I. ANNEX

ISA Contract for Exploration Public Information Template - UK1

UK Seabed Resources	Type of resource: PMN
	Name of Contractor: UK Seabed Resources
	Contract Start: 8 February 2013
Sponsoring State: UK	Contract End: 7 February 2028
	Location: CCZ

Contents

Introduction

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

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

UK Seabed Resources operates two exploration contracts in the CCZ. The content of this template contains contractual information for UK1 in order to enable the public to better understand the scope of activity.

1. Contract Information

Annex III of the Regulations.

Type of resource	Polymetallic Nodules
Name of Contractor	UK Seabed Resources
Contract Start	8 February 2013
Contract End	7 February 2028
Location	Clarion Clipperton Zone
Contract Area (km^2)	58,620 (UK1)

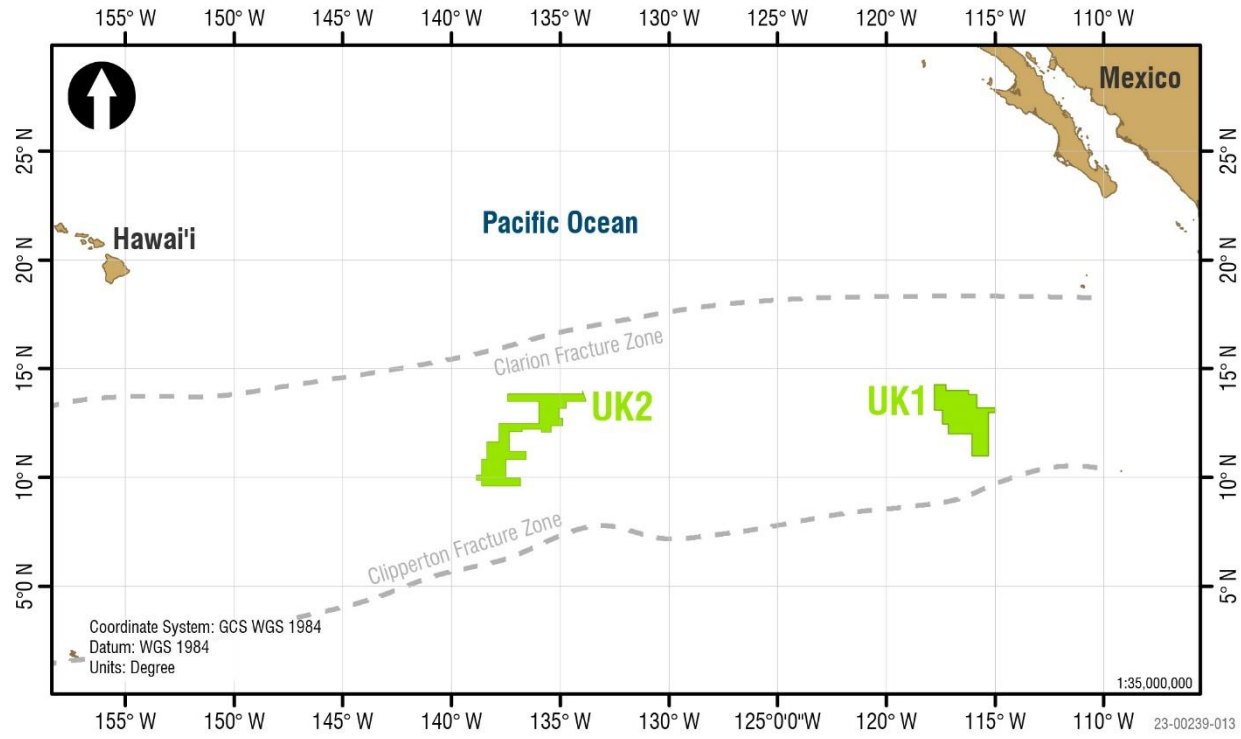
2. Coordinates and Illustrative Chart of the Exploration Area

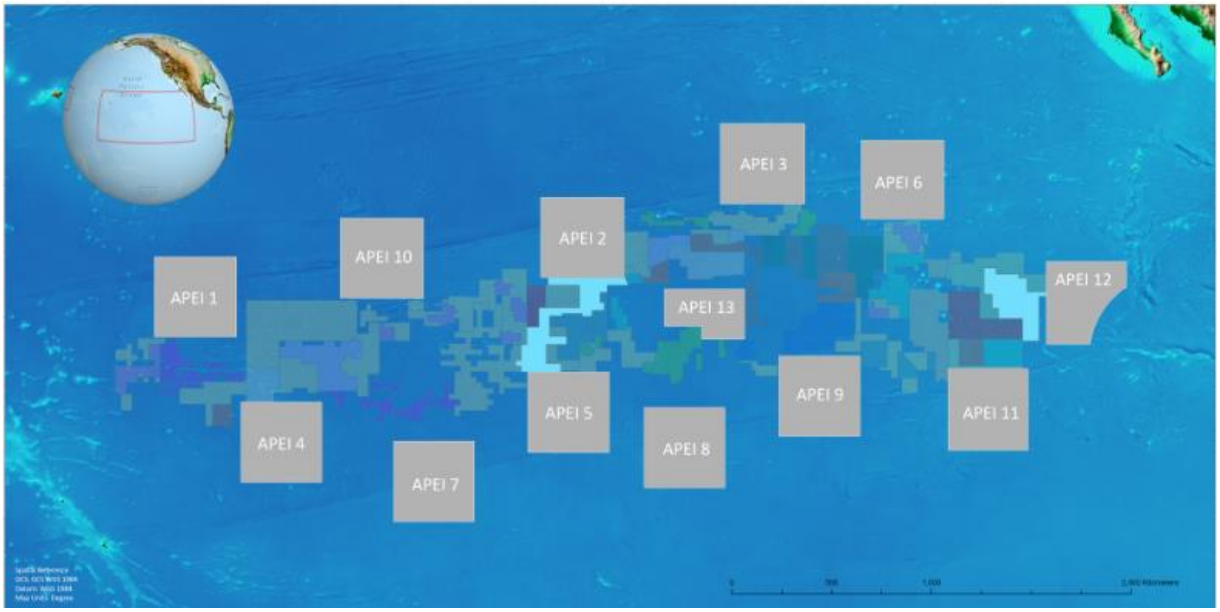
Schedule 1 of Annex III of the Regulations.

Geographic Coordinates (WGS84) Defining UK1 Contract Area – (11.00N, 115.00W & 14.28N, 117.80W)

Turning point	North Latitude	Longitude
1	11.00000	-116.06667
2	12.00000	-116.06667
3	12.00000	-117.16000
4	12.47000	-117.16000
5	12.47000	-117.44000
6	13.10000	-117.44000
7	13.10000	-117.80000
8	14.28000	-117.80000
9	14.28000	-117.26000
10	14.00000	-117.26000
11	14.00000	-116.24000
12	13.82000	-116.24000
13	13.82000	-115.87000
14	13.20000	-115.87000
15	13.20000	-115.00000
16	13.00000	-115.00000
17	13.00000	-115.33333
18	11.00000	-115.33333

Illustrative Chart of the UKSR Exploration Areas





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).

First 5-Year Plan of Work

This schematic summarises the first 5-year Plan of Work for Exploration for UK1.

	First 5 Year Plan of Work				
	2013	***2014***	***2015***	***2016***	***2017***
Expedition					
Planning Workshops	Benthic Biological Baseline Cruise Planning	Cruise Planning	Biological Baseline Cruise Planning	Mobility & Planarization Test	OMCO CCZ film digitisation
Cruise Equipment Upgrades	-	-	-	Archimedes Scroll design mob. studies. Engineering and fabrication	Mobility & Planarization Test
At Sea Operations	AB01 Cruise	-	AB02 Cruise	-	-
Analysis					
Environmental	Sample Analysis	Sample Analysis	Sample Analysis	Sample Analysis	Sample Analysis
Resource	-	AB01 Box Core Result analysis	AB02 Box Core Result analysis	AB02 Box Core Result analysis	-
Systems Engineering					
Subsea	Systems Engineering supplier event in London	5 x Engineering Workshops	IRT evaluation of Prototype Development Plan	-	-
Processing	-	Supporting studies: Processing tech. and site requirements	-	-	-

Second 5-Year Plan of Work

The Second 5-year period of the Exploration Programme further advanced the contract area-level and regional environmental baseline and began to assess potential environmental impact assessments and validate legacy resource assessments.

	Second 5 Year Plans of Work				
	2018	***2019***	***2020***	***2021***	***2022***
Expedition					
Planning Workshops	2 x London Workshop	Planning workshops	Mobilisation preparation	-	-
Cruise Equipment Upgrades	-	Procurement of survey equipment	-	-	-
At Sea Operations	AB02 Sediment Trap Recovery	-	RC01-L1 RC01-L2	-	-
Analysis					
Environmental	Sample Analysis	Sample Analysis	Sample Analysis	Sample Analysis Environmental Life Cycle Assessment Marine Space gap study	Sample Analysis
Resource	-	-	Assaying, certification and analysis.	Mineral Resource Estimate Report	Mining equipment test site study
Systems Engineering					
Subsea	Internal reviews of systems architecture	Maturing engineering prototype programme	Engineering schedule and cost model Trade studies and vendor proposals	Benchmarking legacy designs	Explore & review ongoing front end engineering design studies
Processing	Metallurgical process trade study	-	Cuprion leach process test program	Cuprion leach process test program	Cuprion process optimization project.

Third 5-Year Plan of Work (UK1)

During the Third (current) 5-year period of the Exploration Programme the Contractor intends to:

- complete the environmental baseline and resource assessment within UK1
- complete an environmental impact assessment for a collector test in UK1
- conduct an Integrated Collector System Component Test (ICSCT) in the UK1 contract area
- prepare and submit the necessary documentation to apply for a contract for exploitation in UK1

	Third 5 Year Plan of Work				
	2023	***2024***	***2025***	***2026***	***2027***
Expedition					
Planning Workshops	London Workshop Technical workshops with engineering partners	Southampton Workshop Technical workshops with engineering partners	Environment & Technical Workshops with Scientific and Tech. partners	Environment & Technical Workshops with Scientific and Tech. partners	Environment & Technical Workshops with Scientific and Tech. partners
Exploration Technology	Digital box corer development	Calibrating image tech.	Calibrating image tech.	Deploy Technology	-
At Sea Operations	-	-	Mooring deployment and nodule sampling	Environment & resource exploration cruise.	ICSCT & Monitoring campaign
Analysis					
Environmental	Sample Analysis	Sample Analysis DHI gap study	Sample Analysis	Sample Analysis	Sample Analysis
Resource	Reassess existing data	Reassess existing data	Reassess existing data -	-	Mineral Resource Estimate (NI-43-101)
Systems Engineering					
Subsea	Concept Select	Collection Tool & VTS development.	Collection Tool & VTS development	ICSCT build programme	Final assembly
Processing	Cuprion process optimization project.	Supporting studies on processing technologies and site requirements.	Ongoing discussions with potential processing partners		Secure processing partner

4. Programme of Activities and Exploration Expenditure

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

I. Agreed 5-year Programme of Activities

5-year Programme of Activities	First	Second	Third	Extension
General Objectives	**Objective**	**Description**		
	Exploration Cruises	Execute mapping of polymetallic nodules. Conduct studies of environmental factors.		
	Environmental Baseline Development	Finalising environmental baseline to inform EIS for exploitation.		
	Resource Mapping	Conduct detailed mapping of deposits of polymetallic nodules to produce updated resource estimates (NI-43-101).		
	System Engineering	Develop and qualify exploration and production technologies.		
	Onshore Processing	Securing processing partner and offtake agreement.		
	Commercial Re-evaluation	Economic analysis and re-assessment of Programme of Activities and related expenditures.		

II. Results achieved during reported years 1-10: 2013-2024

The first 10 years of the Integrated Exploration Programme focused on establishing a contract level environmental baseline for UK1 and a regional level (UK1 & UK2) resource assessment.

Cruise Planning Workshops leveraged legacy and new environmental and geological data, while incorporating improved sampling equipment and methodology, to optimise the exploration programme beyond that envisaged in the original Plan of Work.

Two **environmental baseline survey** expeditions in 2013 and 2015, followed by extensive laboratory-based analysis resulting over 100 peer reviewed publications and conference and workshop presentations as of November 2024, succeeded in collecting relevant environmental data to develop a baseline for the contract area.

A **Resource Survey Cruise** in 2020 validated historical resource estimates and collected environmental baseline data in UK1, while also collecting bathymetric data.

Exploration Technology upgrades have been implemented in collaboration with owners and technology partners, to leverage advances in AUV and sensing technologies. New technology solutions were developed and patented in 2023 and 2024

Systems engineering activities focused on revalidation of legacy engineering solutions, including trade studies and analysis to define updated performance parameters and subsequent systems architecture definition; and technology horizon scanning and supply chain engagement. In 2020-2022 activities focused on advancing mineral processing technologies and studying their feasibility at scale.

Under new management, renewed focus on technology development led to a Concept Select decision in December 2023 for a mechanical nodule collector design.

Commercial re-evaluation remained a constant process although periodic economic analysis and re-evaluation studies were undertaken as planned in 2015, 2019, 2021 and 2022. UKSR was acquired by Loke Marine Minerals in March 2023. Loke has continued to monitor and evaluate commercial conditions aligned with sound commercial principles.

Annual objectives and activities		
Year	**Agreed Objectives**	**Objective: Completed, Modified, Postponed or Replaced**
Year 1: 2013	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Cruise Equipment Upgrades	Completed
	Systems Engineering	Completed
Year 2: 2014	Environmental Baseline Studies	Postponed to 2015
	Survey Cruises	Postponed to 2015
	Cruise Equipment Upgrades	Completed
	Systems Engineering	Completed
Year 3: 2015	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Survey Cruises	Completed
	Cruise Equipment Upgrades	Completed
	Systems Engineering	Completed
	Commercial re-evaluation	Completed
Year 4: 2016	Environmental Baseline Studies	Modified
	Survey Cruises	Modified
	Cruise Equipment Upgrades	Modified
	Systems Engineering	Modified
Year 5: 2017	Environmental Baseline Studies	Postponed to 2020
	Survey Cruises	Postponed to 2020
	Systems Engineering	Modified
	Commercial re-evaluation	Completed
Year 6: 2018	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Systems Engineering	Completed
Year 7: 2019	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Cruise Equipment Upgrades	Completed
	Systems Engineering	Completed
	Commercial re-evaluation	Completed

Year 8: 2020	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Survey Cruises	Completed
	Cruise Equipment Upgrades	Completed
	Systems Engineering	Completed
Year 9: 2021	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Systems Engineering	Completed
	Commercial re-evaluation	Completed
Year 10 2022	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Systems Engineering	Completed
	Commercial re-evaluation	Completed
Year 11:2023	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	Completed
	Systems Engineering	Completed
	Commercial re-evaluation	Completed
Year 12:2024	Cruise Planning Workshops	Completed
	Environmental Baseline Studies	In-progress
	Systems Engineering	In-progress
	Commercial re-evaluation	In-progress

5. Training Programme

Schedule 3 of Annex III of the Regulations.

I. Training Programme

Type of training	Doctoral Training Programme	Deep Sea Mining Remote Learning Programme
Institutions	University of Plymouth	National Oceanography Centre
Duration	3 years +	14 Weeks
Scope	2 x doctoral training programmes	Practitioner perspective on key exploration considerations
Fields	Ecology, Geology	Ecology, Geology, Legal Framework, Survey Planning, Engineering, Sustainability, GIS Modelling
Qualification required	Relevant degree	Relevant degree
Financing	UK1 Fully funded	UKSR funded

II. Trainings conducted up to reported year 12: 2024

Start year	End Year	Name of Trainee	Nationality	Gender	Type of Programme	Details	Duration
2015	2020	Kirsty McQaid	South Africa	F	Doctorate	Predictive habitat modelling in CCZ	4 Years
2017	2020	Wycliff Tupiti	Solomon Islands	M	Doctorate	Micro-structure and REE composition of nodules	3 years
2024	2024	-	Kenya Liberia Pakistan Mauritius Senegal Nigeria Argentina	6 M & 2 F	Online training	Fundamentals of DSM (NOCi)	23 Jan – 30 April

III. Completed Trainings per Year

	Doctoral Training Programme PhD 1	Doctoral Training Programme PhD 2	Deep Sea Mining Remote Learning Programme NOCi
2013			
2014			
2015	**First Year Training**		
2016	**Second Year Training**	**First Year Training**	
2017	**Third Year Training**	**Second Year Training**	
2018	**Thesis**	**Third Year Training**	
2019	**Award**	**Thesis**	
2020			
2021			
2022			**Course Development**
2023			**Course Development**
2024			**Course Delivery (Completed)**

6. Standard clauses

Annex IV of the Regulations.