



WEST PATRAIKOS LEASE AREA ENVIRONMENTAL REPORT 2015

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HSE Policies & System, Environmental Studies and Implementation

1. Introduction

The following are representing the implementation of HELPE's policies and systems related to the Patraikos Lease Area.

Hellenic Petroleum has operated during the past in the Ionian Seas as an operator and has gained a deep understanding and knowledge of the context, regulations, local communities' relations and management that could guarantee a smoother development process in the area under lease with no impact to the environment and local communities. In October 3rd 2014, the Greek State awarded a Lease Agreement for Hydrocarbon Exploration and Production in the offshore deep water area of West Patraikos Gulf.

Hellenic Petroleum, acting as Operator, is fulfilling its commitments and has planned the exploration work program by implementing the most up-to-date, safe and environmentally friendly technological methods and practices. According to the Provisions of Article 12 for «Environmental Protection» the Lessee (Hellenic Petroleum) «shall not be liable for any environmental condition or damage existing in the Contract Area prior to the commencement of the Lessee's operation therein and nothing in this Agreement shall be construed to hold the Lessee liable in relation to any such pre-existing environmental condition or damage». For this purpose, a baseline report will be prepared by the Lessee, to detail the condition of the environmental parameters and resources at the time prior to operation commencement. The baseline report will be submitted for review to the Lessor (Ministry of Environment & Energy).

Furthermore and according to the Provisions of Article 12 for «Environmental Protection» in case of activities for which an Environmental Impact Assessment (EIA) is not mandatory, but nevertheless it is reasonably expected that some minor environmental impacts may occur, as in particular for the case of seismic surveys, the Lessee shall prepare an Environmental Action Plan (EAP), to determine, assess and mitigate these impacts, focusing on prevention and minimization thereof in accordance with Good Oilfield Practices.

Hellenic Petroleum is planning to execute a 3D-2D marine seismic survey with the outmost respect to the local social and physical environment of Patraikos Gulf. Throughout the course of the seismic campaign, Hellenic Petroleum will develop policies, procedures and manuals related to the activity. A minimum list of related tasks and documents includes:

1. *Environmental Baseline Report prior to the commencement of the operations.*
2. *Environmental Action Plan for the 3D and 2D marine seismic survey for West Patraikos Lease area.*
3. *A dedicated Environmental Monitoring Plan (EMP) aiming to verify the noise levels in proximity of the identified environmental sensitivities*

2. HSE Studies and Reports

2.1. Environmental Baseline Report & Environmental Action Plan

Environmental Baseline Report

The purpose of the Environmental Baseline Report is the collection of data, the survey and the evaluation of the environmental condition in the exploration area in order to:

- Survey the condition of the environment within the exploration area before starting any work, to ensure non liability of the contractor for environmental damage that may occur in the research area from other activities.
- Be part of an integrated system for monitoring the condition of the environment in the research area, to allow the monitoring of any impact of the individual stages of the research program.

The elaboration of the Basic Environmental Study of the Wider Research Area will be based on the JMD 170225/2014 (GG 135/B/27.1.2014) that sets out the specifications for environmental licensing files of projects and activities and on the requirements of JMD 169896/ 8.08.2013 (*“Approval of Strategic Environmental Assessment (SEA) for hydrocarbon exploration and exploitation in the area of the Western Gulf of Patras”*), according to which environmental indicators, shall be used as fundamentals of monitoring and they shall represent in a comprehensive way, important aspects of developments in the environment.

The Report addresses the existing physical, biological and socioeconomic environment and sensitivities of West Patraikos. The Report is referred to topics regarding the physical environment such as geography, bathymetry and seabed morphology, seabed sediments, geology, oceanography, meteorology and acoustic environment. Regarding the reference to the living environment, it concerns the marine ecosystem, marine vegetation, plankton, benthos, fish and fish habitats, aquacultures, marine mammals, seabirds, sea turtles, protected sites and sensitive habitats. The socioeconomic environment is also addressing, including the local economy, tourism, commercial fishing, submarine cables, shipping and ports, and a reference to wrecks and the archaeology of the area is included as well.

Environmental Action Plan

Purpose of the Environmental Action Plan will be:

- the assessment and evaluation of impacts of the proposed activities on all environmental components;
- the assessment and evaluation of environmental risks for the seismic activity;
- the proposition of mitigation measures in order to minimize the risks and impacts and the relevant monitoring during the project activities.

In particular, in the Decision of the approval of the SEA study the following requirements of the Environmental Action Plan were set as below:

- detailed and documented compliance of the proposed Marine Seismic Survey with all the requirements of the legislation on the environment,
- minimize the impact of the proposed Marine Seismic Survey to critical components of marine ecology,
- limiting disruption to existing maritime activities such as fishing,
- especially, with regard to prevent effects on cetaceans, the measures of the EAP of the Marine Seismic Survey should as a minimum include provisions for the following issues:
 - Complete response to commitments and guidance of international agreements which have been signed by Greece, as in particular the ACCOBAMS.
 - Sufficient number of appropriately trained marine mammal's observers on board for the visual and passive acoustic observation of marine mammals and interruption of air guns, in case of their approach towards.

The potential impacts of the project activities will be identified, with regard to abiotic, biotic and human environment. Particular attention will be given to marine noise, marine ecology and socioeconomics environment. The impact of marine noise will be evaluated based on the results of modelled noise propagation. Identified effects will be focused on the impact on marine mammals due to marine noise that, considering the scheduled period and the limited duration of the activity, can be considered moderate for the presence of the areas of special importance for cetaceans and due to the possible behavioral response of mammals to noise.

In order to protect the marine fauna, with particular regard to the marine mammals, mitigation measures will be implemented during the survey in accordance to ACCOBAMS and JNCC Guidelines, with particular regard to the following:

- presence on board of qualified Marine Mammals Observers (MMO) and technicians for Passive Acoustic Monitoring (PAM);
- adoption of the soft-start technique and establishment of an Exclusion Zone around the seismic vessel where visual and acoustic monitoring of the presence of marine mammals will be continuously carried out and its verification in the field;
- establishment of Exclusion zones of normal operation of airguns within environmentally sensitive areas of the project area as well as within a distinct buffer zone around the sensitive zones.