bp EXPLORATION (Shah Deniz) Ltd

Shah Deniz Compression Project

Environmental & Social Impact Assessment: Non-Technical Summary

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NON-TECHNICAL SUMMARY

This Non-Technical Summary (NTS) presents a concise overview of the Environmental and Social Impact Assessment (ESIA) prepared for the proposed Shah Deniz Compression (SDC) project located in the Shah Deniz (SD) Contract Area. It is intended to provide a summary of the project design and activities, the issues considered in the ESIA and of the main conclusions with respect to the potential environmental and social impacts and their mitigation. Detailed technical descriptions of modelling studies, proposed mitigation and monitoring activities are presented in the main sections of the ESIA.

N.1 Introduction

The SD Contract Area, which covers an area of approximately 860 km^2, is located approximately 70 km southeast of Baku. The development of the Contract Area has been pursued in phases which, to date, has included Shah Deniz Stage 1 (SD1) and Shah Deniz Stage 2 (SD2). Operations at the SD field began in 2006 with the start-up of production from the Shah Deniz Alpha (SDA) platform, as part of SD1. The Shah Deniz Bravo (SDB) platform was developed under SD2 and began production in 2018.

The SDC project represents the next stage of development of the SD Contract Area. Figure N.1 shows the location of the proposed SDC facilities and infrastructure.

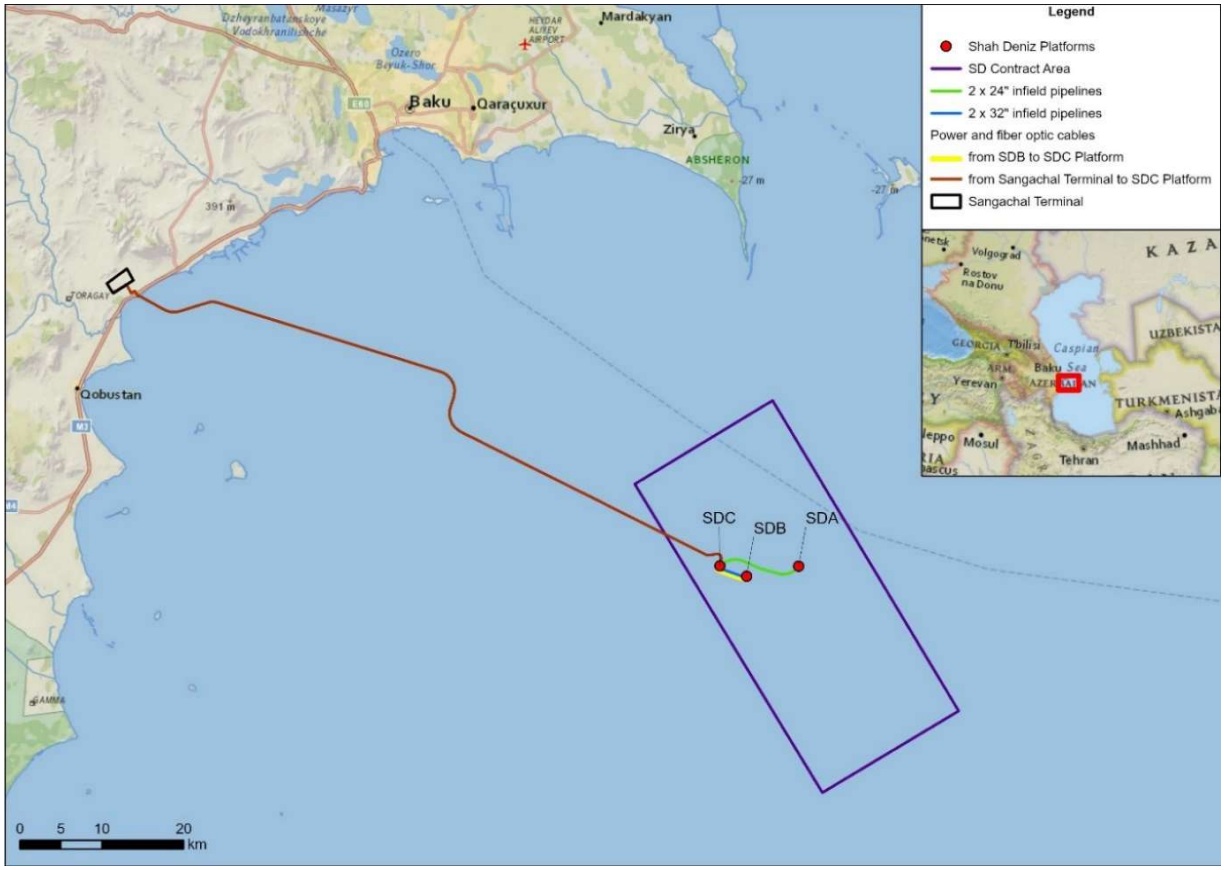

Figure N.1: Location of Shah Deniz Contract Area and proposed SDC facilities / infrastructure

Note: SDA platform, SDB platform and Sangachal Terminal already in existence.

N.2 Project Overview

The SDC project involves the installation of compression facilities offshore in the SD Contract Area is order to access and produce low pressure gas reserves in the field and maximise recovery of resources.

The project comprises:

- an electrically powered Normally Unattended Installation (eNUI) (i.e. the unmanned Shah Deniz Compression (SDC) platform)
- infield subsea gas pipelines to / from the existing SDA and SDB platform gas export lines
- a combined power and fibre optic cable (PFOC) from Sangachal Terminal to the SDC platform to power the facility, and a back-up interconnector PFOC from SDB to SDC platform.

The SDC platform will serve as a host facility for SDA and SDB gas compression. It will be located approximately 3 km from SDB platform in 85 m water depth. Gas from SDA and SDB will be compressed at SDC before exporting it to Sangachal Terminal, utilising the existing SDA and SDB gas export pipelines, see Figure N.2.

Brownfield works will be undertaken at SDA, SDB and Sangachal Terminal. No new infrastructure will be required at Sangachal Terminal (other than installation of power receiving and transfer kit) and there will be no expansion of the terminal area.

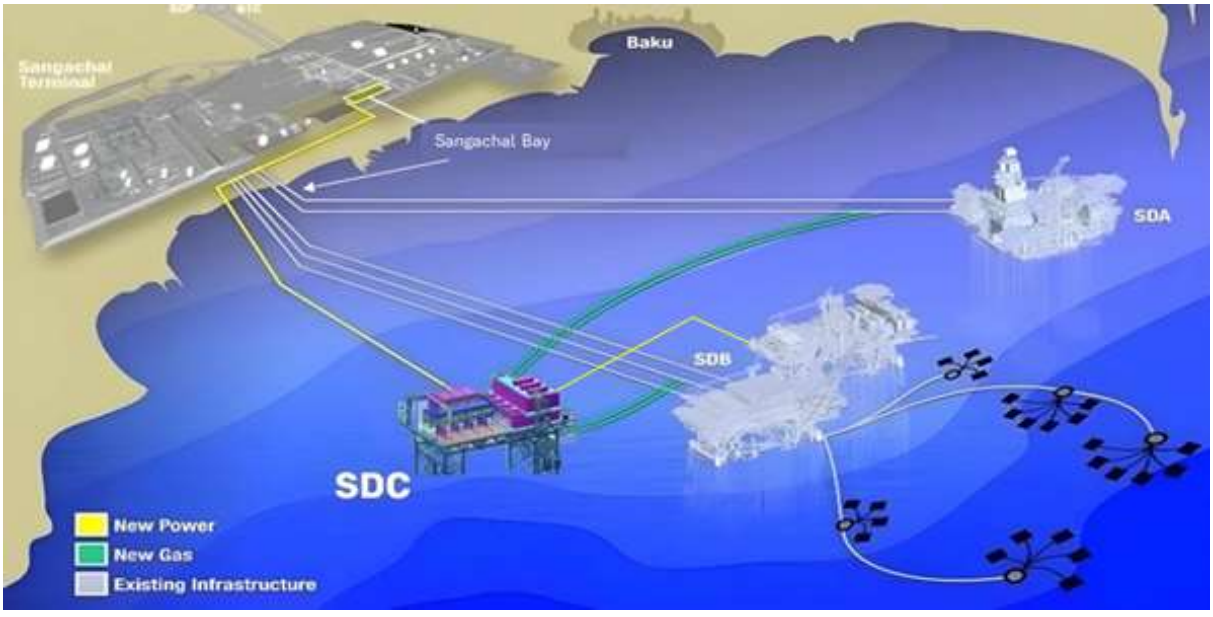

Figure N.2: Schematic of proposed SDC facilities

A schedule for the SDC project activities is provided in Figure N.3 and supports a first gas date of mid 2029 from SDA platform and mid 2030 from SDB platform. The majority of the onshore construction and commissioning activities at the construction yards are expected to occur between 2026 and 2028 based on the current schedule.

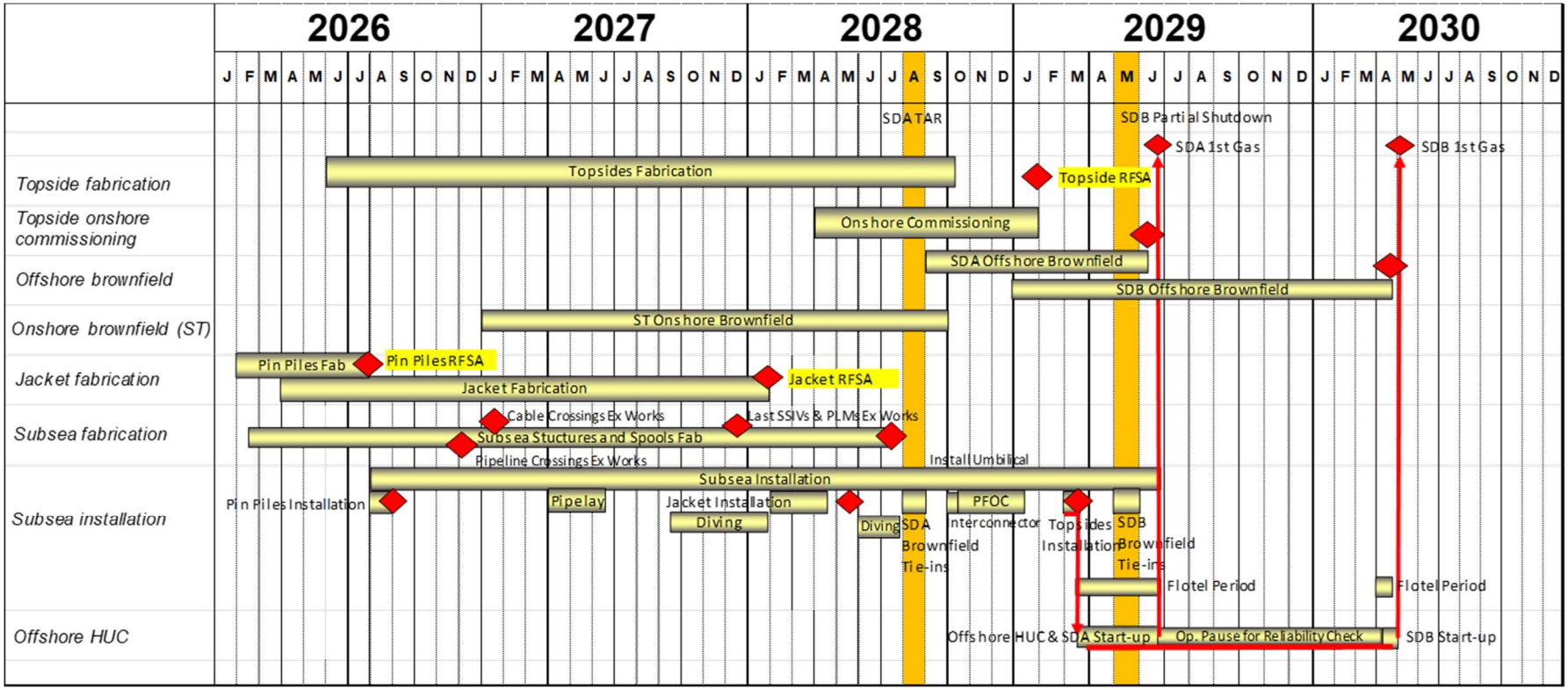

Figure N.3: Estimated SDC project schedule

Notes: RFSA – ready for sail away; TAR – turnaround (scheduled event where facility is taken offline for extended work); PFOC – power and fibre optic cable.

The environmental and social impacts associated with each project phase[1] have been assessed in accordance with the methodology presented below. The volumes of emissions, discharges and wastes associated with each phase have also been estimated.

N.3 Assessment Methodology

The ESIA process (see Figure N.4) constitutes a systematic approach to the evaluation of a project and its associated activities throughout the project lifecycle. The overall aim is to identify, reduce and effectively manage potential negative environmental and social impacts arising from the SDC project activities.

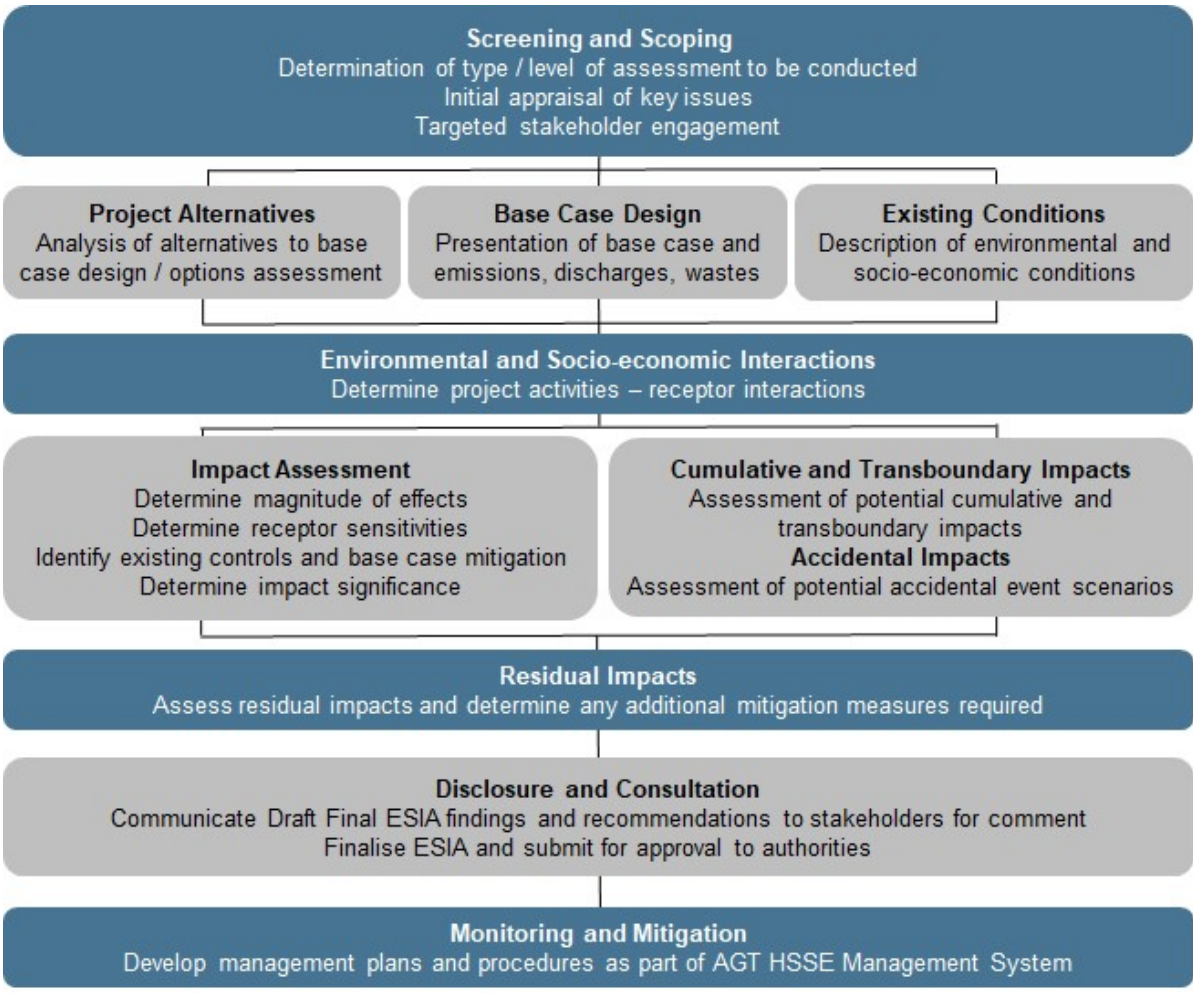

Figure N.4: ESIA process

Assessment of SDC project impacts has been undertaken based on identified SDC project activities and events for each phase that have the potential to interact with the environment. The expected significance of the impact has been assessed taking into account:

- Magnitude **of effect** evaluated according to the following criteria:
  - the nature and size of the change
  - the geographical extent of the change

[1] See Section N.6 for a description of the project phases.

- the duration, frequency and reversibility of the change
- relevant legislative or policy standards or guidelines.

Magnitude is scored from 1 (very low) to 4 (high), based on definitions provided in the ESIA. A rating of 0 is provided for beneficial (positive) effects.

- Receptor **sensitivity** which takes into account:
  - its local, regional, national and international designations
  - its importance to the local or wider community
  - its economic value.

  Sensitivity is scored from 1 (very low) to 4 (high), based on definitions provided in the ESIA.

Impact significance, as a function of the magnitude of effect and receptor sensitivity, is subsequently ranked as negligible, minor, moderate or major for adverse impacts as presented in Figure N.5.

Significance			Sensitivity rating			
			Very low	Low	Medium	High
		0 Positive	1	2	3	4
Magnitude rating	Very low	1	1 Negligible	2 Negligible	3 Minor	4 Minor
	Low	2	2 Negligible	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Major
	High	4	4 Minor	8 Moderate	12 Major	16 Major

Figure N.5: Impact significance matrix

The SDC project impact assessment process has benefited from the fact that offshore Shah Deniz and Azeri Chirag Guneshli (ACG) Contract Area[2] discharges and emissions have been comprehensively studied and characterised during the operational phases of the existing SD and ACG facilities. As a result, impacts have been evaluated and understood to a far greater extent than is typically possible.

The evaluation of impacts for the SDC project has been based on three principal sources of information:

- previous environmental risk assessments, including results of toxicity tests and modelling studies which are applicable to the SDC project

[2] The ACG Contract Area is also operated by bp and is located approximately 100 km east of the SD Contract Area in Azerbaijani waters of the Caspian.

- SDC specific supporting studies, including air quality and noise screening assessments, underwater sound modelling, pipeline and subsea pre-commissioning and commissioning discharge modelling, and literature reviews commissioned from local specialists on the topics of fish and fisheries, birds and Caspian seals
- results from the bp Azerbaijan Georgia and Turkey (AGT) Region Environmental Monitoring Programme (EMP)[3] this included project specific monitoring (at the proposed offshore location of the SDC platform in August 2023); regional monitoring to identify and quantify environmental trends; nearshore monitoring in Sangachal Bay; and onshore / coastal monitoring in the vicinity of Sangachal Terminal.

N.4 Policy, Regulatory and Administrative Framework

The assessment has also included examination of how agreements, legislation, standards and guidelines apply to the project.

The detailed legal regime for the joint development and production sharing of the Shah Deniz field is set out within the Production Sharing Agreement (PSA) signed by bp and its co-venturers and the State Oil Company of the Azerbaijan Republic (SOCAR) in June 1996 and enacted into law in October 1996.

The PSA states that the "*contractor shall conduct the petroleum operations in a diligent, safe and efficient manner in accordance with the Environmental Standards … to minimise any potential disturbance to the general environment, including without limitation the surface, subsurface, sea, air, lakes, rivers, animal life, plant life, crops, other natural resources and property*". It also requires the contractor to "…*comply with the present and future Azerbaijani laws or regulations of general applicability with respect to public health, safety and protection and restoration of the environment to the extent that such laws and regulations are no more stringent than the Environmental Standards*".

Environmental standards and practices are specified in Appendix 9 of the Shah Deniz PSA.

The project also takes into account a wide range of international and regional environmental conventions and commits to comply with the intent of current national legislative requirements where those requirements are consistent with the provisions of the PSA, and do not contradict, or are otherwise incompatible with, international petroleum industry standards and practice.

It should be noted that approved ESIAs act as legal permits for bp to operate within Azerbaijan. As such the SDC project will also adhere to the framework of environmental and social standards and commitments within this ESIA once approved by the Ministry of Ecology and Natural Resources (MENR).

N.5 Options Assessed

The key options assessed during the SDC project design development have focused on:

- concept selection and definition
- the selection of a suitable location within the SD Contract Area to site the offshore platform
- platform design and simplification

[3] Survey data has been collected under the AGT EMP from 2004 to date and overseen by stakeholder representatives including SOCAR, ministerial bodies, and the Azerbaijan National Academy of Sciences (now the Azerbaijan Ministry of Science and Education).

- platform power source selection
- infield pipeline routing.

Throughout the design development, environmental evaluation of the project options was undertaken alongside technical and economic evaluation and consultation with stakeholders including SOCAR and the SD partners.

The concept selection was primarily informed by proximity to other existing SD infrastructure; seabed / subsurface conditions; the need to simplify the platform for unmanned operation and economic efficiency; and the goal of providing electrical power to the SDC platform in synergy with other project goals such as bp's Net Zero Aim 1, which envisages bp becoming net zero across its operations on an absolute basis by 2050 or sooner.

The option of not developing the SDC project was also considered. The decision to not proceed would result in a reduction of potential revenues to the Azerbaijan government (the SDC project enables bp to maximise recovery of resources from the field) with a resultant inability to deliver the associated benefits to the Azerbaijan economy. Pursuing the SDC project will result in employment creation for national citizens during the design, construction, and to a lesser extent operational phases of the development, as well as increased use of local facilities, infrastructure and suppliers. The option of not proceeding was therefore disregarded when considered against these socio-economic benefits.

N.6 Environmental Impact Assessment

Environmental impact assessment has been conducted for the following phases of the SDC project:

- **Construction, installation, hook up and commissioning (HUC)**:
  - onshore construction and commissioning of facilities at the construction yards
  - offshore platform installation and HUC
  - offshore infield pipeline and subsea infrastructure installation and commissioning
  - PFOC installation (offshore, nearshore and onshore[4])
- **Operations**:
  - offshore operations
  - onshore operations (at Sangachal Terminal)
  - electricity import.

Brownfield works at Sangachal Terminal are outside the scope of this ESIA.

In view of the operational lifetime of the SDC platform, and associated infrastructure, it is not currently possible to provide a detailed methodology for the potential decommissioning of the facilities.

N.6.1 Construction, Installation and HUC

Table N.1 presents the residual impacts of the environmental assessment for the construction, installation and HUC phase of the SDC project.

[4] The offshore section is classed as the connection to SDC and the offshore route; the nearshore section is classed as that in Sangachal Bay; and the onshore section is classed as that between the Sangachal landfall and Sangachal Terminal (section of cable within terminal boundary is outside the scope of this ESIA).

Table N.1: Summary of residual environmental impacts for SDC construction, installation and HUC

Receptor	Activity	Scoring		
		Magnitude of effect	Receptor sensitivity	Impact significance
Atmosphere	Emissions from construction yard plant and vehicles	2 - low	2 - low	4 – minor
	Emissions from onshore PFOC installation plant and vehicles	1 – very low	2 – low	2 – negligible
	Emissions from offshore installation and support vessels and helicopters	2 – low	1 – very low	2 – negligible
Terrestrial environment (noise)	Noise from construction yard plant and vehicles, and from commissioning activities (Bayil only)	2 - low	2 - low	4 – minor
	Noise from onshore PFOC installation plant and vehicles	2 – low	2 / 3 – low / medium	4 / 6 – minor / moderate
Marine environment	Infield pipeline and subsea infrastructure commissioning discharges	2 – low	2 - low	4 – minor
	Vessel operational discharges	1 – very low	2 - low	2 - negligible
	Discharge of cement during grouting of piles	1 – very low	2 - low	2 - negligible
	Underwater sound from pin and skirt piling	3 - medium	3 - medium	9 – moderate
	Underwater sound from vessel movements	1 - low	3 - medium	3 – minor
Nearshore / coastal environment (ecology and coastal processes)	Construction of finger pier and nearshore PFOC installation works	2 – low	2 - low	4 – minor
Terrestrial environment (ecology)	Onshore PFOC installation	2 - low	3 - medium	6 – moderate
Terrestrial environment (soil and surface water)	Onshore PFOC installation	2 - low	2 - low	4 – minor
Terrestrial / nearshore environment (cultural heritage)	Onshore PFOC installation	2 – low	2 / 3 – low / medium	4 / 6 – minor / moderate
Note: Brownfield works at SDA and SDB platforms scoped out of full assessment.				

Air quality and noise screening assessments have been conducted for the construction yards, and along the onshore PFOC installation route. These studies demonstrate that potential impacts to onshore human receptors are considered to be negligible to minor. The exception to this is noise impacts from the PFOC landfall construction works which were ranked as minor / moderate. This is due to the close proximity of individual dwellings at the landfall, and rocky stone being present in the area of the beach where the cable route and cable transition pit will be excavated. As a result, construction activities at the landfall, in particular any rock breaking, will be scheduled for the hours of daylight where feasible to minimise noise impacts.

Following installation of the infield pipelines offshore in the SD Contact Area they will be cleaned, gauged and hydrotested[5]. This involves the use of seawater containing preservation chemicals (to prevent corrosion and biological growth). Discharges to sea of treated seawater associated with these activities are anticipated to vary in volume between approximately 0.4 m^3 and 6,416 m^3. Dilution and dispersion modelling has been conducted for the worst case scenarios in terms of volume and flow rate (for flood, clean, gauge scenarios; and dewatering scenarios). Predicted no-effect concentrations were achieved at approximately 250 m from the discharge point (assuming that the chemicals are used up in providing protection to the pipeline and are discharged at 20% of the concentration applied). Under typical use and discharge conditions it is predicted that the plume will occupy a very small volume of the available water column at the discharge location and will rapidly achieve dilution of the hydrotest chemicals to below toxic concentrations (with discharge plumes indistinguishable from the ambient environment at 500 m from the discharge point). Impacts on the marine environment and ecological receptors have therefore been ranked as minor.

Monoethylene glycol (MEG) will be used to dehydrate and condition the new infield gas pipelines resulting in small-scale discharges to the environment ranging from approximately 20 to 130 m^3. MEG is a low toxicity, highly biodegradable substance that is classified as a “Pose Little or No Risk” (PLONOR) substance as defined by OSPAR[6]. MEG is therefore not anticipated to cause a discernible impact on the marine environment or ecological receptors.

Hydraulic fluid (Castrol Transaqua HT2) will also be discharged during commissioning of the pigging loop module (PLM) control valves. Discharge volumes will be very limited ranging from approximately 0.4 to 0.6 m^3. Caspian specific ecotoxicity testing has been carried out on this product and the results indicated low toxicity across all samples tested. As a result Transaqua H2 discharge is not anticipated to cause a discernible impact on the marine environment or ecological receptors.

During SDC platform installation, cement could be discharged during grouting of the platform piles. The volume of cement required will be calculated prior to the start of the activity to minimise excess cement discharges to sea. A grout seal / packer will ensure that as much of the cement grout as possible is retained inside the pile sleeve annulus. The low toxicity of the grout (cement chemicals selected will be ‘Gold’ or ‘E’ category[7], or equivalent toxicity to those previously used), and the fact that cement is designed to set in the marine environment without widespread dispersion, indicates negligible impacts on ecological receptors.

The remaining discharges to sea from construction and installation vessels (treated sanitary waste, galley waste, deck wash water and ballast water) will be small in volume and do not contain

[5] Involves increasing the pressure of the water in the pipeline systems above design pressure to test for leaks.

[6] The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). bp has adopted the OSPAR principles as the basis for chemical selection and discharge in its Caspian operations.

[7] Rankings under the OSPAR Harmonised Mandatory Control Scheme (HMCS) / Offshore Chemical Notification Scheme (OCNS).

components of high environmental concern. These discharges, which are monitored in accordance with existing procedures to ensure applicable project standards are met, will be rapidly diluted and are all assessed as having a negligible impact upon ecological receptors in the water column.

Underwater sound will result from pile driving activities as part of SDC platform installation, and from construction and installation vessel movements. Propagation modelling of underwater sound has been conducted to estimate distances at which various impacts on marine species may occur. For piling, the modelling results show that seals may experience permanent hearing damage within 1.2 km of the noise source if exposed to the sound for an hour under typical early spring oceanographic conditions, and within 743 m of the noise source in late summer conditions[8]. Temporary hearing loss of seals from piling may occur within 18.6 km of the noise source (in early spring) and 2.4 km (in late summer) if exposed for an hour. For fish, sensitivity varies across species, for the most sensitive species mortality could occur within just 328 m of the noise source, and recoverably injury within 618 m of the noise source if exposed for an hour (with little differences in distances between early spring and late summer). It should be noted that the Caspian seal (IUCN Red List 'Endangered'[9] and included in the Azerbaijan Red Book[10]) is a highly intelligent animal that will rapidly move away from any disturbance or sound. The use of an acoustic deterrent device (ADD) prior to piling activities, and a piling soft-start / slow-start, will alert any seals present, allowing them to leave the area as soon as they detect elevated sound levels and reducing the risk of underwater sound injury. As a result underwater sound impacts from piling on ecological receptors have been ranked as moderate. For project vessel movements, underwater sound impact distances were considerably reduced (in comparison to piling), resulting in impacts on ecological receptors being ranked as minor.

In the nearshore zone, the PFOC between Sangachal Terminal and the SDC platform will be trenched out to the 12.5 m water depth contour (just beyond the shipping lane) to provide protection. In order to carry out PFOC installation in very shallow water it is anticipated that a temporary finger pier will be constructed, extending approximately 300 m into Sangachal Bay. Impacts related to these activities include physical habitat disturbance and smothering, increased turbidity, and changes to coastal processes from the presence of the pier. However, it should be noted that the receptors present in, and adjacent to, the nearshore PFOC installation corridor are common in local coastal waters; and Sangachal Bay is a shallow water environment that is regularly disturbed by wave action with biological communities that are adapted to periodic turbidity. As the finger pier will only stay in place for the duration of the nearshore cable installation works (approximately 6-12 months) the effects on littoral sediment fluxes and current flows are anticipated to be short-term and localised to the immediate surroundings of the structure. Based on the above, the impacts on ecological receptors and coastal processes have been ranked as minor.

In the onshore zone, the PFOC between Sangachal Terminal and the SDC platform will be trenched using open cut methods, and horizontal drilling at road / rail / pipeline crossings. This will require clearance works along the cable right of way (RoW). During these works the vegetation and surface soil will be removed and stored for later reinstatement of the corridor, in order to

[8] Due to an upwardly refracting profile in February and March, levels of noise tend to propagate furthest during these months. By contrast, a downwardly refracting profile prevalent in August means that noise is likely to propagate over significantly shorter distances.

[9] The IUCN Red List Categories and Criteria are intended to be an easily and widely understood system for classifying species at high risk of global extinction. It divides species into nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct.

[10] Red Book of the Republic of Azerbaijan – Fauna (Third Edition).

maintain the environmental characteristics of the area. Based on the temporary nature of the impacts, and the fact that the PFOC route will follow the existing route of the SD2 gas export pipelines, the magnitude of effect is anticipated to be low. However, the presence of spur-thighed tortoise (IUCN Red List 'Vulnerable' and included in the Azerbaijan Red Book) in the vicinity of the terminal, and cable installation on the eastern fringes of the wetland area to the south of the terminal, has resulted in a receptor sensitivity of medium and an impact significance of moderate. An Ecological and Wildlife Management and Monitoring Plan will be developed and implemented to manage the relocation of any fauna encountered within the areas affected by the cable lay works and will include measures to minimise impacts on the wetland area. Impacts on soil and surface water from the onshore PFOC installation is assessed as minor and no further mitigation is proposed.

The onshore and nearshore PFOC installation works have the potential to disturb unknown artefacts of cultural heritage importance, although the cable route will follow that of the existing SD2 gas export pipelines, which reduces the likelihood of a cultural find. In addition, excavation of the cable transition pit and cable trench at the landfall will require breaking through rocky stone, with potential vibration impacts on the sand cave protected state monument located approximately 300 m to the northwest. Prior to excavation activities at the landfall (and any associated rock breaking) a toolbox talk will be held with site personnel to raise awareness of the proximity of the sand cave, and visual inspection will be made of this feature prior to and during rock breaking activities to monitor any vibrational impacts. Due to the presence of the sand cave, and because the possibility of chance finds cannot be ruled out, the impact significance is ranked as minor / moderate. A watching brief, with representatives from the Institute of Archaeology and Anthropology will be maintained during PFOC groundworks.

Overall, the majority of SDC construction, installation and HUC residual impacts were assessed as negligible or minor. The only moderate impacts were: potential impacts on ecological receptors from piling underwater sound, and impacts on ecological receptors from the onshore PFOC installation works. Minor / moderate impacts were limited to potential noise impacts from PFOC installation at the landfall on human receptors, and potential impacts on cultural heritage in the event of a chance find during onshore PFOC installation and due to the proximity of the sand cave to the landfall site. It is considered that these impacts are minimised as far as practicable and necessary through the implementation of the existing control measures and mitigation measures.

N.6.2 Operations

The SDC platform is an electrically powered unmanned installation that has been simplified to minimise the offshore maintenance burden. As such sources of impact are very limited as there is no discharge of sanitary waste, galley waste, cooling water, produced water, or fire water / firefighting foam from the platform. In addition there is no flaring, no permanent closed drains, and no topside pigging facilities. Drilling activities will not be carried out from the platform, as it is purely for compression facilities only.

The activities / sources of impact remaining from operation of the SDC platform: fugitive emissions; small-scale venting during maintenance; open drains discharge of rainwater and wash down water; small-scale hydraulic fluid releases (Transaqua HT2) from PLM control valves during pigging activities; and periodic vessel maintenance visits have been scoped out of full assessment. Likewise use of existing processing and storage facilities at Sangachal Terminal, and electricity import from the Azerbaijan national grid, have also been scoped out of full assessment due to the limited environmental impacts.

N.7 Socio-economic Impact Assessment

The SDC project is predominantly an offshore development, with the majority of SDC project related activities taking place within the SD Contract Area. Onshore activities are limited to installation of the onshore section of the SDC PFOC from Sangachal Terminal to the landfall, and construction of the jacket, topsides and subsea infrastructure at onshore construction yards. It is anticipated that the same existing onshore construction yards that have been used previously for SD and ACG construction activities will be used for SDC project activities.

A number of SDC project activities have been scoped out of full assessment based on their limited potential to result in discernible socio-economic impacts, or if they have been already assessed in other chapters of the ESIA, these include:

- community disturbance
- community health and safety
- disruption to road and rail users
- access restrictions to the shoreline (Sangachal Bay)
- disruption to commercial fishing and shipping.

With reference to experience gained from previous SD and ACG projects, the following key socio-economic issues have been assessed (see Table N.2):

- employment opportunities during the SDC construction and installation phase (including training and skills development provided to the workforce)
- demanning of the construction workforce after peak employment has been reached.

In addition, the following indirect socio-economic impacts have been discussed:

- procurement of goods and services by the main construction and installation contractors through internal supply chains (increased economic flow)
- potential social conflict from (perceived or actual) competition between individuals seeking jobs.

As potential indirect socio-economic impacts of the SDC project are outside of bp and their main construction contractors' control, and cannot be mitigated to any reasonable extent, the impact assessment provided for indirect impacts is qualitative in nature.

Table N.2: Summary of residual socio-economic impacts for SDC project

Event/ Activity	Scoring		
	Magnitude of effect	Receptor sensitivity	Impact significance
Employment during SDC project construction and installation	0 - positive	4 – high	0 – positive
Demanning following SDC project construction and installation	2 - low	4 – high	8 - moderate

The socio-economic assessment considered that the national workforce to be employed during the SDC project construction phase is likely to peak at approximately 2,600 personnel in 2027. During the operational phase only a limited number of maintenance personnel will be employed by the project as the SDC platform is unmanned. Employment impacts are likely to be distributed within the local area with the majority of employees expected to be recruited from the Baku City economic region (which includes the Sabayil and Garadagh districts). It is anticipated that

employment will not require establishment of workforce accommodation, or significant migration of populations to the construction areas.

Every effort will be made to re-hire workers who have demonstrated competence whilst working on previous oil and gas construction projects. Upon hiring workers, a gap analysis will be undertaken by the main construction and installation contractors between relevant competence criteria and the contractor's Training and Development Plan. Where gaps are identified training will be provided to bring each worker up to at least the minimum standards for the role expressed in the Training and Development Plan. It is expected that the employment generated by the SDC project will result in positive impacts to individuals and their households.

As the construction phase will generate temporary employment opportunities, planning for the conclusion of construction workforce contracts will be carefully considered from the start of the SDC project. Measures to mitigate this will include adequate staff communications between the main construction and installation contractors and their workforce which will inform the workforce of project progress and expected completion dates.

The overall socio-economic impacts of the SDC project, particularly from employment creation throughout the construction, installation and HUC phases were assessed as positive. The provision of training and skills development to the workforce, certificates to provide competence for certain types of professional positions, and adequate warning in advance of their position being made redundant, will reduce the impact of demanning to the extent possible. The residual impact is scored as moderate due to the high sensitivity of the receptor.

N.8 Cumulative, Transboundary and Accidental Events

Cumulative and transboundary impacts

Potential cumulative and transboundary impacts have been assessed taking into account the potential for intra-project impacts (interactions between separate SDC project-related impacts), as well as inter-project impacts that take into account other potentially significant projects where the associated impacts may overlap geographically or temporally with SDC project impacts.

Due to the uncertainties with regard to third-party marine projects in the vicinity of the Shah Deniz Contract Area, and the distance to bp's new Memorandum of Understanding (MoU) areas (Karabagh and Ashrafi-Dan Ulduzu Blocks), the cumulative assessment focuses on potential cumulative effects with known activities in the SD and ACG Contract Areas and at Sangachal Terminal (Sangachal Terminal Electrification project).

Cumulative impacts and transboundary effects were considered to be limited to the following:

Underwater sound – cumulative impacts

Long-term seismic acquisition programmes are planned in both the SD and ACG Contract Areas. While there is no bioaccumulation of sound in the marine environment, there is the potential for an additive effect if sounds from one activity coincide and overlap spatially and temporally with other concurrent activities. The main source of underwater sound from the SDC project is underwater piling which is anticipated to take a total of 10 days for the jacket pin piles around August 2026, and 20 days for the jacket skirt piles around March 2028. There is therefore the potential for cumulative underwater sound impacts if seismic survey activities (particularly in the Shah Deniz Contract Area) are carried out concurrently.

The exact timing of seismic survey activities in the SD and ACG Contract Areas are not currently known. As part of bp's simultaneous operations (SIMOPs) planning, seismic survey activities in the Shah Deniz Contract Area will not be conducted at the same time as the piling activities for the SDC project in order to mitigate the potential for underwater sound cumulative impacts on marine fauna.

Greenhouse gasses (GHGs) – cumulative and transboundary impacts

GHG emissions are inherently cumulative, as all emissions have the same impact on the same ultimate receptor. The impact is climate change, or global warming, caused by the radiative forcing effects of GHGs in the atmosphere. The affected receptor is the global climate (hence it is also a transboundary issue) and all the ecosystems and biomes that depend on it.

SDC project operational Scope 1 and Scope 2 GHG emissions[11] per year are estimated as 127 ktonnes CO_2 equivalent, which represents only approximately 3% of the annual operational GHG emissions from bp's activities in Azerbaijan.

During optimise stage efforts were made to simplify the SDC platform and align the project with bp's Net Zero Aim 1 (see Section N.5). As a result operational Scope 1 GHG emissions are very low due to the fact that there is no power generation on the SDC platform, no firewater pumps, and no flare. Scope 2 GHG emissions need to be taken into account when considering cumulative GHG emission impacts. The electrical power demand of the SDC platform during operations phase will be met by utilising existing overhead lines feeding Sangachal Terminal from the national grid operated by Azerenergy, with a PFOC out to the platform. However, it should be noted that total operational GHG emissions from the SDC project (Scope 1 and Scope 2) are still considerably lower than those associated with bp's previous development projects, and only represent a very small percentage of Azerbaijan's national GHG emissions total (approximately 0.2%).

There is a drive to reduce the carbon footprint of bp operations, and current regional projects such as bp's solar Sunrise project (a photovoltaic power facility in Azerbaijan), and the Sangachal Terminal Electrification (STEL) project (which aims to electrify Sangachal Terminal and establish a framework to operate the terminal without direct or indirect carbon dioxide emissions) are all part of this drive. The SDC project is aligned with bp's aims and has been designed to maximise synergies with the STEL project.

Accidental events

Due to the limited hydrocarbon inventory on the SDC platform, an accidental hydrocarbon release scenario from this facility is not considered. In addition there will be no condensate within the SDC infield pipelines.

Feasible accidental event scenarios for the SDC project are therefore limited to:

- release of chemicals / waste from a project vessel or the SDC platform (e.g., transformer chemicals)
- hydrocarbon spills associated with project vessels (e.g. small spills resulting from refuelling, larger spill of diesel resulting from a project vessel collision).

[11] Scope 1 emissions are those that occur directly from sources owned or controlled by a defined entity. Scope 2 emissions are those that occur due to the import of energy (electricity or heat) to that entity. These occur at the place where that energy is generated, e.g., a power station. They are therefore termed indirect emissions.

The transformers on the SDC platform will contain synthetic ester transformer fluid. The product selected will be readily biodegradable in the marine environment and ecotoxicity testing will be carried out prior to its use. The transformers will be located in a kerbed area to provide secondary containment. Modelling of synthetic ester transformer fluid for bp's Shah Deniz Alpha Power (SDAP) project considered a release of 7 m^3. In this instance the discharge plume reached a 'no effect' concentration within 8 m of the discharge point.

To support the assessment of project vessel accidental hydrocarbon spill impacts, diesel spill modelling of 400 m^3 and 123 m^3 releases in the SD Contract Area were reviewed. In both cases the impact of the diesel was restricted to the vicinity of the release point, with no shoreline impacts. The released diesel was lost from the sea surface by evaporation into the air, or by natural dispersion into the water column, within 2 days.

The AGT Offshore Facilities Oil Spill Contingency Plan (OSCP) provides guidance and actions to be taken during a hydrocarbon spill incident and includes drilling rigs, platforms, subsea pipelines and marine vessels. This document will be reviewed and amended to incorporate the new offshore SDC facilities.

N.9 Environmental and Social Management

Each phase of the SDC project will be subject to formal environmental and social management planning.

During construction, installation and HUC phase, bp will develop a Construction Phase Environmental and Social Management System (ESMS) that will include an Environmental and Social Management and Monitoring Plan (ESMMP) supported by additional topic-specific management plans, a Commitments Register listing all the commitments in this ESIA, and a register of environmental and social legislation applicable to the SDC project.

The main construction and installation contractors will be required to develop and implement their own Construction Phase ESMS, specific to the SDC project, that is consistent with the above. The main construction and installation contractors' ESMS will include a set of environmental and social management plans and procedures that will be submitted to bp for approval before construction begins.

At operations phase bp will manage the SDC facilities using an Operations Phase Environmental Management System (EMS) that is aligned with the requirements of ISO 14001, the leading international standard on environmental management. Prior to commencement of SDC operations, a transition plan will be developed to support the movement of SDC from the Construction Phase ESMS to the Operations Phase EMS.

The AGT Environmental Monitoring Programme (EMP) provides a consistent, long-term set of data, with the objective of developing an accurate picture of potential impacts on the surrounding environment, so that they can be managed and mitigated as effectively as possible. As part of this programme, a marine environmental baseline survey was undertaken at the proposed SDC platform location in August 2023. Due to the lack of significant discharge sources associated with the SDC facility (unmanned facility, no drilling conducted, no discharge of produced water, cooling water, etc) project-specific post-installation and operational monitoring is not proposed. Shah Deniz regional environmental surveys will continue to be conducted approximately every 5 years to capture any Contract Area impacts.

N.10 ESIA Consultation and Disclosure

Stakeholder consultation is an important element of the ESIA process, ensuring that the opinions of potentially affected people and interested parties are solicited, collated and documented. The stakeholder engagement and consultation process has:

- made use of the consultation framework and methods established for earlier SD and other bp projects in Azerbaijan
- been developed with reference to applicable national legislation, ratified international conventions, and accepted guidance on expectations of ESIA consultation and disclosure
- considered the extent of consultation and disclosure already undertaken in recent years.

The scope of the SDC project ESIA was agreed with the MENR at a scoping meeting held in Baku in June 2024.

The Draft Final ESIA Report and Non-Technical Summary, in English and Azerbaijani, will be made available (along with feedback forms) for a 60 day consultation period at the following locations and via the Internet:

- bp website
- bp Xazar Centre Office reception
- M.F. Akhundov Public Library
- the Scientific Library of the Azerbaijan Ministry of Science and Education
- the Library of the Azerbaijan State University of Oil and Industry
- Aarhus Public Environmental Information Centre, MENR
- the Library of Baku Higher Oil School, Campus.

As part of the Draft Final ESIA consultation process the following meetings will be held:

- meeting with the MENR, Baku
- public meeting, Baku.

Comments received on the Draft Final ESIA will be collated and analysed, with responses issued where relevant. The ESIA will be subsequently revised and finalised for MENR approval.