

Total Exploration and Production Liban Sal

Block 4 (Lebanon) offshore exploration drilling

Environmental and social impact assessment scoping report:
Executive summary

80754

MAY 2019



EXECUTIVE SUMMARY

Introduction

Total Exploration & Production LIBAN SAL (TEP Liban) intends to carry out offshore exploration drilling activities in Block 4 of the exclusive economic zone (EEZ) of Lebanon, see Figure ES1. The proposed activities comprise drilling one exploration, a possible second exploration well and potentially one appraisal well, depending upon the results of the previous exploration wells. Therefore, a maximum of three wells will be drilled.

This document summarises the results of the scoping phase, which forms part of the environmental impact assessment (EIA) process, and has been produced by RSK Environment Ltd with assistance from Dar al-Handasah, on behalf of TEP Liban.

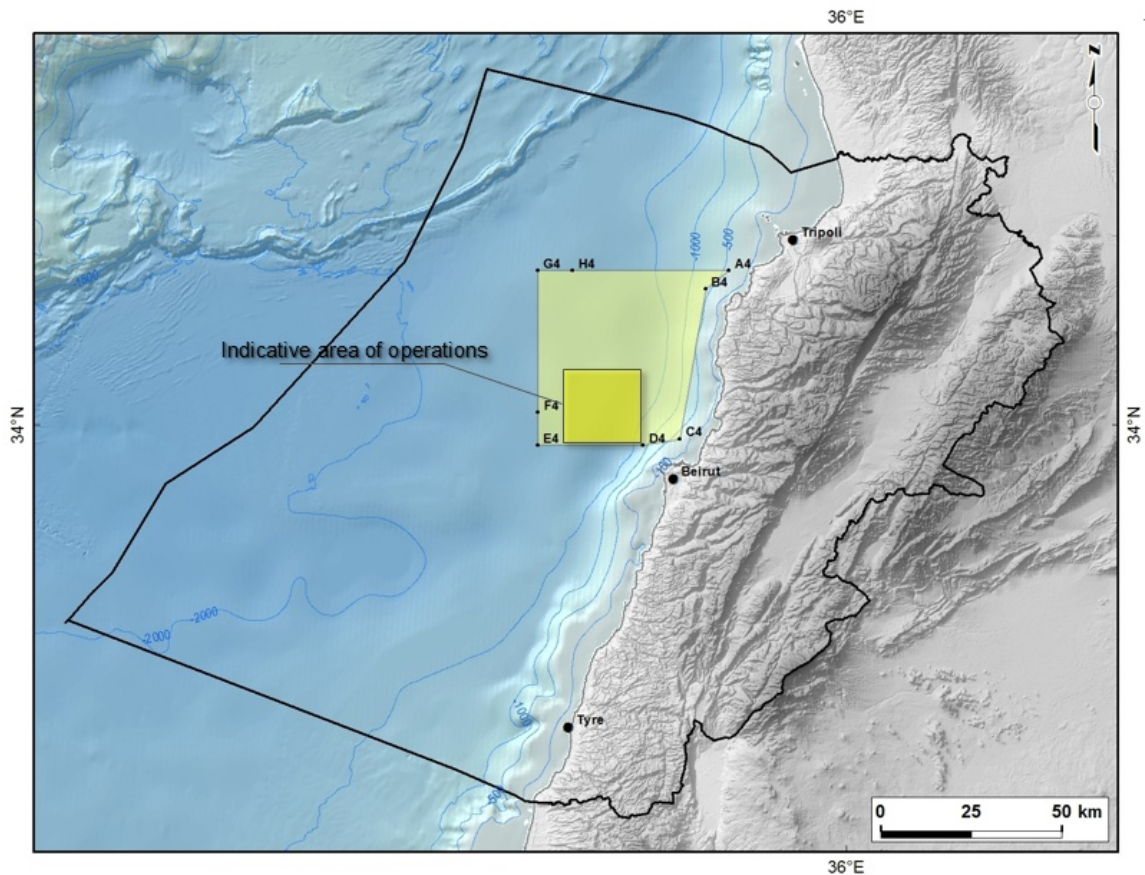


Figure ES1: Location of Block 4 and Lebanon EEZ

Overview of the exploration drilling campaign

TEP Liban plans to start drilling the first exploration well in Block 4 in December 2019.

A mobile offshore drilling unit (MODU) will be mobilised to Block 4 and the exploration well(s) will be drilled vertically in the indicative area of operations as shown in Figure ES1, where depths range

from 1450 m to 1760 m. The target reservoir (gas) is around -4400 m true vertical depth/mean sea level.

Following well logging, there is an option to conduct vertical seismic profiling on the second exploration well and appraisal well (if they are drilled) to verify seismic data that has previously been collected from survey vessels. Thereafter, the well will be plugged and abandoned. The drill programme for the first exploration well is expected to be 2–3 months in duration. Mobilisation and demobilisation of the MODU will be in addition to this time.

Drilling operations will be supported from a logistics base in Beirut Port. Facilities at the logistics base will include

- a storage location that would support the project with 5000 m² yard space, 500 m² of covered warehousing and 100 m² of chemical storage
- a 100-m-long jetty
- an additional 1150-m² storage area of for a liquid mud plant (to be built).

The logistics base will be based in existing available port facilities. A contractor will build and operate the logistics base. The logistics base will be staffed by a maximum of 50 people during the exploration drilling phase.

Two or three supply vessels will be used during the exploration drilling work: one vessel will be permanently at the drill site providing security, and one (or two) other vessels will transfer supplies, materials, equipment and waste between the drill ship and the logistics base (8–10 return trips are estimated in total per week). All vessels will comply with MARPOL and have a crew size of up to 15 persons. Helicopter transfers of personnel may take place from Beirut Rafic Hariri International Airport, with an estimated 30-minute trip and 4–5 return trips per week. Crew change by boats is also being considered as an alternative. Two helicopters will support the operation, each with a staff of 10 persons.

The non-aqueous drilling fluid will be separated from the cuttings generated during drilling of the lower well sections, using the onboard solids control equipment. Options for disposal of the treated cuttings are currently being considered.

Objectives of the scoping report

Scoping is a high-level assessment of anticipated interactions between project activities and environmental, socio-economic and cultural heritage receptors. Its purpose is to identify the key issues which will be the focus the EIA, and where possible to eliminate activities from the full impact assessment process based on their limited potential to result in discernible impacts.

According to Decree No. 8633/2012 “Fundamentals of Environmental Impact Assessment”, the Lebanese environmental assessment procedure offers projects three pathways to environmental approval. With respect to oil and gas exploration, “those expected to impart significant impact, such as traffic congestion, energy and water consumption, solid or liquid waste discharge, and noise or air pollution, are required to undergo EIA including a Scoping Report, itself approved by the Ministry prior to EIA commencement”.

The scoping report has been developed to capture the scoping process carried out for the Block 4 exploration drilling activities. The resulting ‘EIA Terms of Reference’ (see Chapter 7) will be submitted to the Lebanese Petroleum Administration (LPA) and the Ministry of Environment for its review and input before progressing to the next stage of the impact assessment.

Study area

The study area for Block 4 was chosen based on project aspects and identification of potential environmental, socio-economic and cultural heritage receptors. Several spheres of influence have been identified within the overall study area. These are outlined below.

A primary sphere of influence consists of the areas where the main routine activities of the project will take place and comprises an offshore and an onshore area, as outlined below.

The offshore area consists of the drill site and the expected route of the supply/support vessels to Beirut Port (see Figure ES2). The helicopter route from the drill site to Beirut Rafic Hariri International Airport is also taken into consideration. The helicopter flight path will be dependent on meteorological conditions, air traffic and other parameters. If chosen as the preferred option of crew transfers, a flight plan will be developed for each transfer and agreed with the relevant authority.

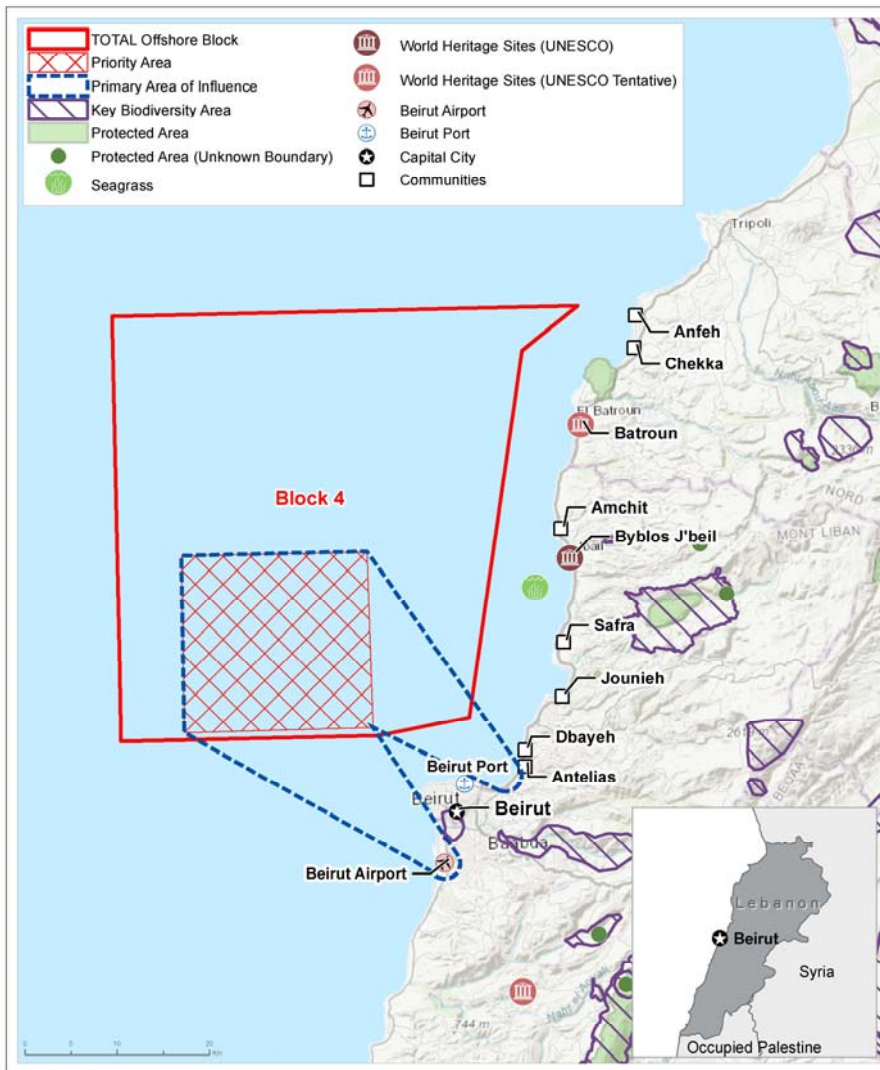


Figure ES2: Offshore primary sphere of influence

The onshore area consists of Beirut Port and its immediate surroundings. The waste cuttings transportation route is currently under review, taking into account the availability of facilities in Lebanon and potential use of third-party facilities in neighbouring countries.

A third sphere of influence includes the coast of Lebanon that may potentially be impacted by an accidental oil spill. The EIA process will include a risk assessment that identifies the potential for accidental events and dispersion modelling studies will also be carried out to assist in oil spill contingency planning.

Legal framework

The Block 4 exploration drilling activities will be carried out in accordance with the environmental and social requirements of

- national legislation and regulations
- applicable international conventions and agreements to which the Lebanon is a party
- Total's corporate commitments.

Summary of baseline conditions

A summary of baseline conditions is provided in the scoping report, based on a review of the documentation listed below, with information updated through a review of available scientific literature and published information. Of particular relevance are:

- ELARD (Earth Link & Advanced Resources Development) (2019), 'Offshore Environmental Baseline Study Literature Review Report Block 4 and 9'
- GFA/Projekt-Consult/GEUS/ELARD (GFA Consulting Group GmbH/Projekt-Consult GmbH/Geological Survey of Denmark and Greenland (GEUS)/ELARD Lebanon HQ) (2019), 'Mission: Update on the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR11) Revised Draft SEA Report Volume 2- Baseline Conditions'
- Marine Resources and Coastal Zone Management Program, Institute of the Environment – University of Balamand (2012), Component A: Improved Understanding, Management and Monitoring in the Coastal Zone, Environmental Resources Monitoring in Lebanon (ERML)
- MoE/IUCN (2012). 'Lebanon's Marine Protected Area Strategy: Supporting the management of important marine habitats and species in Lebanon'. Beirut, Lebanon, Gland, Switzerland and Malaga, Spain: The Lebanese Ministry of Environment/IUCN. 64 pp

More detailed and directly relevant information will be forthcoming from the recently completed environmental baseline survey (EBS) that was conducted by TEP Liban to cover Blocks 4 and 9. The scope of the EBS was agreed with the MoE, and results will be included in the EIA.

Stakeholder engagement

Stakeholder engagement is being carried out in accordance with the stakeholder engagement plan (SEP) developed for the Block 4 exploration drilling activities. One round of consultation is being carried out to disclose the draft scoping report and a further round will be carried out to disclose

the EIA document¹, later in 2019 (unless the requirement for this is waived by the MoE (MoE Decision 261/1, 2015)). Feedback from stakeholders will be incorporated into the ESIA documentation, where appropriate.

Preliminary identification of impacts

Preliminary impacts have been identified in line with the impact identification matrix outlined in the Update for Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (2019). The impacts are grouped under the four main activity areas, as described below.

Mobilisation

The mobilisation and positioning of the MODU has the potential result in impacts on all the identified features of the physical environment when following normal shipping and navigation procedures, these impacts include air emissions, noise and wastewater and sewage discharges. The latter may equally affect water column communities (nekton and plankton) and sensitive marine habitats. There is also potential for impacts on shipping and fisheries.

Drilling rig operation

Drilling creates a suite of potential impacts, typically noise and emissions from machinery, that affect the physical environment as well as shipping, fisheries and public health and safety.

The physical presence of the MODU can also affect shipping and fisheries, as well as water column communities (nekton and plankton), cetaceans, turtles and birds, and sensitive marine habitats, and also on public health and safety, tourism and landscape and visual amenity. The latter are most noticeable at night.

Land-based disposal of cuttings and waste (as with export of wastes) may have potentially diverse impacts on land-based receptors (including aquifers), and maritime impacts associated with transport of waste to shore.

Disposal of cuttings at sea will impact on a range of marine communities and organisms, as well as on seawater and sediment quality, fisheries, public health and safety.

The storage of drilling chemicals offshore has very few impacts with the exception of health and safety.

Power generation is the remaining activity within the drilling operations (given that flaring will not take place) with potential to result in impacts from noise and emissions on public health and safety as well as tourism and landscape, and visual amenity.

Support activities

The movement of support vessels between the drilling unit and the shore base will potentially have maritime impacts (on certain large organisms – marine mammals and turtles), fisheries, shipping, coastal habitats and shore-based infrastructure. The operations of the shore base with potential provide a to boost the local economy.

¹ Comments on this Executive Summary or the full Scoping Report can be submitted using links on the following website: www.rsklebanon.com/total/blocks4and9/scoping-comments

Helicopter movement would present emission and noise-related impacts as well as potential impacts on seabirds, and possible impacts on infrastructure, namely the local heliport.

The on-shore support facilities/provision of supplies are mainly associated with two potential receptors: training and a boost to the local economy. While storage of drilling chemicals ashore creates potential economic and local training opportunities it also has the potential to impact on local infrastructure as well as other land-based receptors such as archaeology and ecology.

Accidental events

Unplanned or accidental events will be considered separately from planned routine activities, as they only arise as a result of a technical failure, human error or natural phenomena such as a seismic event.

A comprehensive assessment of the impacts of potential unplanned/accidental events will be carried out as part of the future studies. The assessment will address the likelihood of potential offshore and onshore spills of various types occurring and their potential impacts, taking into account various aspects such as persistence of the hydrocarbon and the potential for intervention or response. Further studies on accidental oil spill events will be integrated in the oil spill contingency plan.

Terms of reference for ESIA

The terms of reference outline the tasks required to complete the ESIA process for the Block 4 exploration drilling activities. These include a review of legislation, compilation of a more detailed project description, stakeholder participation and description of baseline conditions in addition to a main section on impact identification and analysis, and the incorporation of mitigation measures.

For each source of impact, the intensity of the effect is defined according to a set of criteria that include the nature of the change with respect to the sensitivity of environmental, socio-economic and cultural heritage receptors/valued ecosystem components, the size and scale, geographical extent and distribution, duration, frequency, reversibility (the magnitude of the impact) and the residual impacts which are likely to remain following the application of mitigation measures. The significance of the impacts will be calculated and qualified according to a scale that ranges from 'negligible' to 'major'. Possible cumulative effects from other activities will also be taken into consideration.

Mitigation measures to prevent or reduce significant negative impacts to acceptable levels during the entire cycle of the project will be defined using expert judgment, legal and national/international environmental and social standards. These will subsequently form the basis of the environmental and social management plan, from which a detailed environmental and social monitoring plan will be developed to accompany all project phases.

The ToRs will also identify the need to assess the possibility of using alternative methods for certain components of the project and will identify the need for additional studies that will help to assess the impact significance. These may include drilling discharge modelling, accidental hydrocarbon spill modelling (and gas plume migration modelling) and underwater noise modelling.

A table of contents for the ESIA is also provided within the scoping report.