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ROSGEO
Russian State Geological Company

YUZHMORGEOLOGIYA

TECHNICAL AND COMMERCIAL PROPOSAL

FOR 2D SEISMIC, GRAVITY AND MAGNETIC SURVEY IN TRANSITION ZONE OFFSHORE EQUATORIAL GUINEA

Presented for:

Ministry of Mines and Hydrocarbons of
The Republic of Equatorial Guinea

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1 MAIN GEOLOGICAL OBJECTIVES OF THE PROJECT

CORE OBJECTIVES

- Clarification of the internal structure of the sedimentary strata, including the tracking of the Cenozoic deltaic and, possibly, hydrochloric Cretaceous complexes, promising for the search for hydrocarbon deposits;
- Identification and study of the types of hydrocarbon traps characteristic of this area;
- Assessment of areas for further hydrocarbon exploration and development of proposals for the establishment of CDP 3D seismic surveys.

BASIC TASKS

- Conducting complex offshore geophysical surveys (gravimetry, differential marine-magnetometry) in tranzit zone offshore Equatorial Guinea.
- Conducting OBC seismic survey in the modification of the 2D/1C CDP in tranzit zone offshore Equatorial Guinea .
- Improve quality of seismic imaging throughout shallow water area (depths 2-60m) using OBC method and special processing workflow.
- Processing and interpretation geophysical data.

2 CURRENT LEVEL OF GEOLOGICAL EXPLORATION OF TRANZIT ZONE

Seismic exploration of the water area began in the 1980 in the basin of the Niger Delta. To date, a significant amount of 2D and 3D seismic surveys, geochemical and other studies, core sampling and logging in wells have been performed in the main water area of the country. At the same time, only three regional 2D seismic lines with a total length of 852 km were worked out in the super deep-water western water area.

During the study of the water area, various companies worked out more than 1200 seismic lines using the 2D method, mainly in the period 1980-1990.

3D seismic exploration has covered significant areas of the water area of Equatorial Guinea. In total, 47 objects were completed from 1996 to 2011 by various world companies.

From the point of view of seismic exploration in the waters of Equatorial Guinea, the narrow shelf zone along the continent up to 10-15 km wide remains unexplored (license blocks EG-19, EG-21, EG-26, EG-29, conjugated with the land blocks EG-03 and EG -04). Also poor data quality is observed on most retrospective seismic sections and cubes in shallow water part (less the 80-100m). It expand underexplored zones to 20-25 km stripe along coastline.

Main purpose of this survey is building detailed geological model of coastal zone to study direction of hydrocarbons travel, reveal accumulation bodies and predict of oil and gas promising zones.

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3 SCOPE OF WORK

- Marine gravity and magnetic survey – 5000 line km.
- Gravity and magnetic materials processing – 5000 line km.
- 2D/1C OBC seismic survey – 1501.3 line km.
- Processing and interpretation seismic data – 1501.3 line km.

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4 DELIVERABLES

WHAT WILL OBTAIN THE CUSTOMER AS A WORK RESULTS

Before starting work, the Customer is given:
Project for the execution of works;
Scheme of project lines.

In the process and at the end of the work, the Customer receives:
Field observation records;
Field observation records Field and processed navigation data;
Field accompanying documentation (operator reports, results of testing and quality control of equipment);
Results of pre-processing of seismic data;
SPS geometry files (r, s, x);
Results of seismic data quality control;
Data on experimental and methodological work;
Results of office processing and interpretation of seismic data.

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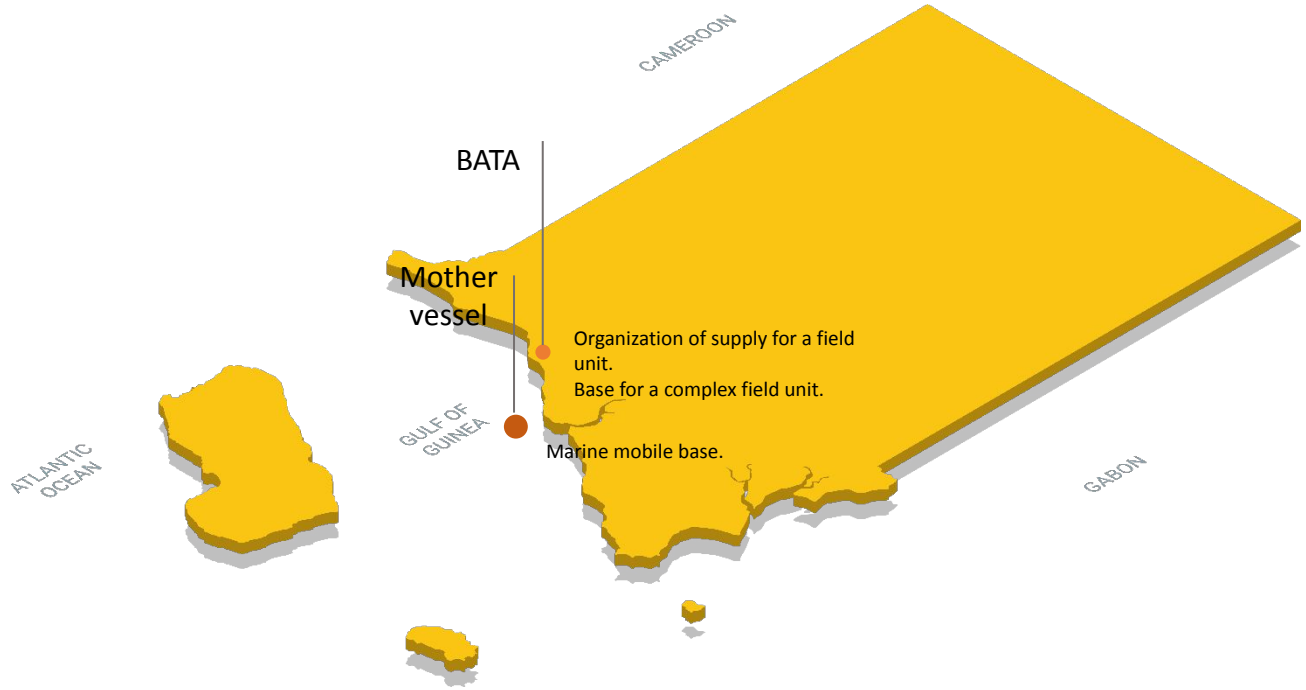
5 ORGANIZATION OF WORK

BASE LOCATION

It is planned to supply the field seismic party from Bata. The personnel and equipment of the seismic party will be located on the base vessel.

The complex field party (marine gravity and magnetic survey) will be based in Bata.



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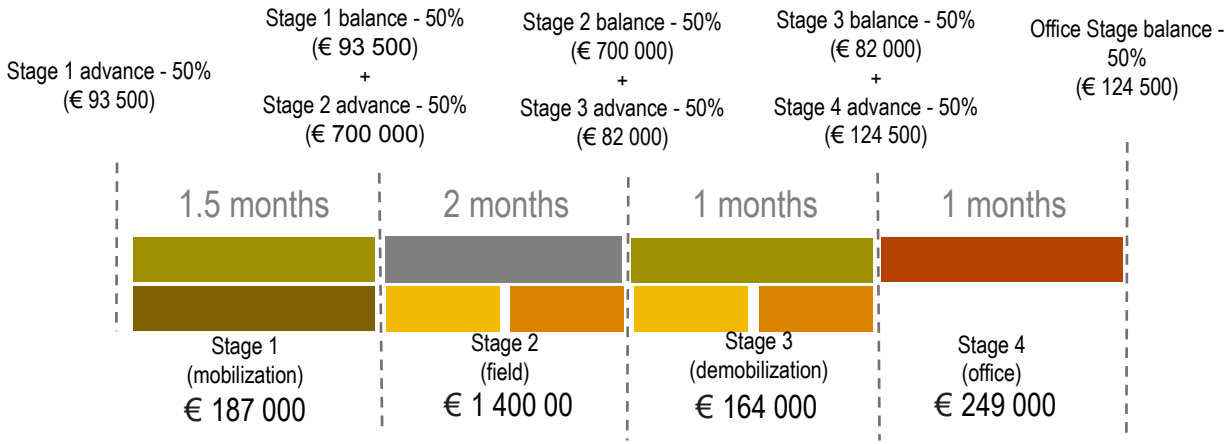
6 WORK PLAN (SCHEDULE)

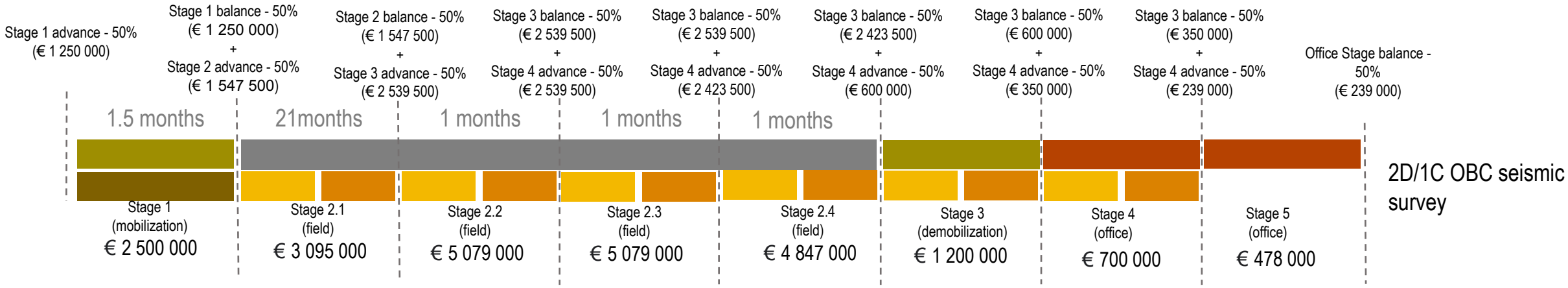
STAGES

Duration of work:
15.5 months

Total Cost of work:
24 978 000 EUR



Marine gravity and magnetic survey



2D/1C OBC seismic survey

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7 Field Squads

4 FIELD SQUADS

Marine gravity and magnetic survey

- Head of exploration group
- Senior geophysicist
- Geophysicist
- Surveyor
- Geophysical engineer

TOTAL: 7 persons

2D/1C OBC seismic survey

- Party Chief
- Technical manager
- HSE manager
- Medical worker
- 2 Geophysicist-operators
- 2 Geophysical engineers
- 2 Electronic engineers
- Receivers engineer
- 4 Receivers technicians
- 8 Air gun engineers
- 9 Surveyors
- 4 Master-mechanics
- 7 Worker
- 2 Geophysical engineer

TOTAL: 45 persons

8 Project budget (key terms)

Stage	Description of the activities	Completion schedule	Volume	Scope of finance (Euro)
Marine magnetic and gravity survey				
1	**Party mobilization, transfer to the exploration area**	from 15.01.2021 to 28.02.2021		187 000
2	**Gravity and magnetic survey**	from 01.03.2021 to 30.04.2021	5000 line km	1 400 000
3	**Demobilization and transportation of personnel and equipment**	from 01.05.2021 to 21.05.2021		164 000
4	**Gravity and magnetic materials processing. Preparation of reporting documentation, presentation of information report and materials to the Customer**	from 01.06.2021 to 30.06.2021		249 000
2D /1C OBC seismic survey				
1	**Party mobilization, carrying out the research methodological work**	from 01.05.2021 to 10.06.2021	-	2 500 000
2	**2D CDPM seismic survey**	from 11.06.2021 to 30.09.2021	1501 line km	18 100 000
3	**Demobilization and transportation of personnel and equipment**	from 01.10.2021 to 30.10.2021	-	1 200 000
4	**Preparation of reporting documentation, presentation of field report and materials to the Customer**	from 10.10.2021 to 15.11.2021	-	700 000
5	**Processing, interpretation and preparation of a geological report**	from 10.10.2021 to 31.03.2022	1501 line km	478 000
In total for the object				**24 978 000**