1 Introduction

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1.1 Introduction

The Shallow Water Absheron Peninsula (SWAP) Contract Area is located within the Azerbaijan sector of the Caspian Sea and extends across approximately 1,900km^2 from the coastline to a water depth of approximately 40m (refer to Figure 1.1).

In December 2014, BP signed a Production Sharing Agreement (PSA) with the State Oil Company of Azerbaijan Republic (SOCAR) to jointly explore and develop potential prospects in the SWAP Contract Area. BP Exploration (Azerbaijan) Limited has been appointed as the Technical Operator for and on behalf of the PSA signatories.

Initial studies completed by the project geologists indicate that there are potential hydrocarbon reservoirs within the SWAP Contract Area at depths of 3,000-5,000m and at shallower depths of 1000m**.** To further characterise the subsurface geology and potential reservoirs within the Contract Area and in the surrounding areas two seismic surveys are planned:

- A two dimensional (2D) seismic survey within the deeper waters of the SWAP Contract Area and the surrounding areas at water depths greater than approximately 10m; and
- A three-dimensional (3D) seismic survey within the shallower waters (less than approximately 25m water depth) of the SWAP Contract Area and the surrounding nearshore and onshore areas.

This Environmental and Socio-Economic Impact Assessment (ESIA) has been prepared in support of the SWAP 3D Seismic Survey. The area the seismic survey is planned to extend across is approximately 1,520km^2, and comprises both onshore and offshore shallow water areas (refer to Figure 1.1).

1.1.1 Overview of 3D Seismic Survey

The 3D Seismic Survey will be undertaken across a Survey Area which has been subdivided into Priority Areas 1 to 5 and comprises both onshore and offshore areas (refer to Figure 1.1). The onshore element of the survey covers approximately 90km^2 and is located within Priority Areas 1, 2 and 3 only.

The onshore and offshore surveys will use the Independent Simultaneous Sources (ISS)^{TM} Methodology. This allows all seismic sources to operate independently and simultaneously without the requirement to synchronise their activity; any interference between signals can be removed later by advanced data processing.

The survey methods to be adopted comprise:

- ***Onshore:*** Use of seismic vibrator (known as vibroseis) trucks and smaller Onshore Synchronised Electrical Impulsive Source (OnSEIS) units, accompanied by a fleet of support vehicles and personnel for technical and safety support throughout the survey. Vibroseis trucks use vibrating baseplates that are compressed against the ground and release a controlled burst of energy into the subsurface environment which is then reflected back from the boundaries between different subsurface layers to surface receivers (termed as nodes). The energy pulse from an OnSeis unit, which is smaller and lighter than a vibroseis truck, is generated electrically. These units will be used in areas of difficult terrain and/or very limited access.

  The vibroseis truck and OnSEIS unit sources will be activated at intervals of 50m along a grid of source lines spaced 400m apart in Priority Areas 1, 2 and 3. Nodes will have been previously deployed along perpendicular receiver lines by the node layout crews. It is planned that the nodes, which are autonomous, are positioned at 25m intervals along the receiver lines spaced approximately 400m apart with the nodes laid out a few days ahead of the source trucks or units reaching the area. The layout of the nodes will be checked and verified prior to data acquisition. Once the seismic sources have passed, the nodes will be moved to the next survey area. They will be collected, as required, for the data obtained by each node to be downloaded and analysed.

- ***Offshore:*** Use of ocean bottom seismic acquisition method using a number of source vessels as determined by water depth:
    - 0-2m water depth (Transition zone): Two small industrial grade inflatable Very Shallow Gun Array (VSGA) vessels will be used equipped with a compressed air operated energy source operating during daylight hours only;
    - 2-5m water depth (Very shallow water zone): One similar but slightly larger industrial grade inflatable boat equipped with a compressed air operated energy source array operating during daylight hours only;
    - More than 5m water depth (Shallow water zone): Two aluminium hulled catamaran vessels each equipped with a compressed air operated energy source array operating 24 hours a day.

The source vessels will travel along a grid of lines spaced approximately 500m apart with energy sources activated at 25m intervals in each of the five Priority Areas. The nodes will have previously been deployed in a grid along receiver lines spaced 200m apart by a fleet of six node vessels. Once the survey has been completed in each area, the nodes will be collected by the node vessels and transferred to support vessels for battery recharge and data download. The offshore vessels will be accompanied by a fleet of support vessels for logistical and technical support, supplies, safety and crew change purposes.

The survey activities will be supported from a main base camp to be sited at the existing Hovsan Port and up to 3 sub bases (shown in Figure 1.1). At Hovsan Port the project will use existing facilities supplemented with pre-fabricated accommodation and welfare facilities, transported to and erected on the site as part of pre-mobilisation activities. A dedicated fuel storage area, with an impervious base and appropriate bunded, will also be installed on site and existing dedicated access road will be upgraded for project use as part of pre-mobilisation activities.

At the sub bases, which all include existing jetties, use of existing infrastructure will be used to provide refuelling facilities for vessels and maintenance areas and office and welfare facilities as required.

At both the main base and the sub-bases existing mains services (i.e. electricity, gas, water and telecommunications) will be used for the duration of the survey.

The 3D Seismic Survey activities are planned to commence in March 2016 with the activities within Priority Area 1 completed first. Surveys within all Priority Areas are planned to be completed by end of November 2016 with Priority Area 5 to be surveyed last. The order in which the Priority Areas are planned to be surveyed has been informed by technical, logistical and environmental considerations.

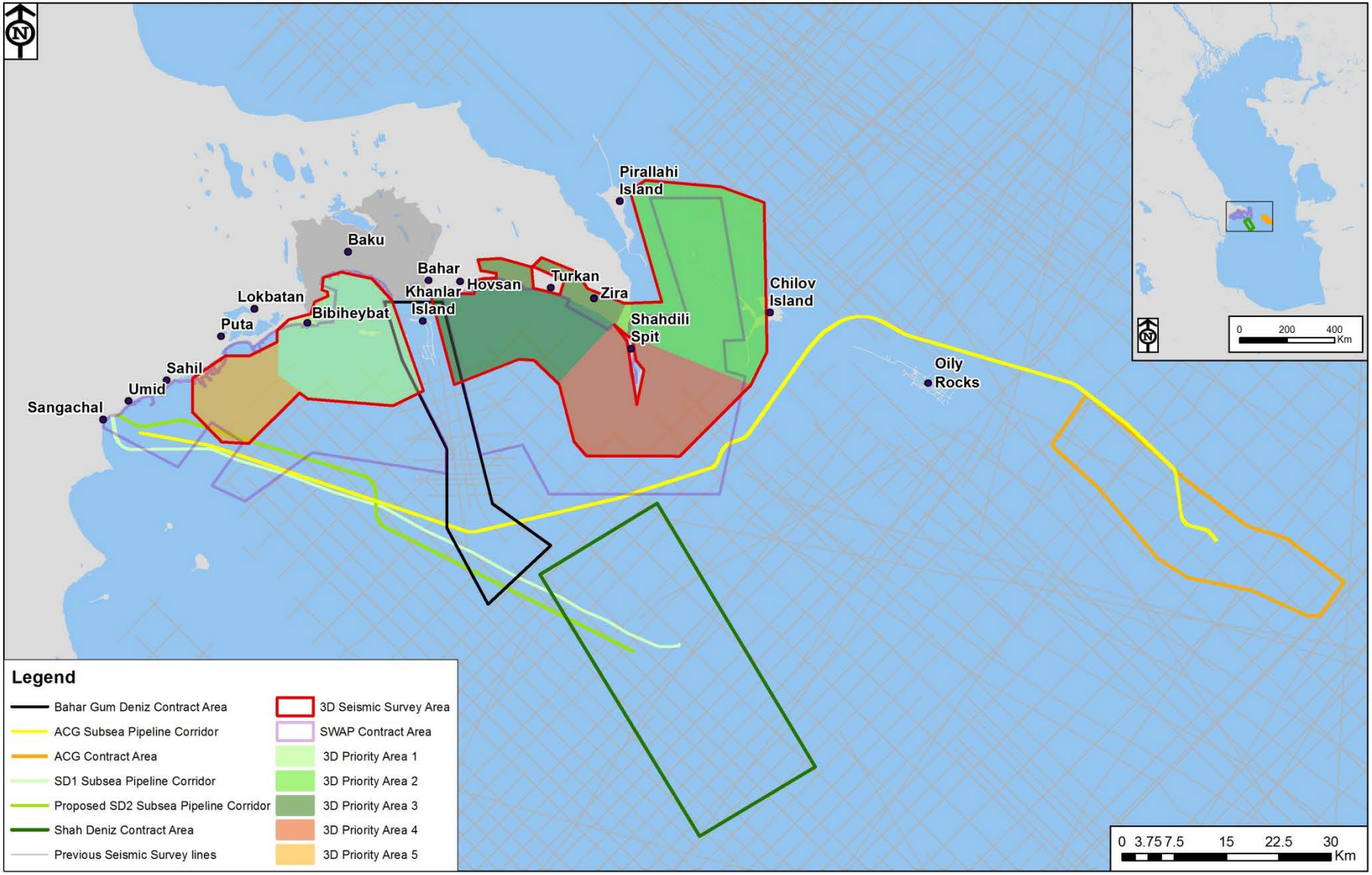
1.1.2 Other BP Exploration and Production Activities in the SWAP Contract Area Vicinity

Under the Azeri Chirag Gunashli (ACG) and Shah Deniz (SD) PSAs, signed in 1994 and 1996 respectively, BP have been undertaking exploration and production activities since 1995 including the completion of offshore seismic surveys and drilling activities and the installation and operation of onshore and offshore production and export facilities (refer to Figure 1.1). Environmental and social data have been collected throughout this period through surveys and third party data collection with the purpose of informing assessments of potential environmental and social impacts and identifying trends observed in the environment including those that may be the result of BP's activities.

The location of the ACG and SD Contract Areas and the associated subsea pipeline corridors relative to the SWAP Contract Area are shown in Figure 1.1. The Bahar Gum Deniz Contract Area, which is the subject of a PSA between SOCAR and Bahar Energy Ltd, is also shown.

The historic survey lines shown within Figure 1.1 relate to seismic surveys completed by Caspian Geophysical in the 1990s for a joint venture which included SOCAR. Where available, the results from these surveys have contributed to the understanding of the underlying geological features offshore in the region and the likely potential for hydrocarbon reserves.

Figure 1.1: Location of the SWAP, ACG, Bahar Gum Deniz & SD Contract Areas, the SWAP 3D Seismic Survey Area and Previous Seismic Survey Lines within the Vicinity of the SWAP 3D Seismic Survey Area



1.2 Scope of the 3D Seismic Survey ESIA

The overall objective of the SWAP 3D Seismic Survey ESIA process is to identify, reduce and effectively manage potential negative environmental and socio-economic impacts arising from the SWAP 3D Seismic Survey activities.

The purpose of this ESIA is to:

- Ensure that environmental and socio-economic considerations are integrated into the seismic survey design and implementation;
- Ensure that environmental and socio-economic impacts are identified, quantified and assessed and appropriate mitigation measures proposed;
- Ensure that a high standard of environmental and socio-economic performance is planned and achieved;
- Ensure that applicable legal, operator and PSA requirements and expectations are addressed;
- Consult with relevant stakeholders throughout the ESIA process; and
- Demonstrate that the seismic survey will be implemented with due regard to environmental and socio-economic considerations.

Within the impact assessment, activities and potential receptor interactions are evaluated against existing environmental and socio-economic conditions and sensitivities, and the potential impacts are ranked. The assessment of potential impacts takes account of existing and planned controls and monitoring and mitigation measures developed as part of previous seismic survey projects undertaken by BP.

1.3 ESIA Team and Structure

The details of the SWAP 3D Seismic Survey ESIA Team are provided in Table 1.1.

Table 1.1: SWAP 3D Seismic Survey ESIA Team

Team Member	Role
AECOM	ESIA Project Manager and Lead Authors
	Cultural Heritage and Archaeology Assessment
	Terrestrial Ecology Assessment
	Noise and Vibration Assessment
James McNee (with AECOM)	Marine Ecology Assessment
Environmental and Social Advisory Services Limited (with AECOM)	Socio-Economic Assessment
Tamara Zarbaliyeva	Local Fish and Fisheries Specialist
Tariel Eybatov	Local Caspian Seal Specialist
Ilyas Babayev	Local Bird Specialist
Sulaco	Local Socio-Economic Specialists
Tofig Guliyev	Local Botany Specialist
Anar Jafarov	Local Herpetofauna Specialist
Esmira Mammadrzayeva	Local Fauna Specialist
Institute of Archaeology and Ethnography	Local Archaeology Specialists
Peter Ward	Underwater Sound Specialist
BP	SWAP Contract Area PSA Operator on behalf of SWAP PSA Partners
	Spill Modelling

Table 1.2 provides a summary of the 3D Seismic Survey Project ESIA Report structure and content.

Table 1.2: Structure and Content of 3D Seismic Survey ESIA

Chapter	Content
Executive Summary	A summary of the ESIA.
Units and Abbreviations	A list of the units and abbreviations used in the ESIA.
1. Introduction	A general introduction to the 3D Seismic Survey ESIA, including objectives and ESIA structure.
2. Policy, Regulatory and Administrative Framework	A summary of applicable legislative requirements including those associated with the SWAP PSA, ratified international conventions, International Petroleum Industry Standards and Practices and applicable national legislation and guidance.
3. Impact Assessment Methodology	A description of the methodology used for the ESIA including the approach to determining impact significance and a summary of consultation undertaken during the ESIA programme.
4. Project Description	A detailed description of the SWAP 3D Seismic Survey project activities including a brief description of the options considered during the seismic survey planning relevant to the ESIA.
5. Environmental Description	A description of environmental baseline conditions in the vicinity of the SWAP 3D Seismic Survey area.
6. Socio-Economic Description	A description of socio-economic baseline conditions in the vicinity of the SWAP 3D Seismic Survey area.
7. Consultation and Disclosure	An overview of consultation activities undertaken during the ESIA programme and the issues and concerns raised.
8. Environmental Impact Assessment, Monitoring and Mitigation	An assessment of the potential environmental impacts associated with the SWAP 3D Seismic Survey activities, including any necessary mitigation and monitoring.
9. Socio-Economic Impact Assessment, Monitoring and Mitigation	An assessment of the potential socio-economic impacts associated with the SWAP 3D Seismic Survey activities, including any necessary mitigation and monitoring.
10. Cumulative, Transboundary and Accidental Events	An assessment of the potential cumulative and transboundary impacts and accidental events associated with the SWAP 3D Seismic Survey.
11. Environmental and Socio-Economic Management	A summary of the environmental and socio-economic management system associated with the SWAP 3D Seismic Survey.
12. Residual Impacts and Conclusions	A summary of the residual impacts and conclusions arising from the ESIA process.
Appendices	Supporting technical information.