Woodside Energy

STAKEHOLDER CONSULTATION

INFORMATION SHEET

February 2023

TPA03 WELL INTERVENTION ENVIRONMENT PLAN

CARNARVON BASIN, NORTH-WEST AUSTRALIA

Woodside consults relevant persons in the course of preparing an Environment Plan (EP) to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that could be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. This is the intended outcome of consultation.

Woodside's aim is to ensure the activity is carried out in a manner that is consistent with the principles of ecologically sustainable development (ESD), by which the environmental impacts and risks of the activity are reduced to as low as reasonably practicable (ALARP) and of an acceptable level. We want relevant persons whose functions, interests or activities that may be affected by the proposed activity to have the opportunity to provide feedback on our proposed activity, in accordance with the intended outcome of consultation.

Overview

Woodside is planning to undertake well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir.

The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be de-isolated and available for production. The subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations Environment Plan (March 2022).

The activities will be undertaken in Commonwealth waters around 138 km north-west of Dampier in permit area WA-5-L. The TPA03 well is located in approximately 113 m water depth.

Activities are currently anticipated to be completed around Q1 2023 – Q3 2023. The timing and direction of the proposed activities is subject to change due to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

Project vessels

The proposed TPA03 well intervention activities will be performed by a Well Intervention Vessel (WIV). The project may be supported by general supply/support vessels. The project vessels will operate on dynamic positioning (DP) and will not anchor/moor on the seabed.

Well intervention activities for the TPA03 well are currently expected to take approximately 1-2 weeks to complete. It is anticipated that vessels will operate 24 hours per day for the duration of the activities.

Communications with mariners

A 1 km radius Operational Area will be applied around the TPA03 drill centre.

A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.

Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area and remain clear of the exclusion zone. The TPA03 well will continue to be marked on navigational charts.

Background

During routine testing of the TPA03 production well, the valve controlling production from the lower reservoir zone was closed to test the reservoirs. The well intervention activities will enable access to the well's lower reservoir to be restored so as to continue production (the purpose of this EP). All other petroleum activities within the scope of the accepted GWA Facility Operations EP have been or will be completed in accordance with that EP and are not included in the scope of this EP.

Assessment

Woodside has undertaken an assessment to identify potential risks to the marine environment and relevant persons, considering timing, duration, location and potential impacts arising from the planned activities. A number of mitigation and management measures will be implemented and are summarised in **Table 2**. Further details will be provided in the EP.

In preparing the EP, our intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking any interest or comments you may have to inform our decision making.

Joint Venture

Woodside Energy Ltd is operator on behalf of the North West Shelf joint venture, consisting of Woodside Energy (North West Shelf) Pty Ltd, BP Developments Australia Pty Ltd, Chevron Australia Pty Ltd, Japan Australia LNG (MIMI) Pty Ltd, Shell Developments (Australia) Pty Ltd and Woodside Energy Ltd.

We welcome your feedback by 17 March 2023.

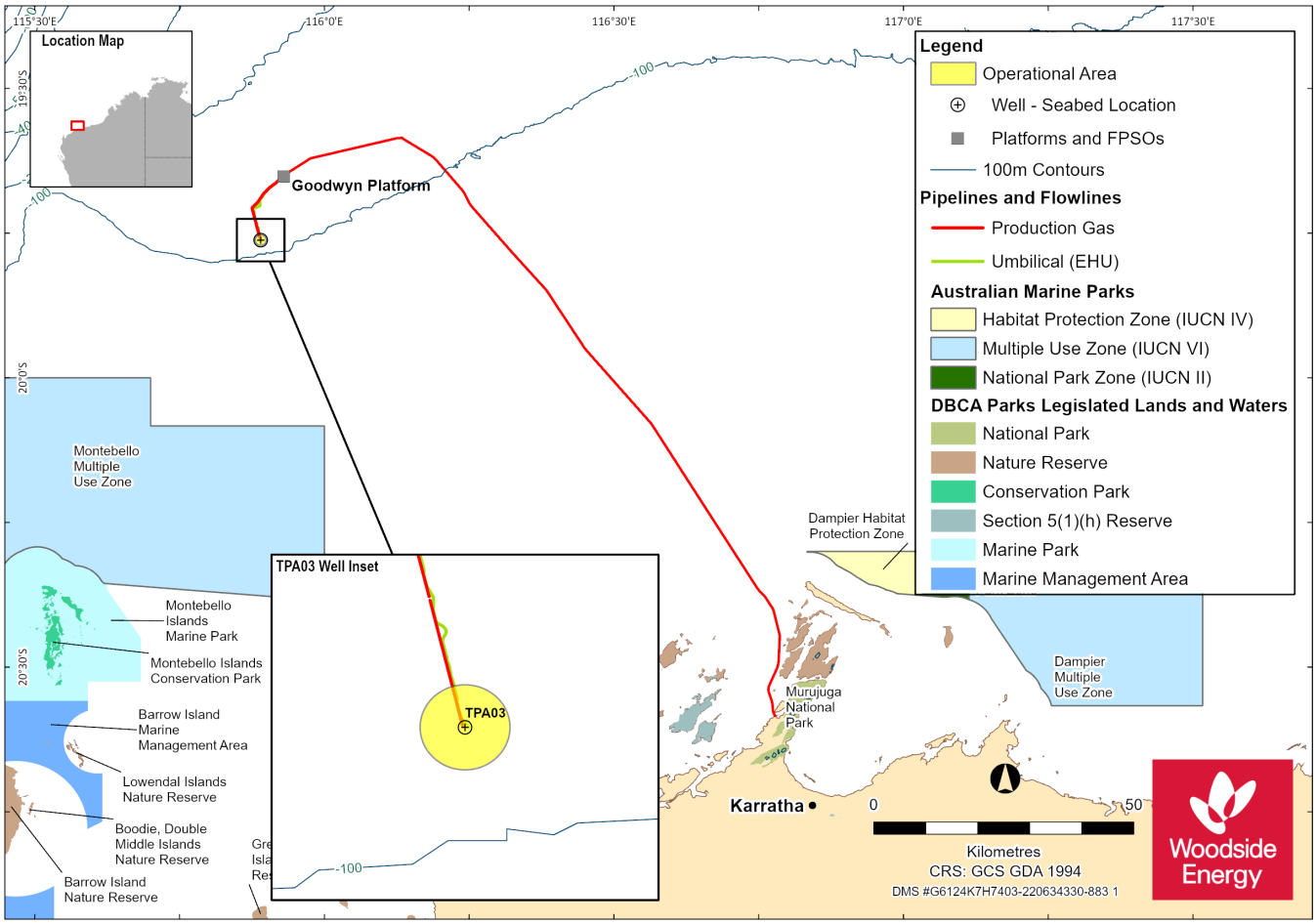

Figure 1. Petroleum Activity Program Operational Areas

Table 1. Activity summary

TPA03 Well Intervention Environment Plan	
Permit Area	• WA-5-L
Approximate location	• 19° 45' 43.618" S | 115° 53' 23.986" E
Approximate water depth	• ~113 m
Commencement date	• Planned well intervention activities will commence around Q1 2023 - Q3 2023, subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Approximate estimated duration	• Well intervention activities are expected to take ~1-2 weeks to complete.
Approximate location	• 19° 45' 43.618" S | 115° 53' 23.986" E
Vessels	• Well Intervention Vessel (WIV) • General supply/support vessels
Exclusion zones	• A 1 km radius Operational Area will be applied around the TPA03 drill centre. • A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.
Distance to nearest town	• ~138 km north west of Dampier
Distance to nearest marine park/nature reserve	• ~70 km north west of the Montebello Islands Marine Park (WA) • ~33 km north of the Montebello Marine Park – Multiple Use Zone (Cwlth)

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where the TPA03 well intervention activity could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this EP is determined by a highly unlikely release of hydrocarbons to the environment as a result of well loss of integrity and a vessel collision. This is depicted in **Figure 2**.

The EMBA does not represent the extent of predicted impact of the highly unlikely hydrocarbon release. Rather, the EMBA represents 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 EP Woodside 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; loss of well integrity and a vessel collision.

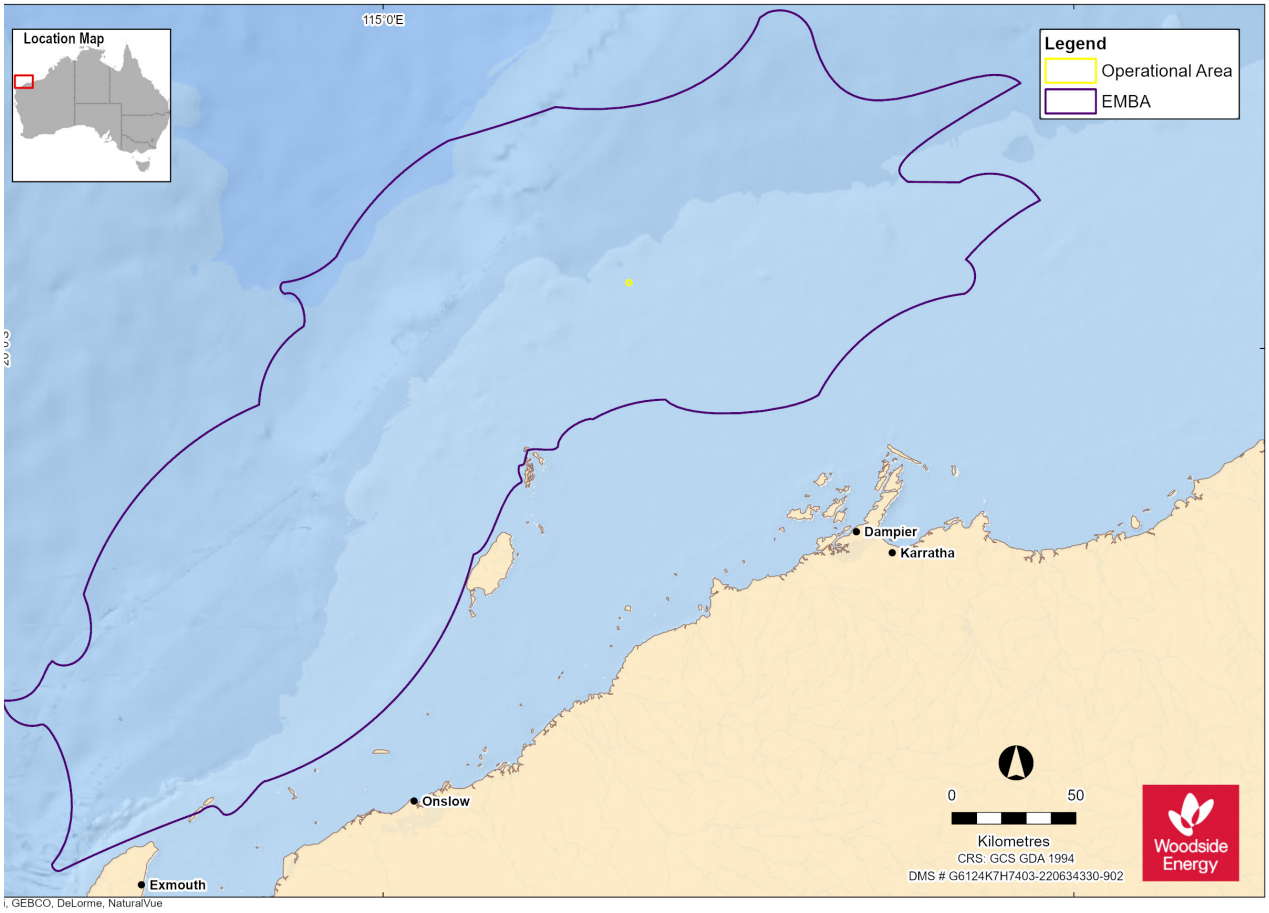

Figure 2. Environment that May Be Affected by the TPA03 Well Intervention Activity

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the environment arising from the TPA03 well intervention activity.

A number of mitigation and management measures for the TPA03 well intervention activity are outlined in **Table 2**. Further details will be provided in the EP.

Table 2. Summary of key risks and/or impacts and preliminary management measures for the TPA03 well intervention activity

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Planned			
Physical presence - interactions with other marine users	• Several vessel types will be required to complete the activity including a Well Intervention Vessel (WIV) (operating on Dynamic Positioning (DP)) and potentially support vessels. • Well intervention activities are expected to take ~ 1-2 weeks and will occur for 24 hours, 7 days a week while the activity is underway. • The physical presence and movement of project vessels within the Operational Area has the potential to displace other marine users.	• The Operational Area overlaps three Commonwealth and twelve State managed fisheries. However, only the State-managed Pilbara Line Fishery, Pilbara Trap Managed Fishery and the Mackerel Managed Fishery (Area 2) are considered to have potential for interaction with project activities. • Recreational fishing within the Operational Area is expected to be limited given the distance from boating facilities, lack of natural attractions (e.g. reefs or shoals) and the water depth of the Operational Area (approximately 115 m). • Commercial shipping occurs within the region and the nearest marine fairway is approximately 0.18 km west of the Operational Area. Notably, shipping in the area is mainly related to the resources and oil and gas industries. • The potential impacts associated with this activity may include displacement of vessels as they make slight course alterations to avoid the project vessels. Impacts to other marine users from the activity are not expected to exceed temporary, highly localised disruptions.	• Vessels adhere to regulatory requirements for navigational safety. • Establish a 500 m petroleum safety zone around the WIV which is communicated to marine users. • Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and on completion of activities. • Notify the Australian Hydrographic Office (AHO) prior to commencement of the activity to ensure marine users are aware of the activity. • Establish and maintain a publicly available map which provides stakeholders with updated information on the activities being conducted. • Consult with relevant persons so they are informed of the proposed activities.
Physical presence – disturbance to benthic habitat from intervention and ROV operations, and subsea infrastructure	Seabed disturbance may result from: • Removal of marine growth on Christmas tree and wellhead. • Placement of acoustic transponders on seabed. • Equipment laydown or ROV operations. • Remotely Operated Vessel (ROVs) operations.	• ROV operations, subsea cleaning and transponder or equipment laydown may result in localised and negligible physical disturbance of benthic habitat and indirect disturbance to benthic habitats from sedimentation. • Given the short nature of each activity and the small footprint, any impacts to water and sediment quality are likely to be localised and transient in nature. • The Operational Area overlaps the Ancient Coastline at 125 m Depth Contour KEF. Ecological functions of the KEF (submerged coastline providing areas of hard substrate and diverse biological assemblages and enhanced productivity) are not expected to be impacted based on the short nature and small footprint of the activity.	• Infrastructure wet parked (temporarily placed) on the seabed will be tracked and removed.

1 This EP is currently under assessment – these mitigation and management measures are subject to change through the consultation and assessment process and may not represent content in the publicly available EP or in the final plan once accepted.

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Routine acoustic emissions	• WIV and support vessels will generate noise in the air and underwater due to the operation of Dynamic Positioning (DP) systems. • Underwater noise may also be generated from by positioning equipment (subsea transponders).	• Elevated underwater noise may affect marine fauna, including marine mammals, turtles and fish in three main ways: 1. By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary or permanent. 2. Through disturbance leading to behavioural changes or displacement from important areas. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation. 3. By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey). • Interactions between whales and vessels typically results in avoidance behaviour, with whales generally moving away from vessels. Therefore, potential impacts to cetaceans from predicted noise levels are expected to be limited to behavioural impacts within a localised area around vessels with no lasting effect. • Marine turtle presence is expected to be infrequent due to the water depths of the Operational Area, and potential impacts from predicted noise levels from the project vessels (including WIV and support vessels) are not considered to be ecologically significant at a population level. • It is reasonable to expect fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the activity. However, potential impacts from predicted noise levels from the project vessels and WIV are not considered to be ecologically significant at a population level.	• Comply with regulatory requirements for interactions with marine fauna to prevent adverse interactions.
Routine and non-routine discharges – WIV and support vessels	• Sewage, greywater and putrescible waste will be discharged from project vessels. • Bilge water, deck drainage and brine and cooling water may also be discharged.	• The main impact associated with ocean disposal of sewage and other organic wastes (i.e. putrescible waste) is eutrophication. Eutrophication occurs when the addition of nutrients, such as nitrates and phosphates, causes adverse changes to the ecosystem including short-term, localised impacts to water quality. • No significant impacts to water quality are expected from planned discharges because of the minor quantities involved, the expected localised mixing zone, and the high level of dilution into the open water marine environment of the Operational Area. • Similarly, although some marine fauna may transit the Operational Area, potential for impacts remains low due to the localised nature of discharges and rapid dilution.	• Marine discharges will be managed according to regulatory requirements. • Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. • Where there is potential for a loss of primary containment of oil or chemicals on the WIV, deck drainage must be collected via a closed drainage system.
Routine and non-routine discharges – subsea intervention and Well Containment Package (WCP) fluids	• Routine and non-routine discharge of subsea intervention and WCP fluids. • Routine and non-routine discharge of chemicals used for removal of marine growth.	• Changes in water quality from subsea fluid release would be highly localised and short term given rapid dilution and low toxicity. • Due to the very minor quantities of acid wash used (if required), the limited duration and rapid dispersion in the water column, impacts to the marine environment are expected to be negligible.	• All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the Woodside chemical assessment process. • Return bulk unused inhibited MEG/brine package for onshore disposal where possible.

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Atmospheric emissions and greenhouse gas (GHG) emissions	• Atmospheric emissions and GHG emissions will be generated from internal combustion engines and incinerators on the WIV, support vessels and helicopters. • Emissions may arise from venting of hydrocarbons at surface and small volume gas releases subsea.	• Emissions from vessels may result in temporary, localised reductions in air quality in the immediate vicinity. • Given the offshore location and short duration of the activity, and the low volumes of atmospheric emissions expected to be generated, biodiversity, ecological integrity, social amenities and human health are not expected to be impacted. • Given the nature and scale of GHG emissions from vessels fuel usage for this activity, the potential GHG impact and risk from this activity is considered negligible.	• Comply with regulatory requirements for marine air pollution and GHG emissions reporting. • Vessel operations planned, where practicable, such that fuel consumption and subsequent emissions are minimised (e.g. managing vessel speeds). • Contractors engaged on energy/GHG emissions efficiencies and opportunities identified are implemented where feasible and ALARP. • Fuel types selected to reduce expected greenhouse gas emissions (i.e. alternative fuel types such as Marine Gas Oil and Marine Diesel Oil can reduce emissions compared to heavy or intermediate fuel oils.
External lighting on the WIV and project vessels	• External light emissions onboard WIV and project vessels. • Light emissions from underwater ROV operations.	• Light emissions may affect fauna (such as marine turtles and birds) in two main ways: 1. Behaviour: artificial lighting has the potential to create a constant level of light at night that can override natural levels and cycles. 2. Orientation: if an artificial light source is brighter than a natural source, the artificial light may override natural cues, leading to disorientation. • Fauna within the Operational Area are predominantly pelagic fish and zooplankton with a low abundance of transient species such as marine turtles, whale sharks, whales and migratory species. Given the expected negligible contribution of light emissions to the environment from the activity, it is anticipated that light emissions from the activity are unlikely to result in more than a localised behavioural disturbance to isolated transient individuals with no lasting effect to species. • As the Operational Area is offshore and away from islands or other emergent features, presence of seabirds or shorebirds is likely to be of a transient nature only. Behavioural disturbance to birds from light is expected to be localised to within the vicinity of the WIV and vessels, and should not seriously disrupt the lifecycle of an ecologically significant proportion of migratory birds.	• Lighting limited to the minimum required for navigational and safety requirements, except for emergency events. • Implementation of the Woodside Seabird Management Plan.

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Unplanned			
Unplanned hydrocarbon release – loss of well control	• Accidental loss of hydrocarbons to the marine environment due to loss of well containment. • A loss of well containment could credibly occur due to damage to the equipment used for the well intervention activity. • Woodside has a good history of implementing industry standard practice in well design and construction. In the company's 60 year history, it has not experienced any well containment events that have resulted in significant releases or significant environmental impacts.	• A loss of well containment is considered to be a highly unlikely event as it has occurred infrequently in the industry, and never in the Company's history. • Potential impacts across the whole EMBA were assessed as including receptors such as plankton, fish, sea snakes, marine mammals, seabirds and migratory shorebirds, tourism, recreation, commercial fisheries and cultural heritage (for example). • Taking into account receptor sensitivity, this unplanned event has the potential to result in 'Minor' consequence or less.	**Preventing loss of well control** • Well intervened in compliance with the accepted WOMP. • Subsea WCP specification, installation and testing compliant with internal Woodside Standards and international requirements. **Spill response arrangements** • Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. • Emergency response activities would be implemented in line with the OPEP.

Unplanned hydrocarbon release – vessel collision	• Project vessels will use marine diesel fuel, meaning a vessel collision involving a project vessel or third-party during the activity may result in the release of marine diesel.
	• For a collision to result in the worst-case scenario diesel release, several factors must occur as follows:
	  • Identified causes of vessel interaction must result in a collision.
	  • The collision has enough force to penetrate the vessel hull and in the exact location of the largest fuel tank.
	  • The largest fuel tank must be full or at least of volume which is higher than the point of penetration.
		• In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur.
		• Modelling of a surface release of marine diesel was undertaken at a location within the Operational Area.
		• Marine diesel is a relatively volatile, non-persistent nature hydrocarbon with up to about 41% evaporating within the first 24 hours.
		• Potential impacts across the whole EMBA were assessed including receptors such as plankton, fish, marine mammals, turtles, seabirds and migratory shorebirds, tourism, recreation and commercial fisheries (for example).
		• Taking into account receptor sensitivity, this unplanned event has the potential to result in 'Minor' consequence or less.
			Preventing vessel collision
			• Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements.
			• Consult with relevant persons so that other marine users are informed and aware, reducing the likelihood of a collision.
			• Establish temporary exclusion zones around vessels which are communicated to marine users to reduce the likelihood of collision.
			Spill response arrangements
			• Arrangements supporting the OPEP will be tested to ensure the OPEP can be implemented as planned.
			• Emergency response activities would be implemented in line with the OPEP.

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Unplanned discharges: deck and subsea spills	• Accidental discharge of hydrocarbons/ chemicals from WIV and project vessels deck activities and equipment (e.g. cranes) and from subsea ROV hydraulic leaks within the Operational Area.	• Accidental spills of hydrocarbons or chemicals from the WIV and support vessels, bulk transfer hose, or release of hydrocarbons during Emergency Disconnect could decrease the water quality in the immediate area of the spill; however, the impacts are expected to be temporary and very localised due to dispersion and dilution in the open ocean environment. • Given the small area of a potential spill and the dilution and weathering of any spill, the likelihood of ecological impacts to marine fauna (including protected species), other communities and habitats are expected to be limited to no lasting effect and restricted to individual animals, and temporary, localised contamination of water.	• Comply with regulatory requirements for the prevention of marine pollution. • Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily. • Deck drainage collected via a closed drainage system where there is a potential for loss of primary containment of oil and chemicals. • Spill kits positioned in high-risk locations around the vessel (near potential spill points such as transfer stations). • Fluids and additives intended or likely to be discharged to the marine environment reduced to ALARP using the Woodside chemical assessment process.
Unplanned discharge of solid hazardous/ non-hazardous solid waste/ equipment	• Accidental loss of hazardous or non-hazardous solid wastes/equipment to the marine environment may occur if dropped or blown overboard.	• The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes. • The temporary or permanent loss of waste materials/ equipment into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size and frequency of wastes that could occur, and species present.	• Comply with regulatory requirements for the prevention of marine pollution and handling of hazardous wastes. • Implement waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of waste generated. • Solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so.
Physical presence: unplanned vessel collision with marine fauna	• Vessel movements have the potential to result in collisions between project vessel (hull and propellers) and marine fauna. • The factors contributing to the frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth) and the type of animal potentially present and their behaviours.	• Vessel disturbance presents a potential threat to marine mammals, marine reptiles and fish, sharks and rays. • The risk of vessel collision with marine fauna is present year-round but is elevated seasonally for species during migration periods. • Given the short duration of activities within the Operational Area, and the slow speeds at which project vessels operate during the activity (if not stationary), collisions are considered highly unlikely.	• Comply with regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring.

Potential Risk/Impact	Description of Source of Potential Impact/Risk	Description of Potential Impact/Risk	Preliminary Mitigation and/or Management Measures[1]
Physical presence: unplanned dropped object resulting in seabed disturbance	• Objects accidentally dropped overboard from the WIV or project vessels may result in seabed disturbance.	• Unplanned seabed disturbance may result in localised changes to water and sediment quality or a localised temporary impact to benthic communities. • Potential impacts to the Ancient Coastline at 125 m Depth Contour KEF which intersects the Operational Area of the activity are limited to the footprint of a dropped object resulting in potential highly localised and temporary change in habitat.	• WIV/installation vessel inductions include control measures for dropped object prevention. • Dropped objects to be recovered and relocated where safe and practicable to do so.
Accidental introduction of invasive marine species (IMS)	• WIV/vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull. • IMS could be present as biofouling on the WIV/vessel hull or on immersible equipment (survey equipment, ROV, etc.) and could be translocated to the Operational Area. • Organisms can also be drawn into ballast tanks during onboarding of ballast water.	• While project vessels have the potential to introduce IMS into the Operational Area, it is not credible for IMS to be established on the seabed or subsea structures in the Operational Area as this deep, offshore open-water environment (approximately 133 m) is not conducive to the settlement and establishment of IMS.	• Ballast water and biofouling will be managed according to regulatory requirements, including the Australian Ballast Water Management Requirements, and the Australian Biofouling Management Requirements, as applicable. • Woodside's IMS risk assessment process will be applied to project vessels and immersible equipment entering the Operational Area.

Feedback

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before 17 March 2023 via:

E: Feedback@woodside.com.au

Toll free: 1800 442 977

You can subscribe on our website to receive Consultation Information Sheets for proposed activities: **www.woodside.com/sustainability/consultation-activities**.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in our EP for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

Please let us know if your feedback for this activity 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.