

Unplanned Hydrocarbon Release

ConocoPhillips Australia is planning to undertake exploration activities in operational areas associated with offshore permits VIC/P79 and T/49P located in Commonwealth waters. The proposed activities are a continuation of ConocoPhillips Australia's exploration program in the offshore Otway Basin which aims to identify commercially viable natural gas reserves to help meet Australia's energy needs.

About the Otway Exploration Drilling Program

ConocoPhillips Australia is proposing to undertake an exploration program that consists of seabed surveys and the drilling of up to six exploration wells in operational areas associated with exploration permits VIC/P79 and T/49P located in Commonwealth waters offshore of Victoria and King Island, Tasmania.

ConocoPhillips Australia has commenced preparation of an Environment Plan (EP) that will seek approval for this exploration drilling program to be undertaken. Drilling commencement is dependent on regulatory approval and rig availability. The initial activity will be a vessel-based seabed survey that will commence no earlier than April 2024.

This information sheet summarises the assessed risk and response planning required for an unplanned hydrocarbon release as part of the proposed activity.

Activity Overview

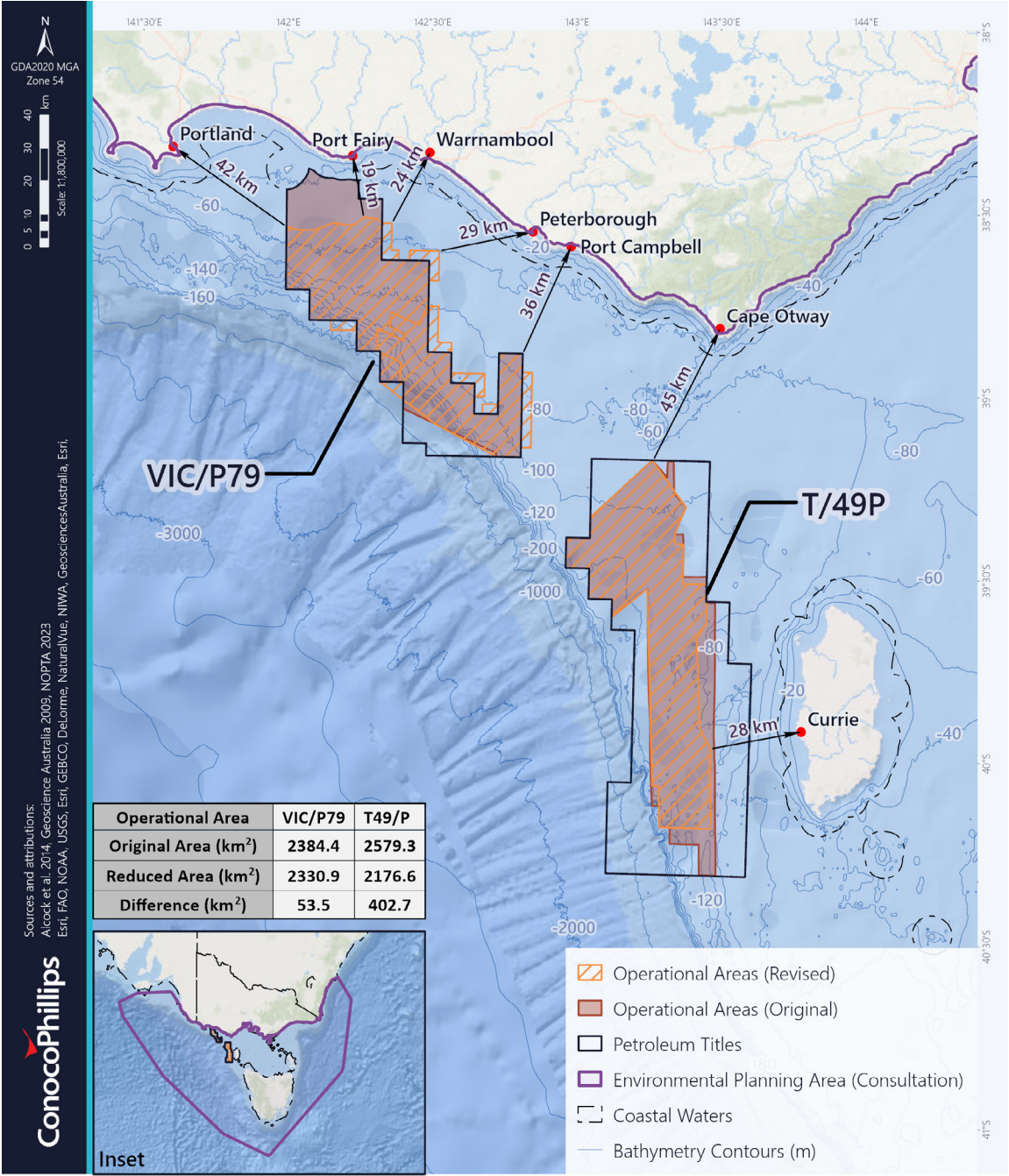
ConocoPhillips Australia is seeking to identify commercially viable natural gas reserves that can be developed to contribute towards energy security for the Australian east coast domestic market. As a titleholder, ConocoPhillips Australia has made a commitment to undertake exploration activities within timeframes agreed by the Commonwealth National Offshore Petroleum Titles Administrator (NOPTA).

ConocoPhillips Australia is proposing to undertake an exploration program that consists of seabed surveys and the drilling of up to six exploration wells in operational areas associated with exploration permits VIC/P79 and T/49P, located in Commonwealth waters offshore of Victoria and King Island, Tasmania, as outlined below.

KEY INFORMATION

- ConocoPhillips Australia is planning to undertake an exploration drilling program in the Otway Basin and is preparing an Environment Plan (EP) which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for public comment and assessment. Any decision to proceed to development will be dependent on a conducive investment environment.
- The Environment Plan includes an assessment of the risks associated with the extremely unlikely event of an unplanned hydrocarbon release from vessel operations and drilling operations.
- As the risk of an unplanned hydrocarbon release cannot be completely eliminated, detailed response plans for credible events must be developed to demonstrate to NOPSEMA, ConocoPhillips Australia is prepared to respond in the extremely unlikely event an unplanned release occurs.
- The primary response plan, the oil pollution emergency plan (OPEP), is submitted to NOPSEMA, along with relevant state control agencies, and is assessed as part of the EP assessment process.

Revised Permit and Operational Areas Map




Spill Modelling Explained

All offshore operations carry an inherent risk of an unplanned hydrocarbon release. Based on a review of national and international publications, the possibility has been assessed as remote. As such, an event is extremely unlikely to occur.

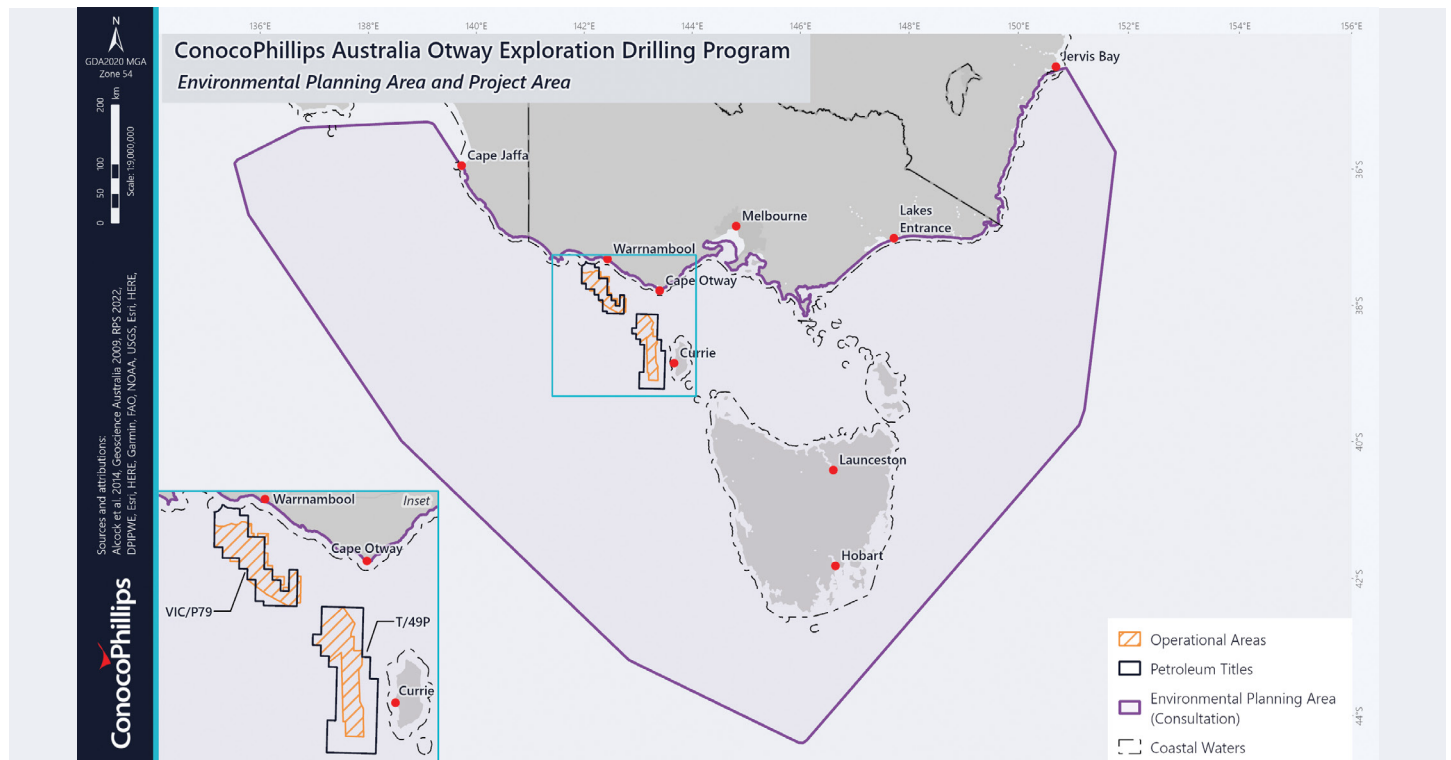
Although extremely unlikely to occur, spill modelling is required to support the risk assessment and the development of response plans. Modelled simulations provide an informed estimate of where the hydrocarbon might go if no response is undertaken, and allows the prediction of possible effects.

There are two types of modelling used when informing the development of an Environment Plan and Oil Pollution Emergency Plan - stochastic modelling and deterministic modelling.



Scan this QR code to view NOPSEMA's video explanation of Oil Spill modelling

Environmental Planning Area



What the planning area represents:

The full range of locations that could be affected depending on the metocean conditions and the area, for which ConocoPhillips Australia needs to be prepared to respond to an incident.

What the planning area does not represent:

The actual spatial extent or area of impact for any single release¹

Understanding where hydrocarbons might go under different conditions (Stochastic Modelling)

Stochastic modelling is conducted whereby hundreds of hypothetical individual spill scenarios are simulated to show where oil from a spill could go under different metocean conditions (such as currents, wind, waves and temperature) which are always changing.

Stochastic modelling is used in the risk assessment to support the prediction of possible effects, and supports preparedness by identifying a planning area, within which environmental values and sensitivities are identified and priorities for protection are established. In order to assess the possible effects, each type of hydrocarbon is assessed over low, moderate and high thresholds which have increasing impacts to the receiving environment.

By overlaying hundreds of hydrocarbon spills into a single map, stochastic modelling shows the full range of locations that could be affected depending on the metocean conditions. It is important to note that the stochastic model does not in any way represent the extent of any single spill event.

Defining credible spill scenarios (Deterministic Modelling)

Analysis of all the simulations developed during stochastic modelling is conducted to identify hypothetical deterministic simulations that predict possible worst-case outcomes, based on a single set of metocean conditions.

Deterministic modelling is used for preparedness and response planning to establish the type and amount of resources (e.g. equipment) needed to be available for immediate deployment. It is also used during oil spill response operations in the event of an actual spill. Deterministic modelling more closely represents what could occur during an unplanned hydrocarbon release, i.e. what a single hydrocarbon spill would look like and the area it may affect¹, but is specific to the weather and ocean conditions used in the model that resulted in the worst-case outcomes.

Scenario Assessment

Activities conducted during the Otway exploration drilling program that have the potential to result in an unplanned hydrocarbon release are described below.

Vessel Collision

The Otway exploration drilling program will rely on the assistance of a variety of vessels to conduct and support the activities. Larger sized vessels typically use marine diesel oil (MDO) which has the potential to be released to the marine environment as a result of a vessel-to-vessel collision or a vessel to drilling rig collision.

In the case of a vessel collision, the worst-case scenario has been modelled as a 350m³ release of marine diesel oil over a six-hour period². Modelling was conducted at seven different locations across the two permit areas to represent the entire span of possible operations.

Marine diesel oil is a medium-grade oil (classified as a Group II – light persistent oil) used in the maritime industry. It has a low density and a low dynamic viscosity, meaning that this oil will spread quickly if spilled at sea and thin out to low thicknesses, increasing its rate of evaporation.

Based on the fate and weathering modelling, approximately 40 percent of the released MDO would be lost to atmosphere through evaporation over the first day and an additional 55 percent would evaporate over several days. Approximately 5 percent would not evaporate but would decay slowly over time.

Loss of Well Control

Exploration drilling involves drilling through the seabed in order to access the hydrocarbon reservoirs that lie below. The risk associated with this activity is an unplanned release of hydrocarbons into the water column of the marine environment as a result of a loss of well control.

In the case of a loss of well control, the worst-case scenario has been modelled as a 139,000 m³ release of gas condensate. Modelling was conducted at seven different locations across the two permit areas to represent the entire span of possible operations.

This scenario represents an unrestricted open-hole release from a high productivity gas condensate reservoir at a depth of 2,820 mTVDSS, which assumes the failure of multiple control systems, and is considered the worst-case scenario that could potentially occur during the activity.

Hydrocarbon reserves within the Otway basin typically consist of gas condensate. As the reservoir is yet to be drilled, gas condensate properties from another reservoir, which represents the target formation ConocoPhillips Australia is intending to intersect, have been used for modelling.

Based on the fate and weathering modelling, approximately 83 percent of the released condensate would be lost to atmosphere through evaporation over the first day. Approximately 16 percent would continue to evaporate at a slower rate. Only 1 percent is considered persistent and would weather to a waxy substance.

Condensate is categorised as a Group I oil (non – persistent oil) based on the specific gravity of the hydrocarbons. The heavier components of the condensate will tend to entrain into the upper water column during the presence of moderate winds (> 10 knots) and can potentially remain entrained for as long as the winds persist. Subsequently, in calm conditions entrained oil can resurface.

Managing Unplanned Hydrocarbon Release Risks

Unplanned hydrocarbon releases are prevented during activities through a range of preventative control measures involving detailed planning, engineering and execution. If an unplanned hydrocarbon release does occur, ConocoPhillips Australia will have detailed plans to respond.

The primary response plan is the oil pollution emergency plan (OPEP), which is linked to the state and national contingency plans. The OPEP is submitted to NOPSEMA, along with relevant state control agencies, and is assessed as part of the EP assessment process.

There are national and state contingency plans in place across Australia to respond in the event of a large oil spill from all the different types of offshore activities in Australian waters.

Control measures

Although the scenarios discussed above are considered extremely unlikely to occur, the control measures below are also put in place to further reduce the likelihood of a spill.

- Accepted Oil Pollution Emergency Plan (OPEP)
- Operational and Scientific Monitoring Program
- Accepted Well Operations Management Plan
- Source Control Emergency Plan
- Shipboard Marine Pollution Emergency Plan or Shipboard Oil Pollution Emergency Plan.

In addition to the above plans, the following control measures will also be in place for the activity.

- Petroleum safety zone (500m radius) surrounding the drilling rig during the drilling activity.
- Cautionary zone (2km radius) around the drilling activity to minimise the potential for vessel collisions.
- Notifications provided for any on-water activities and ongoing communication with other marine users.

Response Preparedness

As the risk of an unplanned hydrocarbon release cannot be eliminated, detailed response plans for credible events are developed to demonstrate preparedness in the extremely unlikely event a spill occurs. These response plans include integration with local, national and international response organisations to mobilise resources, including experts and specialist equipment.

These plans outline how and what ConocoPhillips Australia will do to respond to an unplanned hydrocarbon release, how it will work with contractors, State and National agencies to respond, and what resources will be used and where these resources are located and need to be mobilised from for a response.

Details on resourcing and response arrangements for an unplanned hydrocarbon release will be provided in an Oil Pollution Emergency Plan (OPEP) which is currently available in draft for consultation on the online consultation hub.

¹ NOPSEMA (2019) Environment bulletin: Oil spill modelling

² Using the methodology described in the AMSA Technical guidelines for preparing contingency plans for marine and coastal facilities.

³ Financial assurance for petroleum titles Guideline (nopsema.gov.au)

Have we missed anyone?

If there is someone you believe to be affected by the proposed activities, please have them contact us using the details below.

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ConocoPhillips
Australia

Questions

and Answers

How will ConocoPhillips Australia determine when and where drilling will occur?

Drilling commencement is dependent on regulatory approval and drilling rig availability. The initial activity will be seabed surveys which will commence no earlier than April 2024.

Specific locations for seabed surveys and exploration drilling are yet to be confirmed. ConocoPhillips Australia has undertaken to assess the environmental impacts and risks associated with seabed surveys and drilling activities that may occur anywhere within broader operational areas associated with petroleum titles T/49P and VIC/P79. This ensures that the impacts and risks associated with all potential survey and drilling locations are assessed.

The process for selecting drilling locations involves several steps, including the acquisition and processing of seismic data, interpretation of the data to select high probability of success targets, and efficiency of the program to prove up resources with the least amount of wells. A summary of current activities to support this effort are described below:

1. Interpretation of seismic data: Skilled geoscientists analyse the processed data to identify potential drilling locations. They look for features such as faults, folds and stratigraphic traps that could indicate the presence of hydrocarbons.
2. Selection of high probability targets: After identifying potential drilling locations, geoscientists prioritise them based on their likelihood of success. They consider factors such as the quality and quantity of the reservoir, the geologic complexity of the area and the cost of drilling.
3. Efficiency of the program: The goal is to prove up resources with the least number of wells, which involves optimising the drilling program whilst maximising the chance of success.

Overall, the process for selecting drilling locations is a complex and multidisciplinary effort that requires skilled professionals and advanced technology. It involves a careful balance of science, economics and risk management to ensure that drilling efforts are successful and efficient.

What are the chances of a spill?

The likelihood of a vessel-on-vessel collision is assessed using industry published data. The Australian Maritime Safety Authority (AMSA) Annual Report measures incidents which occur in the marine environment. For all marine operations within Australia, there have been two

reported serious marine pollution incidents within the last four years. The likelihood of a loss of containment of marine diesel oil is therefore assessed as remote.

The likelihood of a loss of well control is assessed using internationally accepted published data. The International Association of Oil & Gas Producers has published a Risk Assessment Data Directory. There is a 0.016 percent chance that a loss of well control event may occur on any well, which corresponds to a likelihood ranking of remote.

Why is deterministic modelling a more credible worst-case scenario?

Stochastic modelling is the combination of hundreds of credible scenarios overlapped to show the potential largest extent under a range of metocean conditions. While deterministic modelling is the predictive modelling of a single incident subject to a single sample of wind and weather conditions over time. In the unlikely case of an oil spill only one scenario would occur which makes deterministic modelling a more credible worst-case scenario.

Would an unplanned hydrocarbon release reach the shore and if so, where?

In the extremely unlikely case of an unplanned hydrocarbon release there is potential for it to reach the shoreline of Tasmania or Victoria. The closest point of the operational areas to the Victorian and Tasmanian coastline is 19km and 28km respectively. It is important to note that the chances of an unplanned hydrocarbon release are extremely unlikely and comprehensive plans are in place to support a rapid response and integration with local, national and international response organisations to mobilise resources including experts and specialist equipment.

Would ConocoPhillips Australia compensate impacted tourism and fishing industry businesses in the unlikely event of an unplanned hydrocarbon release?

Yes. The scope for compensation would be in accordance with international compensation protocols.

ConocoPhillips Australia is self-insured and is required to hold financial assurance for this activity in line with NOPSEMA requirements. NOPSEMA's 'Financial assurance for petroleum titles Guideline' states 'It is generally sufficient for the titleholder to hold financial assurance for the greatest reasonably credible costs, expenses and estimable third-party liabilities that may arise from a petroleum incident relating to their activities.'