



Offshore Petroleum Regulator
for Environment & Decommissioning

**The Offshore Oil and Gas Exploration, Production, Unloading and Storage
(Environmental Impact Assessment) Regulations 2020**

**Regulation 14(3)
Secretary of State Decision**

Equinor UK Limited

Rosebank Field Development

To: [REDACTED]

Decision Recommendation:

That you agree, on behalf of the Secretary of State, to the grant of consent by the Oil and Gas Authority (OGA).¹

As set out further below, taking into account the relevant considerations, I have concluded that the project will not have any significant effects on the environment and there is no requirement for conditions to be attached to the grant of consent.

From: [REDACTED]
[REDACTED]

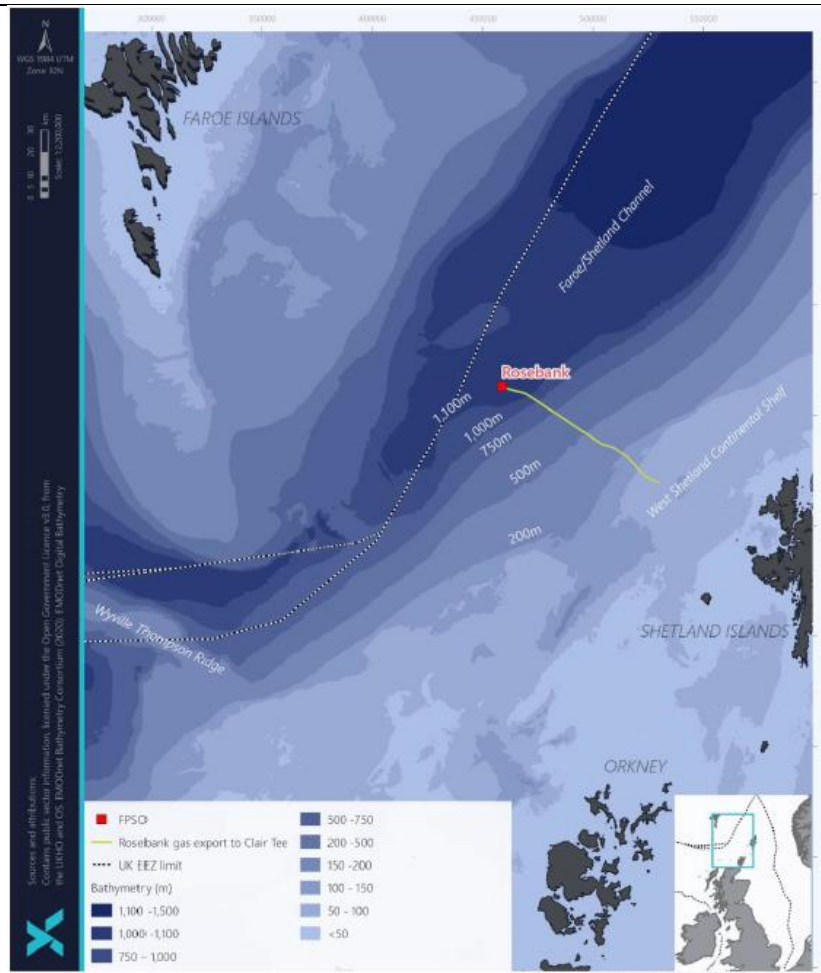
Date: 8 June 2023

ES Title:	Rosebank Field Development
Developer:	Equinor UK Limited
Consultants:	Xodus
NSTA Field Group:	West of Shetland
ES Report No:	ES/2022/001
ES Submission Date:	3 August 2022
Block No/s:	205/1a, 205/2, 205/3, 205/4, 205/5, 205/10, 206/6, 206/7, 206/12, 206/13, 213/26b and 213/27a
Project Type:	Field development
NSTA Reference No:	PCON/6530/0

Project Description

The Rosebank Field Development (the project) will be a phased full field development consisting of a Floating Production, Storage and Offloading (FPSO) installation, producing oil and gas from three subsea production templates. Phase 1 will consist of four production wells and three water injection wells, while Phase 2 will add up to three further production wells and two water injection wells. An export pipeline will tie into the West of Shetland Pipeline System (WOSPS). The FPSO is located to the West of Shetland in the North Atlantic, approximately 130 km north-west from the Shetland coastline and 15 km east from the UK/Faroe median line.

¹ The Oil and Gas Authority now operates under the business name of the North Sea Transition Authority (NSTA).



Location of the proposed Rosebank Field Development

The proposed Rosebank field development comprises an FPSO, three subsea production templates with up to seven production wells in total, five water injection wells and an export pipeline. Hydrocarbons will be produced from the three production templates into the FPSO. Onboard the FPSO the produced oil and gas will be separated, and the oil stored on the FPSO. The FPSO will be periodically visited by a shuttle tanker to offload the oil. The produced gas will be used to power the combustion equipment onboard the FPSO, with the remainder of the gas being exported via an 85 km export pipeline that will tie into the WOSPS pipeline. The project schedule indicates that Subsea Umbilical Riser and Flowline (SURF) installation will take place in Q2/Q3 2024. Drilling of wells is scheduled to take place from Q2 2025 through to Q3 2026. Export pipeline installation is scheduled to take place in Q2/Q3 2025 and Q2/Q3 2026. FPSO installation, hook up and commissioning is scheduled for Q2 through to Q4 2026, with first oil anticipated in Q4 2026.

Key Environmental Impacts

The ES identified and discussed the following as having the potential to cause an environmental impact:

- Effects on water quality from discharges to sea;
- Effects on the sediments, seabed habitats, fauna and flora from seabed disturbance from the physical presence of temporary and permanent infrastructure;

- Effects on users of the sea from the physical presence of temporary and permanent infrastructure and from the construction phase of the project;
- Effects on local air quality and climate from the atmospheric emissions generated by the project;
- Effects from underwater noise from the construction and operation phase and associated vessels; and
- Effects on water quality, protected species and habitats, fauna and flora from an accidental event resulting in an oil release.

Key Environmental Sensitivities

The ES identified the following environmental sensitivities:

- **Fish and shellfish:** The project area lies within an area of lower intensity spawning grounds for Norway pout and high intensity nursery grounds for angler fish, blue whiting, herring, mackerel and Norway pout, with lower intensity nursery grounds for cod, common skate, hake, ling, spurdog and whiting. Several of the fish species are Priority Marine Features (PMFs) in the seas around Scotland, including: anglerfish, blue whiting, cod, herring, mackerel, ling and Norway pout. However, excluding the nursery grounds for blue whiting, the nursery and spawning grounds for the other fish species are located in shallower water depths than the main project footprint (FPSO and subsea infrastructure), overlapping with the export pipeline footprint only.
- **Seabirds:** Multiple species of seabird could be present at the project area in various levels of abundance. The highest abundance of species is attributed to the Northern fulmar, with an abundance of up to 3.1 individuals per km². The sensitivity of seabirds to oil in the wider project area is generally low throughout the year but may reach a maximum sensitivity range between medium and extremely high depending on the block location and seasonal variation in sensitivity.
- **Protected habitats and species:** The Faroe-Shetland Sponge Belt Nature Conservation Marine Protected Area (FSSB NCMPA) lies approximately 20 km to the south-east from the main project area (location of the FPSO), while the export pipeline will pass through FSSB NCMPA. The FSSB NCMPA site is designated for deep-sea sponge aggregations, offshore subtidal sands and gravels, ocean quahog aggregations and geomorphological features. The Seas off Foula Special Protection Area is approximately 25 km from the nearest point along the export pipeline route. There are no Special Areas of Conservation within 40 km of the project area.

OPRED are aware that JNCC and Marine Scotland Science undertook a survey of the FSSB NCMPA in August/September 2021, the purpose of which was to establish a baseline for monitoring the conservation objectives of the site. The results of the JNCC and Marine Scotland survey are expected to be published around Q1 2024. The survey along the proposed export pipeline route was undertaken for the developer in 2022 and is the most recent available data set for assessing potential impacts of the proposed export pipeline route.

The export pipeline route survey identified two survey stations with high abundance of sponges grouped together and considered to meet the criteria of the OSPAR habitat type “deep-sea sponge aggregations”. A small potential stony reef area was identified at one station but was considered not to fulfil the relevant criteria. No other OSPAR habitat types, red listed species, ocean quahog, coral garden or cold-water coral reefs were identified in the survey. Although only two stations were considered to have deep-sea sponge aggregations the developer assessed a worst-case impact scenario of

assuming deep sea sponge aggregations were present along the entire length of the export pipeline located in the FSSB NCMFA.

- European Protected Species and pinnipeds: Cetaceans such as sperm whale, bottlenose whale, killer whale, minke whale, long-finned pilot whale, white-beaked dolphin, Atlantic white-sided dolphin, Risso's dolphin, bottlenose dolphin, harbour porpoise, blue whale, fin whale, sei whale and humpback whale may be present at various points in the year dependent upon species. Pinnipeds such as the grey seal and the harbour seal are unlikely to occur in the project area and are far more common close to shore. Hooded seals may occur in the project area in low numbers.
- Other users of the sea: Commercial fishing effort in the project area has been assessed as "low" representing less than 1% of the total UK fishing effort. Fishing effort in the project area is undertaken all year round, with a nearly even split between demersal and pelagic fishing gear.

Shipping density in the area is low. The project area sits within a relatively undeveloped location for offshore oil and gas infrastructure, with no other installations within 40km of the proposed FPSO location. The closest installations to the export pipeline route are the Clair Ridge installations, which are approximately 5 km to the northeast of the export pipeline route. A number of blocks through which the export pipeline route passes are within military training ranges and the developer is aware of the requirement to notify the Ministry of Defence sufficiently in advance of siting any infrastructure in the area. There is one wreck located just outside the proposed main project area but no other wrecks, obstructions or items of cultural or historical significance. The export pipeline will cross the Faroe to Shetland and Iceland-Faroe-Scotland telecommunications cables. There are no active or proposed windfarms in the vicinity of the proposed project, with the closest being located >100 km away.

- In-combination, cumulative and transboundary sensitivities: The project area is adjacent to the UK / Faroe Islands median line. The installation of infrastructure (siting of the FPSO and associated 500 m safety zone) will reduce availability of the natural environment to activities such as fishing, although noting this location has a water depth of around 1100 m and fishing activity in this area is very low. The base case is for the export pipeline to be trenched and buried from 800 m water depth to the tie-in point with the WOSPS pipeline end terminal at approximately 120 m water depth, with a contingency case of pipeline rock protection if trenching proves not possible. The installation method for the export pipeline will enable fishing activities to continue in the vicinity of the export pipeline.

The project contributes to the UK CO₂ emissions, emitting an average of 1.6% of annual United Kingdom Continental Shelf (UKCS) oil and gas CO₂ emissions (based on 2017 to 2020 UKCS data). The project contributes between 0.04% to UK CO₂e emissions in the initial years, through to 0.11% in the latter years.

The project activities may take place at the same time as the activities outlined in the proposed Cambo field development, which is located approximately 34 km south-west of the Rosebank project location. The Cambo project still requires agreement from the Secretary of State and consent from the NSTA, and no final decisions have been made as at the date of the conclusion set out in this document. At the time the Rosebank ES was submitted, and throughout OPRED's consideration of the Rosebank ES, development of the Cambo field therefore has not been and is not an existing or approved project.

With respect to discharges to sea, no cumulative impact with other oil and gas activities are expected because drilling and commissioning discharges will be temporary and

spatially restricted and the base case during the production phase is to re-inject produced water.

Further Information

1. Further information was requested from the developer on 9 December 2022 under regulation 12(1). Responses to these further information requests were received on 23 December 2022. The further information received was considered, and, with the exception of the response concerning coral gardens, it was concluded that the information provided clarified and confirmed the information previously presented in the ES and did not meet the test in Regulation 12(3)(b) so as to require a further public consultation. Regarding coral gardens, the response did not provide the clarity sought and potentially conflicted with information presented within the ES.

2. Further information was requested from the developer on 15 February 2023 under regulation 12(1), to determine if the information in relation to the presence of coral gardens conflicted with the conclusion presented in the ES. Responses to this further information request were received on 28 February 2023. The further information was considered, and it was concluded that the information presented confirmed the information presented in the ES that no coral gardens are present and did not meet the test in Regulation 12(3)(b) so as to require a further public consultation.

Consultation with Other Authorities

The Joint Nature Conservation Committee (JNCC), Ministry of Defence, Northern Lighthouse Board, Marine Scotland, and Maritime and Coastal Agency were consulted on the ES submission. All the consultees submitted responses and none of consultees had objections to the environmental impact assessment.

Further to the 30-day consultation period, JNCC were asked to clarify comments they had provided. The points raised by the JNCC were taken into account when considering in-combination effects of the project - see further below.

Public Consultation(s)

The ES and the application for consent was subject to Public Notice, which was published on 12 August 2022 and ended on 16 September 2022.

One set of representations were received during the consultation period, which were stated to be made by a total of 22 organisations and stakeholders jointly. A further organisation separately confirmed during the consultation period that it agreed with those representations. Further representations were received after the public consultation period had ended from one of the organisations who had made the representations received during that period. All representations received, including those received after the public consultation period ended, were considered during the ES review process. An explanation of how these representations were taken into account is set out in the Annex to this Decision Recommendation.

Consultation with other Countries

Due to the location of the proposed development, the Faroe Islands and Norway were notified in accordance with Regulation 13 to offer the opportunity to participate in the EIA process. However, no response was received and therefore they did not participate in the EIA process.

Conclusion on the significant effect of the project on the environment

I have reviewed the following:

- The ES;
- the further information obtained or provided under Regulation 12 as summarised above;
- The representations received from other authorities and members of the public as summarised above and in the Annex to this Decision Recommendation; and
- The conditions that may be attached to the agreement to the grant of consent.

Taking those matters into account to the extent required under Regulation 14(2), I have concluded on behalf of the Secretary of State that this project will not have any significant effects on the environment:

Physical presence of temporary and permanent infrastructure

During drilling activities there will be a temporary 500 m safety zone centred on each well location, excluding other users of the sea accessing the area. For the installation of sub-sea infrastructure, there will be temporary wet-storing of some equipment. An Emergency Response and Rescue Vessel (ERRV) will be on location during this period to warn other sea users of the equipment presence. Appropriate notices to mariners will also be used to raise awareness of these activities. Once the FPSO is installed on location a 500 m safety zone will be established, excluding other users of the sea from the area. The export pipeline will be trenched and buried at a water depths less than 800 m. Where it is not possible to trench and bury the export pipeline, an over trawlable berm will be installed on the export pipeline, at water depths less than 800 m to the tie-in point with the WOSPS pipeline to enable fishing to continue in the area. Up to 630,000 tonnes of rock may be required for export pipeline installation if trenching and burying the export pipeline is unsuccessful. There is no significant effect anticipated from the presence of the FPSO and associated project infrastructure to other users of the sea, noting the low levels of shipping in the area.

Seabed disturbance and impacts

The worst-case permanent area of impact to the seabed from the proposed infrastructure is expected to be 1.056 km². The contributing factors to the permanently impacted area are subsea infrastructure including the export pipeline, protection material (including rock and concrete mattresses) (0.976 km²) and drill cuttings >1 mm depth (0.08 km²). The worst-case temporary impact to the seabed is expected to be 1.932 km², including sediment resuspension associated with the installation of subsea infrastructure including export pipeline and protection material (rock and concrete mattresses). I do not consider that there is likely to be a significant effect associated with the total area of seabed disturbance from the project.

The proposed export pipeline is the shortest route available to the developer and passes through the FSSB NCMPA which is designated for deep-sea sponge aggregations, offshore subtidal sands and gravels, ocean quahog aggregations and geomorphological features.

The site-specific survey did not identify the presence of any ocean quahogs but did identify two locations of deep-sea sponge aggregations located along the export pipeline route. The

expected worst-case area of impact associated with the 19 km section of the export pipeline route located in the FSSB NCMPA is considered to be 0.114 km², which equates to 0.002% of the total FSSB NCMPA area. The ES assumes that deep-sea sponge aggregations are present along the entire export pipeline route located in the FSSB NCMPA and assesses a precautionary worst-case impact, i.e., a high receptor value, even though the survey identified only two locations that had deep-sea sponge aggregations. While the value of the receptor is considered high and noting the points raised by JNCC, the expected worst-case area of impact is very low and therefore the consequences of the impact are not considered significant.

Cumulative impacts from other activities, including the proposed Cambo field development, are considered in the ES. The activities associated with other projects are distributed across a large area of the west of Shetland continental shelf and slope, with overall cumulative area of impact as a proportion of the habitats and species present across the wider area considered to be small. In any event, the proposed Cambo development is located approximately 34 km south-west of the Rosebank project location and the Rosebank ES concludes there is unlikely to be any significant cumulative impact with the proposed Cambo field development.

Sediment re-suspension can result in increased suspended solids in the water column and re-settlement of the sediments. The worst-case area of temporary impact due to sediment re-suspension is considered to be 0.228 km². Although the value of the receptor is considered high and there will be some localised impacts to benthos, the area of impact is low and therefore the consequences of the impact are not considered significant.

The offshore sands and gravels Priority Marine Feature, which is a designated feature of the FSSB NCMPA will potentially be impacted by the placement of contingency rock on the pipeline but only 0.002% of the NCMPA will be permanently impacted and therefore the impact is not considered significant.

The base-case is to use Water Based Mud (WBM) for all well sections which will be discharged to sea. If well conditions dictate, the reservoir sections may be drilled using Low Toxicity Oil Based Mud (LTOBM), however these cuttings would not be discharged to sea, rather they will be contained and shipped to shore for treatment and disposal. When drilling the top two well sections, discharges of cement will be made at the seabed. This is necessary to ensure an effective seal between the well casing and rock. The area impacted by the discharge of cement is within the total area impacted by drill cuttings and so does not add to the impact footprint.

The receptor value in the vicinity of the wells and infield infrastructure is regarded as low and while there will be some localised impact to benthos within the infield area of the main project, the comparatively small area of impact alongside the large area of similar seabed habitat available leads to the conclusion that impacts are not expected to be significant. There are no protected species or habitats noted in the main project area.

A Dynamically Positioned (DP) Mobile Offshore Drilling Unit (MODU) will be used, meaning there will be no anchor moorings associated with the MODU and no associated seabed impact.

In conclusion, no significant effects to the environment are considered likely from seabed disturbance from the physical presence of temporary and permanent infrastructure.

Atmospheric emissions

Local air quality and global climate change were the primary receptors considered in relation to atmospheric emissions from the project. A Best Available Technique (BAT) study has been undertaken to support the selection of the FPSO's power and heat generation systems including the FPSO's open cycle gas turbines with dry low-NOx technology (to reduce emission of nitrogen oxides) and Waste Heat Recovery Units (to make use of the heat from the turbine

exhausts without using fuel or creating additional emissions). The main emission sources are the combustion equipment on the MODU during drilling activities and the FPSO during production activities, non-routine flare and vent occurrences and fuel consumption associated with support vessel and helicopter flights. The largest source of emissions is associated with production and processing of oil and gas (assuming no future electrification). The developer has committed to zero routine flare and vent for the duration of the project and will implement flare gas recovery and tank vapour recovery systems on the FPSO.

Air quality modelling has been undertaken and the results show that all estimated concentrations of the relevant pollutants are substantially below air quality standards.

The average annual CO₂ emissions associated with the project, represent 1.6% of the total of UK offshore oil and gas emissions set against the average of the 2017 to 2020 emissions baseline (assuming no future electrification). While the conclusion on significant effects of emissions as set out in the Decision Recommendation is based on the information provided in the ES, further information was provided by the developer that clarified emissions may be lower than outlined in the ES.

The predicted carbon intensity of production associated with the proposed project is 12 kg CO₂ per barrel of oil equivalent (kg CO₂/boe) which compares with the overall average UK upstream carbon intensity of production of 20 kg CO₂/boe and an FPSO average UK upstream carbon intensity of production of 16 kg CO₂/boe. The developer confirmed in the ES that it will ensure that the Rosebank project is developed in line with the NSTD and UK net zero targets. Given the relative carbon intensity of the project and the expected contribution of the project to UK offshore emissions then the effects to local air quality and climate change are deemed not significant.

The developer has committed to the FPSO being fully electrification ready to facilitate the import of electricity, but electrification is not within the scope of the project decision. Future electrification would significantly reduce the emissions from the FPSO and the developer is working with other parties towards realising an electrical supply to the FPSO.

Discharges to sea

Treated produced water (oil in water concentration of between 15 mg/l and 30 mg/l) will be routinely reinjected into the Rosebank reservoir via produced water reinjection (PWRI), which will also provide reservoir pressure support. The produced water will be treated and reinjected with seawater that has been treated to produce low sulphate seawater in the Sulphate Removal Unit (SRU). Therefore, discharges to sea will predominately occur from the drilling phase (i.e. where drill cuttings and drilling mud is discharged), installation and commissioning of infrastructure (i.e. sediment suspension during pipeline trenching) and the production phase (i.e. via non-routine discharge of produced water during PWRI downtime, which will be <5% of the time). The non-routine discharge of produced water and routine discharge of hypersaline water from the Sulphate Reduction Unit (SRU) and cooling water is expected to be adequately diluted within 500 m from the FPSO. Water quality and marine organisms were identified as key receptors, but discharges to sea from the project are expected to rapidly disperse and as the impacts to water quality are likely to be relatively localised and given the sensitivity of the area is low, the effect is assessed as not significant.

Underwater noise

There are several noise sources associated with the project such as thruster operations from the operation of the MODU, FPSO and subsea infrastructure installation vessels, acoustic beacons used to maintain MODU position during drilling operations and seismic survey using

Vertical Seismic Profiling (VSP). Except for VSP, the other noise sources may cause very limited impact in the immediate vicinity of the noise source and are not considered capable of causing significant effects to the environment.

Vertical Seismic Profiling (VSP) surveys may be undertaken and are a contingency only because offset well data already exists. The potential impact of VSP survey was assessed using noise modelling, the realistic worst-case scenario of a static vessel and moving marine mammal results in a predicted maximum injury radius of 407 m, based on sound exposure level, which applies to high frequency cetaceans. The activity of undertaking a VSP would require separate approval in the future.

The developer has confirmed a 500 m mitigation zone will be employed, which will use marine mammal observers to monitor for marine mammals within 500 m radius before VSP activities commence. Using an air gun soft start approach, where the air gun noise level is built up slowly, allows any marine mammals in the area to move away from the noise source and reduces the maximum predicted injury radius to 111 m. The noise modelling indicates a worst-case radius of 1,630 m for behavioural change. Marine mammal behavioural changes include masking of communication and moving away from the affected area for short periods of time. These behavioural changes are considered temporary. While specific modelling of fish has not been undertaken, the analysis indicates that injury may occur up to 128 m from the noise source and behavioural disturbance up to a few km. The fish population in the project area are considered to be part of wider populations and as such any impacts will be localised. Given the nature of noise sources associated with the project, the low populations of cetaceans within the project area and limited impact to fish, the effects are assessed as not significant.

Effects on water quality, protected species and habitats, fauna and flora from an accidental event resulting in an oil release

The ES considers the potential impacts of the accidental release of hydrocarbons from a well blowout, loss of FPSO inventory, pipeline release and diesel spillage from FPSO or MODU. Of these scenarios, the two potential worst-case scenarios (loss of FPSO inventory and well blowout) were modelled using an accepted oil spill model, Oil Spill Contingency And Response (OSCAR), to determine potential fate of accidentally released hydrocarbons at sea and potential effects on environmental receptors. Under most circumstances the hydrocarbon release was predicted to predominately travel in a north-easterly direction from the project location. Hydrocarbons released would have the potential to cross the following median lines within the times specified: UK/Faroe (4 hours), UK/Norway (4 days and 12 hours), and UK/Denmark, UK/German and UK/Netherlands (all in excess of 43 days), Hydrocarbons released would have the potential to reach the coastlines of the following countries within the times specified: the UK (primarily Shetland, Orkney, Northern Scotland and to a lesser extent the Scottish/English border area) (3 days), the Faroe Islands (4 days and 14 hours), Norway (13 days and 2 hours), and to a significantly lesser extent elsewhere in Western Europe.

The potential effects of the accidental release of hydrocarbons on environmental receptors including water quality, near-shore benthos, fish, coastal areas, protected sites (marine mammals (pinnipeds) and seabirds), marine mammals and socio-economic receptors such as aquaculture from the worst-case modelled hydrocarbon release was assessed in the ES as significant. However, the probability of the worst-case hydrocarbon release scenarios was considered highly unlikely to occur due to the preventative mitigation measures to be employed. The developer has confirmed that their oil release response measures will be detailed in a subsequent Oil Pollution Emergency Plan (OPEP).

Features of the project or measures envisaged to avoid, prevent, reduce or offset significant effects.

The following features of the project or measures are envisaged to avoid, prevent, reduce or offset any significant adverse effects on the environment:

- Well blow-out: The MODU will have an appropriate safety case as is required for UK operations. All safety and environmentally critical elements will be verified by an independent verification body and managed through a recognised maintenance management system. Specific procedures for operating in the harsh west of Shetland region will be in place. The Blow Out Preventor (BOP) will have fully redundant control systems.
- Loss of FPSO hydrocarbon inventory: The FPSO will be of double-hull design meaning cargo tanks are protected from external damage. A 500 m safety zone will be in place, limiting the access to the FPSO location to authorised vessels only. A robust inspection and maintenance regime will be in place for critical elements. There will be agreed approach procedures for supply vessels and offload tankers informed by collision risk assessments. Offload tankers will have a minimum of class 2 Dynamic Positioning equipment (DP2) which has redundancy such that no single failure of an active system will cause the DP system to fail. There will be met ocean condition limits for tanker offloading and offloading procedures in place to minimise the risk of oil release.
- Loss of hydrocarbon inventory from pipelines/risers: Dropped object risk assessments will be carried out for all lifting activities. Simultaneous operations procedures will be in place to minimise the risk of dropped objects. Any lost materials will be recorded and where possible recovered.

Although a significant effect on the environment would be expected in the case of an unplanned, accidental well blow-out or loss of FPSO hydrocarbon inventory, the mitigation measures and commitments in place above will seek to avoid and/or reduce the unlikely impact as far as possible. I therefore agree with the conclusion that an accidental event leading to hydrocarbon release does have the potential to give rise to a significant effect on the environment, however, mitigation measures and commitments will be in place to reduce the risk of a well blow-out occurring meaning this is a remote possibility.

Decision on Conditions to the agreement of the grant of consent

No conditions should be attached to the agreement to the grant of consent.

Recommendation

I have set out above my conclusion on the significant effects of the project on the environment.

I recommend that the Secretary of State should agree to the grant of consent for this project because there are no significant effects on the environment.

[Redacted]
[Redacted]
[Redacted]

Date 8 June 2023

Offshore Petroleum Regulator for Environment and Decommissioning
For and on behalf of the Secretary of State for Business, Energy, and Industrial Strategy

Agreement decision

I accept the recommendation for the reasons given.

On behalf of the Secretary of State, I therefore agree to the grant of consent.

[Redacted]
[Redacted]
[Redacted]

Date 15 June 2023

Offshore Petroleum Regulator for Environment and Decommissioning
For and on behalf of the Secretary of State for Energy Security and Net Zero.

Annex

Explanation of how public representations have been taken into account

1) Representations received during public consultation period

The representations received during the public consultation period raised a number of issues, which were broadly divided into those relating to GHG emissions, and other environmental effects. In summary, the issues raised in the representations received during the public consultation period have been taken into account as follows:

- Inconsistency with UK net-zero target, Scottish net zero target, UK carbon budgets and North Sea Transition Deal

The representations suggested that the project was inconsistent with:

- a) the UK's Net Zero target (which I understand to mean the target set in section 1 of the Climate Change Act 2008);
- b) the UK's carbon budgets (which I understand to mean the carbon budgets set by the Secretary of State under section 4 of the Climate Change Act 2008);
- c) the Scottish Net Zero target (which I understand to mean the target set in section A1 of the Climate Change (Scotland) Act 2009); and
- d) the North Sea Transition Deal.

The representations identified that the project would lead to GHG emissions to 2051, i.e. beyond the 2050 / 2045 dates for the UK and Scottish Net Zero targets respectively. They also referred to a number of other issues including effects arising from extending the life of other infrastructure (addressed further below), emissions from end use of oil and gas produced from the Rosebank field (addressed further below), the carbon intensity of oil and gas produced from the field, and the uncertainty of future electrification.

When considering the ES and other relevant information, OPRED is required to reach a conclusion on the significant effects of the project on the environment. My assessment of the significance of the effect of atmospheric emissions on the environment, which takes into account a range of considerations including consistency with the North Sea Transition Deal, the UK's Net Zero target and the UK's carbon budgets, is set out further below (see in particular consideration of further representations received outside the public consultation period and conclusions in relation to emissions to air below) and in the Decision Recommendation above.

The UK Government is working closely with partners in the devolved administrations to achieve our carbon emission reduction ambitions and net zero targets. Compliance with the Scottish Net Zero target is a matter for the Scottish Government.

Both the UK and Scottish targets, and the commitment in the North Sea Transition Deal, are for zero emissions when assessed on a net basis. It is therefore possible for emissions to continue in some sectors of the economy, provided that those are balanced out by negative emissions elsewhere. The fact that emissions may continue beyond 2050 / 2045 is therefore not necessarily inconsistent with the respective targets and commitments, and does not affect my conclusions about the significance of the effect of emissions from the Rosebank project on the environment.

Decommissioning emissions have not been assessed because the environmental impacts of decommissioning are considered separately as part of the process of obtaining approval for an abandonment programme under Part 4 of the Petroleum Act 1998. The issues raised in the representations do not merit departing from the approach set out in OPRED's published

EIA guidance: “Reference to the future abandonment of a proposed well or the decommissioning of a proposed project in an ES should therefore be limited to confirming how future decommissioning requirements have driven the initial design of the project. ... There is no requirement to provide detailed information in relation to how removal will be achieved at the time of abandonment or decommissioning, or to provide a demonstration of the likely significant effects of the activities.” (see section 2.2.11).

- Failure to disclose the CO₂ content of the produced gas

The representations noted that the CO₂ content of the gas from the Rosebank Project has not been specified in the ES, and suggested that this information was necessary for the EIA.

While the ES does not specify the CO₂ content of the produced gas, I do not consider that this information is necessary for the EIA, because the environmental effects can be assessed without this information. The project will not have routine flaring or venting of gas associated with hydrocarbon production. The ES has assessed the impact of emissions associated with combustion during the drilling, infrastructure installation and production phases and the effects of these emissions on the environment are discussed in detail in the Decision Recommendation. Emissions arising from end use of the produced gas are scope 3 emissions, which are addressed further below.

- The ES fails to assess scope 3 emissions.

The representations suggested that scope 3 emissions associated with the project (and specifically emissions resulting from end use of the produced oil and gas) must form part of the EIA. They referred to recent UK case law, as well as court decisions from other countries (Australia and the Netherlands), as well as a number of pieces of guidance, statements and other publications to support this view. The representations suggested that the correct approach is to consider the degree of connection between the project and its putative effects, and that downstream emissions from the Rosebank project are a close and inevitable effect of the project itself, such that these must be taken into account in the EIA.

OPRED’s usual position is that it does not consider that emissions resulting from end use of oil and gas produced from offshore field development projects are a matter for individual project environmental statements. As noted in the representations, this is for three reasons: (i) the management of GHG emissions from the use of oil and gas are carefully considered elsewhere under wider Government policy; (ii) it would not be possible for OPRED or the developer to assess with any degree of certainty the impact, including indirect impacts, of the end use of the produced hydrocarbons from the project, as the information on the nature and extent of the end use of these products will not be known at this stage; and (iii) the EIA process is concerned with assessment of the impacts of the project in question on the environment, not the end use of a product resulting from the project.

The representations addressed each of those three reasons. I have considered the points raised in the representations, but do not agree with the conclusions made. The Government has economy-wide policies (e.g. as set out in the recent Net Zero Growth Plan) and a range of regulatory regimes to address emissions arising from domestic use of oil and gas, and there are international agreements in place to ensure other countries make similar efforts for their own use of oil and gas. While I agree that it is possible to come to an estimate of the emissions that may be caused by end use of produced hydrocarbons, that does not mean that those emissions can necessarily be assessed with any meaningful degree of certainty or in a way that allows a meaningful assessment of the significance of their effects on the environment.

Contrary to OPRED’s usual approach, I have also (adopting what the representations suggest is the correct approach) considered the degree of connection between the development and

its putative effects. I do not consider that there is a sufficiently close connection for the end use emissions to have to be taken into account in the EIA. In addition to the three reasons given above, the end use of produced hydrocarbons from the project are outside the control of the developer, are not known and may occur in any event from another existing or approved project, either in the UK or elsewhere (at least to some extent) and/or be abated so it is not considered possible to assess with any meaningful certainty the impact of such end use. It is also not clear when and where any emissions will take place (in particular whether this will be in the UK or elsewhere), which prevents any meaningful consideration of their interaction with UK climate change objectives.

- The ES fails to consider if Rosebank will extend the life of other infrastructure and if so, consider the emissions associated with that.

The representations suggested that the ES failed to account for any emissions associated with infrastructure including the WOSPS, Sullom Voe terminal and others, which may have an extended lifespan due to the Rosebank project.

The lifespan of UK oil and gas infrastructure is a matter considered by the NSTA. In any case, the WOSPS and downstream infrastructure serves other existing infrastructure such as Clair Ridge which have a significant lifespan measured in decades. I therefore do not consider that there is a clear link between this project and any emissions associated with downstream infrastructure.

- OPRED is subject to the general and specific duties imposed by Part V of the Marine and Coastal Access Act 2009 (MCAA) in relation to the Marine Protected Areas such as the Faroe-Shetland Sponge Belt Nature Conservation Marine Protected Area (NCMPA)

The representations suggested that OPRED is subject to these duties, and in particular the obligations imposed by section 126 of the MCAA.

This representation essentially related to the scope and effect of other legislation, rather than the environmental effects of the project for assessment under the EIA regulations.

In any event, I have considered the impact of the project on the Faroe-Shetland Sponge Belt NCMPA (see in particular assessment of seabed disturbance above) and concluded that there will not be any significant effect on the environment or significant risk of the project hindering the achievement of the conservation objectives of the site. As noted above, statutory conservation bodies including Marine Scotland and the JNCC have been consulted as part of the EIA process for this project and have not raised any objections to the Secretary of State agreeing to NSTA granting the requested consent for this project.

- Insufficient data for full assessment of impacts regarding the export pipeline and failure to assess the impacts of the gas export development choice.

The representations suggested that further data is required, including geophysical and geotechnical investigation of the proposed export pipeline, and that there is a lack of clarity in data included in the ES, in particular in relation to the baseline studies.

Protection and stabilisation material are required to protect existing infrastructure from damage from new infrastructure placement and to ensure new infrastructure placed on the seabed will not move under different conditions. Section 3.8.5 of the ES describes the measures that may be taken to protect and prevent infrastructure movement and notes that infrastructure placed on the seabed in water depths of less than 800 m will require protection from trawl fishing gear. The geotechnical and geophysical surveys to be undertaken will inform where infrastructure protection and stabilisation may be required. The export pipeline route

environmental survey has been completed and assessed in the ES and the ES presents the worst-case rock and concrete mattress deposit that may be required to ensure adequate stabilisation/protection of the export pipeline. I consider the information presented in the ES provides sufficient information to determine a conclusion on the significant effects on this aspect of the project.

The effects of the export pipeline on the environment are further discussed in detail in the Decision.

- Failure to assess the impacts of the gas export development choice.

The representations suggested that the ES fails to consider the environmental effects of the choice to export gas to the WOSPS pipeline rather than to the Shetlands Islands Regional Gas Export System (SIRGE).

The ES contains an indication of the main reasons for selection of the gas export route at section 2.5.5. That includes a comparison of environmental effects, e.g. that by selecting the shortest feasible Rosebank export route to WOSPS, the total seabed footprint from installation of the export pipeline will be reduced, as well as lower power requirements and CO₂ emissions associated with a lower compressor discharge pressure requirement. Further information provided by the developer in response to the Regulation 12(1) notice dated 9 December 2022 also clarified that routes via SIRGE were discounted for a variety of technical and financial reasons. As such, I am satisfied that those routes were not reasonable alternatives and the information provided in the ES is sufficient.

- Failure to assess the cumulative impacts of electrification proposals.

The representations suggested that the EIA should take into account the environmental effects of electrification of the project, either on the basis that electrification forms part of the project or as cumulative impacts.

The ES is clear that further work to implement electrification does not form part of the project for which consent is being sought. That is understandable because although the ES describes measures that have been or will be taken to ensure the FPSO is ready for electrification, the actual details of how and when electrification will be implemented are not currently known. The environmental effects of electrification work will be considered in future if/when the relevant consent(s), authorisation(s) etc. are sought.

Given the degree of uncertainty and lack of adequate details about the future electrification works, I do not consider that the effects of electrification can meaningfully be taken into account in the current EIA as cumulative effects of the project.

The ES also presents the worst-case scenario (in terms of emissions) of no electrification of the FPSO, and the effects of electrification are not within the scope of the Decision Recommendation.

- Failure to address seabed impacts

The representations raised a number of queries about the impact of the project on the seabed, including the cumulative impacts from sourcing of stabilisation/protection rock and the impact of concrete mattresses.

The sourcing of rock is not part of the Rosebank project for which consent is now being sought. Any such impacts, the timing and location of which are not known, will fall to be addressed by other authorities and legislation. I do not consider that there is a clear link between this project and any impacts associated with the source of the rock that may be used for export pipeline stabilisation/protection. Some of the matters raised in the representations also appeared to be based on errors or misunderstandings.

The effects of the deposit of rock and concrete mattresses and other seabed impacts on the environment are discussed in detail in the Decision Recommendation.

- Discounting impacts on low densities of benthic fauna without evidence.

The representations suggested that the ES dismisses project impacts by discounting the presence of low-density species and trivialising the significance of known, documented impacts.

The effects of the project on benthic fauna are discussed in detail in the Decision Recommendation.

- Further assessment of deep-sea sponge aggregations required.

The representations suggested that further assessment of deep-sea sponge aggregations was required, as well as the impact of laying down the pipeline and the moving currents deep below the water surface that could cause the pipeline to shift. They also suggested that if they can be made available, preliminary results from the survey by Marine Scotland and the JNCC in August 2021 should ideally also form part of the assessment.

The effects of the project on deep-sea sponge aggregations are discussed in detail in the Decision. As set out above (see Key Environmental Sensitivities section), the results of JNCC and Marine Scotland survey are expected to be published around Q1 2024. The export pipeline survey results presented in the ES are site specific along the planned export pipeline route and more recent than the JNCC and Marine Scotland survey.

- Failure to properly assess impacts on cetaceans.

The representations raised a number of concerns about the potential impact of the project on cetacean species, including from noise pollution, benthic habitat loss and contamination. Criticisms were made of a lack of evidence to support statements made in the ES and a lack of up-to-date survey and other scientific data, including by reference to a recent scientific paper.

The effects of the project on marine mammals are discussed in detail in the Decision Recommendation.

- Failure to adequately assess oil spill impacts or prepare for well blow-out.

The representations suggested that the impacts of potential oil spills are not considered in sufficient detail, and that the risk assessments did not focus sufficiently on pelagic and benthic impacts, citing studies in support of this view. They also raised a concern about the absence of any mention of access to, and the ability to deploy, a capping stack in the event of a blowout at the field.

The effects of the project with respect to accidental events are discussed in detail in the Decision Recommendation and below.

The ES uses a recognised oil spill model, OSCAR, which is an accepted approach to modelling. Further information provided by the developer in response to the Regulation 12(1) notice dated 9 December 2022 also clarified that vertical trajectory modelling for an oil spill supported the statements made in the ES, so I am satisfied that the information and conclusions set out in the ES are valid.

As set out in the Decision Recommendation, I agree with the conclusion in the ES that the impact on the environment of a major release would be significant. However, Equinor have identified the controls/mitigation to be in place, including ensuring that adequate controls are in place that such an event is highly unlikely.

Further information provided by the developer in response to the Regulation 12(1) notice dated 9 December 2022 also confirmed that Equinor has access to capping equipment for use in the event of an uncontrolled well blow out.

- Necessity of taking a precautionary approach.

The representations emphasised the importance of taking a precautionary approach when assessing the likely significant effects of the Rosebank project. They also referred to the Environment Principles Policy Statement (EPPS) to be published pursuant to sections 17 to 19 of the Environment Act 2021.

The EPPS is not directly relevant to this EIA as the duty to have due regard to the EPPS under section 19 of the Environment Act 2021 does not commence until 1 November 2023, and will only apply to Ministers of Crown when making policy, which does not include an administrative decision taken in relation to a particular person or case. In any event, I consider that the EIA for the Rosebank project has adopted a precautionary approach. For example, worst-case scenarios have been assessed for each aspect of the project.

- Impact on Norway's marine environment and coastline

One organisation made brief representations suggesting that it had concerns about the impact of the project on Norway's environment and coastline, particularly the risks arising if an oil spill or well blow out was to occur.

As set out above, the Norwegian Government was notified about this project under Regulation 13, but did not participate in the EIA process. The effects of the project with respect to accidental events, including the potential impact on Norway, are discussed in detail in the Decision Recommendation.

2) Representations received after public consultation period

As noted above, representations were also received from one organisation outside the public consultation period, in letters addressed to OPRED dated 9 and 28 March 2023. The same organisation also copied OPRED on a letter addressed to the NSTA dated 30 March 2023. Although not received during the public consultation period, the following is a summary of those points raised and how they were considered in reaching a conclusion on the significant effects of the project on the environment.

The representations received on 9 March 2023 suggested that the Rosebank project would push UKCS emissions over the budgets for emissions allowed under the NSTD targets for the period 2028 to 2032 and 2038 to 2050, and further beyond the targets for the period 2033 to 2037, and was therefore incompatible with the NSTD. The further representations received on 28 March 2023 suggested that this was the case even if the NSTA's central abatement targets were met. Similar points were raised in the letter to the NSTA dated 30 March 2023.

The effects of these emissions on the environment are discussed in detail in the Decision Recommendation, and the conclusion reached takes into account the issues raised in these further representations.

The project spans the 4th, 5th and 6th carbon budget periods from 2023 to 2037. The ES describes that the project will contribute 0.04%, 0.06% and 0.11% of the 4th, 5th and 6th carbon budgets respectively, which represents a comparatively minor contribution to the wider UK greenhouse gas emissions.

Regarding the NSTD, while it is not possible for a developer to demonstrate that a target for a whole sector will be met, the offshore oil and gas sector is progressing a variety of emissions reduction initiatives that have the capacity to meet emissions targets. The project also has a significantly lower carbon intensity of production compared with the UKCS average.

The issues raised in these representations are based, in part, on an assumed linear decline between emissions reduction targets, to estimate an implied emissions target for each year. That assumption is not specified in the NSTD or wider emissions reductions targets or budgets.