Consultation

ExxonMobil

South East Australia Carbon Capture and Storage Bream Greenhouse Gas Appraisal Environment Plan

Information Bulletin - June 2024

Overview

Esso, together with its co-venturer, Woodside Energy, is undertaking preliminary assessments to determine the potential for carbon capture and storage to reduce greenhouse gas emissions from multiple industries in the Gippsland Basin. Carbon capture and storage is the process of capturing carbon dioxide (CO_2) emissions from industrial activity or power plants at the source and injecting it into deep underground geologic formations for safe, secure and permanent storage. It is among the few proven technologies that could enable reduced CO_2 emissions from high-emitting and hard-to-decarbonise sectors. The initial phase of the South East Australia Carbon Capture and Storage (SEA CCS) Project being considered would take an existing CO_2 stream from the Longford Gas Plants to the Bream A (BMA) platform, where it would be injected into the depleted Bream reservoir (referred to from here as the Bream field) for permanent storage.

The proposed works to be managed under the Bream Greenhouse Gas Appraisal Environment Plan (EP) would confirm well suitability for greenhouse gas operations, collect baseline data and further Esso's understanding of existing conditions at the proposed site. The appraisal activities proposed under the Bream Greenhouse Gas Appraisal EP include well workovers, well plug and abandonment (if required), geotechnical, geophysical and environmental surveys, platform operations, support operations (including vessels, remotely operated vehicles (ROVs) and helicopters), platform and subsea inspection, maintenance and repair and well maintenance and monitoring. The proposed appraisal activities would occur prior to the commencement of any CO_2 transport, injection, or storage operations, which would be subject to a future greenhouse gas title if granted under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act).

There will be no transport, injection or storage of CO_2 under the Bream Greenhouse Gas Appraisal EP. Transport, injection and storage of CO_2 will be the subject of a subsequent EP to be submitted under a greenhouse gas injection licence, should it be awarded over some or all of the Bream field.

Activity description

Well workovers

Workover of the wells would involve well logging (undertaken to determined rock and fluid properties), and replacement of some of the internal components of the well which will enable Esso to confirm the wells are suitable for future injection and storage of CO_2 under a greenhouse gas injection licence.

Up to nine existing wells on the BMA platform (previously used for oil and gas production) have been identified as potential candidates for CO_2 injection or monitoring wells. Approximately five of these wells would be selected for workover, with the remaining wells to act as contingency wells if any of five initially selected wells cannot be completed. All BMA platform wells are currently shut-in or temporarily suspended (i.e. not producing).

Well workover activities would be undertaken using a platform-based rig. The platform-based rig will be transported to the BMA platform by vessel and assembled on the platform.

Activity timing

Proposed appraisal activities are anticipated to commence as early as:

- 3Q 2025.

Field activities estimated to take:

- approximately 35 days per well for well workover, which is estimated to take approximately 7 months total
- approximately 30 days per well for plug and abandonment, which may take up to approximately 12 months total
- more than 30 days per campaign for geotechnical, geophysical and environmental surveys. It is anticipated that surveys will be intermittent throughout the life of the EP.

Ongoing activities conducted throughout the life of the EP include:

- platform operations
- platform and subsea inspection, maintenance and repair with discrete campaigns lasting up to one month
- well maintenance and monitoring.

Activities will be conducted:

- 24/7.

The timing and order of activity may vary and is contingent on regulatory approvals, joint venture approvals, weather and vessel schedules. Consultation will be conducted with relevant persons who may be impacted by the activity prior to the commencement of the activities/campaigns.

Plug and abandonment

If required, any plug and abandonment activities would be undertaken using the same platform-based rig as used for the workover program described above. The plug and abandonment of platform wells would utilise the rig to permanently abandon the wells through the installation of cement plugs as barriers, followed by the removal of trees, wellheads and conductors.

Well maintenance and monitoring

Well maintenance and monitoring activities may be required following completion of the well workovers of platform wells. All well maintenance and monitoring activities would be conducted from the BMA platform. Well maintenance activities may include function testing of wellhead valves. There will be no flow and therefore no discharge associated with any function testing.

Surveys

Geotechnical, geophysical and environmental surveys may be completed to further Esso's understanding of existing conditions at the proposed site (e.g. in order to enhance Esso's understanding of potential monitoring, measurement and verification requirements at the proposed site).

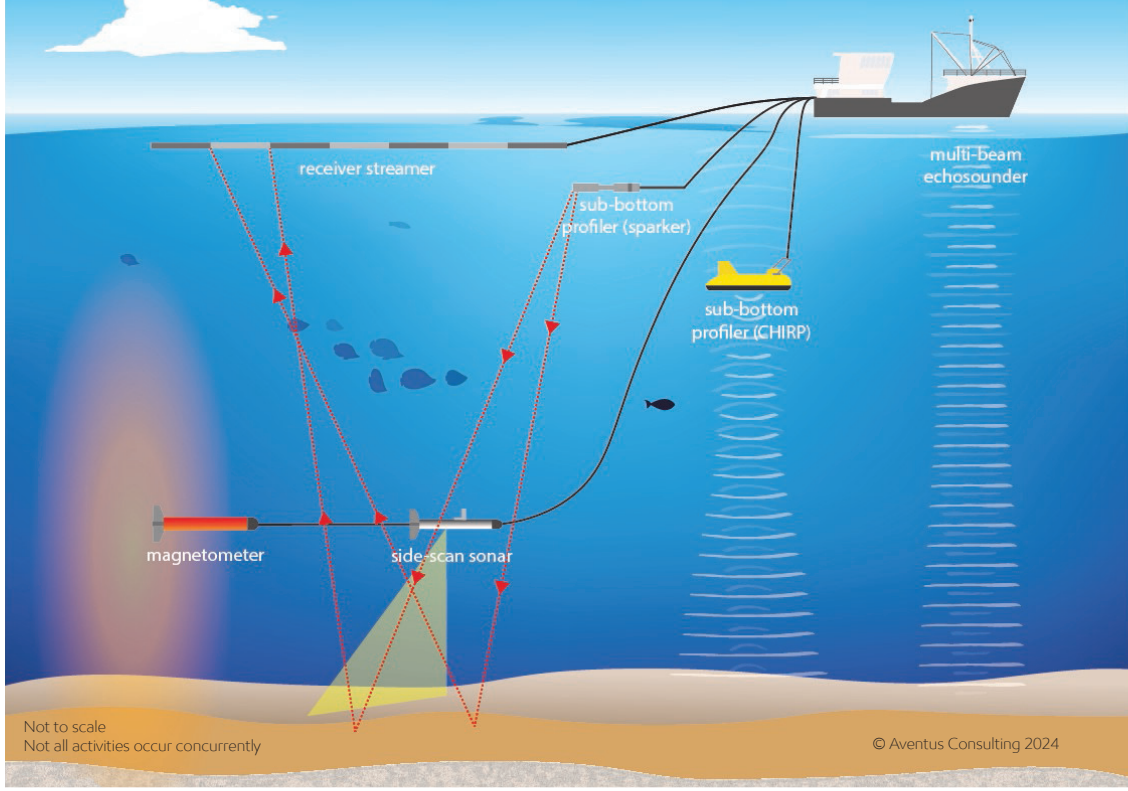
Geophysical, geotechnical and environmental surveys would be conducted from a vessel and may be supported by a single support vessel.

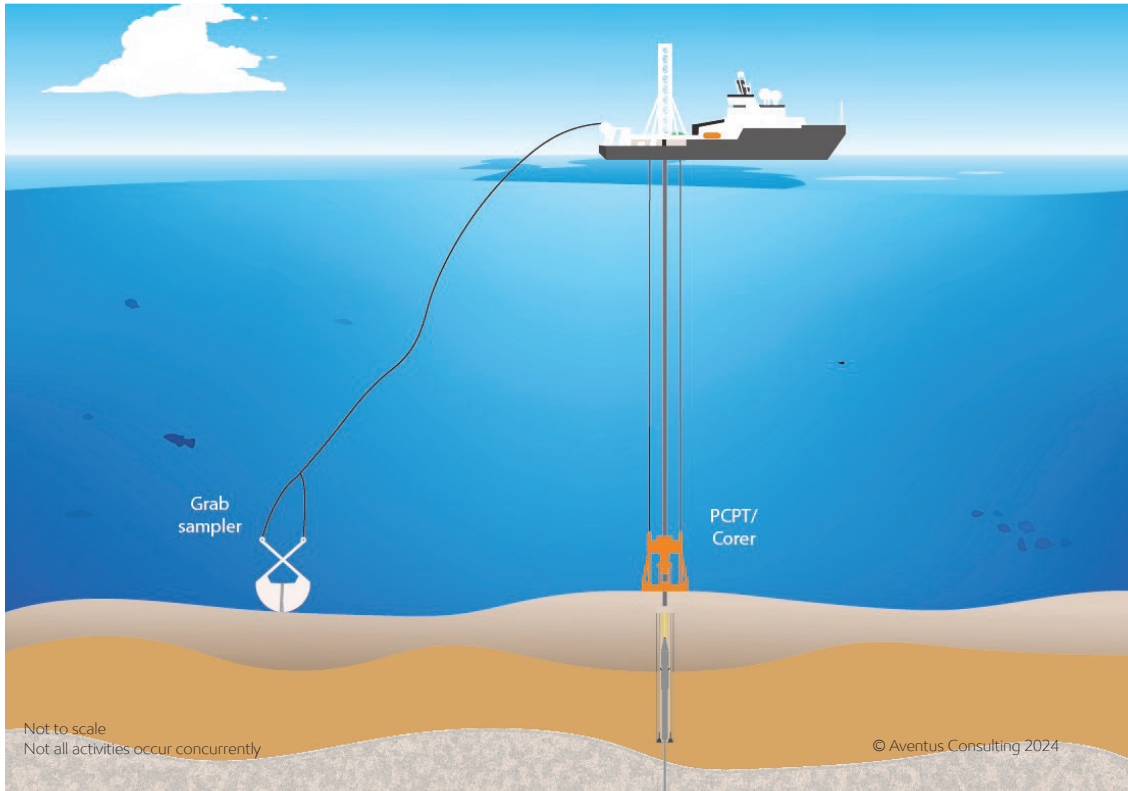
Geophysical surveys

Geophysical surveys may include conventional geophysical survey techniques including the following:

- single beam echo sounder
- multi beam echo sounder
- side scan sonar
- sub bottom profiler
- magnetometer.

The geophysical surveys proposed are consistent with typical pipeline and subsea inspection activities conducted as part of existing Bass Strait operations. The survey vessel together with autonomous underwater vehicles (AUVs), ROVs, towfish and/or catamaran will be used to deploy equipment and collect geophysical data.





↗ Simplified representation of geophysical investigation techniques
→ Simplified representation of geotechnical investigation techniques

No marine seismic surveys are proposed as part of this Environment Plan. As noted by the Australian Offshore Infrastructure Regulator, geophysical investigations generate data using much lower intensity sources that generate much lower sound levels than marine seismic surveys.

Geotechnical surveys

The geotechnical survey may involve:

- borehole drilling
- steerable coring (magnetic).

Geotechnical surveys may be guided by the placement of a temporary guide base on the seabed. All drilling proposed is for geotechnical purposes only. There will be no drilling through petroleum-bearing reservoirs.

Environmental surveys

The key environmental studies that may be undertaken include:

- sediment sampling
- water sampling
- video surveys.

Sediments may be sampled from the seabed areas above the Bream field and would involve sampling directly from a vessel or supported by a ROV e.g. using Van Veen Grabs and Box Cores.

Water may be sampled from the water column using Niskin bottles deployed by a ROV. ROVs or AUVs may also be fitted with water quality sensors to support water sampling.

Video surveys may be used to identify marine organisms associated with seabed and water column above the Bream field area and the BMA platform to build upon the ecological analyses of historical ROV inspection footage within the Gippsland Basin. Video footage would be collected by a ROV.

Inspection, maintenance and repair

Platform inspection, maintenance and repair activities are required to ensure platform wells and topside equipment are maintained in good repair to perform their intended function.

Platform inspection, maintenance and repair consists of a wide variety of mechanical, electrical and structural activities which fall into two categories:

- preventative maintenance, which is planned, or
- repairs as a result of an unplanned failure of equipment or identification through inspection.

Platform inspection, maintenance and repair proposed under the EP is limited to that associated with enabling the other activities described above, including well workovers, plug and abandonment of platform wells, well maintenance and monitoring.

For this activity, subsea inspection, maintenance and repair is limited to the conductors for BMA wells that have undergone workovers. These activities may require a support vessel and use of a ROV.

Platform operations

The BMA platform is a fixed installation consisting of an eight-leg steel piled jacket. The BMA platform is located within the Area to Be Avoided (ATBA). A Petroleum Safety Zone (PSZ) extending 500 metres from the platform has also been established under the OPGGS Act. The platform is currently in a state of Cessation of Production and there are no hydrocarbon producing activities. Platform operations will therefore be limited to those required to support other activities described above, including well workovers, plug and abandonment of platform wells, well maintenance and monitoring, and inspection, maintenance and repair.

The BMA platform is equipped with navigation lighting and also has a variety of other light sources including crane clearance lights, helipad lights and radio tower lights. While the platform is staffed there will also be lighting for accommodation and related infrastructure.

During the life of this EP the BMA platform will normally be staffed, with intermittent and temporary periods of de-staffing when activity levels are low. The BMA platform has a maximum Persons on Board of 80, although the personnel required for this activity will likely be significantly less and will vary according to each activity.

Support operations

Vessels

The activities described above will typically require the use of at least one support vessel.

Types of vessels may include platform supply vessels, support vessels, installation support vessels, dive support vessels and multipurpose support vessels. These vessels operate on an as-needs basis from onshore terminals.

Helicopters

Helicopters may be used to transport personnel, carry urgent freight and critical spares for the activities. The number, type, and frequency of helicopters available depends upon the planned operations.

Helicopter operations are performed in accordance with Civil Aviation Safety Authority regulations. Non-emergency helicopter flights are limited to daylight hours.

Remotely operated vehicles and autonomous underwater vehicles

The activities described above may be undertaken or supported by ROV or AUV (either platform or vessel-based deployment).

Activity location

The majority of proposed activities will occur on the BMA platform. The BMA platform is surrounded by an existing 500-metre PSZ and is located within the ATBA. Geotechnical, geophysical and environmental surveys may occur anywhere within the environment above the Bream field.

→ Map of activity location

Interaction with commercial fishing

The BMA platform and the environment above the Bream field are located within existing Commonwealth fisheries that may be used by commercial fishers. The impacts to commercial fishing should be minimal as fishers are already required to avoid the established PSZ that surrounds the BMA platform. However, the timing of discrete, individual activity specific campaigns including support vessel details, will be further communicated to the Lakes Entrance Fishermen's Co-op, South East Trawl Fishing Industry Association and Seafood Industry Victoria nearer the campaign.

Petroleum Safety Zones and Notice to Mariners

The BMA platform is located within the existing 500-metre PSZ established for the BMA facility in accordance with Section 616 of the OPGGS Act. NOPSEMA may declare a Greenhouse Gas Safety Zone around the BMA facility in addition to the PSZ. Geotechnical, geophysical and environmental surveys may occur anywhere within the environment above the Bream field, within the Bass Strait ATBA.

The location and timing of discrete, individual activity specific campaigns will be communicated to other marine vessels via a Notice to Mariners issued by the Australian Hydrographic Service and AUSCOAST warnings issued by the Australian Maritime Safety Authority, as appropriate.

Potential impacts, consequences and control measures

Esso's aim is to minimise environmental and social impacts associated with the proposed activities. As such, Esso has undertaken an assessment to identify potential impacts and consequences to the environment resulting from the proposed activities, considering timing, duration, location, values and sensitivities. For each potential impact, Esso has developed the control measures outlined on the following pages to assist relevant persons in making an informed assessment of possible impacts to their functions, interests or activities.

↗ Multi-purpose support vessel the *Skandi Darwin*

Environment Plan

Under the OPGGS Act, before any greenhouse gas-related activities in Commonwealth waters can commence, an EP must be accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). An EP will be developed for the activities described in this bulletin.

The EP is a comprehensive document that describes the existing environment, including relevant persons, and how Esso will undertake the activities to avoid, minimise or manage potential environmental impacts to As Low As Reasonably Practicable (ALARP) and meet regulatory acceptability criteria. Demonstrating ALARP requires a titleholder to implement all available control measures where the cost is not grossly disproportionate to the environmental benefit gained from implementing the control measure.

In the course of preparing an EP, Esso must consult with relevant authorities, persons and organisations whose functions, interests or activities may be affected by the proposed activities (i.e. a relevant person) and provide the opportunity for any feedback.

Potential impacts	Potential consequences	Control measures
Seabed disturbance	Temporary and localised seabed disturbance	▪ Post campaign ROV inspection to check that temporary equipment has been recovered and dropped objects recovered where practicable. ▪ Sampling Analysis Plan in place for geotechnical and environmental surveys.
Planned discharges to the marine environment from vessels[1]	Temporary and localised reduction in water quality; temporary change to predator/prey dynamics	▪ Routine discharges and vessel waste treatment systems will meet International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978, (MARPOL 73/78) requirements. ▪ Discharged bilge water will have less than 15 parts per million oil in water content. ▪ Food scraps will be macerated prior to discharge.
Planned discharges to the marine environment from BMA platform[2]	Temporary and localised reduction in water quality; temporary change to predator/prey dynamics	▪ Chemicals planned for discharge will undergo an environmental assessment to confirm suitability for discharge prior to use. ▪ Maintenance and inspection of open and closed skimmer pile equipment. ▪ Solids will be captured as far as reasonably practicable with captured material sent to shore for disposal.
Discharge of cement	Temporary and localised reduction in water quality; temporary change to predator/prey dynamics; smothering of benthic habitats	▪ Chemicals planned for discharge will undergo an environmental assessment to confirm suitability for discharge prior to use. ▪ Low volumes of cement will be discharged.
Sound emissions	Temporary displacement of sound sensitive fauna around active vessels	▪ Compliance with Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Part 8 Division 8.1 interacting with cetaceans. ▪ If certain listed species of whales are spotted, additional controls are in place to help protect and minimise noise disturbance.
Light emissions	Attraction of light sensitive species; change in fauna behaviour	▪ Lighting will be kept to a minimum while still meeting navigational and workplace safety requirements.
Air emissions	Temporary and localised reduction in air quality	▪ Marine engines are routinely maintained and air emissions from vessel engines will meet MARPOL 73/78 requirements. ▪ Implementation of a preventative maintenance system to ensure environment controlling equipment is maintained for efficient operation. ▪ For well workover activities, gas will be flared/vented as per workover work scope or plan if required.

[1] Including sewage and food waste; treated bilge and deck wash; and cooling water and brine.
[2] Including platform operations, inspection, maintenance and repair, well workover and plug and abandonment activities.

Potential impacts	Potential consequences	Control measures
Unplanned interaction with marine fauna	Injury or death of marine fauna	For vessel-based activities: ▪ Support vessels will comply with Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Part 8 Division 8.1 interacting with cetaceans. ▪ Any injury/mortality of *Environment Protection and Biodiversity Conservation Act 1999* (Cth)-listed fauna will be reported to the Department of Climate Change, Energy, the Environment and Water. For platform-based activities: ▪ Access to sea deck is restricted and approval from the supervisor must be sought prior to accessing the area. ▪ Access is only allowed in pairs and personnel must communicate with supervisors upon entry to and exit from the area. ▪ All personnel are aware of platform restricted areas, including sea deck.
Unplanned introduction of invasive marine species	Displacement of native species and habitat domination	▪ All support vessels will have a Ballast Water Management Plan and associated certificate. ▪ All support vessels will comply with the Australian Biofouling Management requirements. ▪ A Biofouling Risk Assessment process will be completed. ▪ Submersible equipment will be rinsed on completion of each activity and is normally stored on deck, thereby minimising Invasive Marine Species risk.
Accidental release of waste	Temporary and localised: increase in turbidity; burial of benthic habitat in immediate seabed area; potential toxicity impacts	▪ For vessels, waste handling, storage and disposal meets MARPOL 73/78 requirements. ▪ All personnel are aware of waste management requirements and have access to relevant waste receptacles. ▪ For platform-based activities, waste is stored and handled in accordance with the Waste Management Manual.
Accidental release – loss of containment[1]	Temporary and localised reduction in water quality; temporary change to predator/prey dynamics	Vessels and ROVs: ▪ Transfers of fluids from supply vessels to be undertaken in accordance with relevant procedures. ▪ MARPOL Annex I Regulations for the Prevention of Pollution by Oil specifically require that a Shipboard Marine Pollution Emergency Plan (or equivalent, according to class) is in place. ▪ A ROV pre- and post-dive inspection to visually check for leaks. Well workovers and plug and abandonment activities: ▪ Equipment used for well workover activities is maintained in accordance with the relevant preventative maintenance system.

[3] Including minor spills of chemicals/hydraulic fluids/hydrocarbons.

Potential impacts	Potential consequences	Control measures
Accidental release – loss of containment (cont.)	Temporary and localised reduction in water quality; temporary change to predator/prey dynamics	Platform operations, subsea and platform inspection, maintenance and repair activities: ▪ Inspection and condition monitoring carried out and compliance with the Integrity Program is monitored. ▪ Oil and chemical stores are located within a deck bund. ▪ Maintenance and inspection of open and closed skimmer pile equipment will occur.

Accidental release of marine diesel oil	Tainting of commercial fisheries species (e.g. shellfish); injury and death of species such as fish, marine reptiles, seabirds, cetaceans; pathological effects on fish larvae and plankton	▪ Vessels engaged in operations will be subject to a Marine Quality Assurance process and controls within the ExxonMobil Upstream Best Practices "Marine Quality Assurance" and "Marine Collision Avoidance".
		▪ The 500-metre PSZ pre-entry checklist completed prior to the vessel entering the 500-metre PSZ.
		▪ Where vessels are engaged in dynamic positioning operations:
		  ▪ Dynamic Positioning Check List completed prior to dynamic positioning operations commencing.
		  ▪ Activity Specific Operating Guidelines/Critical Activity Mode procedures will be developed to International Marine Contractors Association Standard.

Loss of well control	Potential toxicity; oiling of fauna; reduction in visual aesthetic; socioeconomic impacts to the fishing and tourism industries	▪ NOPSEMA-accepted Well Operations Management Plan in place prior to activities commencing. ▪ NOPSEMA accepted Safety Case in place prior to activities commencing. ▪ Esso approved well work and plug and abandonment procedures. ▪ Emergency response preparedness including: OPEP and Operational and Scientific Monitoring Plan.

Oil Pollution Emergency Plan

In accordance with the OPGGS Act, Esso must demonstrate and document oil spill response arrangements. The OPEP forms part of an EP submission and demonstrates Esso's capability to respond in the unlikely event of an oil spill.

Esso is a member of the Australian Marine Oil Spill Centre (AMOSC), a co-operative national oil spill response organisation, which provides access to additional oil spill response resources if required.

Esso's OPEP interfaces with national, state and industry response plans prepared and implemented by the Australian Government via the Australian Maritime Safety Authority (NatPlan), the Victorian Government (Maritime Emergencies (non-search and rescue) Plan), the Tasmanian Government (TasPlan), the New South Wales Government (NSW Marine Oil and Chemical Spill Contingency Plan) and the Australian Oil industry's Australian Marine Oil Spill Plan (AMOSPlan) administered by the Australian Marine Oil Spill Centre.

The OPEP defines spill response options which may be applied to a spill event. The selected spill response option(s) would depend upon the size and type of spill; environmental sensitivities within the spill path; prevailing weather conditions; access restrictions and available resources. In all instances, a Net Environmental Benefits Assessment is undertaken, in consultation with relevant government agencies, to determine the most appropriate spill response option.

↗ Map of EMBA

Environment that may be affected

The environment that may be affected (EMBA) is the largest spatial extent where the activities could potentially have an environmental consequence (direct or indirect impact).

For this activity, the broadest extent of the EMBA takes into consideration planned and unplanned activities and is determined by a highly unlikely loss of well control and loss of marine diesel to the environment as a result of a vessel collision.

The EMBA represents the total area that could be exposed to hydrocarbon, including trace concentrations of oil in the water column, as a result of any spill from this activity. This area takes into account the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release.

This means in the highly unlikely event a hydrocarbon release does occur, the entire EMBA will not be affected and the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

For this activity, Esso has defined the EMBA by combining the potential spatial extent of surface and in-water (dissolved and entrained) hydrocarbons, resulting from a worst-case credible spill from a vessel collision and the accidental loss of well control.

Legislative and regulatory requirements

In the course of preparing an Environment Plan, a titleholder must consult with relevant persons in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) Division 3, and demonstrate that the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate.

Consultation

Esso is committed to ongoing engagement with the communities where we operate.

Your functions, interests and activities may mean you, your business or your organisation are a relevant person for these activities. Your participation will help Esso to better understand the impacts and risks that may arise from the activities. As such, we're seeking your feedback as we develop the EP.

Please note that your feedback and our response will be included in our EP for the proposed activities, which will be submitted to NOPSEMA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth).

Please let us know if your feedback is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

Esso will communicate any material changes to the proposed activity to relevant persons as they arise.

If you would like to comment on the proposed activities outlined in this information bulletin, or would like additional information, please contact us.

↗ Finshing vessels at Lakes Entrance

Acknowledgement of Traditional Custodians

Esso Australia acknowledges the Traditional Custodians of Country and the land upon which the SEA CCS Project will be located.

We recognise the Traditional Custodians' continuing connection to land, sea, culture and community, and pay our respects to Elders past and present.

ExxonMobil

How to contact us

For more information, visit our Consultation Hub using the QR Code below, or contact our Consultation team at:

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Scan to access the Consultation Hub and Esso Consultation Questionnaire

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