

# NWS PROJECT AND PLUTO LNG TRUNKLINES OPERATIONS (STATE WATERS) ENVIRONMENT PLANS

## CARNARVON BASIN, NORTH-WEST AUSTRALIA

Woodside is submitting a revision of Environment Plans for the existing North West Shelf (NWS) Project and Pluto LNG State licensed pipelines in Western Australian waters. The Plans will cover operations for a further five years.

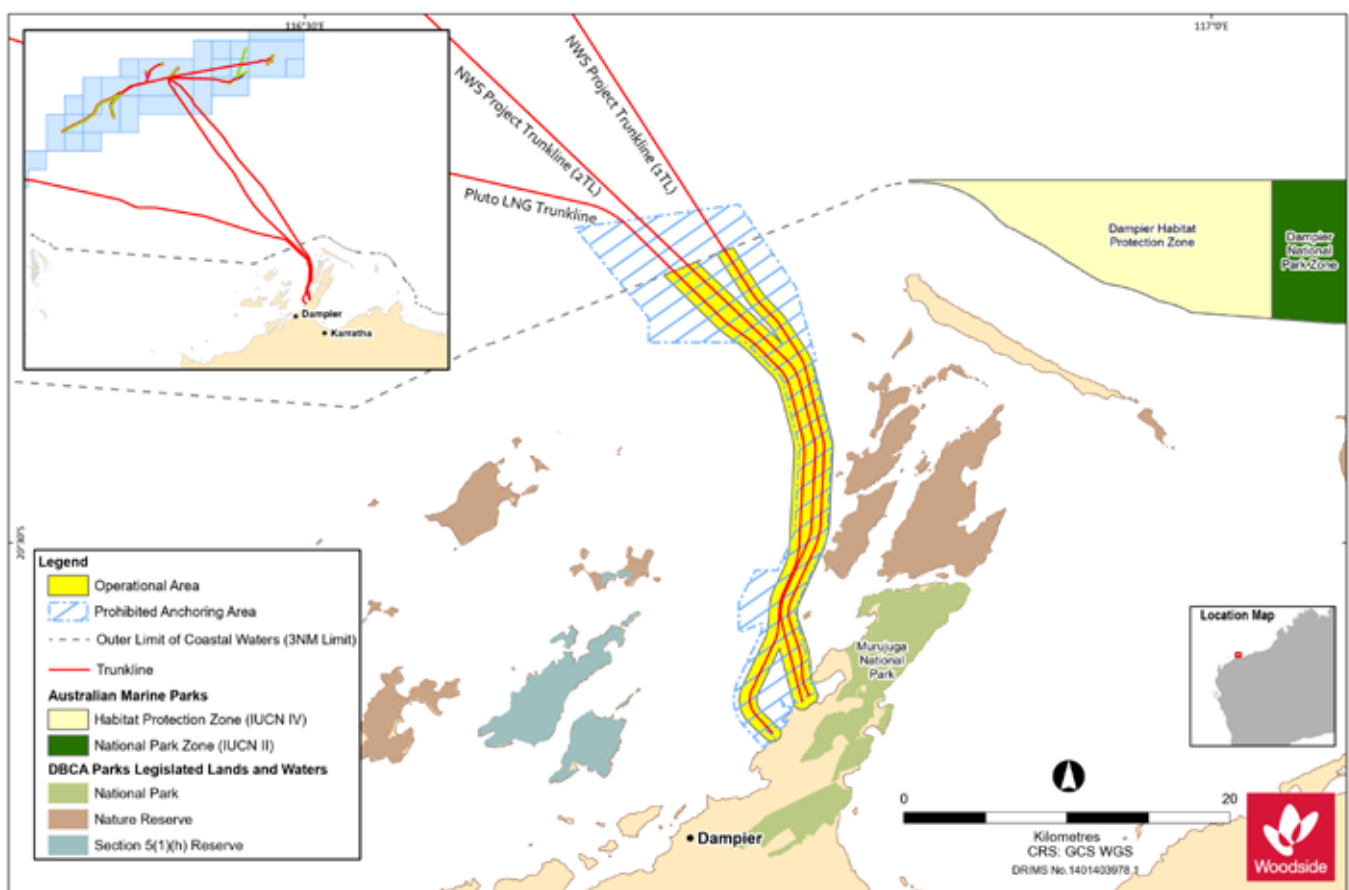
The Environment Plans are being submitted in accordance with the *Petroleum (Submerged Lands) (Environment) Regulations 2012 (WA)* and the *Petroleum Pipelines (Environment) Regulations 2012 (WA)*, which require Environment Plans to be revised every five years.

The Environment Plans will cover operations and activities associated with pipeline licenses TPL/15, TPL/16, TPL/19 and PL58.

The NWS Project holds pipeline licences TPL/15, TPL/16 and PL58. These pipelines connect to the NWS Project's offshore production facilities in Commonwealth waters to the onshore Karratha Gas Plant (KGP). The NWS Project participants are Woodside Energy Ltd (Operator), BHP Billiton Petroleum (North West Shelf) Pty Ltd, BP Developments Australia Pty Ltd, Chevron

Australia Pty Ltd, Japan Australia LNG (MIMI) Pty Ltd and Shell Australia Pty Ltd.

The Pluto LNG project holds pipeline licence TPL/19. The Pluto trunkline links offshore Pluto A production platform located in Commonwealth waters to the onshore Pluto LNG plant. A monoethylene glycol (MEG) supply line is attached to the trunkline and although it is not part of TPL/19, it will be included in the Environment Plan. TPL/19 is held by Woodside Burrup Pty Ltd (Operator), Kansai Electric Power Australia Pty Ltd and Tokyo Gas Pluto Pty Ltd.



**Table 1. Activity summary**

	NWS Project trunklines	Pluto LNG trunklines
<b>Location</b>	TPL/15, TPL/16 and PL58	TPL/19
<b>Specifications</b>	One 40-inch trunkline (1TL) One 42-inch trunkline (2TL)	One 36-inch trunkline
<b>Location at Commonwealth/State boundary (Latitude and Longitude):</b>	20° 20' 49.49" S (1TL) 116° 42' 40.81" E (1TL)  20° 20' 20.26" S (2TL) 116° 43' 54.17" E (2TL)	20° 21' 00.80" S 116° 42' 12.42" E
<b>Location at mean low water mark (Latitude and Longitude):</b>	20° 35' 14.02" S (1TL) 116° 46' 27.43" E (1TL)  20° 35' 05.89" S (2TL) 116° 46' 35.50" E (2TL)	20° 36' 16.37" S 116° 45' 27.29" E
<b>Pipeline length</b>	1TL: 29.7 km (State waters), 134.2 km (total) 2TL: 29.2 km (State waters), 133.9 km (total)	31.9 km (State waters), 180.9 km (total)
<b>Water depth</b>	From shore to 35 m	From shore to 35 m
<b>Products</b>	Gas and condensate	Gas and condensate
<b>Vessels</b>	Operations support vessel	Operations support vessel
<b>Pipeline licences</b>	TPL/15 – granted in 1983 TPL/16 and PL58 – granted in 2003	TPL/19 – granted in 2011

## Operations

The NWS and Pluto LNG trunklines are key assets in the transportation of gas and condensate from Woodside operated offshore facilities for processing onshore and supply to customers.

### NWS Project and Pipeline Operations

Gas and condensate from the NWS Project's three offshore platforms and one Floating Production Storage and Offloading facility is transported onshore to KGP by two large diameter trunklines for processing into liquefied natural gas (LNG), liquefied petroleum gas (LPG) and condensate for export.

The KGP also produces domestic gas to gas distribution and aggregation companies, electricity producers, industrial customers and gas traders in Western Australia.

The first trunkline (1TL) was installed in 1982 with an additional trunk line (2TL) added in 2002 to support the expansion of LNG facilities at the KGP. Pipeline licenses were granted following installation in 1983 and 2003 respectively. Each trunkline is approximately 135 km in length and made of carbon steel coated with concrete and stabilised in sections to prevent movement. The trunklines are both trenched and buried in State waters.

### Pluto LNG Pipeline Operations

Gas and condensate from the not normally manned Pluto platform is transported to the onshore Pluto LNG, domestic gas plant for processing, storage and supply of LNG and condensate to customers.

The trunkline was installed in 2011 with a pipeline license granted in 2011. The trunkline is 180 km in length and made of carbon steel coated with concrete and stabilised into sections to prevent movement. A six-inch MEG line is attached to the trunkline. MEG is injected into the wells to prevent subsea hydrate formation and is returned onshore with the production fluids, where it is captured before being treated and returned to the MEG injection line.

The trunkline and attached MEG line are both trenched and buried in State waters.

### Exclusion zones

Each trunkline is marked on nautical charts, which state that vessels should avoid anchoring, trawling or conducting underwater operations in the vicinity of the pipelines. There are no fishing exclusion zones associated with the trunklines, however there is a Prohibited Anchoring Area around the trunklines which is marked on nautical charts.

### Activity details

The NWS Project and Pluto LNG trunklines normally operate 24 hours per day, 365 days per year. To ensure the integrity of the pipelines, a variety of different subsea activities may be undertaken.

### Subsea inspection

Inspection of subsea infrastructure is the process of physical verification and assessment of components in order to detect changes compared to its installed state. Typical site inspection activities include visual surveys via a remotely operated vehicle, side scan sonar surveillance, cathodic protection measurements and ultrasonic pipe condition checks.

### Monitoring

Monitoring is the surveillance of the physical and chemical environment around subsea infrastructure. Monitoring activities may include process composition, corrosion probes, corrosion mitigation checks, and metocean and monitoring.

### Maintenance

Maintenance of subsea infrastructure is required at regular and or planned intervals to maintain performance reliability and prevent deterioration or failure of equipment. Maintenance activities may include cycling of valves and leak pressure testing.

### Repair

Repair activities are those required when a subsea system or component is degraded or damaged as defined by design codes.

### Activity vessels

Operations support vessels will be used undertaking inspection, maintenance and repair of subsea infrastructure. The vessel size and type will be dependent on the work scope and water depth.

## Implications for stakeholders

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

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

Potential Risk and/or Impact	Mitigation and/or Management Measure
<b>Planned</b>	
<b>Chemical use</b>	<ul style="list-style-type: none"> <li>+ Chemical use will be managed in accordance with Woodside and contractor chemical selection and approval procedures.</li> </ul>
<b>Interests of relevant stakeholders including:</b> <ul style="list-style-type: none"> <li>+ Commercial and recreational fishing activities</li> <li>+ Shipping activities</li> </ul>	<ul style="list-style-type: none"> <li>+ Consultation with relevant petroleum titleholders, commercial fishers and their representative organisations, and government departments and agencies to inform decision making for the proposed activity and development of the Environment Plan.</li> <li>+ All vessels with the Operational Area will adhere to the navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders.</li> </ul>
<b>Marine fauna interactions</b>	<ul style="list-style-type: none"> <li>+ Measures will be taken to protect marine fauna and ecosystems from vessel activities and to prevent vessel collisions and groundings.</li> <li>+ Vessel masters will implement interaction management actions in accordance with the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth).</li> </ul>
<b>Marine discharges</b>	<ul style="list-style-type: none"> <li>+ All routine marine discharges will be managed according to legislative and regulatory requirements and Woodside's Environmental Performance Standards where applicable.</li> <li>+ Integrity of the Pluto chemical supply line will be managed to identify anomalies and prevent discharge of chemicals.</li> </ul>
<b>Physical presence of infrastructure on seafloor causing interference/displacement</b>	<ul style="list-style-type: none"> <li>+ Trunkline locations marked on nautical charts, which state that vessels should avoid anchoring, trawling or conducting other underwater operations in the vicinity of the pipelines.</li> <li>+ Within the port limits unauthorised vessels are prohibited from anchoring within 0.5 miles of the pipelines.</li> <li>+ Stakeholder engagement activities as part of the Environment Plan.</li> </ul>
<b>Vessel interaction</b>	<ul style="list-style-type: none"> <li>+ Vessel activities associated with the pipeline will be within an Operational Area with a radius of 500 m around the pipeline.</li> </ul>
<b>Waste generation</b>	<ul style="list-style-type: none"> <li>+ Waste generated on vessels will be managed in accordance with legislative requirements and a Waste Management Plan.</li> <li>+ Waste will be managed and disposed of in a safe and environmentally responsible manner that prevents accidental loss to the marine environment.</li> <li>+ Wastes transported onshore will be sent to appropriate recycling or disposal facilities by a licensed waste contractor.</li> </ul>
<b>Unplanned</b>	
<b>Hydrocarbon release</b>	<ul style="list-style-type: none"> <li>+ Pipeline integrity is monitored and maintained to prevent a release of hydrocarbons from the pipelines.</li> <li>+ Appropriate spill response plans, equipment and materials will be in place and maintained.</li> <li>+ Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment.</li> </ul>
<b>Introduction of invasive marine species</b>	<ul style="list-style-type: none"> <li>+ All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species.</li> <li>+ Activities will be undertaken in compliance with Australian biosecurity requirements, including the Australian Ballast Water Management Requirements.</li> </ul>

### Providing feedback

Our intent is to minimise potential 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.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **14 May 2020**.

Please note that your feedback and our response will be included in our Environment Plans for the proposed activities, which will be submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) for acceptance in accordance with the *Petroleum (Submerged Lands) (Environment) Regulations 2012 (WA)* and the *Petroleum Pipelines (Environment) Regulations 2012 (WA)*.

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*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.*

*The information contained in this information sheet was correct at the time of publishing in April 2020.*



Woodside