# Neptun Deep Project

# Section B - Scope of Work

# For

## SERVICES FOR THE ELABORATION OF HEALTH-IMPACT ANALYSIS (HIA) STUDY

## Table of Contents

## 1. Scope of Work Overview

ExxonMobil Exploration and Production Romania Limited (EMEPRL) as Contracting Entity, herein referred to as COMPANY, is working towards developing the Neptun Deep Project, a deep water natural gas production facility and associated natural gas pipeline system within the Romanian sector of the Black Sea.

The COMPANY intends to award and sign a Contract with a Service Provider (herein referred to as the CONTRACTOR) that shall elaborate the health impact assessment study (herein referred to as HIA Study), required by the legislation to finalize the environmental impact assessment study, that is under preparation within the Neptun Deep Project.

This Scope of Work (SOW) establishes a framework under which the Company developing the Neptun Deep Project (Project) located in Romania will utilize the support services of the Contractor to support Project through planning and design phases, with emphasis on performing the Health Impact Analysis (HIA Study).

## 2. Neptun Deep Project Short Description

The Neptun Deep Project consists of developing the Neptun Deep Block utilizing approximately ten (10) subsea production wells drilled from three (3) drill centers that are tied back to a normally unstaffed shallow water platform (SWP). Six wells will be drilled from two 4-slot subsea manifolds at Domino Field and four wells drilled from one 4-slot manifold at Pelican South Field. The gas will be dehydrated on the SWP to meet the gas sales specification before being sent to an onshore metering station that ties into the National Transportation System (NTS).

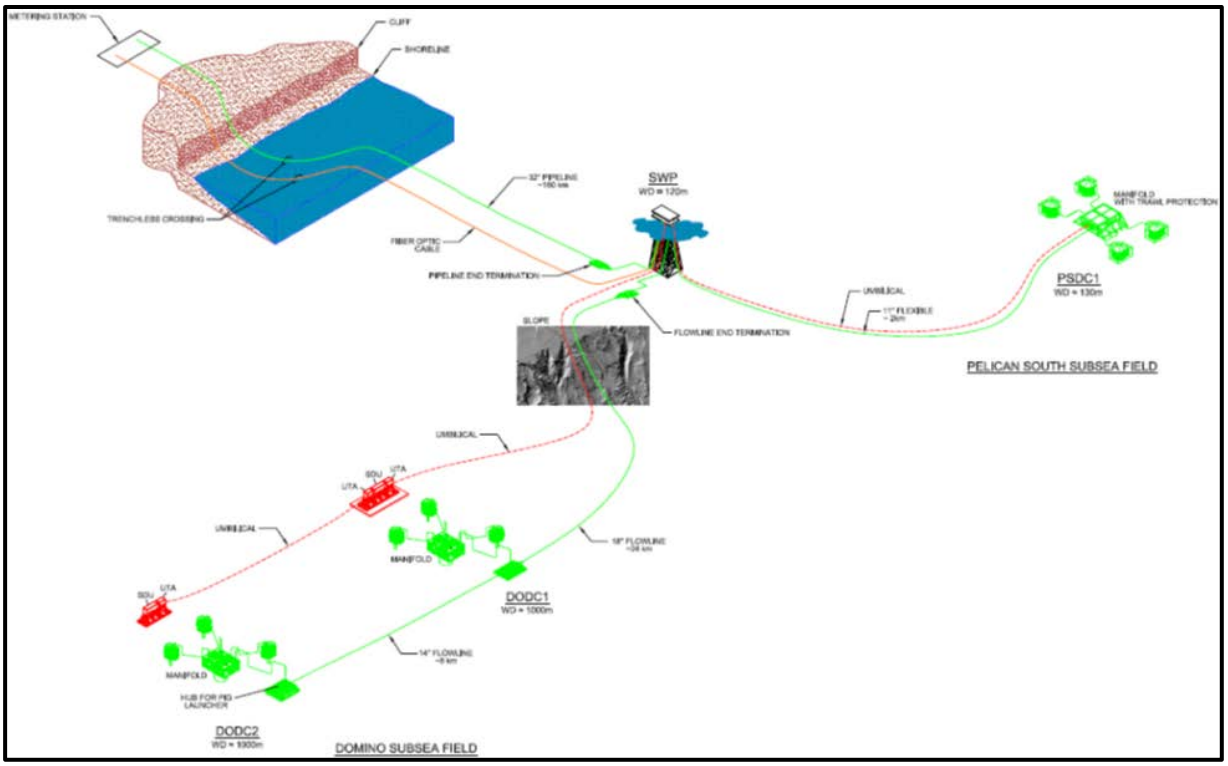


**Figure 1-1: Neptun Deep Development Concept**

The Domino field will be developed with two drill centers, DODC1 and DODC2, while the Pelican South field will be developed with a single drill center, PSDC1. Each drill center will contain wells placed in a cluster arrangement around a 4-slot production manifold. The subsea system will be monitored and controlled using an electro-hydraulic control system connected to the SWP by two control umbilicals. The umbilicals will also supply chemicals to the subsea facilities.

Production from Domino wells will be comingled at each manifold and connected to a single rigid flowline with electric heating and tied back to the SWP. Pelican South well production will be comingled at the manifold and tied back to the SWP by a single heated flexible flowline. The Pelican South subsea structures will include trawl protection to ensure the facilities are not damaged from fishing activities.

The Domino and Pelican developments will be tied back to a normally unstaffed SWP comprising of a jacket structure with topsides facilities operated from a control room onshore. The topsides facility will process the full well stream fluids producing a dry gas sales stream. The inlet separator will separate the gas from produced water and sand. The gas will be dehydrated utilizing a Tri-ethylene Glycol (TEG)-based system to meet the dew-point specification of the sales gas pipeline.

A single ~160 km, 30 inch diameter production pipeline will transport gas from the SWP to the onshore Natural Gas Metering Station (NGMS) for measurement prior to transfer to the Romanian National Transportation System operated by Transgaz. A fiber optic cable will be installed alongside the pipeline from the SWP to the NGMS facility. The shore crossing will be installed using a trenchless method such as Horizontal Directional Drilling (HDD), Direct Pipe Drilling, or micro-tunneling. Between the shore crossing and the NGMS, a short (less than 1 km) section of onshore production pipeline connects the offshore production pipeline to the NGMS. At the NGMS site, there will be a filter separator, pig receiver, gas meters and a Central Control Room from where the SWP will be operated. Transgaz will construct a pipeline from their T1 transmission line valve downstream of the NGMS.

Figure 1-2 shows the location of the Neptun Deep development, which is approximately 160 km offshore of Constanta, Romania.


**Figure 1-2: Location of Neptun Deep Development**

## 3. Objective of the Contract

The objective of the Contract to be signed between the successful Contractor and COMPANY is to perform a HIA Study, during the period of the Neptun Deep Project implementation.

The services are deemed necessary with the intent to meet the requirements from the Romanian legislation regarding the elaboration of the Health Impact Assessment with the Neptun Project.
The activities to be performed by the successful Contractor as envisaged at the procedure launching moment, shall cover at least, but not limited to, the activities mentioned in Chapter 3.

### 3.1. General overview

At international level, Health impact assessment (HIA) has been defined as a combination of procedures, methods and tools by which a project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population. It aims to identify what potential changes in health determinants might result from the project.

According to the Romanian Legislation*, Law no. 292/2018 on the assessment of the impact of certain public and private projects on the environment*, the environmental impact assessment identifies, describes and assesses, as appropriate, for each case, in accordance with the provisions of this law, the significant direct and indirect effects of a project on population and human health.

According to the *Order 1524/2019 regarding the methodology for the organization of the studies to assess the impact of certain public and private projects on public health*, released by the Ministry of Health health the definition of the impact assessment study (hereinafter referred to as the HIA study) is provided.

The **HIA Study** is the technical document that brings together environmental, health, economic and social aspects in order to quantify the ways in which health is affected, so that reasoned conclusions can be drawn, taking into account the information provided by the applicant (the Company), as well as those obtained by the evaluator (the Contractor) in order to complete and correct the assessment of the project impact on human health.

Following the above mentioned legal provisions, the Company is looking to hire a Contractor, that has the capacity to perform such a study that shall be incorporated in the Environmental Impact Assessment, currently under preparation.

### 3.2. Schedule

The tasks should be completed within 2 months of the signature of the contract. The execution of the tasks may not start before the contract has been signed.

### 3.3. Place of performance

The expected location where the successful Contractor shall perform the services is on the southern border of Tuzla administrative territory and is defined by the land plots identified by the following cadastral numbers: 109216, 109659, 109729, 100819.

### 3.4. Legal basis

The Contractor shall perform its activities in accordance with the provisions of the following legislation in force, without being limited to:

i. Order 756/1997 on environmental pollution
ii. Order 621/2014 regarding the approval of the threshold values for groundwater
iii. Law 104/2011 on ambient air quality
iv. Law no. 292/2018 on the assessment of the impact of certain public and private projects on the environment
v. Order 1524/2019 regarding the methodology for the organization of the studies to assess the impact of certain public and private projects on public health.

## 4. Assumptions and risks

In preparing their bids, the Bidders must consider at least the risks and assumptions further described. In this regard, the Bidder has to take into account when preparing the bid the activities, necessary resources and the associated costs (including without limits the costs with personnel, IT equipment and of other nature).

The assumptions considered at the beginning of the procedure for signing the Contract are:

i. The content of the required services is described in the Scope of Work;
ii. Delays in starting the services are not foreseen;
iii. Major changes of the institutional and legal framework that could affect the implementation and performance of the Contract are not foreseen;
iv. Bidder becoming party of the contract will sign the confidentiality agreement at Contract signing and will observe all instructions provided by COMPANY

## 5. Detailed Description of the Work to be Performed By Contractor

This chapter details all the required activities and specific conditions that shall apply within the Contract. According to the *Order 1524/2019 regarding the methodology for the organization of the studies to assess the impact of certain public and private projects on public health*, that establishes the content of an HIA study the Contractor to elaborate an HIA that will contain the following chapters:

a) Scope and objectives,
b) List of documents which served as input for the assessment,
c) Location data and other general information,
d) Identification and evaluation of potential risc factors for public health and discomfort factors for the population in the area,
e) Existing vs. proposed situation, potential risc on public health,
f) Risc assessment on public health: danger identification, exposure evaluation, dose/response assessment, risk characterization,
g) Recommendations and mandatory measures to minimize potential negative impact and maximize positive impact,
h) Alternatives, as the case may be,
i) Conclusions and mandatory conditions.

All these chapters shall be incorporated in the final HIA study, together with all the other documents required by the Order 1524/2019, that shall be put at the disposal of the Contractor by the Company (eg required authorizations and permits that are already released by the relevant Authorities for the Project, environmental analysis bulletins (water, emissions, noise, as appropriate), monitoring plans, existing permits, environmental balances, annual environmental reports etc.).

### 5.1. Qualitative and quantitative data collection

In accordance with the requirements of the relevant legislation (above mentioned), the Contractor shall start with data collection.

During the data collection stage, evidence on the effects of the project on health determinants and health outcomes shall be gathered.

| Matrix element | Parameter | Reference |
|---|---|---|
| -1- | -2- | -3- |
| Soil | Antimony | PSL 81 ED 1REV 0 |
| | Silver | |
| | Arsenic | |
| | Barium | |
| | Cadmium | |
| | Cobalt | |
| | Chromium | |
| | Copper | |
| | Manganese | |
| | Mercury | |
| | Molybdenum | |
| | Nickel | |
| | Lead | |
| | Selenium | |
| | Tin | |
| | Thallium | |
| | Vanadium | |
| | Zinc | |
| | Sulphides | STAS 7184/7-87 |
| | Sulphates | STAS 7184/7-87 |
| | Cyanides | ISO 11262:2011 |
| | THP | SR EN ISO 16703:2011 |
| | BTEX | SR EN ISO 22155:2013 |
| | -benzene | |
| | - toluene | |
| | -ethylbenzene | |
| | -o-xylene | |
| | -M + p xylene | |
| | Polycyclic aromatic hydrocarbons | SR ISO 13877:1999 |
| | (PAH) | |
| Underground water | BTEX | SR ISO 11423-1:2000 |
| | -benzene | |
| | -toluene | |
| | -ethylbenzene | |
| | -o-xylene | |
| | -m + p xylene | |

| Matrix element | Parameter | Reference |
|---|---|---|
| | Hydrocarbonn indices (THP) | SR EN ISO 9377-2:2002 |
| | Cadmium | SR EN ISO15586:2004 |
| | Chromium | |
| | Copper | |
| | Lead | |
| | Nickel | |
| | Arsenic | |
| | Mercury | SR EN ISO 12846:2012 |
| | Sulphates | ASTM D 516:2016 PSL 49 |
| | Phosphorus | SR EN ISO 6878:2005 |
| | Chloride | SR ISO 9297:2001 |
| | Ammonium | SR ISO 7150-1:2001 |
| **Air (emisions)** | Carbon monoxide | PS-L 58 ed 2, rev 1 |
| | Nitrogen dioxide | |
| | Sulphur dioxide | |
| | Powders in suspension | STAS 10813/76 |
| | Ammonia | STAS 10812/76 |
| | Hydrogen sulfide | STAS 10814/76 |
| | COV | PSL 61 ED 1 REV 0 |

A number of different quantitative approaches can be used to estimate the changes of health determinants or to quantify the change in health state health outcomes of some population groups in the future due to the project development or implementation.

In order to carry out the geotechnical study, part of HIA, the Contractor shall carry out:

i. drilling tests (maximum 25pcs),
ii. soil samples from meter to meter,
iii. groundwater samples.

The following tests shall be conducted:

i. Soil - metals (Sb, Ag, As, Ba, Cd, Co, Cr, Cu, Mn, Hg, Mo, Ni, Se, Sn, Tl, V, Zn), sulfides, cyanides sulphates, total hydrocarbons (THP), BTEX, Polycyclic Aromatic Hydrocarbons (PAHs);
ii. Groundwater - BTEX, THP, Cd, Cr, Ni, Cu, Pb, As, Hg, ammonium, sulphates, phosphates, chlorides;
iii. Air-CO, NO, SO2, Total suspended dust, VOC, H2S, NH3.

Sampling of soil shall be carried out according to the standards STAS 7184 / 1-84, ISO 18400-104,2043: 2018, ISO 18400-202: 2017.

### 5.2. Impact analysis

The purpose of the health impact analysis is to identify and characterise potential impacts emerging from the previous steps. Impact analysis involves organising evidence of impacts from the different data sources, qualitative and quantitative, and considering:

i. Health impacts - the health determinants affected and the subsequent effect on health outcomes;
ii. Direction of change – indicates a health gain (+) or loss (-);
iii. Scale – severity of the impact (mortality, morbidity/injury and well being) and the size/proportion of the population affected (high, medium, low);
iv. Likelihood of impact – probable, possible or speculative, based on the strength of evidence (eg evidence from systematic reviews or meta analyses) and number of sources (eg literature, stakeholders/key informants, documents) ;
v. Latency – when the impact will occur – immediate, short, medium or long term.

The Contractor shall also provide a Health Impact Matrix that shall include the following minimum data related to the potential Health Impacts Direction / Scale / Likelihood:

i. Impact on water;
ii. Impact on air;
iii. Impact on soil;
iv. Impact on population.

### 5.3. Recommendations developed

The prioritisation process will allow recommendations to be developed for the highest priority impacts.
The recommendations are proposals for alternative and/or additional action for the project in order to maximise health gain and to mitigate against adverse health effects. These recommendations should be practicable, achievable and where possible there should be an evidence-base of effectiveness. It may not be necessary to develop recommendations for all the impacts identified. The development of recommendations is as important as the identification of the impacts and should be allocated appropriate resources. It should be noted that impacts are not necessarily reversible, that is removing a negative impact will not necessarily produce a positive health effect.

### 5.4. Report Issuance

Once the assessment is complete, impacts have been identified and recommendations for policy revision developed, a first draft report describing the process, findings and policy revision options shall be presented to the company's representative.

All versions of the report shall be issued in Romanian and English.

Company shall issue written comments along with approval and/or other recommendations within 20 business days from the receipt.

Contractor is required to return comments along with approval and/or other recommendations within 10 business days.

Documents for review will be issued via electronic document management system, details of which will be confirmed at a later date.

Work is anticipated to occur at Contractor's office(s) via electronic correspondence.

The report is considered final when is accepted by the authorities as it will demonstrate that it was executed in compliance with the relevant regulations.

## 6. Contractor Personnel Requirements

Contractor shall provide an organization chart and a description of the role and responsibilities for each Key Personnel listed below:

i. Project Manager;
ii. HIA Expert;

In order to efficiently complete all required activities in relation to the requested services, the Contractor must provide appropriate staffing, demonstrably competent in terms of qualifications and experience for performing the marine warranty survey services, consistent with the minimal requirements for key personnel listed below:

i. Project Manager - prior relevant experience in managing & participating in similar projects;

ii. HIA Expert – involvement in at least one project, as HIA Expert.

Contractor shall provide for each proposed expert CV's on brand letterhead. The CV shall contain at least: current employer, current work location, nationality, professional certifications, education with graduation dates, professional work experience with dates and emphasis on past/present contributions and roles on HIA projects.

All proposed personnel shall not be in any conflict of interest or incompatibility situation with the given responsibilities and/or with the activities under the resulting Contract and COMPANY's other contracts. If it becomes aware of the existence or possibility of a conflict of interest during the performance of the resulting Contract, the Contractor will immediately notify the COMPANY and take such steps to avoid or mitigate the conflict of interest or possible conflict of interest.

In addition, during the entire period of subsequent contracts` implementation, Contractor shall take all necessary measures to prevent any situation that could compromise impartially and objectively performing the activities, for achievement of the objectives associated to each subsequent contract.

It is the Contractor's responsibility to ensure and to strictly follow that all staff involved in the contract have a thorough knowledge and understanding of the:

i. requirements, purpose and objectives of the contract,
ii. the assigned responsibilities.

All personnel shall act with the degree of professional, knowledge, skill, expertise, experience and care which would be reasonably expected of an expert professional providing services similar to those included in this Scope of Work.

Contractor's personnel nominated for the Project shall be dedicated as needed to perform services described in this Scope of Work until Project completion. Contractor shall obtain COMPANY's written approval prior to replacing personnel in the event they leave or are removed from the Project. Personnel replacements shall have the same experience level as their predecessor for their respective position.

### 6.1. Personal Protective Equipment (PPE)

Contractor shall have a Personal Protective Equipment (PPE) in order to reduce any individual's exposure to hazards. Personnel shall be equiped with PPE appropriate to the tasks being undertaken on the field.

Personal Protective Equipment required to satisfy installation contractor(s) requirements, COMPANY requirements and fabrication yard requirements shall be obtained for each nominated surveyor and costs shall be borne by Contractor. Minimum PPE required by COMPANY is hard hat with chin strap, safety glasses, adequate shoes, coveralls and work gloves.

## 7. Project Management and Progress Reporting

Contractor shall carry out and be responsible for the management of the Work as described in the Scope of Work including provision of the necessary project management resources, controls, plans, procedures, and systems to achieve the satisfactory completion of the Work in accordance with its obligations under Contract.

COMPANY expects regular coordination with Contractor during the course of the work. Estimates in the Contractor proposal response should include costs for meetings attendance (including reimbursable expenses). The Project Manager shall participate in a monthly coordination meeting with COMPANY staff following Contract Award. Location and exact coordinates for meeting shall be mutually agreed.

Contractor shall have available IT infrastructure, all necessary software (including latest versions of Microsoft Office Suite [Word, Excel, PowerPoint, Project]) and support capability for Contractor's work.

The monthly progress report shall be issued by the 5th or next business day if weekend for prior month's activities.

The Contractor is fully responsible for:

a. providing resources planning in relation to the estimated schedule for carrying out the contract;
b. meeting its obligations observing best practices in the field, the relevant legal and contractual requirements, and with full understanding of the complexities related to the successful implementation of the contract so as to ensure achievement of the objectives set, including the assurance that activities and results are implemented within the quality parameters required;
c. performing of services complying with the scope of work requirements;
d. presentation of outcomes in the form/formats meeting the COMPANY's requirements;
e. The collaboration with the COMPANY's staff assigned for the services provision under the contract.

The COMPANY is responsible for:

a. making available all information on hand for the contractor to achieve the expected outcomes, such as input data, reporting, specific situations;

b. assigning the team involved and responsible for interaction and support provided to the contractor;
c. providing all the resources in its task for the good performance of the contract.

## 8. Safety, Security, Health and Environment (SSH&E)

COMPANY put its highest value in ensuring meeting our moral obligation to provide a safe, healthy, environmentally friendly, and secure work environment. Through contracting requirements specified below, COMPANY will work with Contractor to meet following SSH&E objectives:

- Achieve an injury and incident free work place – Nobody Gets HURT
- Promote a culture where "safety is a core value"; all leadership and management jointly recognize the moral responsibilities to provide a safe workplace for all workers including subcontractors.
- Reinforce the message that safety shall never be compromised to achieve any other business objectives.
- Work collaboratively with Contractor to continually improve SSH&E culture, management system and performance through the use of structured improvement initiatives.

Contractor is required to have and maintain SSH&E procedures through out the contract implementation. The Contractar is advised to have an incident statistics and report results (in case such incidents might come up during the contract implementantation this registration shall be requested).

## 9. Preparation of Technical Proposal

The Technical Proposal must provide all the information required to assess the compliance with these specifications and the award criteria.

Bids deviating from the minimum requirements or not covering all the requirements included in the Scope of Work may be rejected on the basis of non-compliance and not evaluated further.