



# Risk – Based Solutions (RBS) CC

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Ms. Annelly Haiphene, Executive Director  
The Executive Director  
Ministry of Fisheries and Marine Resources (MFMR)  
Private Bag 13355  
**WINDHOEK, NAMIBIA**



3<sup>rd</sup> June 2024

Dear Ms Haiphene,

**Subject: CGG Services UK Limited Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia**

As a key Organ of State and stakeholder with respect to marine environment, please find attached to this email, the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) Reports and proof of application for an ECC submitted to the Environmental Commissioner in the MEFT through the Petroleum Commissioner in the MME as the Competent Authority for your review and inputs to be submitted to the Environmental Commissioner in MEFT.

The proposed Multiclient or Proprietary 2D/3D Seismic Surveys covers Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia with water depths ranging from ca-200m to -4000m from east to west, respectively.

Although the proposed AOI may appear large, the actual areas to be surveyed are likely to be highly localised, limited, and subject to the interest for seismic survey datasets by the Petroleum Exploration License (PEL) holders covered by the outlined AOI.

Yours Sincerely,



**Dr Sindila Mwiya**  
**EAP/ Permitting Advisor /International Resources Consultant**  
**RISK-BASED SOLUTIONS (RBS) CC**

FORMS

Form 1

**REPUBLIC OF NAMIBIA**

**ENVIRONMENTAL MANAGEMENT ACT, 2007**

**(Section 32)**

**APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE**



**MEFT ECC APPLICATION No.**  
**APP- 240316003087**



**PART A: DETAILS OF APPLICANT**

1. Name (person or business) – **CGG Services UK Limited**

Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia.

2. Business Registration/Identity No. **06923682**, United Kingdom (UK) Registered (if applicable)

3. Correspondence address: **CGG Services UK Limited**  
**Crompton Way, Manor Royal Estate, Crawley,**  
**West Sussex, RH10 9QN,**  
**UNITED KINGDOM**

4. Name of Contact Person: **Dr. Sindila Mwiya or Ronan Mc Guinness**

5. Position of Contact Person: **Environmental Assessment Practitioner (EAP) / Company Representative**

6. Telephone No.: **+264-61-306058 / 224780 / 236598**

7. Fax No.: **+264-61-245001**

8. E-mail Address: (if any): **[smwiya@rbs.com.na](mailto:smwiya@rbs.com.na) or [RGuinness@slb.com](mailto:RGuinness@slb.com)**

Tick ( ) the appropriate box

## **PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE**

### **The environmental clearance certificate is for:**

- Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia (Fig. 1).

### **Details of the activity(s) covered by the environmental clearance certificate.**

The Environmental Clearance Certificate is required to undertake 2D/3D seismic surveys activities starting from December 2024 for period of up to 70 days per survey event subject to favourable weather and receiving marine environmental sensitivity. The vessel to be used for the proposed 2D/3D survey will be fully compliant to all the national maritime legislation and regulations and MARPOL (marine pollution) regulations and waste disposal procedure and all legal frameworks and all other requirements.

[Note: Please attach plans to show the location and scope of the designated activity(s), and use

additional sheets if necessary: EIA and EMP Reports with specialist reports on Living Marine Resources and Underwater Acoustic Modeling Specialist Reports Attached.

### **Title of Activity:**

Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia (Fig. 1).

### **Nature of Activity:**

CGG Services UK Limited (Proponent) is proposed to conduct Multiclient/Proprietary 2D/3D seismic survey location specific projects that may be originated within the outlined AOI (Figs. 2 and 3). A marine Multiclient or Proprietary 2D/3D seismic survey operation is an advanced deep subsurface mapping technique which involves the sending of acoustic energy into the subsurface and using multiple acoustic energy wave-generating devices which are towed by a specialist seismic survey vessel (Figs. 2 and 3).

2D seismic survey is a regional subsurface mapping / imaging methodology aimed at de-risking a project by establishing a validated Sedimentary Basin Scale Model of an exploration AOI. 3D seismic survey on the other hand, is a detailed local mapping / imaging methodology aimed at de-risking an exploration project by establishing a validated Prospect/s or Lead/s Scale Models of an exploration Area of Interest within a Sedimentary Basin.

2D/3D seismic survey are acquired on dense and widely spaced grids respectively. The dense grid of a 3D seismic survey provides high-resolution 3D images which reveal fine-scale geological structure for exploration in more complex settings with aim of delineating prospects or leads.

The basic principle of 3D or 2D seismic survey method is the application of controlled generation of sound / acoustic waves by a seismic source to obtain an image of the subsurface as illustrated in (Figs. 1 and 2). During the marine seismic survey operations, sources and streamers, which are arrays of receivers attached to a cable, are deployed off the back of a slowly moving survey vessel (Figs. 2 and 3). Seismic sources are usually in front of the streamers. As the ship moves, the sources activate at regular intervals, and the receivers record the signals. The ship typically traverses a grid pattern covering the survey area (Figs. 2 and 3).

The generated acoustic wave that travels deep into the earth, is reflected by the various rock formations of the earth, and returns to the surface where it is recorded and measured by receiving devices called hydrophones. Each receiver records a trace, which represents the amplitude of seismic signal and noise received during the recording time. Because multiple recording devices are activated when the source is triggered, multiple traces are produced.

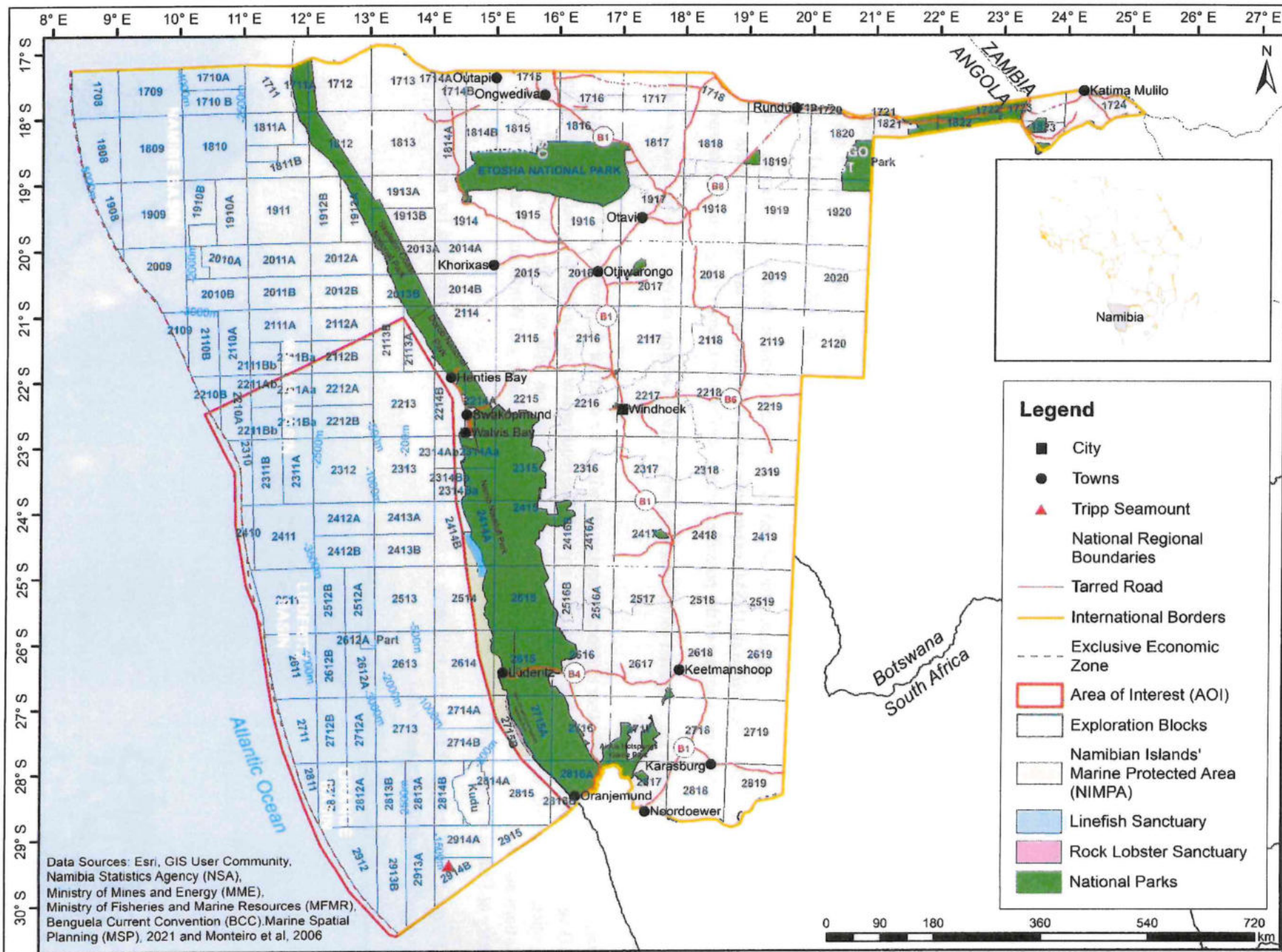
The recorded wavefield contains all kinds of noise and useful information about the structure and composition of the subsurface. By analysing the travel times for the seismic waves to travel among the rock formations and the surface, geophysicists, geologists, and petroleum engineers use sophisticated software to create subsurface maps showing potential drill-ready subsurface geological structures called reservoirs that may contain hydrocarbons (Figs. 1 and 2).

Seismic survey datasets are not only important for oil and gas exploration and production, but also used in various other fields including in Deep Sea Minerals (DSM) exploration and production and the search for suitable Carbon Capture and Storage (CCS) terrains as one of the possible options for Climate Change long-term mitigations.

The general specifications of the proposed Multiclient/Proprietary 2D/3D seismic survey operations are provided in the attached EIA and EMP Reports.

The vessel/s, helicopter and all other supporting equipment will to be used for the proposed Multiclient/Proprietary 2D/3D seismic survey will be in full compliance with all the requirements of the international convention on the prevention of pollution from ship (MARPOL) policies and practices as well as all the national marine related regulations administered by the Department of Maritime Affairs in the Ministry of Works and Transport (MWT) and Ministry of Fisheries and Marine resources (MFMR).

The Ports of Lüderitz and Walvis Bay will serve as the operations base as may be required for mobilisation, port requirements and services where needed.



**Figure 1:** CGG Services UK Limited proposed Multiclient/Proprietary 2D/3D seismic survey AOI covering Walvis, Lüderitz and Orange Basins offshore Namibia with water depths ranging from ca-200m to -4000m from east to west, respectively.

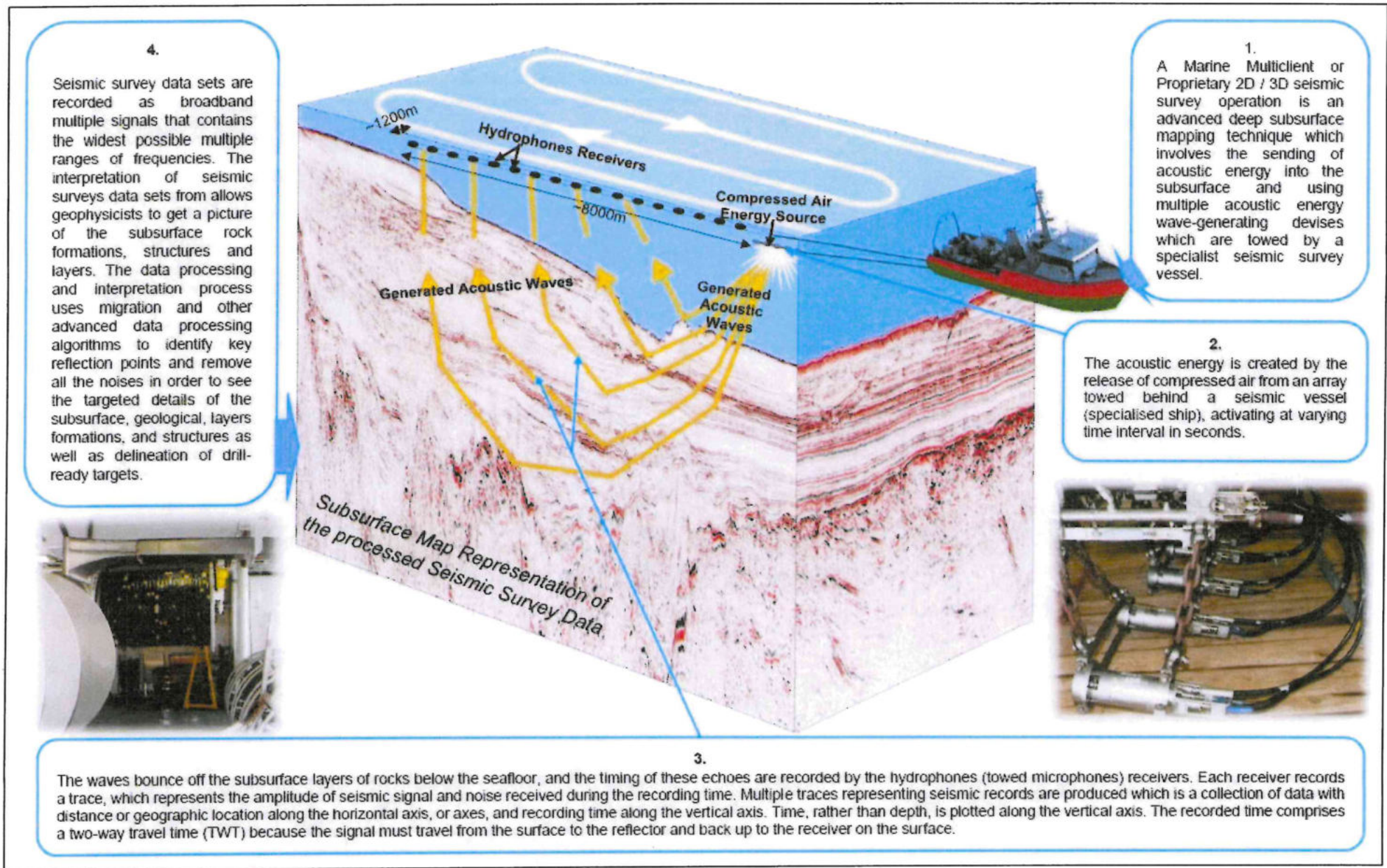
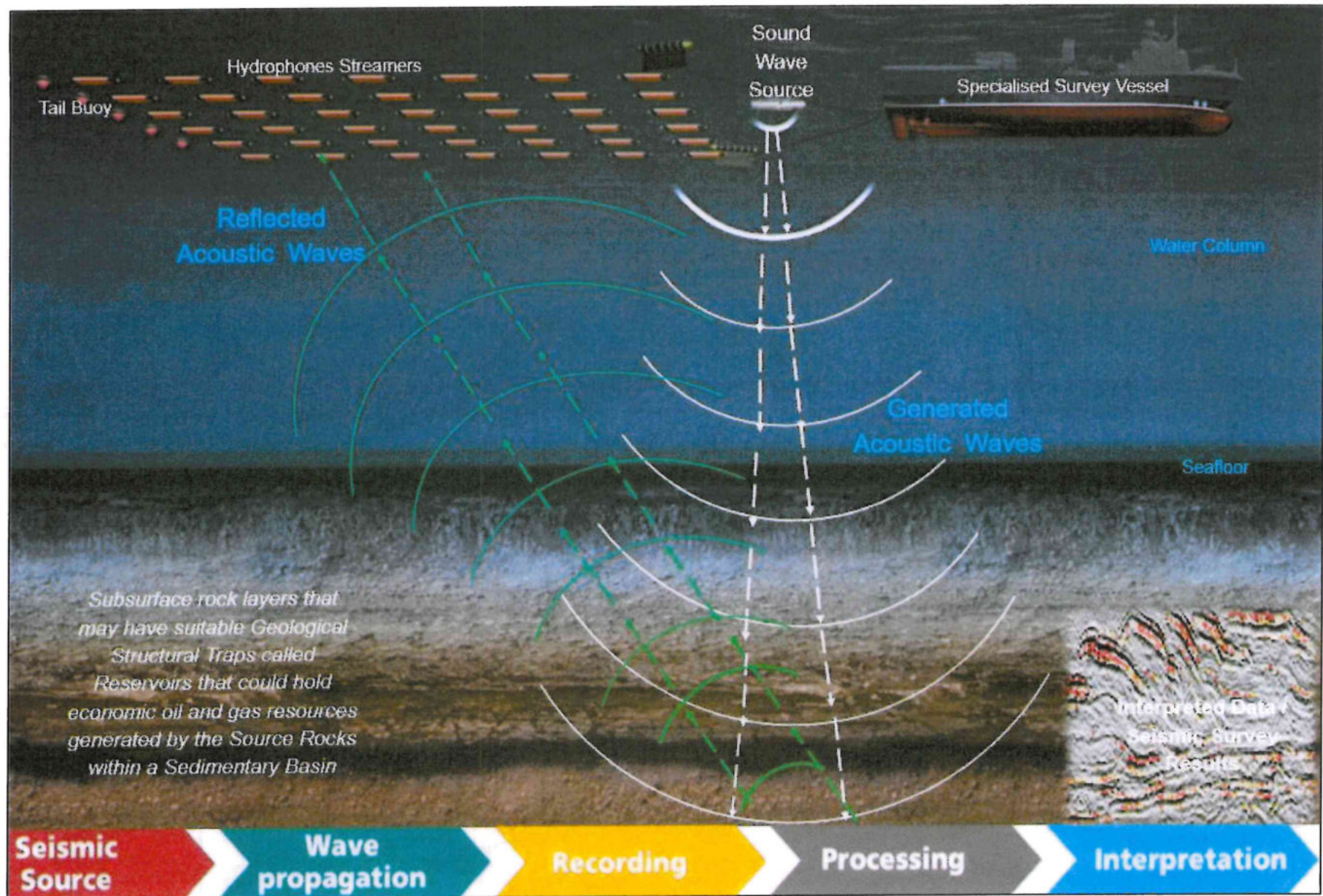


Figure 2: Illustration of marine seismic survey operations.



**Figure 3:** Illustration of the application of marine seismic survey method involving data collection and analyses of the times for seismic waves to travel between the various subsurface rock formations. Geophysicists, geologists, and petroleum engineers use sophisticated software to create subsurface images /maps showing potential drill-ready subsurface geological structures called reservoirs that may contain commercial hydrocarbons (Image Source: [www.youtube.com/watch?v=FN8IAb0rG9A](http://www.youtube.com/watch?v=FN8IAb0rG9A)).

**Location of Activity:**

Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Area of Interest (AOI) covers Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia (Fig. 1).

**Scale and Scope of Activity:**

The spatial coverage of the proposed 2D / 3D seismic survey and impact assessment and management thereof covers the current outlined initial survey area as shown in Fig. 1. The outlined area shown in Figs. 1 is defined as the immediate impact zone. The receiving environment in this area is likely to be directly influenced by the survey activities and will include a radius of 500 m safety exclusion zone around the survey vessel and surrounding areas where discharges to sea and sound may propagate and affect marine wildlife and immediate environment.

Survey area broader impact zone include all the surrounding socioeconomic zones likely to be affected around Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount), Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia (Fig. 1).

**PART C: DECLARATION BY APPLICANT**

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.



DR. SINDILA MWIYA

ENVIRONMENTAL  
ASSESSMENT  
PRACTITIONER (EAP)

Signature of Applicant

Full Name in Block Letters

Position

on behalf of CGG Services UK Limited

Date: 3<sup>rd</sup> June 2024



# CGG Services UK Limited



**Final Environmental Impact Assessment (EIA) Report to Support the Application for Environmental Clearance Certificate (ECC) for Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount),  
**Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia****



# CGG Services UK Limited



**Final Environmental Management Plan (EMP) to Support the Application for Environmental Clearance Certificate (ECC) for Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2313, 2310, 2311B, 2311A, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2612A Part, 2613, 2711, 2712B, 2712A, 2713, 2714A, 2714B, 2811, 2812B, 2812A, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, 2915 Parts of Blocks 2815, 2715B, 2614, 2514, 2414B, 2314Bb, 2314Ab, 2214B, 2113A, 2113B, 2112B, 2111BA, 2211Aa, 2211Ab, 2210A, and 2210B (Excluding Tripp Seamount),  
**Walvis, Lüderitz and Orange Basins, Offshore Deepwater Namibia****



# CGG Services UK Limited

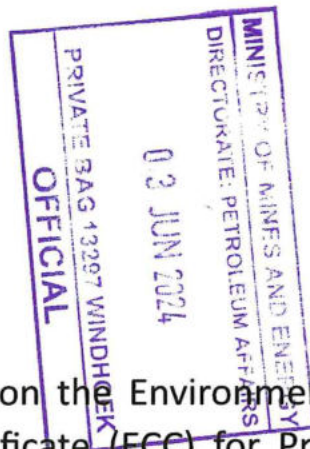


Background Information Document (BID) for Public and Stakeholder Consultation Process on the Environmental Assessment Process to Support the Application for Environmental Clearance Certificate (ECC) for Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2213B, 2310, 2311B, 2311Aa, 2311Ab, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2613, 2711, 2712B, 2712A, 2713, 2714B, 2811, 2812B, 2812Aa, 2812Ab, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, and 2915, Portions of Blocks 2111B, 2112B, 2113B, 2113A, 2210A, 2210B, 2211A, 2213A, 2214B, 2314Ab, 2314Bb, 2414B, 2514, 2614A, 2614B, 2714A, 2715B, 2815 and 2816B (Excluding Tripp Seamount)  
**Orange, Lüderitz Walvis, and Basins, Offshore Namibia**

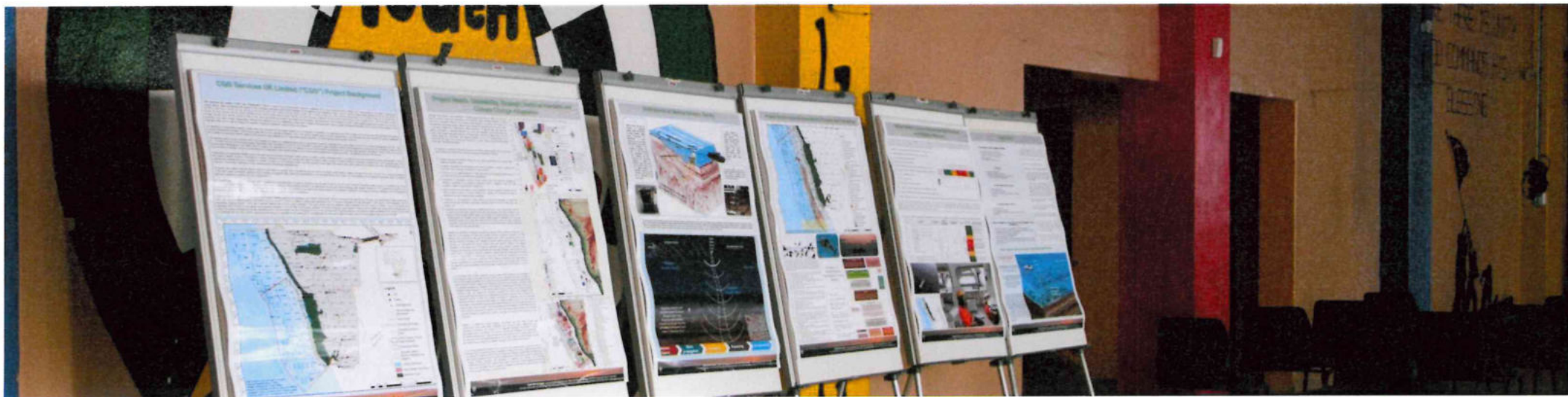
CGG Services UK Limited  
Crompton Way, Manor Royal  
Estate, Crawley, West Sussex,  
RH10 9QN,  
**UNITED KINGDOM**

March 2024





**Public And Stakeholder Consultation Report** on the Environmental Assessment Process to Support the Application for Environmental Clearance Certificate (ECC) for Proposed Multiclient/Proprietary 2D / 3D Seismic Survey Over the Area of Interest (AOI) covering Blocks 2211Ba, 2211Bb, 2212A, 2212B, 2213B, 2310, 2311B, 2311Aa, 2311Ab, 2312, 2313, 2410, 2411, 2412A, 2412B, 2413A, 2413B, 2511, 2512B, 2512A, 2513, 2611, 2612B, 2612A, 2613, 2711, 2712B, 2712A, 2713, 2714B, 2811, 2812B, 2812Aa, 2812Ab, 2813B, 2813A, 2814B, 2814A, 2912, 2913B, 2913A, 2914A, 2914B, and 2915, Portions of Blocks 2111B, 2112B, 2113B, 2113A, 2210A, 2210B, 2211A, 2213A, 2214B, 2314Ab, 2314Bb, 2414B, 2514, 2614A, 2614B, 2714A, 2715B, 2815 and 2816B (Excluding Tripp Seamount) Orange, Lüderitz Walvis, and Basins, Offshore Namibia.





OVERVIEW OF THE POTENTIAL EFFECTS ON MARINE  
MAMMALS, SEABIRDS, FISH AND FISHERIES OF THE  
PROPOSED 3D SEISMIC SURVEY OVER THE ORANGE,  
LÜDERITZ AND SOUTHERN PORTION OF THE WALVIS  
BASINS, OFFSHORE NAMIBIA

Prepared by  
Dr A.J. Rau PhD (UCT)



April 2024





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# Proposed Seismic Survey – Offshore Namibia

Underwater Acoustic Modelling

