Santos

June 2026

Information Sheet

Bedout East Multi-well Exploration and Appraisal Drilling Environment Plan

Activity Overview

Santos is proposing to undertake a multi-well exploration and appraisal drilling program within Commonwealth waters, within petroleum titles WA-436-P, WA-438-P, WA-541-P and WA-64-L.

The drilling program is part of a broader Santos exploration program in the offshore Bedout basin and is being progressed as part of separate environmental approvals.

Location

A number of drilling locations are proposed within four offshore operational areas. The closest operational area to the mainland is approximately 116 km north of Port Hedland, West Australia.

Timing

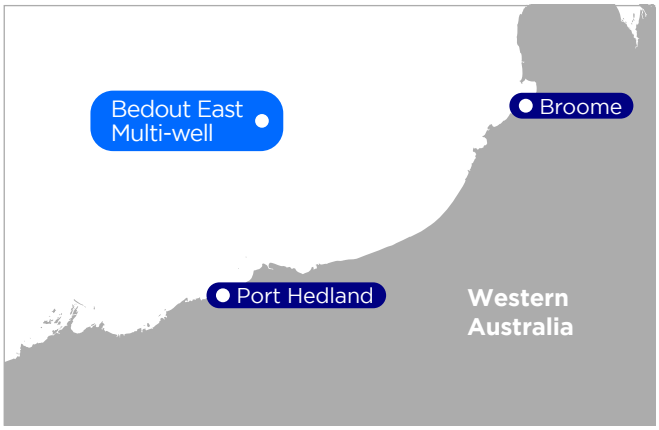
The activity is scheduled to occur between Q1 2027 and Q1 2032, subject to obtaining all regulatory and business approvals.

Duration

The expected duration of drilling each well is approximately 40-90 days. The expected duration is a forecast and is subject to change based on vessel availability, adverse weather conditions, standby periods, or technical/ equipment issues that may arise during operations.

Consultation and feedback

All petroleum activities in Commonwealth waters must have an environment plan (EP) accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) before any activities can take place.



Bedout Basin, North West Shelf.

Under Commonwealth environment regulations, Santos is required to consult with relevant persons about proposed activities in the course of preparing an EP. Santos consults to further ascertain, understand and assess potential environmental impacts and risks of a proposed activity and what, if any measures should be implemented to reduce these to 'as low as reasonably practicable' (ALARP) and to an acceptable level.

A relevant person includes Commonwealth and State agencies and authorities to which the proposed activity may be relevant, and persons or organisations whose functions, interests or activities may be affected by the proposed activity.

If you consider you may be a relevant person, please contact us as soon as possible to initiate consultation and so you can tell us how you would like to be consulted throughout the consultation process or if you need additional information.

The consultation period for this EP closes **15 July 2026**.

More details on consultation and providing feedback can be found in the consultation section of this Information Sheet.

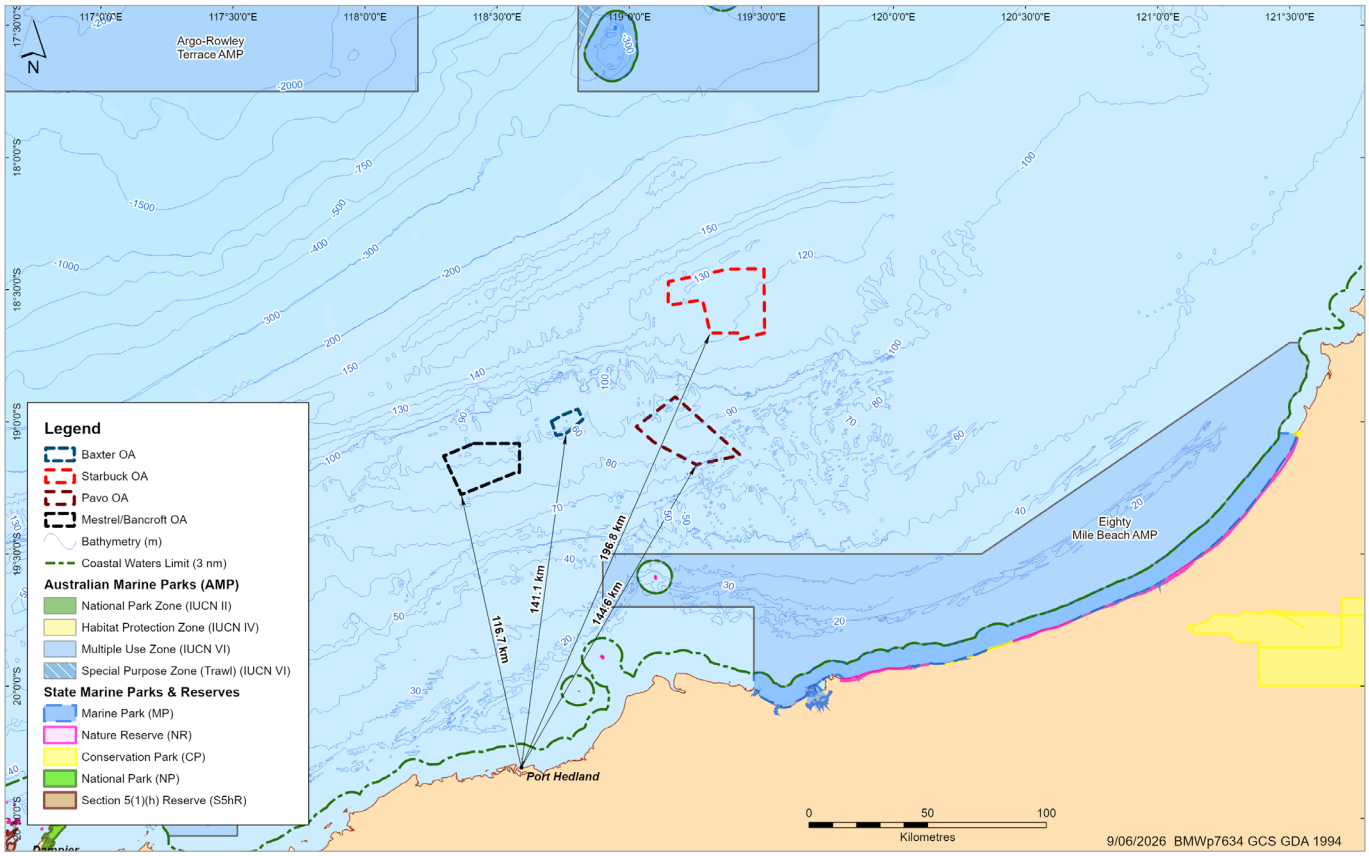


Figure 1. *Activity location*

Table 1. Activity description

Activity Details	
Key Proposed Activities for each Operational Area (OA)	Overall objectives: • Drill up to seven exploration and appraisal wells using a mobile offshore drilling rig • Prepare and drill up to seven wells to collect data to assess geology (including well testing) and surrounding formation, followed by permanently plug and abandoning wells including removing well casings and wellhead (below or at seabed level) Vessel-based surveys: • To determine suitable drill rig installation and operational locations • For seabed sampling, core samples and evaluation of foundation soils • Measure physical features underwater • Subsea measurements for infrastructure installation Drilling activities: • Moving and positioning drill rig • If semi-submersible rig is used, install moorings • If jack-up drill rig is used, position to operational elevation • Drill conductor hole, run and cement conductor • Drill surface holes, run and cement surface casing • Install wellhead, blow out preventer (BOP) and riser • Pressure test BOP • Drill intermediate hole section(s) • Run well evaluation program • Run and cement intermediate strings • Drill production section(s) to well total depth • Run well evaluation program • Plug and abandon well • Demobilise or move drill rig to commence drilling of next well in another OA
Operational Areas	There are four OAs as follows: • Starbuck in WA-436-P • Pavo in WA-438-P • Baxter in WA-64-L • Mestrel/Bancroft in WA-541-P
Key vessels, aircraft and other equipment	• A semi-submersible or jack-up drill rig depending on water depth. • Up to four support vessels to assist with anchoring, towing, transportation of equipment and consumables, and refuelling. • Helicopters for crew changes, equipment supply and emergency response. • Remote operated vehicle(s) (ROVs) to monitor drilling operations, conduct visual surveys and manipulation of subsea equipment. • Autonomous underwater vehicle to conduct several geophysical scans and inspections.
Exclusion and cautionary zones	A 500 m radius Petroleum Safety Zone (PSZ) exclusion zone will be in place around the drill rig for the duration of the activity as a safety requirement to protect other marine users who might be in the area. A 2,000 m radius cautionary zone will be established during anchor handling operations (for 2-3 days either side of the drill rig arrival and departure).

Table 2. Activity coordinates

Operational Area	Permit	Approximate water depth	Latitude	Longitude
Starbuck	WA-436-P	115-135 m	18° 41′ 13.96″ S	119° 25′ 9.63″ E
			18° 39′ 50.32″ S	119° 25′ 8.44″ E
			18° 39′ 51.23″ S	119° 18′ 23.45″ E
			18° 32′ 16.20″ S	119° 16′ 38.48″ E
			18° 33′ 34.95″ S	119° 08′ 49.42″ E
			18° 28′ 11.49″ S	119° 08′ 53.59″ E
			18° 25′ 19.08″ S	119° 22′ 33.50″ E
			18° 25′ 13.14″ S	119° 30′ 35.50″ E
			18° 39′ 49.11″ S	119° 30′ 44.64″ E
Pavo	WA-438-P	60-93 m	19° 04′ 37.92″ S	119° 05′ 36.85″ E
			19° 01′ 05.85″ S	119° 01′ 36.18″ E
			18° 54′ 19.33″ S	119° 10′ 27.93″ E
			19° 07′ 33.82″ S	119° 25′ 14.05″ E
			19° 09′ 42.86″ S	119° 15′ 15.12″ E
			19° 04′ 37.92″ S	119° 05′ 36.85″ E
Baxter	WA-64-L	90-95 m	18° 59′ 52.95″ S	118° 42′ 19.88″ E
			18° 58′ 24.06″ S	118° 44′ 59.84″ E
			18° 57′ 05.90″ S	118° 48′ 19.48″ E
			18° 59′ 28.20″ S	118° 49′ 28.02″ E
			19° 02′ 36.58″ S	118° 45′ 39.47″ E
			19° 03′ 05.16″ S	118° 43′ 24.33″ E
			18° 59′ 52.95″ S	118° 42′ 19.88″ E
Mestrel/Bancroft	WA-541-P	80-95 m	19° 16′ 30.95″ S	118° 21′ 51.47″ E
			19° 07′ 44.66″ S	118° 17′ 50.93″ E
			19° 11′ 27.76″ S	118° 34′ 17.72″ E
			19° 11′ 27.76″ S	118° 35′ 04.54″ E
			19° 04′ 55.31″ S	118° 35′ 04.53″ E
			19° 04′ 55.32″ S	118° 24′ 39.26″ E

Environment that May Be Affected

Activity Impacts and Risks

In preparing this EP, Santos considers the environment that may be affected (EMBA) by proposed activities, inclusive of expected impacts from planned activities and potential risks from unplanned events (see **Figure 2** for Activity OAs and EMBA location).

Our understanding of activity impacts and risks is informed by our experience over many years of managing offshore exploration, development, operations and decommissioning activities.

Expected impacts typically result in a disturbance to the environment, including social, economic and cultural aspects, from the presence of our vessels, rigs and facilities and related activities. **Table 4** and **Table 5** of this information sheet provides a summary of key expected impacts.

Activity risks are adverse potential effects to the environment from unplanned events or accidents. **Table 4** and **Table 5** of this information sheet provides a summary of key risks.

For both impacts and risks, Santos is required by law to reduce these to ALARP and to an acceptable level as judged by the relevant Regulator.

Spill Prevention, Preparedness and Response

For offshore marine users, including the energy industry, a prime management focus is on the prevention of spills to the marine environment. We do this through the design of our equipment and facilities, rigorous inspection and maintenance programs, training of our people and adhering to the control measures described in **Table 4** and **Table 5**.

We also focus on preparedness and response to spills.

Preparedness planning begins with the identification of potential spill scenarios up to and including the worst case. Response planning involves developing strategies for management of each scenario, and supports rapid, effective and scalable response in the unlikely event of an incident.

To support our preparedness and response planning we use sophisticated computer modelling to simulate hypothetical spills and predict how a spill may behave and spread in the marine environment.

These models start with a single hypothetical spill from a set release point, subject to a single set of wind and weather conditions, considering the hydrocarbon type and volume that may be lost to the environment. Additional wind and weather conditions for different times of the year are then applied to the model drawing on historical data.

Considering all of these factors is important for our planning as different hydrocarbon types behave differently in the marine environment, considering the release location and wind and weather conditions at different times of the year.

By way of example, lighter hydrocarbons like condensate break down more quickly in the marine environment than heavier ones, particularly in offshore areas where the sea and air temperatures are warmer.

Santos considers hundreds of hypothetical spill models for each EP, which we combine into a single “worst case” map (see **Figure 2** for this EP) assuming no responses are implemented and to present all areas that could be affected.

By understanding this area, appropriate response strategies like those described in this EP to demonstrate response capability and capacity regardless of the spill location.

In the unlikely event of an actual spill new modelling would be undertaken to predict where the spill may go and how it may behave in the marine environment.

This helps us in conjunction with State, Territory or Commonwealth agencies (where appropriate) to prioritise environmental social, economic and cultural features for protection, as well as implement the most effective response strategy.

It should be noted that this predictive model of an actual spill would be significantly smaller than the map presented at **Figure 2**.

Please see the **NOPSEMA Spill Modelling Video** for more information on oil spill modelling and why it is required for the preparation of Environment Plans.

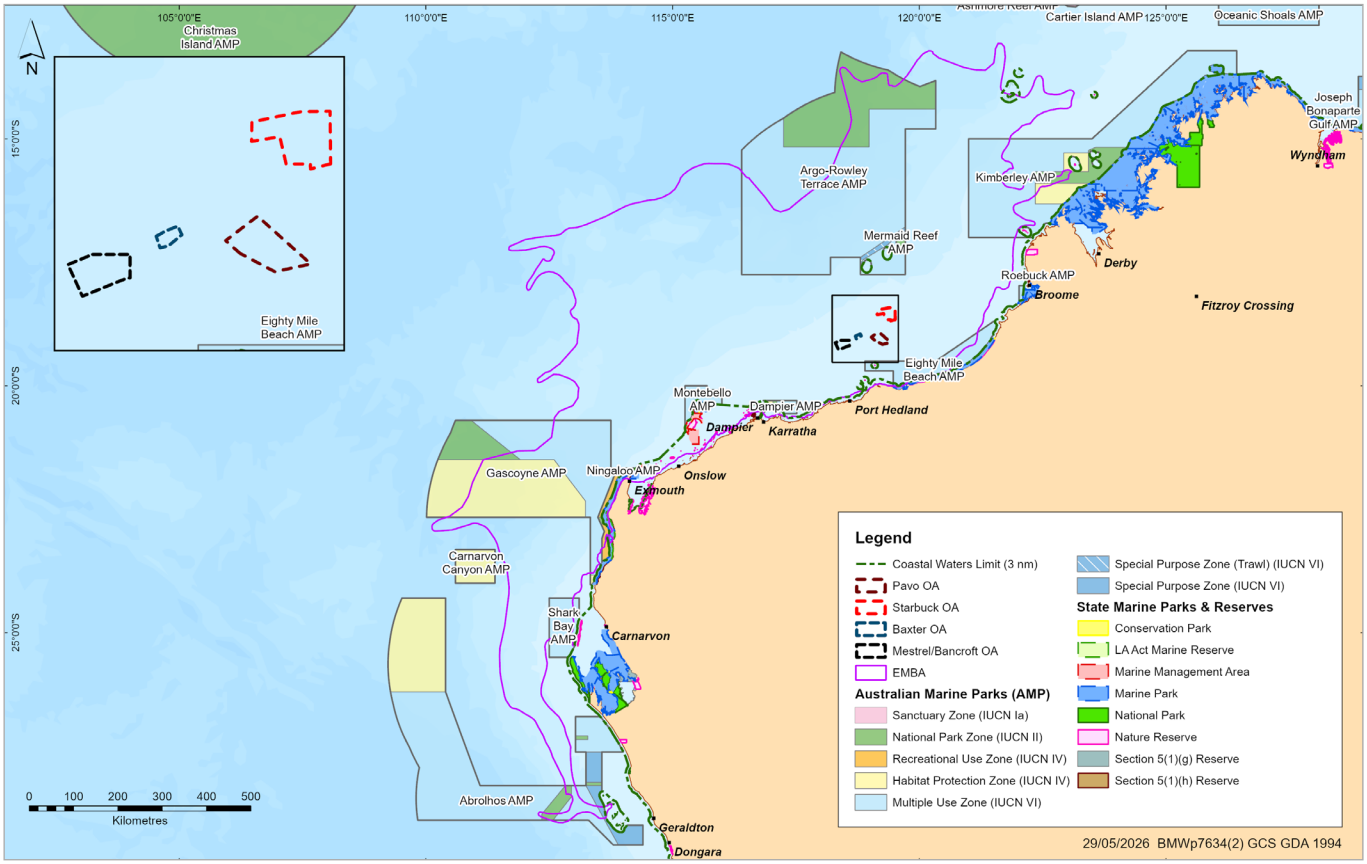


Figure 2. *Activity OAs and EMBA location*

Values and Sensitivities of the OA and EMBA

Santos has done an assessment to define environmental and socioeconomic values, and sensitivities that may be affected by proposed activities. These values and sensitivities will be described in detail in the EP and are summarised below:

Environmental Values and Sensitivities

A variety of listed or protected marine fauna are either known to occur or may occur within the OAs and EMBA, including sharks, marine mammals and marine birds.

No protected places (World Heritage Areas, Commonwealth Heritage Places, National Heritage Places, Wetlands of International Importance or National Importance) intercept the OAs.

The EMBA contains nine protected places, with the closest being the Murujuga Cultural Landscape, which is approximately 194 km from Mestrel/Bancroft OA.

There are no activities occurring in Australian or Western Australian marine parks. There are ten Australian marine parks within the EMBA, with the closest being the Eighty Mile Beach Australian Marine Park, which is approximately 37 km from Pavo OA; 53 km from Baxter OA; 90 km from Starbuck OA; and 46 km from Mestrel/Bancroft OA

The OAs include Biologically Important Areas for flatback turtles (reproduction), lesser frigatebirds (reproduction), white-tailed tropicbird (reproduction), brown booby (reproduction), humpback whale (migration) and whale sharks (feeding).

The Starbuck OA intersects the Ancient Coastline at 125m Depth Contour Key Ecological Feature.

There are no wetlands of International or National importance located within the OAs. Eighty Mile Beach Marine Park is the closest WA State Protected area which is 90 km from Pavo OA; 125 km from Baxter; and 126 km from Mestrel/Bancroft OA.

Socio-Economic Values and Sensitivities

Three Commonwealth managed fisheries overlap the OA and EMBA, of which none have had any recent activity within the OA (as per available government data).

Multiple Western Australian managed fisheries overlap the OA and EMBA, of which the following have been active in all OAs (as per available government data):

- Mackerel Managed Fishery (Area 2)
- Pilbara Line Fishery
- Pilbara Trap Managed Fishery
- Pilbara Trawl Interim Managed Fishery

Multiple local government areas intersect the EMBA, none of which intersect the OA. The Town of Port Hedland - responsible for Bedout Island which is located within the EMBA – is closest to the Pavo OA.

Recreational fishing is known to occur within the OAs and within the EMBA. Marine and/or coast tourism activities are also known to occur within the EMBA.

There are multiple petroleum permits, four greenhouse gas permits, and other oil and gas activities within the EMBA, none of which intersect the OAs.

Two OAs (Starbuck and Mestrel/Bancroft) each overlap one designated shipping fairway servicing Port Hedland, as well as other shipping fairways with vessel movements within the EMBA. The EMBA intersects boundaries of the Port of Dampier and Port of Port Hedland.

The JASURAUS submarine communication cable runs through WA-435-P and is an emergency back-up communications link for Australia.

Cultural Values and Sensitivities

The OAs do not intersect any:

- Registered Aboriginal heritage sites
- Indigenous Land Use Agreements
- Indigenous Protected Areas
- Pending or registered Native Title claim areas
- Native Title Determined Areas.

The EMBA intersects:

- Two pending and registered Native Title Claim Areas
- Six Native Title Determined Areas
- 10 Australian Marine Parks
- 13 Western Australian Marine Parks

The EMBA intersects the Native Title Representative Body regions for Northen Land Council, Geraldton, Pilbara and Kimberley.

There are no historic shipwrecks in the OAs. The closest known shipwrecks to the Operational Areas are the Pearl (lost at North Turtle Island) located about 83 km from Mestrel/Bancroft Operational Area. There are shipwrecks within the EMBA.

Consultation

Consultation is an important part of EP development as it allows Santos to receive feedback from relevant authorities, persons and organisations whose functions, interests or activities may be affected by proposed petroleum activities.

This feedback may help Santos to refine or change the management measures we are proposing to address activity impacts and risks.

Santos will assess the merits of any objection or claim about the adverse impact of the activities proposed provided through the consultation process, with any responses summarised and included in the EP submitted to the Regulator for assessment.

Under government environment regulations Santos is required to provide relevant persons with:

- **sufficient information** to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities, and
- a **reasonable period** for the consultation.

Environment plans for offshore petroleum exploration activities are also subject to a mandatory public comment period. Public comment must be done before the environment plan is submitted to NOPSEMA for assessment.

More information

More information about how community members can participate in environmental approvals for activities proposed in Commonwealth waters has been published in a **brochure** by NOPSEMA.

Contact us

Engaging with this consultation will help Santos better understand the values and sensitivities of the environment and inform evaluation of the potential impacts and risks associated with the activity, and how to manage them properly.

To engage with our consultation or request for further information, please contact Santos on details provided below.

You may request that particular information you provide during consultation not be published. If you choose to do so, Santos will ensure that it is included in a separate report which is not published on NOPSEMA's website. Please let us know if you would like your personal/organisation details or, any information you provide not to be published. Please refer to below links on privacy.

Santos' Privacy Statement

NOPSEMA Privacy Policy

Consultation dates for proposed activities are published on Santos' Consultation Hub website.

Consultation on this EP closes **15 July 2026**.

Our contact and Hub details are

E: offshore.consultation@santos.com
T: 1800 267 600
W: santos.com/offshoreconsultation

Activity impacts/risks and management measures

In preparing the EP, Santos' objective is to carry out the proposed activities in a manner by which the environmental impacts and risks of the activity will be reduced to a level that is ALARP and acceptable.

Aspects of the proposed activities will be risk-assessed within the EP on a case-by-case basis to ensure that environmental consequences are reduced to ALARP.

Table 4 and **Table 5** summarise the potential environmental impacts, risks and associated mitigation and/or control measures for the proposed Activity.

Table 4. Potential Impacts of Planned Activities

Aspect	Description of impact	Proposed mitigation and/or control measures

Interaction with other marine users from vessels and helicopters	For commercial fishing licence holders, this could lead to temporary displacement to fishing grounds.
	For commercial shipping, the level of interaction may require temporary deviation or re-routing of non-mandatory shipping fairways if potential wells are located within or in close proximity to shipping fairways.
		• Maritime notices:
		  • Notify commercial fishing licence holders via WAFIC prior to commencing activities.
		  • Notify AHO prior to commencing activities.
		  • Notify AMSA prior to commencing activities.
		• Issue Notice to Mariners for each drill rig location prior to moving.
		• Ongoing consultation with AMSA to ensure stakeholder expectations are met with regard to navigational safety of shipping fairways and activities.
		• All vessels, including the drill rig, fitted with AIS systems and radar navigation equipment and procedures.
		• Temporary 500 m Petroleum Safety Zone (exclusion zone) will be established and maintained around each drilling location.
		• Lighting to be used as required for safe work conditions and navigational purposes.
		• If deployed, pre-lay anchors marked with surface buoys when semi-submersible drilling rig is not connected.

Table 4. Potential Impacts for Planned Activities ... continued

Aspect	Description of impact	Proposed mitigation and/or control measures
Noise emissions generated by drilling operations, flaring, support and survey vessels, and helicopters.	Potential to change marine fauna behaviour, and sensitivity of fauna to elevated noise levels varies depending on individual response.	• Implementation of Santos' *Protected Marine Fauna Interaction and Sighting Procedure* for vessel and aircraft movements to limit marine fauna approach distances and speed. • Marine assurance standards and planned vessel maintenance to minimise noise from vessels and drilling rig. • Implement vessel planned maintenance system. • Induct vessel bridge crew on marine fauna observations and interaction requirements • Vessel planned maintenance system to maintain vessel dynamic positioning engines and machinery. • Vertical acoustic profiling procedure
Light emissions from safety and navigational lighting on vessels will be generated by: Flaring activities Artificial lighting for: • operational and navigational safety during the Activity; • spot lighting when needed, such as deploying or retrieving equipment; and • when remote operating vehicles (ROV) are working underwater.	Light may impact threatened, migratory or local fauna (e.g. marine mammals, marine turtles, sharks, rays, other fish and seabirds) and socio-economic receptors (cultural features). For example, fish may be attracted to artificial light, leading to a short-term localised increase in fauna activity.	Lighting is to be limited to that required for safe operations and navigation and will comply with the following maritime regulations: • International Regulations for Preventing Collisions at Sea (COLREGS) / Marine Orders 30: Prevention of Collisions, and • Marine Orders 21: Safety of Navigation and Emergency Procedures. The Commonwealth *National Light Pollution Guidelines* for Wildlife (2023) will be followed as reasonably practicable.

Table 4. Potential Impacts for Planned Activities ... continued

Aspect	Description of impact	Proposed mitigation and/or control measures
Operational discharges Vessels Vessel discharges are typical of most offshore commercial vessels and include: • Bilge water • Cooling water • Deck drainage • Desalination brine • Food waste • Sewage and greywater • Ballast water • Firefighting foam	Potential for localised and temporary reduction in marine water quality.	• Santos' chemical selection process will be implemented so that environmentally acceptable chemicals are used. • Additives will be selected and optimised for biodegradability as well as low aquatic toxicity and bioaccumulation potential. • All wastewater discharges will comply with relevant MARPOL 73/78, *Navigation Act 2012, Protection of the Sea (Prevention of Pollution) Act 1983* and subsequent Marine Order requirements (as appropriate for vessel classification). • Marine Order 91 (Marine Pollution Prevention – Oil), which implements Annex I of MARPOL 73/78. • Marine Order 95 (Marine Pollution Prevention – Garbage), which implements Annex V of MARPOL 73/78. • Marine Order 96 (Marine Pollution Prevention – Sewage), which implements Annex IV of MARPOL 73/78. • Santos Waste (Garbage) Management Procedures • Deck cleaning product selection • General chemical management procedures • Chemical selection procedure • Marine assurance • Sewage treatment system • Oily water treatment system • ROV inspection and maintenance • BOP inspection and maintenance

Table 4. Potential Impacts for Planned Activities ... continued

Aspect	Description of impact	Proposed mitigation and/or control measures
Operational discharges Drilling Drilling discharges include: • Brine • Drilling muds, fluids and cuttings • Cement and completion fluids • Chemicals, such as tracer dyes	Drilling discharges to the marine environment will result in a localised (around discharge location) and temporary (minutes to hours) reduction in water quality.	• Chemical selection procedures so that only environmentally acceptable products are used in the activity • Cuttings management system to ensure drilling fluid will be recovered prior to the cuttings discharge to the sea • Use only water-based drilling fluid

Table 4. Potential Impacts for Planned Activities ... continued

Aspect	Description of impact	Proposed mitigation and/or control measures
Atmospheric emissions will occur from: • Fuel combustion to operate the drill rig, vessels and helicopters • Operation of vessel incinerators • Flaring during well testing of appraisal wells Atmospheric emissions from use of fuel to power vessel engines, generators, mobile and fixed plant and equipment.	May result in a temporary, localised reduction of air quality in the environment immediately surrounding the discharge point during the activity, this includes Greenhouse gas and non-GHG emissions. Non-greenhouse emissions (NOx and SOx can lead to a reduction in local air quality.	• The drill rig and support vessels will comply with MARPOL Annex VI (Prevention of Air Pollution from Ships), the *Navigation Act 2012*, the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and subsequent Marine Orders, which require vessels to have a valid International Air Pollution Prevention Certificate (for vessels more than 400 tonnage), and to use low-sulphur fuel. • Ozone-depleting substances onboard vessels and the facilities will comply with relevant MARPOL 73/78 (Annex VI - air pollution), *Navigation Act 2012, Protection of the Sea (Prevention of Pollution) Act 1983* and subsequent Marine Order requirements (as appropriate for vessel classification). • Vessel preventative maintenance systems. • Measure, monitor or estimate fuel and flare emissions (in accordance with the National Pollutant Inventory). • Emissions, energy consumption and energy production data will be reported annually to the Clean Energy Regulator by the vessel contractors in accordance with *National Greenhouse and Energy Reporting Act 2007* requirements. • Well flowback flaring is planned to be temporary and of short duration (approximately 2-3 days) and flowback procedures are to be adopted for effective flaring of hydrocarbons • Drill rig planned maintenance system – reduces emissions by ensuring contracted drill rig is operated, maintained and crewed in accordance with industry standards and regulatory requirements. The control measures to be adopted are designed to be consistent with maritime regulations and petroleum industry standards.

Table 5. Potential Risks of Unplanned Events

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
Introduction of invasive marine species (IMS) May occur due to: • Biofouling on vessels and external/internal niches (such as sea chests, seawater systems) • Biofouling on equipment that is routinely submerged in water (such as ROVs) • Discharge of high-risk ballast water	If successfully established, IMS can: • Outcompete native species for food or space • Prey on native species • Change the nature of the environment • Impact fisheries or aquaculture • Impact human health through released toxins • Reduce coastal aesthetics • Cause damage to marine and industrial equipment and infrastructure	• Ballast water will be managed in alignment with the Australian Ballast Water Management Requirements, and vessels will undergo a biosecurity risk assessment in accordance with Santos' *Invasive Marine Species Management Plan* to demonstrate low IMS risk. • Antifoulant system • Marine assurance standard

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures

Interaction with marine fauna
Equipment or vessels colliding with marine fauna may occur as a result of:
• Drill rig operations
• Vessel operations
• Helicopter operations
	Marine fauna in surface waters that are most at risk from vessel collision include marine mammals, marine turtles and whale sharks.
	Potential strike or collision may result in severe injury or mortality.
		The drill rig will be stationary on location and drill rig related marine fauna interactions are not anticipated.
		• Monitoring of surrounding marine environment by drill rig and support vessel(s).
		• Santos' *Procedure for interacting with marine fauna*, which is designed to align with the EPBC Regulations 2000. This procedure limits marine fauna approach distances and speed, allowing marine fauna to be avoided or to move away.
		• Vessels within the designated OA will adhere to the requirements of the EPBC Regulations Part 8, Division 9.1 – Interacting with cetaceans (except in emergency conditions or when manoeuvring is not possible), which includes:
		  • operate the vessel at a constant speed of less than 6 knots and minimise noise
		  • Make sure the vessel does not drift or approach closer to the cetacean than:
		  • 50 m for dolphins
		  • 100 m for whales;
		• if the cetacean shows signs of being disturbed, immediately withdraw the vessel from the caution zone at a constant speed of less than 6 knots.
		• Aircraft - Helicopters within the designated OA will adhere to the requirements of the EPBC Regulations Part 8.07 – Interacting with cetaceans (except in emergency conditions or when manoeuvring is not possible), which includes:
		a) must not operate the aircraft (other than a helicopter or gyrocopter) at a height lower than 1 000 feet within a horizontal radius of 300 metres of a cetacean;

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
		b) Must not operate a helicopter at a height lower than 1,650 feet within a horizontal radius of 500 m of a cetacean, and c) Must not allow the aircraft to approach a cetacean from head on. d) if the aircraft can land on water, must not land the aircraft on water so that the aircraft comes within the radius of a cetacean mentioned in paragraph (b) • Vessel standard operating procedure. • Vessel bridge crew receive induction in marine fauna observations and marine fauna interaction requirements. • VAP procedures (including marine fauna observation)
Unplanned discharges – release of solid objects Objects that could be accidentally released to the marine environment from vessels or during installation activities include: • Non-hazardous solid wastes (paper, plastics and packaging) • Hazardous solid wastes, (such as batteries, fluorescent tubes and aerosol cans) • Equipment and materials (supplies, hard hats, tools or infrastructure parts	Could lead to disturbance of benthic habitats in the area where the object has been dropped.	• Dropped object prevention procedures • Objects dropped overboard will be recovered where practicable to mitigate the environmental consequences from objects remaining in the marine environment, unless the environmental consequences are minor, or safety risks are disproportionate to the environmental consequences • Waste (Garbage) management procedures • Hazardous chemical management procedures • International Maritime Dangerous Goods Code • Chemical selection procedure • General chemical management procedures

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
Non-hydrocarbon and Chemical Release This may occur during: • Drill rig activities (including drilling fluids) • Transferring, storing or using bulk products (e.g., mixed cement) • Mechanical failure of equipment, such as a tank or pipework failure • Handling and storage spill and leaks due to insufficient fastening • Hose or hose connection failure or leak • Lifting – dropped objects damaging liquid vessels (containers) inadequate bunding	Potential impacts to water quality are expected to be short-term and localised due to the selection of environmentally acceptable chemicals, the relatively small size of an unplanned spill and the rapid dispersal. A decrease in water quality is likely to be restricted to the immediate area surrounding the spill location and contained within the OA. Due to the small volumes and expected rapid dilution to concentrations below impact thresholds, impacts to water quality are not expected to cause flow-on effects to sediment quality, benthic habitats or socio-economic receptors such as commercial fisheries and/or cultural features.	Santos has a suite of procedures to manage the selection, storage, handling and clean-up of chemicals and other non-hydrocarbon liquids. All project vessels operating within the OAs will adhere to the navigation safety requirements including: • International Regulations for Preventing Collisions at Sea 1972 • Chapter 5 of International Convention for the Safety of Life at Sea 1974 • International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 • the *Navigation Act 2012* and any subsequent Marine Orders that specify standards for training and competency, navigation, communication, and safety measures • All vessels involved in the project will have a valid SOPEP or Shipboard Marine Pollution Emergency Plan (as appropriate for vessel classification). Vessels will have spill response plans. • Santos chemical selection process will be implemented so that environmentally acceptable chemicals are used • All project vessels subject to Santos' marine assurance procedures ensuring contracted vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements • A 500 m exclusion zone will be established and maintained around the drilling activities. • Spill kits will be available on-board vessels and personnel will receive an induction/training to inform them of deck spill response requirements.

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
		• Chemical storage areas will typically be set up in cabinets or bunded storage areas • Vessel lifting standards and cargo transfer procedures • Hydraulic equipment on board vessels will be subject to routine servicing and inspection to ensure they are fit for purpose. Control measures in the EP include: • Dropped object prevention procedures • Hazardous chemical management procedures • General chemical management procedure • International Maritime Dangerous Goods Code • Drill rig and support vessel spill response plans • Chemical selection procedure • Vessel planned maintenance system • Drill rig planned maintenance system • Bulk solid transfer procedure • Bulk liquid transfer procedure

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
Minor hydrocarbon release Unplanned minor hydrocarbon release may occur due to: • ROV failure • Loss of primary containment • Pipework failure or rupture, hydraulic hose failure • Lifting – dropped objects damaging diesel infrastructure • Human error during tank filling or storage container transfers	A localised decrease in water quality may occur, however due to the relatively small volumes impacts are expected to be short term as the hydrocarbon would rapidly dilute and dissolve into the ocean. Marine fauna may transit through the OAs and encounter the release. However, it is expected impacts to fauna would be short term and result in behavioural changes, as they move away from the area where the spill occurred. Minor hydrocarbon releases are not expected to impact any socio-economic receptors such as commercial fisheries and/or cultural features. Minor hydrocarbon releases are not expected to impact any socio-economic receptors such as commercial fisheries and/or cultural features.	• Dropped object prevention procedures to reduce the potential for dropped objects during lifting operations • Hazardous chemical management procedures - to reduce the potential of spills and leaks (discharges) to the marine environment by controlling the storage, handling and clean-up of hazardous chemicals • Adherence to the International Maritime Dangerous Goods Code • Drill rig and support vessel spill response plans • Oil Pollution Emergency Plan (OPEP) • Vessel Planned Maintenance System • Bulk liquid transfer procedure • Well flowback procedures • General chemical management procedures to reduce spills, leaks and discharges by implementing procedures for the safe handling and storage of chemicals • Chemical selection procedure • Dangerous goods managed in accordance with International Maritime Dangerous Goods Code to reduce the potential of an accidental minor spill • ROV inspection and maintenance procedures • Documented maintenance program is in place for equipment on vessels and drill rig that provides a status on the maintenance of equipment • Emergency response capability (including equipment, personnel and contracts) will be maintained in accordance with approved Shipboard Oil Pollution Emergency Plans (SOPEPs) and accepted EPs and OPEP

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
Marine diesel oil (MDO) release This could occur from: • A collision between the activity vessels and an errant third-party vessel due to factors such as human error, poor navigation, vessel equipment failure or poor weather. • Vessel to drill rig refuelling	Potential impacts that may occur as a result of hydrocarbon exposure could include: • Sub-lethal stress and, in some cases, total or partial mortality of sensitive benthic organisms (e.g., corals) and the early life stages of resident fish and invertebrate species. • A reduction in water quality. • Seabirds that encounter sea surface hydrocarbons may experience secondary effects through ingestion of condensate after eating exposed fish or preening. • Temporary disruption/displacement to fishing activities.	• Bulk liquids transferred in accordance with the bulk transfer procedure to reduce the risk of a release to sea. • Drill rigs and vessels have spill response plans. • Drill rig identification system • Maritime Notices • ROV inspection and maintenance procedures. • Support vessel presence • Documented maintenance program is in place for equipment on vessels and drill rig that provides a status on the maintenance of equipment. • Lighting will be used as required for safe work conditions and navigational purposes • Seafarer Certification • Marine Assurance Standard • Fuel oil quality • Petroleum Safety Zone (PSZ) and Cautionary Zone (2,000 m) established • Pre-campaign commencement assurance check All project vessels operating within the OA will adhere to the navigation safety requirements including: • International Regulations for Preventing Collisions at Sea 1972, • Chapter 5 of International Convention for the Safety of Life at Sea 1974, • International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, and • the *Navigation Act 2012* and any subsequent Marine Orders that specify standards for crew training and competency, navigation, communication, and safety measures.

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures
		• Support vessels will be advised of project activities to facilitate issuing Notices to Mariners and maintaining nautical charts prior to commencement of installation or drilling activities and operations. • At least one support vessel on standby at all times to monitor the drill rig 500 m exclusion zone to identify approaching third-party vessels and communicate with the vessels. • Accepted EP/OPEP in place for all Bedout drilling activities. • A 500 m exclusion zone will be established and maintained around the drilling activities. • Oil-spill modelling and environmental risk assessments for development of Bedout Drilling EP and OPEP will consider the full range of credible worst-case scenario consequences based on best available oil-spill modelling. • The drill rig and vessels will maintain navigation aids. • Santos will undertake consultation with relevant persons for all petroleum activities within the scope of these activities in accordance with the applicable Commonwealth environment regulations.

Table 5. Potential Risks of Unplanned Events ... continued

Aspect	Description of impact/risk	Proposed mitigation and/or control measures

Hydrocarbon release from loss of well control during drilling
Based on industry statistics and Santos' risk assessments, the likelihood of a loss of well control event leading to a spill of this size is considered 'remote' – requires exceptional circumstances and is unlikely even in the long term.
The combination of the standard prevention control measures (i.e., safe drilling methods), and the spill response strategies, as presented in the OPEP, together reduce the hydrocarbon spill risk to a low level.
	Potential impacts that may occur include:
	• Sub-lethal stress and, in some cases, total or partial mortality of sensitive benthic organisms (e.g., corals) and the early life stages of resident fish and invertebrate species.
	• A reduction in water quality.
	• Seabirds may experience secondary effects through ingestion of condensate after eating exposed fish or preening.
	• Potential for temporary disruption to fishing activities e.g. disruption/displacement of fishing activities caused by the physical presence of the slick, loss of catch, decline in commercially important fish stocks and/or suspension of fishing operations
		• Industry standard safe drilling methodologies, including inherently safe well designs
		• and well control measures, are to be implemented
		• Santos' Drilling and Completions Management Process, including well integrity standards and NOPSEMA accepted Well Operations Management Plan (WOMP)
		• Drill rig and support vessel spill response plans including predrilling source control plan
		• A 500 m exclusion zone will be established and maintained around the drilling activities
		• Oil-spill modelling and environmental risk assessments for development of Bedout Drilling EP and OPEP will consider the full range of credible worst-case scenario consequences based on best available oil-spill modelling
		• Support vessels will be advised of project activities to facilitate issuing Notices to Mariners and maintaining nautical charts prior to commencement of installation or drilling activities and operations
		• Documented maintenance program is in place for equipment on drill rig that provides a status on the maintenance of equipment
		• Scope specific - source control plan
		• Source control emergency response plans in place for all drilling activities, including but not limited to;
		  • Activation of BOP
		  • Capping stack
		  • Relief Well drilling