*Enfield Subsea Infrastructure Decommissioning EP*

Key matters report

# Purpose of this report

NOPSEMA has accepted the Enfield Subsea Infrastructure Decommissioning Environment Plan (revision 1, dated 10 March 2022) (the EP) submitted by Woodside Energy Ltd (the titleholder) for the removal of subsea infrastructure above the mudline and the inspection, maintenance and repair of this property until decommissioning work is completed, and leaving some property below the mudline. The activity will be undertaken in the Exmouth Sub-basin over the 2022 to 2024 period.

This report explains how NOPSEMA took into account matters that may be of interest to the public and accompanies the accepted EP submitted by Woodside Energy Ltd, which is available on the NOPSEMA website and should be referred to for further information.

## Background

The activity described in this Enfield Subsea Infrastructure Decommissioning EP involves:

* Removal of infrastructure above the mudline including manifolds, flowlines, umbilicals, mooring lines, and spools (Key Matter # 1).
* In situ decommissioning of buried anchors and attached buried sections of mooring lines, as well as contingency (if required) for partial leaving of manifold suction piles (Key Matter # 2).

The EP also describes decommissioning phases for all the infrastructure in the Enfield Development with timing planned as follows:

* Riser turret mooring (RTM) removal will commence in Q4 2022 and be completed by Q2 2023
* Well plug and abandonment will be undertaken between Q1 2022 and Q2 2023.
* Subsea Infrastructure decommissioning will commence in Q2 2023 and be completed by Q3 2024

Activities undertaken in each decommissioning phase are to be provided for in separate EPs.

NOPSEMA has issued General Direction 812 under section 574 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGS)* in relation to decommissioning activities in the title area (WA-28-L). The EP describes how requirements of the direction are being met. Details of the issued General Direction 812 can be found published on NOPSEMA’s webpage - [General Direction 812](https://www.nopsema.gov.au/sites/default/files/2021-04/A763405.pdf).

## Information relevant to NOPSEMA’s decision:

NOPSEMA considers proposal to leave property in situ on a case-by-case basis giving regard to the specific circumstances. In making the decision to accept this EP, NOPSEMA took into account:

* General Direction 812 issued under section 574 of the OPGGS Act;
* the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulation 2009 (Environment Regulations);
* NOPSEMA Assessment Policy (PL0050), Environment Plan Assessment Policy (PL1347) and Environment Plan Decision Making Guidelines (GL1721);
* NOPSEMA Section 572 Regulatory Policy (PL1903)
* Department of Industry, Science, Energy and Resources’ Offshore Petroleum Decommissioning Guideline, March 2022;
* the Enfield Subsea Infrastructure Decommissioning EP;
* the information raised by relevant persons, government departments and agencies that is relevant to making a decision;
* relevant plans of management and threatened species recovery plans developed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and relevant guidance published by the Department of Agriculture, Water and the Environment.

# Next steps

Responsibility for the ongoing environmental performance of the activity remains, at all times, with Woodside Energy Ltd.

NOPSEMA has legislated responsibilities to inspect and investigate offshore petroleum and greenhouse gas storage activities, and to enforce compliance with environmental law. These functions will be applied to this activity in accordance with NOPSEMA’s policies.

# Sensitive Information

Sensitive information received during the public comment period, such as the names and contact details of commenters and specific information identified by the commenter or relevant person as ‘sensitive’, is not published in this report. Sensitive information is contained in a sensitive information part of the EP which has been considered by NOPSEMA during its assessment process.

# Further information

If you would like further information about the activity, please contact the titleholder’s nominated liaison person specified in the EP and on NOPSEMA’s webpage for the Enfield Subsea Infrastructure Decommissioning activity.

If you would like to be notified of regulatory information on the activity, such as start and end dates and enforcement actions (if any), please subscribe to updates from the [Industry Environment Plans](https://info.nopsema.gov.au/) page on

NOPSEMA’s website.

How NOPSEMA has taken into account key matters raised during the assessment and decision making process for the Enfield Subsea Infrastructure EP

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| # | Matter | Titleholder response | NOPSEMA’s assessment and decision |
| 1 | Inadequate planning and arrangements for property removed from the title area may lead to indirect environmental impacts. | This EP describes the planning and arrangements for the removal of the Enfield Subsea Infrastructure above the mudline from the title area.Woodside have provided a description of the following surveys and studies undertaken to support the petroleum activities and the management of waste generated from removal activities:* Nganhurra FPSO Testing for Contamination
* Subsea Risers Testing for Contamination
* Seal Plate Testing for Contamination

Woodside concluded from the results of studies that Naturally Occurring Radioactive Materials (NORMs) are present in very small quantities, very low concentrations, and do not present a hazard to workers, members of the public or the environment. Further, Mercury was only detected in vapour form in the subsea risers and at very low concentration impregnated on a single seal plate.The EP outlines how waste is classed into non-hazardous and hazardous streams, and how it is managed in accordance with applicable legislative requirements and/or international guidance, such as: * Commonwealth Hazardous Waste (Regulation of Exports and Imports) Act 1989.
* WA Environmental Protection (Controlled Waste) Regulations 2004
* MARPOL: International Convention for the Prevention of Pollution from Ships
* International Finance Corporation: EHS Guidelines: Environmental Waste Management.

Woodside concluded that with controls measures in place, indirect impacts will be reduced to as low as reasonably practicable (ALARP) and an acceptable level. These control measures include:* Disposal of any hazardous waste associated with the subsea infrastructure will comply with relevant State and Commonwealth legislation
* Implement an infrastructure disposal and resource recovery strategy that:
	+ - monitors and tracks waste from recovery to end state
		- considers the waste hierarchy when determining appropriate end state for waste
		- describes contingency procedures for dealing with contaminants offshore and onshore.
* Undertake engagement with waste contractors to identify potential waste disposal pathways
 | NOPSEMA recognises that, there is the potential for the activity, if not appropriately managed, to have indirect impacts to the environment.During the course of the assessment, NOPSEMA required Woodside to provide further information regarding the types and volumes of waste generated from the removal activities, and associated management, treatment and disposal measures. In response, Woodside undertook a review of past surveys and studies to understand potential levels of NORM and mercury contamination. Further, Woodside updated the environmental impact and risk assessment and included further waste management control measures. This included consideration and adherence to legislative requirements, the development of an infrastructure disposal and resource recovery strategy and engagement with waste disposal contractors.After taking into consideration the information provided in the EP, NOPSEMA has concluded that suitable control measures are in place to manage property removed from the title area and reduce indirect environmental impacts to ALARP and acceptable levels. |
| 2 | There may be long term impacts from the Enfield development including from property left in-situ without suitable management and monitoring measures in place. | This Subsea Infrastructure Decommissioning EP is intended to be the final EP for the Enfield development.Woodside have provided an assessment of the feasibility and associated impacts of removal versus leave in situ of the 10 anchors, section of mooring line (approx. 100m each) and the manifold suction piles. While the anchors and mooring line sections are proposed to remain in situ, attempts will be made to remove the manifold suction piles and if unsuccessful they will be cut and retrieved as close as possible to the mud line.The EP provides an environmental impact and risk assessment for the property proposed to be left in situ. Surveys have been undertaken to verify that anchors and mooring lines are buried. Further, the EP describes that it is unlikely that anchors would become unburied based on a scouring analysis conducted using the available geotechnical and metocean data. Impacts such as degradation of the material to remain and risks associated with leaving this material such as snagging from fishing activities have been considered. Consultation has been undertaken with relevant stakeholders to support the assessment of impacts and risk.Monitoring is proposed to be undertaken as part of the activities including an as left ROV survey and sediment sampling to demonstrate compliance with requirements of making good any damage to the seabed and to provide for the protection of natural resources.Woodside concluded that with controls measures in place, impacts and risk are ALARP and acceptable. The control measures identified include:* Compliance with the *Environmental Protection (Sea Dumping) Act 1981.*
* Remove all infrastructure (other than suction piles) above the mudline.
* Where suction piles cannot be fully removed as required under the General Direction, and a remaining portion above the mudline may present a credible risk to future trawl fishers, notify AHO of pile locations so they can continue to be marked on navigational charts.
* An as left ROV survey and sediment sampling.
 | NOPSEMA recognises that there is the potential for the activity to result in unacceptable long-term impacts and risks.During the course of the assessment, NOPSEMA required Woodside to provide further information to demonstrate that long term impact and risks have been evaluated. This included considering a scenario where anchors become unburied and are presenting a risk to future marine users, or there is a release of potential contaminates from the property over time. In response, Woodside provided clarification based on survey results of burial depth, conducted a scour analysis to confirm long-term burial rates and updated the impact and risk assessment to include an evaluation of the slow release of contaminants such as epoxy coating from the anchors. Additionally, Woodside consulted with relevant stakeholders to clarify status and items proposed to be left in situ in the development area.Further information was requested regarding how Woodside will verify that any damage from their activities to the seabed will be made good. In response Woodside, described that a post removal ROV survey will be undertaken, and any debris will be removed from the title area and that sediment sampling for contaminants will be undertaken. Results and outcomes from these surveys are to be reported to NOPSEMA.After taking into consideration the information provided in the EP, NOPSEMA has concluded that the long-term impact and risk of property remaining in situ in the development area has been reduced to ALARP and acceptable levels due to the implementation of the proposed control measures.  |