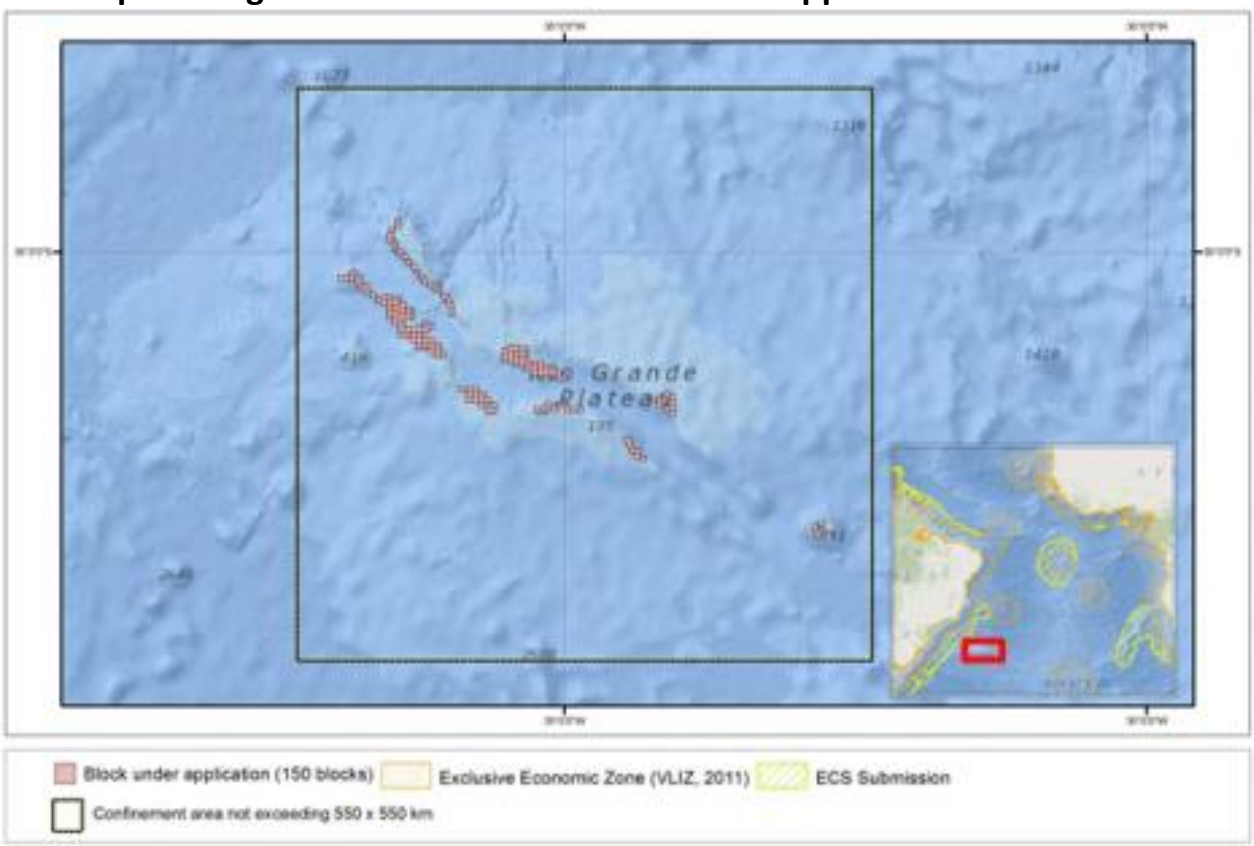
SECTOR 7	37	20	-31.07	-35.79	25J	234028.12	6558755.84
			-31.07	-35.84		229023.36	6558762.02
			-31.04	-35.84		229026.23	6562756.76
			-31.04	-35.79		234023.04	6562761.29
SECTOR 7	38	20	-31.08	-35.74	25J	239022.82	6558758.15
			-31.07	-35.79		234028.12	6558755.84
			-31.04	-35.79		234023.04	6562761.29
			-31.04	-35.73		239019.90	6562752.38
SECTOR 7	39	20	-31.08	-35.68	25J	244026.85	6558758.33
			-31.08	-35.74		239022.82	6558758.15
			-31.04	-35.73		239019.90	6562752.38
			-31.04	-35.68		244025.81	6562752.44
SECTOR 7	42	20	-31.04	-35.84	25J	229026.23	6562756.76
			-31.04	-35.89		224028.91	6562760.96
			-31.00	-35.89		224020.53	6566755.56
			-31.00	-35.84		229019.73	6566751.23
SECTOR 7	43	20	-31.04	-35.79	25J	234023.04	6562761.29
			-31.04	-35.84		229026.23	6562756.76
			-31.00	-35.84		229019.73	6566751.23
			-31.00	-35.79		234027.97	6566755.87
SECTOR 7	44	20	-31.04	-35.73	25J	239019.90	6562752.38
			-31.04	-35.79		234023.04	6562761.29
			-31.00	-35.79		234027.97	6566755.87
			-31.00	-35.73		239026.43	6566757.92

GEOGRAPHICAL COORDINATES - SECTOR 08

SECTOR	BLOCK	AREA (km²)	LATITUDE	LONGITUDE	ZONE	X (UTM)	Y (UTM)
SECTOR 8	1	20	-32.09	-32.80	25H	519023.72	6449637.14
			-32.09	-32.85		514022.42	6449634.18
			-32.05	-32.85		514027.93	6453635.64
			-32.05	-32.80		519021.75	6453638.63
SECTOR 8	2	20	-32.07	-32.69	25H	529022.64	6451642.01
			-32.07	-32.80		519027.46	6451643.42
			-32.05	-32.80		519021.75	6453638.63
			-32.05	-32.69		529028.33	6453637.21
SECTOR 8	3	20	-32.05	-32.76	25H	522873.34	6453641.80
			-32.05	-32.86		512876.24	6453637.16
			-32.04	-32.86		512878.78	6455643.43
			-32.04	-32.76		522877.81	6455636.98

SECTOR 8	4	20	-32.04	-32.82	25H 25J	516627.22	6455638.00
			-32.04	-32.88		511622.99	6455633.85
			-32.00	-32.88		511627.55	6459635.28
			-32.00	-32.82		516624.30	6459639.45
SECTOR 8	5	20	-32.02	-32.77	25H 25J	521626.07	6457546.23
			-32.02	-32.82		516630.35	6457555.59
			-31.98	-32.82		516627.40	6461545.94
			-31.98	-32.77		521625.10	6461547.67

2.2. Map of the general location of the area under application



3. Plan of Work

Summary of Plan of Work for Exploration including the Programme of Activities for the first and/or the current 5-year period (Regulation 18).

1. GENERAL DESCRIPTION OF PLAN OF WORK

The plan of work is divided in 3 stages and its activities span a period of 15 years. Its aim is to develop exploration activities of cobalt-rich ferromanganese crusts through geological and environmental studies in the blocks.

Two sub-areas will be explored on the RGR are labelled Alpha and Bravo. Alpha is the most extensive sub-area of the two.

Additional physical data on Bravo will be made available as the activities of this plan of work develop.

2. SCHEDULE OF EXPLORATION

The Plan of Work is divided into 3 phases of 5 years each. The activities planned for Phases II and III can be adapted to address specific needs arising from the results of Phase I (the first five years).

- **Phase I (years 1-5)**

  In this phase, prospection will be conducted on a regional scale in order to identify target areas and collect environmental parameters. Expeditions of up to 120 days at sea are planned, and these will carry out geological and environmental studies. During the expeditions, data will be collected using hydro-acoustic and geo-acoustic, among other methods (deep water multibeam echo sounding, bathymetry, backscatter data, gravimetry, magnetometry, high-resolution seismic reflection, measurement of chemical, physical, and climatic oceanographic parameters, etc.).

  The following sampling equipment will be used in the expeditions: circular and rectangular trawl dredges and other specific sampling devices (piston core and box core). Footages of the substrate will be made using video cameras installed on remotely operated vehicles (ROV and/or AUV).

  Phase I is subdivided as follows:

  Years 1 and 2:

  Expeditions to acquire geophysical and oceanographic data in the proposed area, using hydro-acoustic and geo-acoustic methods. This first phase of the studies also includes water

sampling and measurements of physical oceanographic, thermodynamic and kinematic parameters.

After each expedition, the collected data will be processed, integrated and interpreted. The data on aspects such as seafloor slope, reflectivity of the substrate and distribution of surface sediments will be used to establish a plan of sampling and filming the ocean floor.

Years 3 and 4:

Expeditions will carry out sampling and filming of the ocean floor and will conduct mineralogical, petrographic and geochemical assays, as well as stratigraphic, environmental and isotopic studies. All geophysical data will then be processed and interpreted.

Year 5:

The data collected/generated will be integrated and compiled. The final compilation will be used to generate a geospatial database and define the main areas of interest for exploration. If necessary, additional expeditions will be conducted to address any information gap about the proposed areas.

- **Phase II (years 6 to 10)**

Evaluation of the mineralogical, structural, and geomorphological/environmental characteristics of the areas of interest. All necessary geological and geophysical surveys for assessing the mineral resource reserves will be conducted in this phase.

- **Phase III (years 11 to 15)**

Selection of areas for a study of the economic, environmental and technical feasibility of the mineral deposits. In addition, ore recovery systems will be assessed to determine the need for adaptations to the plan of work in order to allow exploitation activities, in accordance with the specific regulations to be approved by the Authority in the future.

Table 1: Original CPRM plan of work as approved 2015

Activity	2016	2017	2018	2019	2020	after
1. Oceanographic data	X	X				
2. Pelagic communities - sampling	X	X				
3. Benthic/benthopelagic communities: photo and video survey	X	X		X	X	
4. Benthic/benthopelagic communities: biological sampling			X	X	X	
5. Environmental evaluation of the impacts of test mining						X
6. Proposal of an environmental monitoring programme						X

Table 2: Detailed programme of the physical implementation of the initial five-year of activities. OG, ongoing activities; NI, not initiated; IED, initiated with existing data (public and previously collected by CPRM).

STAGE	ACTIVITY	Year 1	Year 2	Year 3	Year 4	Year 5
1. Operational planning	1.1 Collection and analysis of bibliographic data	OG	OG	OG	OG	OG
	1.2 Elaboration of environmental map base	OG	OG	OG	OG	OG
	1.3 Acquisition of equipment and services	OG	OG	OG	OG	OG
	1.4 Planning of data collection	OG	OG	OG	OG	OG
2. Data collection and processing	2.1 Acoustic survey	OG	OG	OG	OG	OG
	2.2 Seismic – high resolution	OG	OG	OG	OG	OG
	2.3 Bathymetry	OG	OG	OG	OG	OG
	2.4 Biological and geological sampling	NI	NI	OG	NI	OG
3. Data processing, interpretation and integration	3.1 Processing of collected data	IED	IED	IED	OG	OG
	3.2 Interpretation of results	IED	IED	IED	IED	OG
	3.3 Data integration and geoprocessing	IED	IED	IED	IED	OG
4. Reports and publications	4.1 Preparation of reports	OG	OG	OG	OG	OG
	4.2 Publication of results	NI	NI	NI	OG	OG

Scheduled in the original Plan of Work

Adjustments to the original Plan of Work

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 - 2016	Second-2017	Third-2018	Fourth-2019	Fifth-2020
General Objectives	**Objective**		**Description**		
Expeditions to acquire geophysical and oceanographic data in the exploration area.	General exploration		Processing and interpreting geophysical and geological data.		

5-year Programme of Activities	First - 2016	Second-2017	Third-2018	Fourth-2019	Fifth-2020
General Objectives	**Objective**		**Description**		
Expeditions to acquire geophysical and oceanographic data in the exploration area	General exploration		Expeditions to acquire geophysical and oceanographic data in the proposed area. Processing and interpreting geophysical and geological data.		

5-year Programme of Activities	First - 2016	Second-2017	Third-2018	Fourth-2019	Fifth-2020
General Objectives	**Objective**		**Description**		
Expeditions to sampling and filming of the ocean floor. Studies about mineralogical, petrographic and geochemical	General exploration; Environmental baseline survey		Expeditions to acquire geophysical, oceanographic and Enviromental data in the proposed area. Processing and interpreting geophysical, geological, oceanographic and biologic data.		

5-year Programme of Activities	First - 2016	Second-2017	Third-2018	Fourth-2019	Fifth-2020
General Objectives	**Objective**		**Description**		
Expeditions to sampling and filming of the ocean floor. Studies about mineralogical, petrographic and geochemical	General exploration; Training Program		Expeditions to acquire geophysical and oceanographic data in the proposed area. Processing and interpreting geophysical and geological data. offered four (4) training opportunities to candidates from developing countries. Beginning of the At-Sea training program.		

5-year Programme of Activities	First - 2016	Second-2017	Third-2018	Fourth-2019	Fifth-2020
General Objectives	**Objective**		**Description**		
Compilation and integration of data. Geospatial database and define the main areas of interest for exploration.	General exploration		Expeditions to acquire geophysical and oceanographic data in the proposed area. Processing and interpreting geophysical and geological data.		

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

Annual objectives and activities			
Year	**No.**	**Agreed Objectives**	**Objective: Completed, Modified, Postponed or Replaced**
2016	1	Expeditions to acquire geophysical and oceanographic data in the proposed area, using hydro-acoustic and geo-acoustic methods. This first phase of the studies also includes water sampling and measurements of physical oceanographic, thermodynamic and kinematic parameters. After each expedition, the collected data will be processed, integrated and interpreted. The data on aspects such as seafloor slope, reflectivity of the substrate and distribution of surface sediments will be used to establish a plan of sampling and filming the ocean floor.	**Adjustment**: In 2016, field activities established in the Plan of Work were not initiated and therefore there was no collection of new geological or environmental data in the contract area. Instead, a broad overview of geological, geophysical and oceanographic characteristics of the exploration area was constructed, to provide necessary basis for future cruise design and environmental mapping. Also, such overview is crucial for comparing the existing knowledge with data to be acquired. None of the planned training opportunities were made available in 2016, but CPRM supported participation of Brazilian trainees and scientists in international cooperation activities in the Area, including (a) ISA/JOGMEC At-sea Training Programme, (b) Expedition 363 of the International Ocean Discovery Program (IODP) and (c) two workshops on the development of a Strategic Environmental Plan in the Atlantic (SEMPIA). **Achieved:** Processing and interpreting previously collected geophysical and geological data. **Comments**: Products of this work have been used in the process of planning of the upcoming oceanographic cruises and include (a) bathymetric and topographic descriptions, (b) geological characterization of sediment/ rock distribution, and (c) crustal thickness variation in the Rio Grande Rise area. **Achieved:** Description of samples of Fe-Mn crusts and nodules previously collected in the Rio Grande Rise area. **Comments**: Contents in the Rio Grande Rise are as high as those reported for the Pacific and Indian oceans, implying that this area has a high potential for Cobalt research. **Achieved:** Participation in the pilot cruise of the research vessel 'Vital de Oliveira'. **Comments**: The aim of this cruise was to test acoustic instruments (multibeam sonar, sub-bottom profiler, gravimeter, magnetometer, LADCP) and samplers (CTD, Rosette setting and piston corers) in deep areas off the Brazilian Continental margin. The pilot cruise collected geophysical hydroacoustic data along an area of approximately 73,179 km² (MBES data) and along a linear distance of 8,922 km (SBP data) producing high resolution seafloor bathymetry maps, expanding current descriptions of the morphology of Rio Grande Rise, Vema Channel and other topographic features of the Southwest Atlantic. **Achieved:** Compilation of available environmental information and knowledge about the Rio Grande Rise, including pelagic and benthic environments and biophysical processes. **Comments**: The study revealed a considerable number of published maps of physical and chemical properties of the water column, distributed along meridional and latitudinal transects in the vicinity or across the Rio Grande Rise area that represent important references against which environmental data, to be collected in the exploration area, can be compared **Achieved:** Practical methods for the assessment of environmental harm potentially caused by exploration activities, (e.g. operation of biological and rock dredges) over specific benthic habitats of the contract area were conceptually developed, taking into consideration methods for 'Environmental Risk Assessments'. **Comments**: **Achieved:** Total disbursement of 3,903.55 million dollars (USD). **Comments**: The amount invested was 14.6% higher than the value originally projected for the year, with 98.47% spent in logistics, purchased goods and contracted services for the preparation and

			technical evaluation of the Research Vessel Vital de Oliveira and its equipment.
2017	2	Expeditions to acquire geophysical and oceanographic data in the proposed area, using hydro-acoustic and geo-acoustic methods. This first phase of the studies also includes water sampling and measurements of physical oceanographic, thermodynamic and kinematic parameters. After each expedition, the collected data will be processed, integrated and interpreted. The data on aspects such as seafloor slope, reflectivity of the substrate and distribution of surface sediments will be used to establish a plan of sampling and filming the ocean floor.	**Adjustment**: The at-sea activities described in the Plan of Work has not initiated in 2017, therefore there is no new geological or environmental data collected in the contract area. Considering political, economic, technical and logistic issues, which strongly affected the execution of its activities, CPRM had to do some modifications and adjustments to the Programme of activities for the first five-year period and the expenditures. Some of the planned activities for 2017 has carried out in previous data and will be complemented by the cruise legs in the next years. Thus, CPRM focused on planning the exploration activities for the following years, while gathering all existing information on the environment of the exploration area. Products of previews work have been used in the process of planning of the upcoming environmental and oceanographic cruises that include: a. bathymetric and topographic descriptions; b. geological characterization of sediment/ rock distribution; c. crustal thickness variation in the Rio Grande Rise area; and d. biological characterization. Regarding environmental baseline studies, a preliminary Environmental Risk assessment compiled and synthesized available environmental information and knowledge about the Rio Grande Rise, including pelagic and benthic environments and biophysical processes **Achieved:** Structuring the research network for the planning and execution of the environmental studies Technical visit to the R/V Vital de Oliveira to evaluate the instruments and operational conditions for the activities planned in PROERG-Environmental Compilation of protocols for the Collection of Samples and Data for the Construction of the Environmental Baseline Compilation of protocols for Preventive Actions Against Pollution and Other Impacts to the Marine Environment Elaboration of the Scientific and Operational Plan for the Execution of the PROERG-AMB I and PROERG-AMB II Cruisers Cruise Plan with the R/V Vital de Oliveira Characterization of the properties of the water column (physical and Chemical Data) from literature and previous data Study of sediment properties from literature and previous data Characterzation of microbiota present in the Water Column (bacterium, phyto and microzooplankton) from previous data and literature Characterization of Benthic Habitats and Communities (megafauna) from literature and previous data Participation of Brazilian trainees and scientists in international cooperation activities in the Area **Achieved:** Total disbursement in 2017 was 954.000,00 dollars (USD). **Comments**: While the total amount invested was 50% lower than the value originally projected for the year, in some items, the value far exceeded the expected values, such as, 169% for staffing and personnel costs and 350.99% for environmental studies and training

2018	3	Expeditions will carry out sampling and filming of the ocean floor and will conduct mineralogical, petrographic and geochemical assays, as well as stratigraphic, environmental and isotopic studies. All geophysical data will then be processed and interpreted. Main fucus will be on establishing the environmental baseline, using oceanographic, biological and geological data and video imageing of the seafloor, while also conducting explorations activities with geophysics.	**Adjustment**: The activities on board of research vessels described in the Plan of Work started in 2018, which allowed the collection of new data, materials and geological and environmental information from samples collected in the contract area. As for the environmental baseline studies, in 2017 a preliminary environmental risks assessment was compiled and synthesized available environmental information and knowledge about the Rio Grande Rise, including pelagic and benthic environments and biophysical processes. **Achieved:** During the period from April to June 2018, CPRM promoted the oceanographic cruises PROERG AMB I and PROERG AMB II, with analysis of data, materials, samples, and information and oceanographic campaigns especially focused on the collection of data and information to development of the "Environmental Baseline". Both of these campaigns, PROERG AMB I and PROERG AMB II, were executed with the Research Vessel Vital de Oliveira (Brazilian Navy). **Comments**: was possible for CPRM to obtain data regarding (a) properties of the water column (889 water samples returning physical and chemical data) from 61 oceanographic strations; (b) sediment properties; (c) microbiota present in the water column (bacterium, phyto and microzooplankton) and (d) haracterization of benthic habitats and communities (megafauna) from 17 ROV dives, that also returned biological and geological samples. **Achieved:** In October 2018, the Companhia de Pesquisa de Recursos Minerais (CPRM), in accordance with the provisions of the Contract for the Exploration for Cobalt-Rich Ferromanganese Crusts, offered four (4) training opportunities to candidates from developing countries. **Comments**: This training programme aims to provide technical and scientific knowledge related to (i) research, processing and interpretation of physical marine and oceanographic geophysical data; and (ii) sampling, cataloging and analysis of geological, biological and chemical oceanographic data. The implementation of this training programme started in March of 2019. **Achieved:** Total disembursement in 2018 was of 2,512,426.50 USD. **Comments**:The investment increased and corresponded to approximately 136.03% of the amount originally projected for the year.
2019	4	Expeditions will carry out sampling and filming of the ocean floor and will conduct mineralogical, petrographic and geochemical assays, as well as stratigraphic, environmental and isotopic studies. All geophysical data will then be processed and interpreted. Main focus will be on establishing the environmental baseline, using oceanographic, biological and geological data and video imageing of the seafloor, while also conducting explorations activities with geophysics and beginning of Training Program	**Adjustment:** The execution of PROERG-AMB III campaign in 2019 was carried out on the R/V Vital de Oliveira. The main goal of the 2019 survey was to refine the central portion of the RGR, a region known for its enhanced water column spatial and temporal variability, with consequences to habitat distribution and sediment dynamics. **Achieved:** In 2019, the survey campaign PROERG-AMB III on the Rio Grande Rise and data interpretation and integration that followed were focused on the following stages: i) Characterization of water column properties (physical and chemical data); ii) Study of sediment properties; iii) Distribution of microbiota in the water column (phytoplankton); iv) Acquisition of hydroacoustic (MBES, SBP) data; v) Profiling for ocean currents. **Comments**: Overall, the campaign retrieved: 1) 6 oceanographic stations with CTD+LADCP casts; 2) 6 CTD and LADCP profiles reaching 20 from the bottom; 3) 18h and 74 km of navigation of hull ADCP data, reaching 400 m of water depth; 4) 5,490 km of navigation, SBP and meteorology data; 5) 27,639.77 km² of surveyed area with MBES; 6) 24 days of effective sounding; and 7) 24 days of fieldwork. **Achieved:** In April 2019, CPRM initiated its training programme activities, embarking 4 (four) candidates selected in February 2019. **Comments**: The candidate were trained in theoretical matters involving the geological evolution of the South Atlantic and the Rio Grande Rise, ocean dynamics, survey technics and data processing. Also, they actively

			participated in data acquisition, equipment use and casting, data processing aboard the ship, on-deck acquisition procedures and social off-shore behavior. **Achieved:** Total disbursement in 2019 was of 1,453,984.74 USD.
2020	5	Expeditions will carry out sampling and filming of the ocean floor and will conduct mineralogical, petrographic and geochemical assays, as well as stratigraphic, environmental and isotopic studies. All geophysical data will then be processed and interpreted. Main focus will be on establishing the environmental baseline, using oceanographic, biological and geological data and video imageing of the seafloor, while also conducting explorations activities with geophysics and continue with Training Program	**Adjustment**: The execution of PROERG-AMB IV and V campaign in 2019 was carried out on the R/V Vital de Oliveira. The main goal of the 2019 survey to acquire geophysical and oceanographic data in the proposed area, using hydro-acoustic and geo-acoustic methods was to refine the central portion of the RGR. **Achieved:** In 2020, the survey campaign PROERG-AMB IV and V on the Rio Grande Rise and data interpretation and integration that followed were focused on the following stages: i) Characterization of water column properties (physical and chemical data); ii) Study of sediment properties; iv) Acquisition of hydroacoustic (MBES, SBP) data; v) Profiling for ocean currents **Postponed:** Training Program: Postponed to 2022 because of global epidemic of COVID-19, it was not possible for CPRM to carry out all the activities planned in the currently year.

5. Training Programme

Schedule 3 of Annex III of the Regulations.

I. Training Programme

Type of training	At-Sea and On Land exploration of Cobalt-Rich Ferromanganese Crusts (CFRC) training on the Rio Grande Rise - CPRM/ISA
Institutions	CPRM, Brazilian Navy, FURG, CENPES-PETROBRAS
Duration	35 days
Scope	(i) survey, processing and interpretation of marine geophysics and physical oceanographic data; and (ii) sampling, cataloguing and analyses of geological, biological and chemical oceanographic data.
Fields	geology, marine biology, marine geophysics, oceanography or an equivalent educational background;
Qualification required	1. Education: an undergraduate degree in science or engineering in the relevant field of geology, marine biology, marine geophysics, oceanography or an equivalent educational background; 2. Language: sufficient knowledge (verbal and written) of English, Portuguese and/or Spanish for day-to-day communication and reporting; and 3. Health: Be of sound mental and physical health, suitable to work at-sea. If selected, trainees will be required to submit a physical examination report signed by a licensed physician, stating that the trainee is physically and mentally fit to participate in the at-sea training.
Financing	CPRM

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

Start year	End Year	Name of Trainee	Nationality	Gender	Type of Programme	Details	Duration
2019	2019	Adriane Gonçalves de Araújo Nunes Rangel	Brazil	female	At-sea/On land	Multibeam echosounder and subbottom profiler data acquisition, viewing and processing CTD and sediment station planning CTD casting and sample collection Processing of underway ADCP data Processing and interpretation of CTD profiles Box-corer casting Teamwork and offshore working routines	35 day
2019	2019	Alvaro Eduardo Silva Soares	Brazil	male	At-sea/On land		35 day
2019	2019	Muhammad Bin Hassan	Pakistan	male	At-sea/On land		35 day
2019	2019	Inyang Essien Inyang	Nigeria	male	At-sea/On land		35 day

III. Completed Trainings per Year

Years	At-Sea and On Land exploration of Cobalt-Rich Ferromanganese Crusts (CFRC) training on the Rio Grande Rise - CPRM/ISA
Year 1 (2016)	
Year 2 (2017)	
Year 3 (2018)	
Year 4 (2019)	4
Year 5 (2020)	

6. Standard clauses

Annex IV of the Regulations.

Standard clauses for exploration contra

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 Cobalt-rich Ferromanganese Crusts 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 cobalt crusts 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 cobalt crusts 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.

3.3 Notwithstanding the expiration of this contract in accordance with section 3.1 thereof, 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.

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 cobalt crusts 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 cobalt crusts 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 and cores of the cobalt crusts 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 and cores obtained during the course of exploration.

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 SecretaryGeneral:

(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;

(b) The estimation of mineable deposits, when such deposits have been identified, which shall include details of the grade and quantity of the proven, probable and possible cobalt crust 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 cobalt crusts recovered as samples or for the purpose of testing; and

(f) A statement on how and where samples of cores 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 vent 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 cobalt crusts 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.

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 electronic document 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.