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

Ithaca Energy (UK) Limited

Captain EOR Stage 2 Phase II 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 have decided that no conditions need to be attached to agreement to the grant of consent.

From: [redacted]

Date: **22 June 2023**

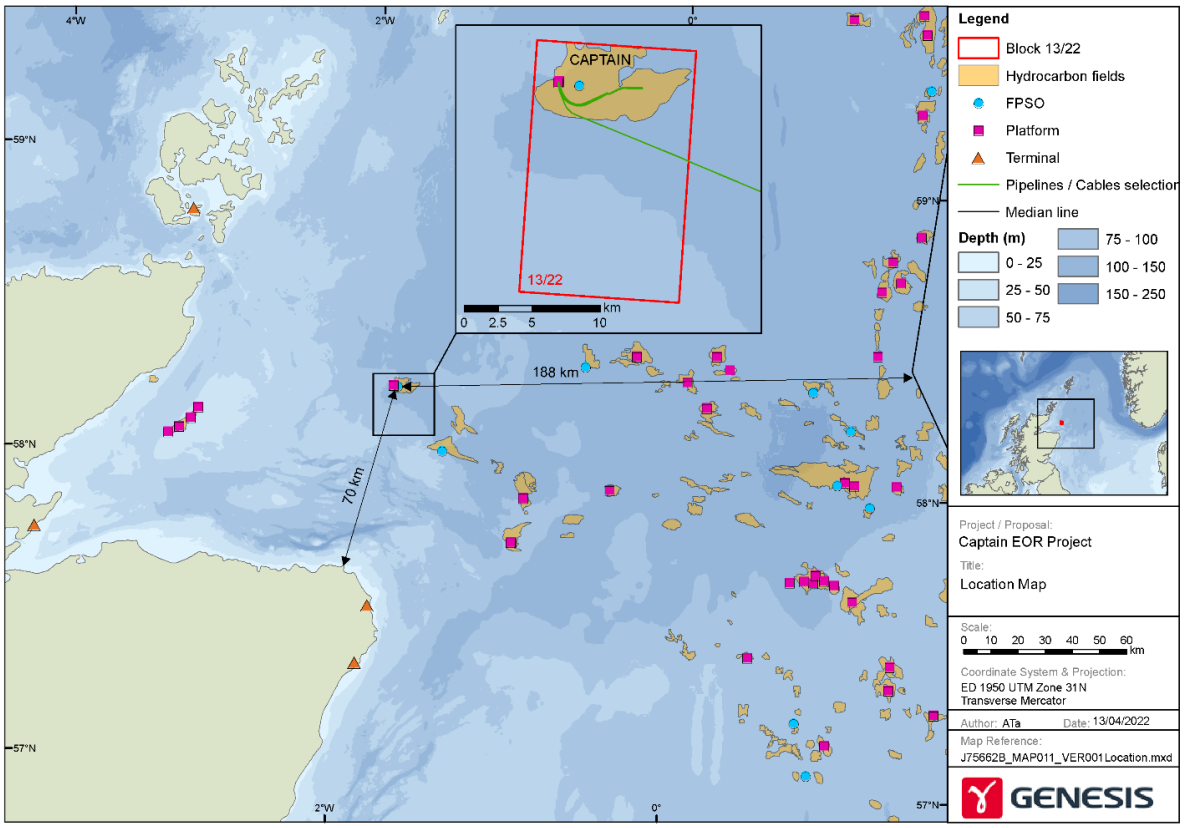
ES Title:	Captain EOR Stage 2 Phase II Field Development
Developer:	Ithaca Energy (UK) Limited
Consultants:	Genesis Energies
OGA Field Group:	Central North Sea
ES Report No:	D/2022/007
ES Submission Date:	16 August 2022
Block No/s:	13/22a
Project Type:	Oil and gas field development
OGA Reference No:	PCON/6546/0

Project Description

The Captain Enhanced Oil Recovery (EOR) field development proposal consists of six new polymer injection wells at two new drill centres, and one new oil and gas production well at an existing drill centre, along with Subsea umbilical distribution structures (SUDS) at each new drill centre, a gravity based SUDS at the Bridge Linked Platform (BLP) and a new riser. The project will tie back to the existing Captain installations. The Captain field is located in the Central North Sea, approximately 70 km from the Scottish coastline and 188 km from the

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

UK/Norwegian median line. Water depths across the Captain field are between 89.2 m and 124.1 m and the anticipated hydrocarbons are oil and gas.



Production began at the Captain field in 1997, with the Captain Wellhead Production Platform (WPP) installed at Area A, and the Captain FPSO located some 2 km away. A bridge linked platform (BLP) was installed in 2001 which connected new Area B and the WPP. The 3rd stage of Captain was in 2006, where Area C was developed with a new drill centre, tying back to the BLP. Since production began, produced water has been reinjected at Captain to maintain reservoir pressure and provide reservoir sweep. Sweep is a term used where a fluid is used to displace hydrocarbons from the reservoir by flooding the rock using water or polymer. Polymer injection was proposed in the original Captain FDP and the facilities were included on board in order for trials to be undertaken. Polymer trials were undertaken from 2010 to 2016, and a staged EOR approach was developed in 2016 to extend the pilot projects to the full field. The EOR development project was split into two stages. Stage 1 included the drilling of two polymer injection wells and five production wells while Stage 2 was split into two phases. The first phase included brownfield modifications to the Captain topsides, with the conversion of existing water injection wells into polymer injection wells. Stage 2 Phase II is covered by this document and consists of:

- Drilling of six new polymer injection wells and one new production well with a semi-submersible drilling rig;
- Establishment of two new drill centres (Area D and Area E), each with three new polymer injection wells.
- Each drill centre will have a piled SUDS which will connect electrical and hydraulic umbilicals to each well.
- One gravity-based SUDS will be installed at the BLP riser location.
- For Area D, three polymer injection flowlines, with an external diameter of 228 mm

and 4.7 km in length, will connect Area D to the BLP.

- For Area E, three polymer injection (PI) flowlines, with external diameter of 228mm and 5.7 km in length, will connect Area E wells to the BLP.
- A 4.9 km electro-hydraulic (EH) umbilical will connect Area D to the BLP, and another EH umbilical 5.7 km in length, will connect Area E to the BLP. Smaller in length (<100 m) EH umbilicals will connect the wells to the SUDS.
- An application will be submitted for 500 m safety exclusion zones for the new drill centres and wells.

The flowlines connecting Areas D and E to the BLP will be laid separately (20 m apart) and will be trenched and buried. The width of the impact area associated with the flowlines to be laid for each drill centre will be 100 m wide per drill centre. Mattresses and grout bags will be used to stabilise and protect the umbilical ends as they exit the trenches at the end of the line ends, within the 500 m safety zones. Contingency has been provided for with rock cover in the event of upheaval buckling. All grout bags and mattresses will be laid within the 500 m safety zones.

Brownfield modifications have been made to the Captain installations to allow for the development, and these include the addition of a new polymer pumping and mixing facility on the BLP, a new riser caisson at the BLP, and new polymer transfer pumps on the FPSO and WPP. No changes are required to the existing power generation equipment.

The Captain fluids will be co-mingled with the hydrocarbons from the existing drill centres. Processing of oil and gas will be undertaken at the BLP, with gas used as a source of fuel where possible. Oil is processed at the BLP and WPP, flowed to the Captain FPSO and then to a shuttle tanker. Gas is exported and imported via the FRIGG UK gas transportation system and then on to the St Fergus gas terminal.

First polymer injection at Areas D & E is expected Q1 of 2024, with first oil from the new production well scheduled for Q2 2024.

Key Environmental Impacts

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

- Effects on the seabed and protected species and habitats;
- Effects on water quality from discharges to sea;
- Effects on local air quality and climate from the atmospheric emissions generated by the project;
- Effects from underwater noise caused by piling of the drilling template and manifold and associated vessels;
- Effects on water quality, protected species and habitats, fauna and flora from an accidental event resulting in an oil release;
- Effects on the sediment, seabed habitats, fauna and flora from seabed disturbance from the physical presence of temporary and permanent infrastructure; and
- Effects on users of the sea (e.g. commercial fishing and shipping) from the physical presence of temporary and permanent infrastructure, and the construction phase of the project.

Key Environmental Sensitivities

The ES identified the following environmental sensitivities:

- Fish and shellfish: The project area lies within numerous spawning and nursery areas of fish species. The area is a high intensity nursery ground for Scottish Priority Marine Features (PMFs) of Anglerfish and Whiting, and also peak spawning grounds for PMFs listed Herring, Cod, Whiting and Norway Pout. The area is also a spawning and nursery area for PMFs listed species such as blue whiting, ling, mackerel, and sandeels. Cod is also listed on the OSPAR list of threatened and/or declining species in the project area. There is evidence that the sandy mud/muddy sand is an unfavourable habitat for cod spawning.

- Seabirds: Multiple species of seabird could be present at the project area in various levels of abundance, dependent upon the season. Northern fulmar and common guillemot breed throughout the summer months (>20 per km^2) whilst black legged kittiwakes are present in large numbers from April to September. Sensitivity of seabirds in the project area (Block 13/22) is predominantly medium to high throughout the year, with the exception of December and February which is very high and extremely high respectively.

- Protected habitats and species: There are no Special Areas of Conservation (SAC) within 40 km of the project area. The closest area of conservation is the Southern Trench NCMPA, which is 47 km to the south of the proposed project area. This site has been designated for the presence of geological features such as shelf deeps, fronts, burrowed mud and sub-glacial tunnel valleys. Seabed surveys undertaken in the Captain field identified a number of sea pens and burrowing megafauna communities in a high enough density to be considered present. These protected species are OSPAR listed threatened and/or declining species. An area of cobbles and boulders were present in site surveys, and were classified as an unstable stony reef. Ocean quahog shells were identified in sampling surveys but were not present in photographs or video footage. No other Annex I habitats were identified.

- European Protected Species and pinnipeds: Cetaceans such as harbour porpoise, bottlenose dolphin, minke whale, white beaked dolphin, killer whales, long finned pilot whale and Atlantic white-sided dolphins are likely to occur in the project area. White beaked dolphin and harbour porpoises are the most common species to be present in the area. Harbour porpoise are sighted throughout the year but peak in July, whilst white beaked dolphin numbers peak in August and December. Pinnipeds such as the grey seal and harbour seal are known to use areas off the east coast of Scotland. The harbour seal primarily stay within 50 km of the coastline, whilst grey seals use offshore areas (up to 100 km from the coast). It is unlikely that harbour seals will be present within the area, however grey seals are expected at a density of 5-10 individuals per $5km^2$.

- Other users of the sea: Commercial fishing effort in the project area has been assessed as “moderate”, representing less than 1% of the total UK fishing effort. Fishing effort varies with the seasons, with higher activity in the summer months. The main species landed is dominated by demersal fishing.

  Shipping density in the area is low with an average of six vessels per day. The closest route passes 3.1 nm to the east of the project area. Shipping traffic consists of mainly cargo vessels to and from the Faroe Islands and Humber ports. The project is not situated within a military practice and exercise area, and there are no conditions required by the Ministry of Defence (MoD). The closest military practice ground is 6 km to the west of the Captain installations. The project area does not cross any

telecommunication cables, and the closest is the KIS-ORCA power cable which is located 44km from Block 13/22. The project area sits within a well-established location for offshore oil and gas infrastructure with the closest installation the Bleo Holm FPSO, situated approximately 27 km away. Block 13/22 intersects with the proposed NE6 Scotwind programme area which will be located 10km northeast of the project location. The closest known potential wreck to the project area is approximately 0.9km northeast of the well locations and it has been confirmed by the developer that the mooring system of the MoDU will not impact on the wreck.

- In-combination, cumulative and transboundary sensitivities: The project area is located 188 km from the UK/Norway median line. The installation of infrastructure (siting of the two drill centres, SUDS, the associated 500m safety zones and the approx. 5 km pipelines) will reduce availability of the natural environment to activities such as fishing, but this will be offset by trenching and burying the pipelines so that fishing activities can continue in those locations. No other oil and gas construction activities are planned in the project area at the time of installation and commissioning of the Captain EOR project. The project will not add to produced water discharges in the area as produced water will be reinjected to the reservoir. However, given the density of oil and gas installations in the area, it is possible that cumulative impacts relating to air quality from atmospheric emissions may occur from vessel operations and the small increase in atmospheric emissions from the Captain installation as a result of the project.

  The installation of subsea infrastructure (as listed under Project Description above) will contribute to the cumulative impact on the seabed. The installation of the pipelines involves jet trenching and there will be permanent impacts resulting from the project in the form of cuttings from the drilling of the six polymer injection wells. It is anticipated that the thickest burial depth of cuttings (>6.5 mm) occurs within 180 m of the wells and will reduce in thickness over time. There will also be temporary seabed impacts from locating the MoDU. The maximum permanent seabed disturbance associated with the project is 0.016 km^2, whilst the maximum temporary area of disturbance is 1.777 km^2.

Public Consultation(s)

The ES and the summary of the project was subject to public consultation, with the public notice published on 25 August 2022 and ending on 25 September 2022. There were no public representations received.

Further information was requested on 9 December 2022 and 16 February 2023 under Regulation 12(1) notices. The further information provided by the developer was not directly relevant to reaching a conclusion on whether the project is likely to have a significant effect on the environment and was therefore not subject to further public notice.

Consultation with Other Authorities

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

Consultation with other Countries

Given the location of the project proposal, no countries have been included in the consultation process.

Conclusion on the significant effect of the project on the environment

I have reviewed the following:

- The ES;
- The further information obtained under Regulation 12 as summarised above;
- The representations received from other authorities as summarised above.

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

There is no significant impact anticipated from the navigational hazards to other users of the sea given the low levels of shipping in the area. The physical presence of the semi-submersible drilling rig and supporting vessels whilst the project is under construction (395 days), will however displace other users of the sea, which is predominately shipping and fishing. These activities have been described above as low to moderate respectively within the project area. There will be additional temporary exclusion zones (500 m safety zone centred on the drilling rig) during construction, which will also exclude vessels from the project area. Two new 500 m safety zones will be put in place for the new drill centres which will exclude vessels for the life of the field (approximately until 2035), however vessels will not be excluded from the pipeline area. Fishing effort in the area is considered moderate and mostly undertaken with demersal gear. Pipelines will be trenched and buried, and subsea protection materials will be overtrawlable; therefore, the impacts to the fishing industry are not considered significant. The safety zone associated for the new drill centres will result in a small reduction in area available to fishing vessels. There are no protected areas impacted by the development, or Annex I habitats in the area.

I agree with the assessment, that the impacts resulting from the physical presence of drilling rigs, vessels and associated infrastructure, will not have a significant impact on the environment.

Seabed Impacts

There will be seabed impacts from locating the semi-submersible rig (at both drill centres) from mooring anchors and anchor lines, the installation of the subsea infrastructure which includes pipelines (jet trenched), three SUDS, tie in spools, jumpers and drill centres, and protective materials such as grout bags and mattresses. Water based drill cuttings will also be discharged to the seabed from the drilling of six subsea wells which will result in a wider area of seabed disturbance. The deepest sediment deposition will be up to 180 m from the drilling locations.

The flowlines will be individually jet trenched and buried with a corridor of disturbance of 100 m wide (three Polymer Injection flowlines and one Electro-Hydraulic umbilical, will be laid in four trenches 15-20 m wide, with a 10 m corridor either side of the trench). The worst case assumption is an impact corridor width of 100 m, with the actual target width for each trench estimated at 15m. The pipelines require to be pressurised once laid in the trench, to lock in

the expansion that the flowlines experience when in use. The option to lay the pipelines in the same trench was deemed too high a risk, as laying the pipelines in the same trench meant that the pipelines when pressurised, could buckle against each other and fail.

Permanent infrastructure will be placed on the seabed for the lifetime of the field, and these will include protective material (mattresses, grout bags and rock as contingency for upheaval bucking of pipelines), three SUDS, pipelines and umbilicals. The seabed will also be disturbed when trenching the pipeline system. Taking all of the above into account, the worst-case permanent area of impact to the seabed is expected to be 0.0163 km^2. The contributing factors to the permanently impacted area are the deposition of water based drill cuttings from drilling the 6 polymer injection wells. Pipelaying will cause displacement and resuspension of sediments, for the trenching and backfilling of the trench (with the displaced sediment). The worst-case temporary area of impact to the seabed is 1.777 km^2 with the largest contributing factors being the 8 semi-submersible anchor lines and jet trenching the seabed for the installation of the pipelines.

Cuttings dispersion modelling was undertaken to understand the fate of the water based drill mud and cuttings on the seabed. Modelling predicted that the maximum height of drill cuttings was 1.51 m but this decreased rapidly with increased distance from the wells. Over time the footprint of the cuttings deposits reduces. The risk to the seabed from the cuttings is a smothering effect which is the dominant mechanism of ecological disturbance, however this is expected to be localised and of short duration, with recolonisation expected over time which would result in seabed recovery.

The widespread introduction of hard substrate (deposits of protective material such as rock and mattresses) can change the local seabed type to one that adversely affects species with a sand/gravel sediment habitat preference. The hard substrates introduced to the seabed are expected to be colonised. In the Captain field, there are numerous cobbles and boulders that already provide a substrate for species with preference for a harder substrate. It is not expected that the introduction of protective material will change the area seabed type.

Laying of the flowlines and umbilicals using a jet trenching method will result in a smothering and scour effect of the seabed. The epifauna in the project area may be affected by this mechanism of disturbance due to the clogging of respiratory apparatus. Site surveys in the area indicated the presence of sea pens and burrowing megafauna communities, and ocean quahog. It is anticipated that there will be mortality of some of these individuals, however it is expected the locations disturbed will be rapidly recolonised and should not have an impact at population levels. There are no Annex 1 habitats within the project area.

There will be disturbance to the seabed with displaced sediment, however this will be short term and temporary, with the benthic community able to recover over time. The discharge of water based drill cuttings and mud into the water column will cause short term smothering effects over a localised area around the wellheads. The species found in the area are considered resilient to the effects of sediment disturbance and will be able to recolonise quickly. I agree with the assessment that while there will be impacts to the seabed, these are not expected to be significant in terms of environmental effects given the ability of the environment to recover from temporary disturbance and the small footprint of the disturbed area.

Discharges to sea

There will be limited discharges to sea, with the majority of the discharges from the drilling of the wells (drill cuttings, drilling mud, wellbore clean up fluids, chemicals and cement). All produced water is reinjected, and this will continue with the new EOR Stage 2 Phase II

project. Water based muds and the associated cuttings from drilling the lower section of each well will be discharged to sea. As discussed above, a drill cuttings modelling exercise was undertaken to assess the deposition from drilling. This also assessed the impact to the water column which found that where the risk to over 5% of the sensitive species is greatest, this risk disappears within 24 hours of the last discharge.

There will be limited discharges of chemicals used during the drilling phases and water quality and marine organisms were identified as key receptors. The impacts to water quality are likely to be localised and short term, given the short timeframe for the drilling activities and the selection of chemicals that are low risk to the environment. Any deterioration of water quality will be localised and short term, and the impact is not considered to be significant. I agree with the assessment that the impact to water quality and marine organisms from discharges to sea will not result in a significant impact, given the dilution and dispersion expected in the marine environment.

Atmospheric Emissions

Local air quality and climate change were the primary receptors considered in relation to atmospheric emissions from the project. The developer is supporting the UK Government's commitment to achieving net zero greenhouse gas emissions by 2050 and the North Sea Transition Deal (NSTD) targets, whilst supporting other industry commitments and initiatives which have been developed to facilitate progress towards the target of net zero. The Developer has its own Greenhouse Gas Emissions Policy, setting out expectations in relation to the targets of the UK Government's net zero policy.

The developer has set out its own reduction plans with respect to GHG emissions, all assets, including existing Captain assets and the proposed Captain EOR Phase 2 project outline here. The plan includes:

- reducing all scope 1 & 2 CO_2 and CO_2(e) by all the operated assets by 25% from 2019 levels by 2025;
- Zero routine flaring by 2030;
- Reducing methane intensity to achieving 0.2% methane intensity by 2025;
- Introducing an Environmental Stewardship process with a plan which is updated annually for each asset;
- Emissions Reduction Action Plans with a number of feasibility studies being undertaken to reduce methane and carbon emissions and;
- A member of the Outer Moray Forth Electrification (OMFE) group. Letters of intent have been submitted to wind developers in support of the seabed licencing round to include Captain assets.

Atmospheric emissions from the construction phase of the project will be related to fuel combustion from the drilling rig (semi-sub), numerous vessels, helicopter traffic and any flaring activities during well clean up. The wells to be drilled will use a batch drilling method which maximises efficiency (reducing time on location by the drilling rig) and requires only one drill rig move, which reduces the emissions to atmosphere. The total estimated CO_2(e) emissions from the drilling of the wells and the installation of all subsea infrastructure is 0.4% of 2019 UK shipping emissions.

The incremental and total impact on production and processing from the additional wells from the project at the Captain installations were also assessed. The main atmospheric emissions associated with production is from power generation, gas compression, flaring and fugitive emissions. Some modifications have been made to the topside as a result of the Stage 2

Phase II project, however, there have been no modifications made to the power generation equipment. The additional power requirement as a result of the project is approx. 2.7 MW, which is an additional power requirement of 10%. This additional power requirement will be met with an increase in diesel use on the FPSO. The project will result in an increase in produced gas which will be utilised by the process heaters on the FPSO (import gas is used in periods of gas deficiency). No additional flaring will be expected as a result of the tie-in of the wells, with the developer committing to zero routine flaring by 2030.

There will be an increase in venting from cargo tanks on the FPSO from the cargo oil tanks, which will increase (worst case) the amount of gas vented to atmosphere by an average of 171 t/y from 2023-2035. It is expected that there will be an additional 16-18 offloads per year to the shuttle tanker (as a result of the increase in oil produced) from 2025 to 2029 which equates to an additional average in transit emissions of 293t CO_2(e) per annum.

As a result of the increased use in polymer, the deliveries to the Captain installations will double from 1 vessel to 2 vessels per week from 2024 to 2029. The increase in vessels to the Captain installations will cause an incremental increase in emissions to atmosphere of an additional 1700t CO_2(e)/year.

The carbon intensity metric (Kg CO_2(e) per barrel of oil equivalent KgCO_2(e)/boe) has been calculated and assessed for the incremental change for the Stage 2 Phase II project. The average GHG intensity for the incremental change for the project ranges from 6.9 kg CO2(e)/boe in the high case to 11.3 kg CO_2(e)/boe in the low case. The introduction of the EOR project affects the GHG intensity for the Captain installations, with an overall reduction in GHG intensity for all 3 production cases (from 2024 to 2033) compared to the 'without EOR project' case. This is due to the higher level of production relative to the incremental fuel use at the power generation units. The average GHG intensity for the Captain field without the EOR project is 37 kg CO2(e)/boe over the same field life.

The contribution of CO_2(e) from the Captain EOR project (the operation of all seven wells and operational emissions from the Captain installations), for the operation of the field life (to 2035) represents an additional worst case of 276,273 t CO_2(e). For the installation of the wells, infrastructure and start up emissions, a worst case of 50,268 t CO_2(e) has been calculated. The incremental emissions contribution for the project therefore represents an additional 0.18% of the emissions reported by the oil and gas sector in 2019, while it represents an additional 0.6% of UKCS production compared with 2019 data.

The Captain EOR Stage 2 Phase II project, when combined with the existing Captain field emissions, will take up a small portion of the North Sea Transition Deal target, taking a total emissions proportion of <2.1% for the years 2025, 2027 and 2030. The addition of the project when combined with the existing Captain field emissions also takes up 0.06% proportion of the budget allocation from the UK Climate Change Carbon Budget for the different budgeting periods (2023- 2037). The emission reduction measures to be taken by the developer will help to reduce emissions from the field, whilst the EOR project will help to reduce GHG intensities from the Captain installations for all production cases to at least 2031.

Impacts on air quality will be localised and given the distance from the UK/Norway median line, no transboundary impacts are expected.

I agree with the assessment undertaken and conclusion that the sensitivity of climate change as a receptor is considered very high, but the emissions from this project are considered to be low, therefore the magnitude of effect is considered low. Overall, I agree with the assessment that the environmental impact from emissions is not significant.

Underwater noise

The main source of noise during the project results from the piling of the SUDS, which are to be installed at Areas D and E. Four piles (25m in length) are required for each structure, and it is expected that each pile will take one hour to install, with activities not lasting longer than 1 day per SUDS. Each pile is installed using a maximum hammer energy of 90kJ and it is the noise produced by the hammer driving the piles that is the main factor influencing sound levels, along with diameter and surface area of the pile. Modelling of the noise generated by the piling activity was undertaken in order to assess the impact to marine mammals.

Marine mammals and fish are the main receptors of underwater noise. The predicted sound levels from the piling were compared to the sound pressure levels and sound exposure levels of the cetaceans known to frequent the area. The modelling concluded that the noise levels generated due to the piling activities could disturb marine mammals up to a distance of 3km. The contribution to the noise from the piling activities from drilling activities, vessel presence and potential rock dumping were considered negligible. The developer has stated that JNCC mitigation guidelines will be followed during the piling operations, which includes the use of soft starts. Given that the piling works will last one day and are therefore temporary in nature, and the use of standard noise mitigation measures, the impact to marine mammals and fish are not expected to be significant. I agree with the results of the noise assessment that no significant effects are anticipated from the noise generated by the project.

Accidental events

The main scenarios of a hydrocarbon spill were assessed, with the impact from a well blow out and the loss of diesel inventory from the semi-submersible drilling rig considered as the worst cases. Using the results of the model, and due to the small volume of hydrocarbons involved, it was concluded that the loss of hydrocarbons from the pipeline and a loss of diesel from the semi-submersible drilling rig will not have a significant impact on the environment and is not considered further.

Captain crude has a specific gravity of 0.93 which means that the oil is likely to remain on the sea surface in calm conditions, but there is the potential for the oil to suspend below the sea surface in rougher weather conditions. Given that the crude may be suspended below the sea surface, there could be a significant impact on the seabed sediments. Plankton, due its nature of drifting with the currents, could be affected in both sea states, and can be vulnerable to oil pollution. Filter feeders such as sea pens and ocean quahog, both of which have been identified in surveys, are also vulnerable to oil pollution due to the ingestion of oil when feeding. It is expected that fish actively avoid the oil spill areas however fish spawning areas, which have been identified in the area, could be impacted by an oil spill. Seabirds are sensitive to the effect of surface oil pollution which affects their plumage and digestion systems. Marine mammals tend to be highly mobile and can swim away from an oil spill area, however resident populations may not leave the area, and feeding marine mammals can be particularly affected through the ingestion of oil and for contaminants to be passed through the mother's milk. It is expected that the impact on benthos, fish, marine mammals, seabirds would be significant in a well blowout scenario. It is expected that a well blow out scenario would also have a significant impact on nearby protected areas, coastal area and impact on Norwegian waters.

I agree with the conclusion that an accidental event, in this case a well blow out, has the potential to have a significant effect on the environment and may result in a Major Environmental Incident (MEI). However, such an event is unlikely to occur and the developer has a range of mitigation measures in place to respond to a well blow out and reduce the

impact. The developer has therefore proposed key measures to avoid, prevent, reduce or offset any significant adverse effect on the environment from accidental events. These measures include having an approved Oil Pollution Emergency Plan (OPEP), a relief well plan and primary and secondary barriers in place. The developer is a member of Oil Spill Response Limited (OSRL) and has access to their oil spill response team. The developer is also a member of the oil pollution compensation scheme Offshore Pollution Liability Association (OPOL) which provides assurance that the developer has the financial means to remediate oil spills. I agree with the assessment of environmental effects once control and mitigation measures from the unlikely event are accounted for.

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

As discussed above, the only impact identified as potentially having a significant effect on the environment is an accidental event, which in this case is a well blow out. The following key measures of the project are envisaged to avoid, prevent, reduce or offset any significant adverse effect on the environment from accidental events.

The developer has a number of measures in place to ensure that the risk of a well blow-out occurring is minimised. These preventative measures are:

a) Primary Well Barrier: the developer will use appropriate drilling fluids to maintain well control and provide sufficient hydrostatic pressure.
b) Secondary Well Barrier: the developer will utilise a blow out preventor (BOP) which is used for the initial stages of secondary well control should a blow out occur;
c) Operations will be carried out in accordance with a well plan to ensure well control is maintained;
d) Oil Pollution Emergency Plan which sets out arrangements for responding to incidents that may cause oil pollution;
e) Well Procedures and equipment to control the well in the event of a blow out, including a capping device or the drilling of a relief well.
f) The developer has access to the oil spill response provider Oil Spill Response Limited (OSRL) and;
g) The developer is party to the oil pollution compensation scheme the Offshore Pollution Liability (OPOL) Agreement

Although a significant effect to the environment would be expected in the case of an unplanned, accidental well blow-out from a Captain well, 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 a well blow-out does have the potential to significantly effect the environment, however, mitigation measures and commitments will be in place to reduce the risk of a well blow-out occurring, to as low a risk as possible.

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 taking into account the effect of measures set out above, there will be no significant effects on the environment.

[redacted] [redacted] Date 22 June 2023

[redacted]

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

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] Date: 22 June 2023

[redacted]

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