

Gibson Plug and Abandonment Environment Plan

Information for Relevant Persons



Activity Overview

Santos is planning to permanently plug and abandon (P&A) up to four platform wells at the Gibson facility in the Northern Carnarvon Basin commencing at the earliest in March 2024.

The Operational Area for proposed activities is located in State waters approximately 55 km from the nearest coastline (Varanus Island), and approximately 113 km north east of Onslow, Western Australia (see Figure 1).

It is expected to take approximately 14 days to P&A each well, with a total duration of approximately 55 days. The expected duration is a forecast and is subject to change based on vessel availability, adverse weather conditions or technical/equipment issues that may arise during operations.

Consultation & Feedback

All petroleum activities in Western Australian State waters must have an Environment Plan (EP) accepted by the Department of Mines, Industry Regulation and Safety (DMIRS) before any activities can take place.

Under State Environmental Regulations, Santos is required to consult with relevant authorities and other relevant interested persons and organisations about proposed activities when preparing an EP. This may include you if, for example, you have spiritual or cultural connections to land and sea country in accordance with Indigenous tradition that might be affected by our proposed activity, if you otherwise carry out recreational or commercial fishing, tourism or other activities that might be affected by our proposed activity or if you are part of a local

community that might be affected by our proposed activity.

Santos is now consulting with relevant authorities and other relevant interested persons and organisations for activities proposed to be managed under the Gibson Plug and Abandonment Environment Plan. If you consider you may be a relevant authority or a relevant interested person or organisation, please contact us as soon as possible if you require any further information or if you think you are not on our consultation list.

We are asking for relevant persons to provide feedback by **26 July 2023**.

Details on how to contact us are included in the **Providing Feedback** section of this information sheet.

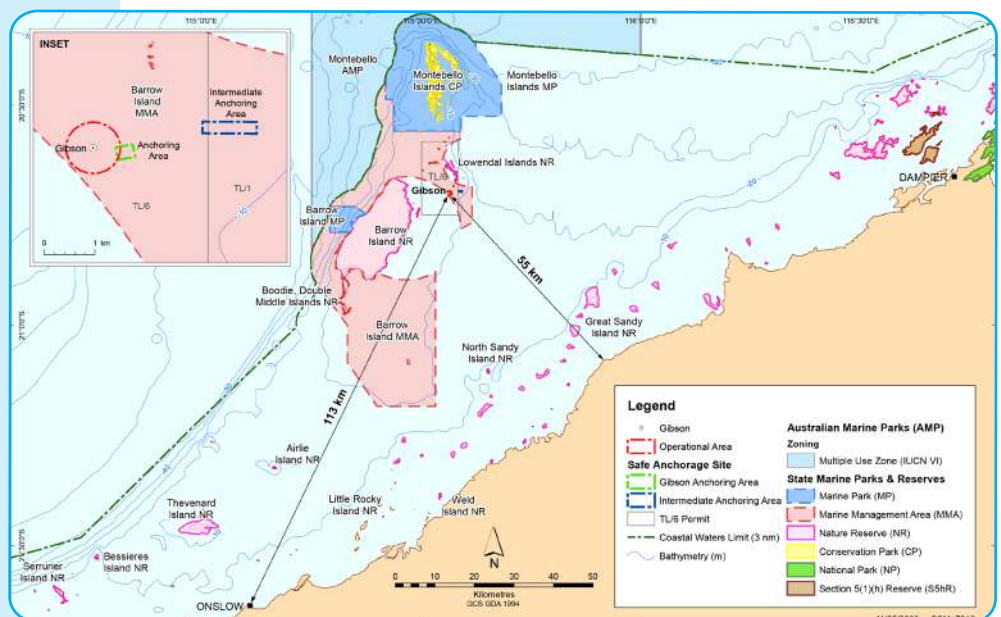


Figure 1. Gibson activity location.

Activity Description

ACTIVITY DETAILS

Location	Approximately 113 km north east of Onslow, Western Australia.
Timing	Activities are planned to commence in March 2024.
Duration	Expected total duration of approximately 55 days, comprising estimated P&A of each well of 14 days. The expected duration is a forecast and is subject to change based on vessel availability, adverse weather conditions or technical/equipment issues that may arise during operations.
Water depth	Gibson Platform – approximately 6.4 m
Planned activities	Plug and permanently abandon up to four platform wells.
Vessels	+ Jack-up Mobile Offshore Drilling Unit (MODU). + Variety of vessels including survey vessel, support vessels, supply vessel, Anchor Handling Tug and Supply (AHTS) vessels.
Aircraft	Helicopters may be used for crew changes, critical equipment supply and emergency response uses.
Description of the natural environment	<p>The seabed near Gibson is characterised by predominantly Pleistone limestone pavement with a series of emergent rocks and islets and associated shallow reefs, dominated by macroalgae and sponges. A deeper limestone pavement fringes the southern side of the reef between Abutilon Island and Gibson/South Plato platform. Corals are well represented on the pavement.</p> <p>To the south-east from the reef, the exposed limestone pavement habitat is replaced by deeper sandy veneers. Coral bommies have been identified within 200 m of the Gibson/South Plato platform and 14 significant seabed features including a large bombora, an area of scattered coral colonies and 13 bomboras have also been identified near the Gibson/South Plato facility.</p>
Exclusion zone	A 500 m radius Petroleum Safety Zone (PSZ) exclusion zone will be in place around the MODU for the duration of the activity.
Operational Area	A 500 m radius around facilities during activities.
Petroleum production licences	State Waters Permit TL/6.

ACTIVITY COORDINATES

	Latitude (GDA 94)	Longitude (GDA 94)
Gibson Platform	20° 41' 57.54" S	115° 33' 51.86" E

About plugging and abandoning activities

The plugging and abandonment of wells is a normal part of industry activities for wells that are not required for oil or gas production and is the first step to offshore decommissioning of assets on title.

Key steps in the plug and abandonment process include:

- + Design of an abandonment program.
- + Cleaning of the well bore.
- + Installation of permanent barriers (e.g. cement plugs) to isolate any oil and gas formations and aquifers.
- + Verification of barriers to ensure that there are no leaks.

Activity Purpose and Approvals

Production from the not normally manned Gibson South Plato (GSP) platform to the Varanus Island Hub facilities commenced in 2002 and ceased in 2013, following which the flowlines were removed from the wells and the surface trees capped.

The wells need to be P&A'd to support the future removal of the GSP platform. These wells are South Gibson-1, South Plato-1, South Plato-3H and South Plato-4.

The proposed P&A activities will utilise a jack-up MODU supported by a variety of activity-specific vessels.

To minimise impacts to the Gibson shallow water environment, an area within TL/1 and TL/6 has been identified as a dedicated area for temporary (and removable) vessel moorings. This dedicated area will have up to six moorings.

Materials may be placed within the well bores during the activities, including cement, drilling mud, gels and other non-porous materials such as clays (e.g. bentonite) and other sealants (e.g. bismuth, resin) or lost



Figure 2. A jack up rig undertaking topside activities.

circulation materials (e.g. fibrous materials). There may also be a cement plug placed just below the seabed surface.

Santos plans to remove the wellheads (located on the platform), unless they cannot safely be removed by the MODU, in which case they will be removed prior to or during final decommissioning with a cut at the seabed.

Mechanical plugs may be used in some wells to reduce the amount of cement required to plug the well or to provide additional protection from formation pressure in the well. Typically, mechanical plugs installed in a well will also have a cement plug placed on top.

Pre and Post MODU activities may consist of:

- + Inspection and operability tests of the platform equipment (e.g. valves and wellheads).
- + Rig-less well intervention activities to temporarily suspend the well.
- + Seabed surveys, including a pre-activity debris clearance survey using side scan sonar (SSS) tow fish and a remotely operated vehicle (ROV) if targets of concern are identified.
- + Removal of casing strings and/or conductors and setting of shallow cement plugs.
- + Post-abandonment well monitoring.

Post abandonment activities will include well monitoring by either ROV or topsides inspection. A survey of the seabed may also be carried out using a ROV operated from the MODU or from a support vessel.

Activities may not be continuous during the above-mentioned durations, and the project vessels may depart and then re-enter the operational area on a number of occasions.

An Environment Plan (EP) is being prepared for the planned P&A activities, under which all activity impacts and risks are proposed to be managed to a level as low as reasonably practicable and acceptable over the life of the activity.

The EP will be submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) for acceptance in accordance with the *Petroleum (Submerged Lands) Act 1982* and related *Petroleum (Submerged Lands) (Environment) Regulations 2012* and the *Petroleum and Geothermal Energy Resources (Management of Safety) Regulation 2010*.

Defining the Environment Area for Proposed Activities

Santos has undertaken an assessment to define the environmental, social, economic and cultural aspects that may be affected by proposed activities.

To do this we have considered the totality of the areas where activity impacts and risks may occur. These areas are summarised in **Table 1**. The widest extent of these areas is called the Environment that May Be Affected (EMBA), which for this activity is the outer boundary of a worst-case spill resulting from a loss of well control

during P&A activities. The EMBA for proposed activities is illustrated in **Figure 3**.

Oil spill EMBA's are defined by overlaying a great number (usually hundreds) of individual, computer simulated, hypothetical oil spill events into a single map. Each simulation run starts from the same location (release point) but each run will be subject to a different set of wind and weather conditions derived from historical data. The use of advanced and sophisticated models enables us

to present all the areas that could be affected.

While the EMBA represents the largest possible spatial extent that could be contacted by the worst-case spill events modelled, an actual spill event is more accurately represented by a single simulation run, resulting in a smaller spatial extent in the event of an actual spill. Often one or more simulation runs are selected to be representative of the 'worst-case' based on the nature and scale of the activity and the local environment.

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.

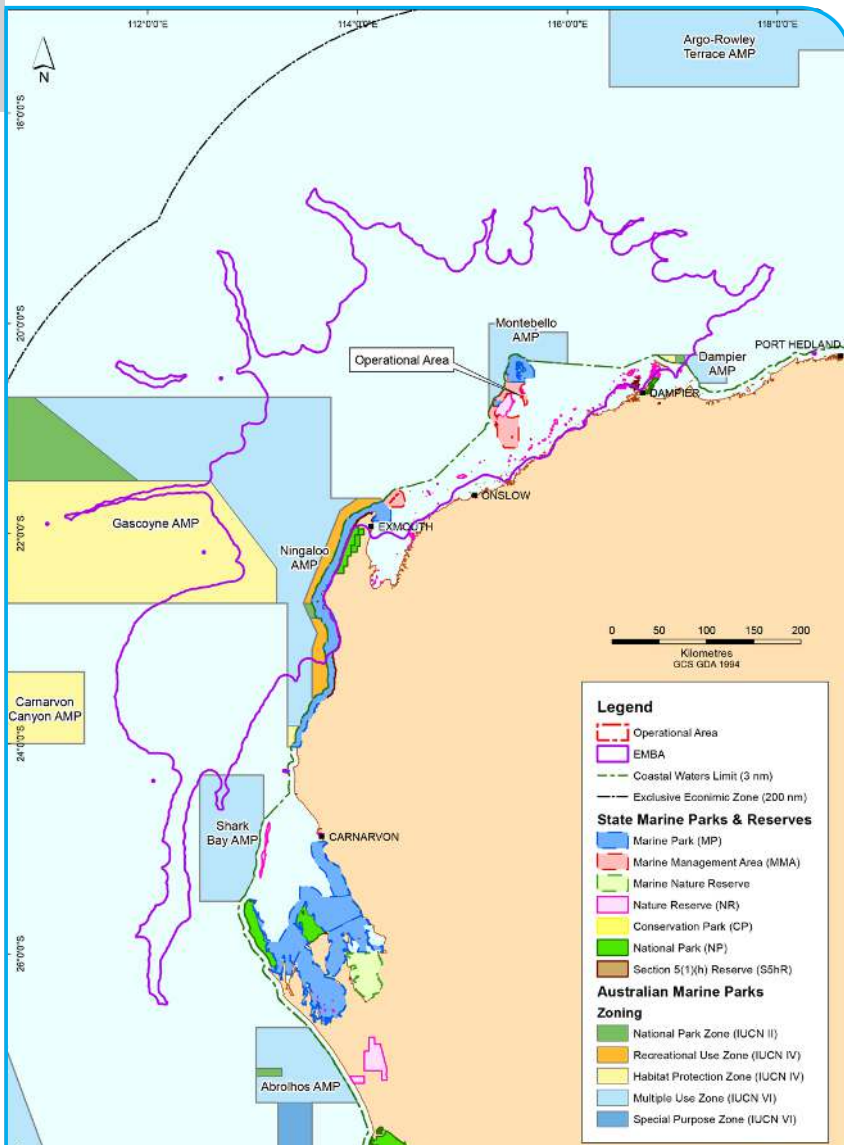


Figure 2. Activity location with EMBA



TABLE 1
ENVIRONMENT AREA FOR
PROPOSED ACTIVITIES

ENVIRONMENT AREA

Operational Area

The area in which the MODU and support vessels will operate.

Environment that May Be Affected (EMBA)

The spatial extent of activity impacts (e.g., facility presence, light, noise) and risk (e.g., hydrocarbon spill).

Environmental, Social, Economic and Cultural Features

Santos has undertaken a review of publicly available information to identify environmental, social, economic and cultural features and/or values that may be affected by activity impacts and risks, which are summarised in **Table 2**.

TABLE 2
ENVIRONMENTAL, SOCIAL, ECONOMIC AND CULTURAL FEATURES

FEATURES	DESCRIPTION	OPERATIONAL AREA	EMBA	PUBLIC INFORMATION REVIEW
Aboriginal Heritage	Registered Aboriginal heritage sites protected under the: + <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> + <i>WA Aboriginal Heritage Act 2021</i>	No	Yes	Barrow Island, Montebello Islands, Exmouth, Ningaloo Reef and the adjacent foreshores have a long history of occupancy by Indigenous communities.
Cultural Heritage	Registered cultural sites under the: + <i>Underwater Cultural Heritage Act 2018</i>	No	Yes	No known sites of shipwrecks, sunken aircraft or Aboriginal and Torres Strait Islander Underwater Cultural Heritage have been identified within the Operational Area. The nearest shipwrecks are the Marratta, Marrutta and Perentie shipwrecks, which are located approximately 15 km southeast of the Operational Area.
Defence	Designated defence activity areas	Yes	Yes	Defence activities may take place within the Operational Area. The Operational Area is within a Defence Practice Area.
Fishing	Commercial fishing	Yes	Yes	A number of Commonwealth and State fisheries overlap the EMBA, of which some are active in the Operational Area.
	Indigenous, subsistence or customary fishing	No	Yes	Traditional Australian Indigenous fishing activities are generally concentrated within 3 NM of the Northern Territory / Western Australian coastline.
	Recreational and charter boat fishing	Yes	Yes	Interaction with recreational or charter boat fishers is anticipated given the proximity to islands (<5 km).
Oil and Gas Operations	Petroleum operations	Yes	Yes	Petroleum exploration and production activities are undertaken within the EMBA. The Operational Area overlaps Santos operated infrastructure associated with the Varanus Island Hub.

Protected Areas (nearest Commonwealth and State marine parks)	Australian Marine Park (Cwth)	No	Yes	The Montebello AMP is approximately 20 km (North) from the operational area.
	Islands Marine Park (State)	No	Yes	The Montebello Islands Marine Park is approximately 14 km (North) from the operational area.
	Marine Management Area (State)	No	Yes	The Barrow Island Marine Management Area overlaps the operational area.
Shipping	Shipping fairway	No	Yes	The Operational Area does not overlap any shipping fairways, although vessel traffic may be encountered as commercial vessels transit around Barrow Island and the Montebello Islands.
Telecommunications	Subsea telecommunications cables	No	Yes	The Northwest Cable System (NWCS) connects offshore oil and gas facilities in the Browse, Bonaparte and Carnarvon Basins to onshore locations and does not overlap the operational area.
Tourism	Tourism operations	Yes	Yes	Aquatic recreational activities such as boating, diving and fishing occur near the coast and Montebello Islands. Tourism is likely within the EMBA.
Towns / communities	Dampier	No	Yes	The Operational Area is approximately 119 km west of Dampier.
	Onslow	No	No	The Operational Area is approximately 113 km northeast of Onslow.

Activity Impacts and Risk Management

We have summarised in **Table 3** potential environmental risks and impacts and associated management measures for the proposed activity. These aspects will be risk-assessed with the Environment Plan on a case-by-case basis.

TABLE 3
ACTIVITY IMPACT AND RISK MANAGEMENT

POTENTIAL ACTIVITY IMPACTS

Interactions with other marine users

Description of potential impacts

Disturbance to other marine users (commercial fishers, recreational fishers and tourism, commercial shipping and oil and gas activities) will be minimal and temporary due to the short duration of the activity.

Compliance with the following key management measures

- + A 500 m petroleum safety zone (PSZ).
- + Other navigational controls, as specified in the *Navigation Act 2012*, will be implemented (lighting, communication aids and charting).
- + Details of the activity have been communicated to relevant stakeholders as appropriate. In consultation, stakeholders are made aware of the proposed area from which other marine users may be excluded for the duration of the activity, and the potential schedule.
- + Notice to Mariners will be issued detailing the location and nature of activities and the vessels will maintain navigation aids.
- + Procedures for interacting with marine fauna.

Seabed disturbance

Description of potential impacts

The area of physical environment and habitat that will be impacted during the proposed activities is small compared to the area of similar habitat in the wider environment and is expected to re-establish following disturbance. As such, long-term or significant impacts to local populations or ecosystem factors are not expected.

Compliance with the following key management measures

- + Santos has mapped the location of coral bommies and reefs in the operational area and these locations are entered into the vessel's onboard navigation system and considered during the development of the MODU move procedure and the stand-by vessel mooring procedure.
- + Pre-activity surveys will be undertaken to identify any sensitivities in the operational area which will be avoided.

Light emissions

Description of potential impacts

Artificial lighting may result in behavioural changes to fauna, particularly marine turtles and seabirds.

Compliance with the following key management measures

- + Lighting will be used as required for safe work conditions and navigational purposes.
- + Premobilisation review and planning of lighting undertaken prior to activity commencing.
- + Management of support vessel lighting within the operational area.

Noise emissions

Description of potential impacts

Some temporary and localised behavioural response may result from the noise levels emitted, but these will not be at levels that could cause mortality or injury to marine fauna or cause a decrease in local population size or area of occupancy of species.

Compliance with the following key management measures

- + Equipment maintenance will keep the vessel noise levels to within normal operating limits, which will also aid in keeping noise emissions within the boundaries that have been risk assessed.
- + The vessel will adhere to the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations) (Part 8) to ensure actions are undertaken to avoid marine mammals (and whale sharks) within 100 m of a vessel, and all crews will be inducted into these requirements.
- + Vessel and helicopter operational protocols, through adherence to the Santos' Protected Marine Fauna Interaction and Sighting Procedure (EA-91-11-00003). This requires compliance with Part 8 of the EPBC Regulations and includes controls to reduce the risk of disturbance to or collision with *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed marine fauna.

Atmospheric emissions

Description of potential impacts

The activity will occur in the open ocean and offshore waters. The quantities of gaseous emissions are relatively small and will, under normal circumstances, quickly dissipate into the surrounding atmosphere.

Compliance with the following key management measures

- + International Convention for the Prevention of Pollution from Ships (MARPOL).
- + Fuel oil quality compliant with MARPOL standard for fuel oil quality.
- + MARPOL ozone-depleting substance handling procedures.
- + Vessel machinery, equipment and maintenance.
- + Santos bulk solid transfer procedure.
- + Waste incineration compliant with MARPOL waste incineration standard.

Operational vessel discharges

Description of potential impacts

Operational discharges in the same location for an extended period of time may result in water quality changes and alteration to marine fauna behaviour. The activity will be for a limited duration and impacts will be limited.

Compliance with the following key management measures

- + All operations chemicals potentially discharged to sea during the activity will conform to the Santos Operations Chemical Selection, Evaluation and Approval Procedure (EA-91-II-10001) or Santos Drilling Fluid and Chemical Selection in Drilling Activities Procedure (EA-91-II-00007) with all chemicals identified and assessed by the Santos Environment Department prior to commencement of the activity.
- + Waste management procedures.
- + Santos chemical selection procedure.
- + Deck cleaning and product selection.
- + Sewage management compliant with MARPOL sewage management standard.
- + Oily water treatment system compliant with MARPOL oily water treatment standard.
- + General chemical management procedures.
- + Shipboard Oil Pollution Emergency Plan (SOPEP).
- + Storage of all wastes on-board support vessels (e.g. oily water and sewage) for disposal onshore during P&A activities.

Drilling discharges

Description of potential impacts

Drilling discharges (eg produced water, brine) in the same location for an extended period of time may result in water quality changes and alteration to marine fauna behaviour. The activity will be for a limited duration and impacts will be limited.

Compliance with the following key management measures

- + Application of Santos' Drilling Fluid and Chemical Selection in Drilling Activities Procedure (EA-91-II-00007).
- + Processing the return fluids on board the MODU prior to disposal, mixing chemicals to further dilute them (e.g. as a slurry) prior to discharge.
- + Santos inventory control process.
- + Santos oil content measurement procedure.
- + Santos well bleed-off procedures.

Spill response operations

Impacts may occur to receptors from light emissions, acoustic disturbance, atmospheric emissions and operational discharges and waste as a result of spill response operations.

Compliance with the following key management measures

- + A Net Environmental Benefit Analysis (NEBA) is the primary tool used during spill response to evaluate response strategies with the goal of selecting strategies that result in the least net impact to key environmental sensitivities. The NEBA process conducted as a spill occurs, will identify and compare net environmental benefits of alternative spill response options. The NEBA will effectively determine whether an environmental benefit will be achieved through implementing a response strategy compared to undertaking no response.
- + Competent Incident Management Team and oil spill responder personnel.
- + Use of competent vessel crew and personnel.
- + Additional controls will be implemented to minimise noise emissions, light emissions, atmospheric emissions, disruption to other marine users, operational discharges and waste, physical presence and disturbance associated with spill response operations.

ACTIVITY RISKS

Hydrocarbon release (surface and subsea) from Loss of Well Control (LOWC)

Description of risks

A worst-case credible scenario for the proposed activity is a loss of well control (LOWC) spill resulting from failure of well equipment or well management processes.

Compliance with the following key management measures

- + The use of industry standard safe drilling methodologies, including the inherently safe well design and its operations with primary and secondary well control features, reduces the probability of a loss of containment occurring to a very low level. All safety options have been considered in well design and equipment choice for the activity, with no additional safety options possible.
- + The combination of the standard prevention control measures (which reduce the likelihood of the event happening), and the spill response strategies (which may reduce the consequence) together reduce the hydrocarbon spill risk.
- + DMIRS accepted Well Management Plan.
- + DMIRS accepted Safety Case.
- + Santos Source Control Plan.
- + DMIRS accepted Oil Spill Contingency Plan (OSCP).

Hydrocarbon release (surface) of MDO

Description of risks

- + The worst-credible marine diesel spill may result from a collision between the support vessels, between a support vessel and the MODU, or between a passing 3rd party vessel and the MODU or a support vessel.
- + The second most significant MDO spill scenario identified is a MODU refuelling incident (fuel hose failure or rupture, coupling failure or tank overfilling) where fuel would need to be stopped manually.

Compliance with the following key management measures

- + The activity-specific control measures proposed to reduce collision risks and safeguard against the risk of an unplanned hydrocarbon spill occurring during refuelling are compliant with maritime legislation and standards.
- + The proposed spill response strategies consider relevant values and include completion of a NEBA in the event of a spill which includes the relevant values and receptors present in the area, including AMPs.
- + MODU move procedure.
- + Bulk liquid transfer procedure.
- + MODU and support vessel spill response plans.
- + Maritime notices.
- + Support vessel(s).
- + Accepted OSCP.
- + MODU identification system.

Minor hydrocarbon releases (surface and subsurface)

Description of risks

A minor hydrocarbon release resulting from events such as:

- + ROV failure.
- + Loss of primary containment due to handling, storage and dropped objects.
- + Pipework failure or rupture, hydraulic hose failure, inadequate bunding.
- + Lifting (dropped objects damaging diesel infrastructure).

Compliance with the following key management measures

- + A thorough set of control measures have been proposed to ensure the risks of minor hydrocarbons spills and leaks occurring and subsequent impacts are minimised.
- + Dropped object prevention procedures.
- + Hazardous chemical management procedures.
- + General chemical management procedures.
- + International Maritime Dangerous Goods Code.
- + MODU and support vessel spill response plans.
- + ROV inspection and maintenance procedures.
- + Bulk liquid transfer procedure.
- + Accepted OSCP.
- + Santos chemical selection procedure.
- + Scupper plugs will be available for deployment in the event of a spill to prevent deck drainage.

Non-hydrocarbon and chemicals release (surface) - liquids

Description of risks

An accidental release of chemicals and other non-hydrocarbon liquids into the marine environment has the potential to occur from the following types of activities:

- + MODU and support vessel operations.
- + Transferring, storing or using bulk products (e.g., mixed cement).
- + Mechanical failure of equipment.
- + Handling and storage spills and leaks.
- + Hose or hose connection failure or leak.
- + Lifting – dropped objects damaging liquid vessels (containers).

Compliance with the following key management measures

- + Dangerous chemicals used during the activity will be managed where applicable, in compliance with the Maritime Dangerous Goods Code.
- + Procedures are in place for the transfer of bulk liquids, reducing the risk of unplanned releases to sea due to equipment failure, operational error, or overflows and leaks.
- + Control measures in place will ensure correct lifting, storage and handling procedures are followed as well as ensuring the maintenance of equipment is undertaken according to preventative management systems.
- + Dropped object prevention procedure.
- + Hazardous chemical management procedures.
- + Deck cleaning and product selection.
- + General chemical management procedures.
- + International Maritime Dangerous Goods Code.
- + Bulk liquid transfer procedure.
- + MODU and support vessel spill response plans.
- + Santos chemical selection procedure.
- + Vessel planned maintenance system (PMS) to maintain vessel dynamic positioning, engines and machinery.
- + MODU PMS.
- + Scupper plugs will be available for deployment in the event of a spill to prevent deck drainage.

Release of solid objects

Description of risks

Solid objects can be accidentally released to the marine environment and potentially impact sensitive receptors.

Compliance with the following key management measures

- + Equipment loss and dropped objects, which might occur during MODU/ vessel transfers in the field will be managed through lifting and transfer procedures and equipment management.
- + Dropped object prevention procedures.
- + Waste (Garbage) Management Procedure.
- + Hazardous chemical management procedures.
- + General chemical management procedures.
- + International Maritime Dangerous Goods Code.
- + Bulk solid transfer procedure.
- + Santos chemical selection procedure.

Introduction of invasive marine species

Description of risks

Introduction of invasive marine species (IMS) may occur due to:

- + Biofouling on support vessels and external/internal niches.
- + Biofouling on equipment that is routinely submerged in water.
- + Discharge of high-risk ballast water.
- + Cross contamination between vessels and the MODU.

Compliance with the following key management measures

- + The activity will comply with relevant regulations and guidelines.
- + Ballast water exchange will be managed through a Ballast Water Management Plan, and a vessel biosecurity risk assessment in accordance with the Invasive Marine Species Management Plan (EA-00-RI-10172) will be undertaken.
- + Compliance with the *Biosecurity Act 2015*.
- + International Convention on the Control of Harmful Anti-fouling Systems on Ships.
- + Implementation of the Santos Quarantine Management Plan.

Unplanned interaction with marine fauna

Description of risks

Marine fauna interactions may occur as a result of:

- + MODU operations.
- + Vessel operations.

Compliance with the following key management measures

- + Restricted low vessel speeds and compliance with fauna interaction procedures, including Regulation 8 of the EPBC Regulations 2000.
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Consultation

Consultation provides Santos with an opportunity to receive feedback from authorities, persons and organisations whose functions, interests or activities may be affected by proposed petroleum activities.

This feedback helps us to refine or change the management measures we are planning to address potential activity impacts and risks. Santos' objective for proposed activities is to reduce environmental impacts and risks to a level that is As Low As Reasonably Practicable (ALARP) and acceptable over the life of the activity.

Consultation also helps us to identify values and sensitivities where information is not publicly available, such as spiritual and cultural connection to land and sea country, as well as first-hand feedback on commercial and recreational fishing, tourism and local community activities and interests.

Providing feedback

If you consider you may be a relevant authority or interested person, please contact us as soon as possible if you require any further information or if you think you are not on our consultation list.

We are asking for relevant persons to provide feedback by **26 July 2023**.

Feedback provided by relevant authorities and relevant interested persons and organisations will be considered during development of the **Gibson Plug and Abandonment Environment Plan** and through the life of the activity. A report on the feedback received will be included in the EP submitted to DMIRS for assessment.

Santos

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