

SCARBOROUGH SEABED INTERVENTION

CARNARVON BASIN, NORTH-WEST AUSTRALIA

Woodside is planning to undertake seabed intervention activities to support the proposed development of the Scarborough gas resource, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

As part of the proposed Scarborough development, Woodside is planning to install a carbon steel trunkline that runs approximately 430 km from the proposed offshore Scarborough Floating Production Unit (FPU) to a brownfield expansion of the existing Pluto LNG onshore facility (Pluto Train 2).

The Environment Plan (EP) will address seabed intervention activities associated with trunkline installation and stabilisation in Commonwealth waters. Separate EPs are planned to address trunkline installation and activities in State waters.

Activities are planned to commence in Q4 2020 and extend in multiple campaigns through to 2022 subject to approvals, vessel availability and weather constraints.

Seabed intervention activities include surveys, seabed preparation, pipeline and infrastructure crossing preparation, stabilisation using

trenching and backfill and rock placement (refer over page). Sand may be required to assist with trunkline stabilisation between the State waters boundary and kilometre point (KP) 50, as shown in Figure 1. This sand is proposed to be obtained from borrow ground (location where sand will be sourced) in Commonwealth waters.

Woodside is operator of the field (WA-1-R) with a 73.5% interest. BHP Billiton Petroleum (North West Shelf) Pty Ltd holds the remaining 26.5% share in the field.

Figure 1. Scarborough export trunkline route and borrow ground

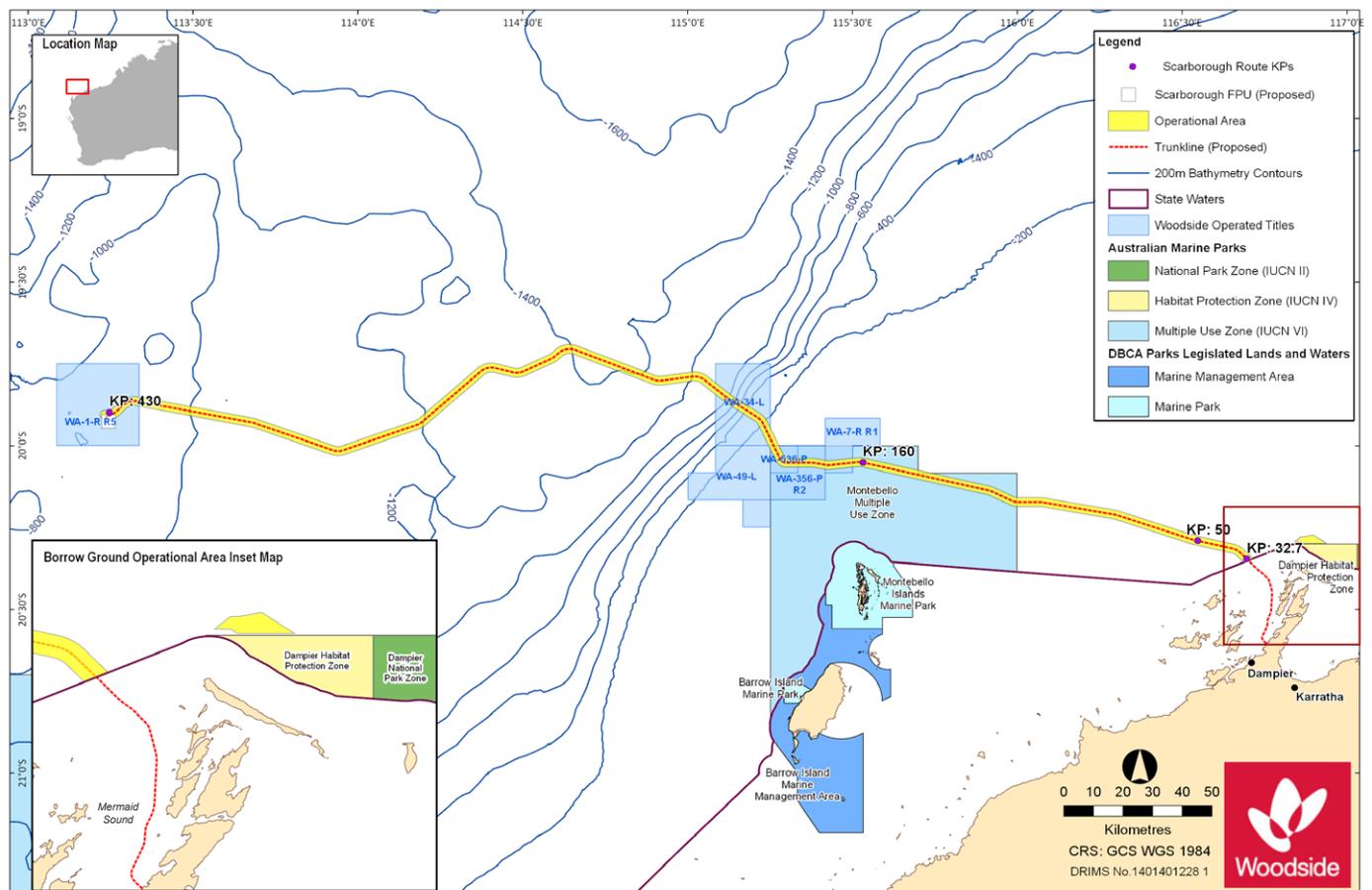


Table 1. Activity summary

Scarborough Seabed Intervention	
Earliest expected commencement dates	+ Activities are targeted to commence Q4 2020, subject to approvals, vessel availability and weather constraints
Estimated duration	+ Approximately two years over multiple campaigns
Water depth	+ 30 m to 1450 m
Project vessels	+ Trailing suction hopper dredge (TSHD) vessel + Fall pipe vessel + Construction vessel + Survey vessels + Support vessels
Distance to nearest port	+ Eastern end of the trunkline route overlaps with the Pilbara Port Authority Dampier Port Limits
Distance to nearest marine park	+ The trunkline corridor runs through the Montebello Marine Park – Multiple Use Zone (C'wlth), close to the northern boundary + Offshore borrow ground located to the north of the Dampier Marine Park Habitat Protection Zone

Activity description and project vessels

The scope of the Petroleum Activities Program under the proposed Scarborough Seabed Intervention EP include:

- + Geophysical and geotechnical surveys (pre-lay and post-lay) by a survey, construction or support vessel.
- + Pre-lay trunkline trenching operations from the State waters boundary to KP 50, spoil disposal at spoil ground 5A (which runs parallel to the trunkline route near the State waters boundary to KP50) and post-lay secondary stabilisation with sand backfill sourced from offshore borrow grounds by a TSHD vessel.
- + Continental slope crossing seabed preparation and excavation at approximately KP209 by a construction vessel.
- + Rock installation and/or concrete mattresses may be used at pipeline and infrastructure crossings (this includes Pluto flowlines, Reindeer, Julimar, Wheatstone, two fibre optic cables and Pyxis) using either a fall pipe vessel or construction vessel.
- + Free span rectification using equipment such as concrete mattresses by a construction vessel.
- + Supporting activities associated with the activities defined above, including vessel operations and helicopter transfers.

Proposed locations

The Scarborough trunkline route will run from the proposed Scarborough FPU towards the existing Pluto offshore gas processing facilities. At KP 200, the trunkline will deviate to the south to avoid these existing facilities, minimising environmental, technical and safety-related risks. From KP 160, the Scarborough trunkline will be routed within the existing Pluto trunkline corridor (about 100 m to the south of

the Pluto trunkline) to minimise disturbance until it reaches Mermaid Sound.

The proposed borrow ground within Commonwealth waters is located 20 km to the east of the proposed Scarborough trunkline route and adjacent to the Dampier Marine Park. A minimum 250 m buffer from the Park boundaries will be in place for the borrow ground activities.

For the purposes of this EP, the following project areas will apply and be referred to as a single Operational Area:

- + The trunkline project area: the proposed trunkline from KP 32.7 (Commonwealth - State boundary) to KP 430 and 1.5 km either side of the proposed trunkline centreline where vessel based activities will be undertaken.
- + Borrow ground project area: borrow ground A.

Communications with mariners

Marine notices will be issued prior to activity commencement to alert vessels which may be operating in waters nearby.

Implications for Stakeholders

Woodside will consult relevant stakeholders whose interests, functions, and activities may be affected by the proposed activities. We will also keep other stakeholders informed who have an identified interest in the planned activities.

Woodside has undertaken an assessment to identify potential risks to the marine environment and relevant stakeholders, considering timing, duration, location and potential impacts arising from the construction and installation activities.

Should it be approved by the Regulator, this EP approval falls under the primary environmental approval of the Scarborough Offshore Project Proposal (OPP) and will be conducted in line with relevant requirements of the OPP.

A number of mitigation and management measures will be implemented and are summarised in Table 2 (page 3). Further details will be provided in the EP.

Scarborough

The Scarborough gas resource is located approximately 375 km west-northwest of the Burrup Peninsula and is part of the Greater Scarborough gas fields which are estimated to hold 13.0 Tcf (2C, 100%) of dry gas.

The greater Scarborough gas fields include Thebe (1.4 Tcf, 2C, 100%), Jupiter (0.5 Tcf, 2C, 100%) and Scarborough (11.1 Tcf, 2C, 100%). The relevant offshore petroleum titles are all located in Commonwealth waters - Woodside holds a 73.5% interest in WA-1-R and WA-62-R, and a 50% interest in WA-63-R and WA-61-R, covering the Scarborough, North Scarborough, Thebe and Jupiter gas fields respectively. BHP Billiton Petroleum (NWS) Pty Ltd is Woodside's Scarborough joint venture partner.

Woodside is proposing to develop the Scarborough gas resource through new offshore facilities connected by an approximately 430 km pipeline to a proposed expansion of the existing Pluto LNG onshore facility (Pluto Train 2).

The proposal is to initially develop the Scarborough gas field with up to seven subsea, high-rate gas wells, tied back to a semi-submersible floating production unit (FPU) moored in 950 m of water close to the Scarborough field.

Woodside is targeting a final investment decision for Scarborough in 2020 and first cargoes in 2024.¹

For more information on Woodside's proposed Burrup Hub, visit: woodside.com.au/our-business/burrup-hub

¹ These targets are subject to finalisation of required approvals and agreements.

Table 2. Summary of key risks and/or impacts and management measures

Potential Risk and/or Impact	Mitigation and/or Management Measure
Planned	
Interests of relevant stakeholders including: <ul style="list-style-type: none"> + Defence activities + Petroleum activities + Commercial and Recreational fishing activities + Shipping activities 	<ul style="list-style-type: none"> + Consultation with relevant stakeholders and agencies to inform decision making for the proposed activity and development of the EP. + Advice to relevant stakeholders prior to the commencement of activities. + All vessels within the Operational Area will adhere to the navigation safety requirements including the <i>Navigation Act 2012</i> and any subsequent Marine Orders.
Marine fauna interactions	<ul style="list-style-type: none"> + Vessel masters will implement interaction management actions in accordance with the EPBC Regulations 2000. + The dredging vessel will have trained crew as marine fauna observers and adhere to the observation and exclusion zone for whales.
Marine discharges	<ul style="list-style-type: none"> + All routine marine discharges will be managed according to legislative and regulatory requirements and Woodside's Environmental Performance Standards where applicable.
Seabed disturbance	<ul style="list-style-type: none"> + Vessels and associated equipment will be positioned within design footprint when undertaking activities to reduce seabed disturbance. + Bathymetric surveys will be undertaken to monitor seabed characteristics before and after dredging activities. + Implementation of a tiered monitoring and management framework for borrow ground dredging. + Activities will be undertaken in compliance with a sea dumping permit.
Vessel interaction	<ul style="list-style-type: none"> + Woodside will notify relevant government maritime safety agencies of specific start and end dates and specific vessel-on-location dates prior to commencement of the activity.
Waste generation	<ul style="list-style-type: none"> + Waste generated on vessels will be managed in accordance with legislative requirements and a Waste Management Plan. + Waste will be managed and disposed of in a safe and environmentally responsible manner that prevents accidental loss to the environment. + Waste transported onshore will be sent to appropriate recycling or disposal facilities by a licensed waste contractor.
Unplanned	
Hydrocarbon release	<ul style="list-style-type: none"> + Appropriate spill response plans, equipment and materials will be in place and maintained. + Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment.
Introduction of invasive marine species	<ul style="list-style-type: none"> + All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species. + Activities will be undertaken in compliance with Australian biosecurity requirements, including the Australian Ballast Water Management Requirements.

Providing feedback

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.

An Environment Plan for the proposed activity will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **Monday, 30 March 2020**.

Ryan Felton
Senior Corporate Affairs Adviser
Woodside Energy Ltd
E: Feedback@woodside.com.au
Toll free: 1800 442 977

Please note that stakeholder feedback will be communicated to NOPSEMA as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.