

NGANHURRA RISER TURRET MOORING REMOVAL PROJECT REPORT

This monthly decommissioning report provides a progress update on Woodside's decommissioning activities for the Nganhurra Riser Turret Mooring (RTM) removal expected to commence in October 2023, including planning towards and progress with undertaking the actions required by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) General Direction 1913. The RTM removal activity forms part of the broader Enfield decommissioning campaign, which has already commenced.

Woodside is planning to decommission the Nganhurra RTM, which is located in Commonwealth waters in permit area WA-28-L, 38km off the North West Cape in Western Australia (**Figure 1**). The RTM was previously used to support hydrocarbon production from the Enfield development to the Nganhurra floating production storage and offtake facility. The RTM system consists of an 83m riser column structure anchored to the seabed in approximately 400m water depth.

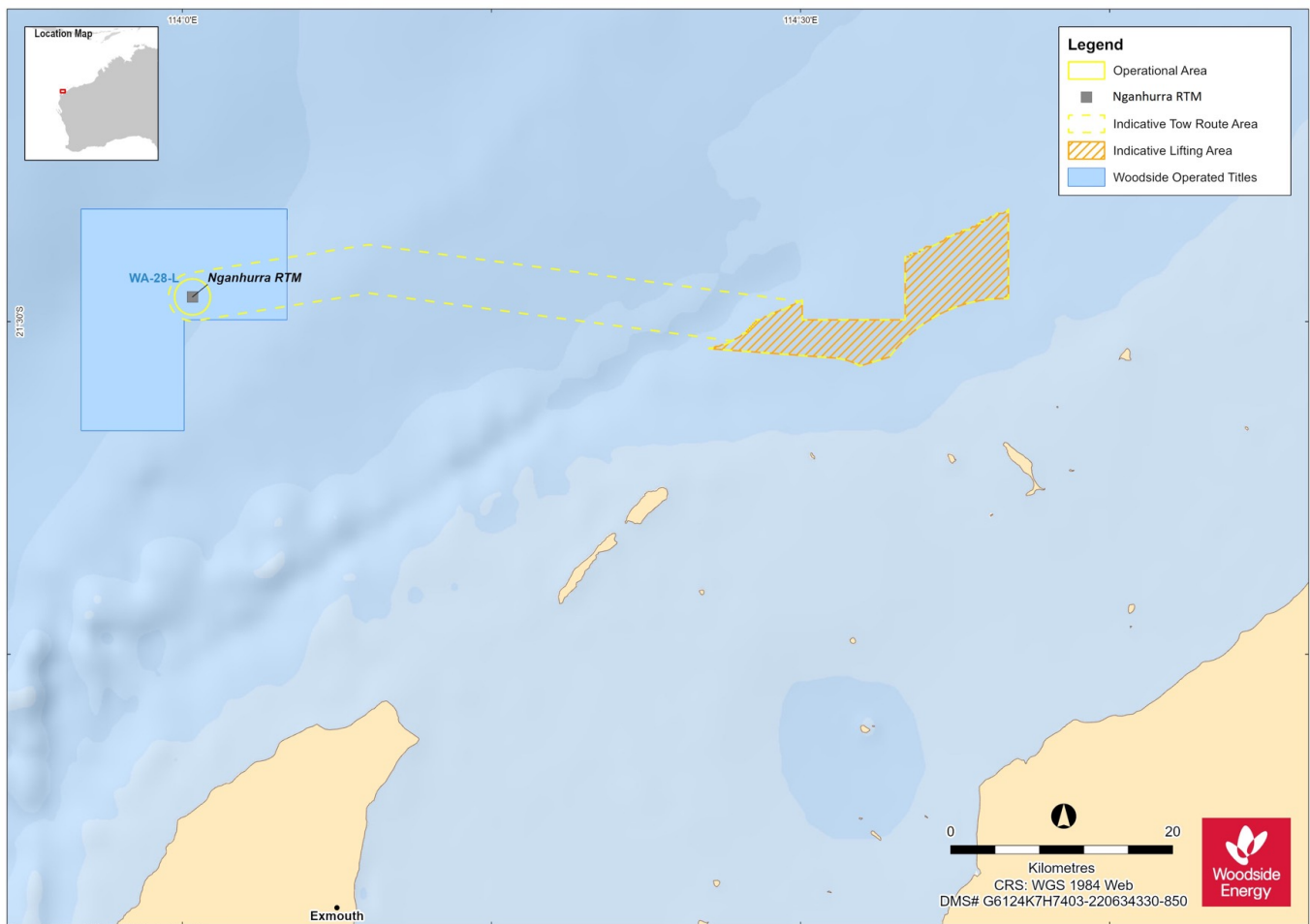


Figure 1 - Nganhurra RTM location, indicative tow route and sheltered water location

RTM removal project plan and schedule

The RTM removal project includes the following activities:

- Recovery of RTM from its current location with the heavy lift vessel (HLV) Aegir.
 - Installation of a top lift point on board the RTM. The lift point is used in subsequent removal of the RTM.
 - Disconnection of mooring chains using a remote operated vehicle (ROV).
 - Depending on weather conditions, the RTM may be relocated to a sheltered area by wet tow for lifting onto a barge with three tow tugs.
 - Lift and secure the RTM onto a barge.
- Tow the RTM on a barge to Henderson with a single dedicated tow tug.
- Offload and deconstruct the RTM at Henderson.
 - Mooring of the barge at Henderson quayside.
 - Cut grillage and load-in the RTM to quayside on self-propelled modular transports (SPMT).
 - Deconstruct and dispose of the RTM. Woodside is planning that over 95% (by weight) of the RTM material will be able to be recycled or repurposed.

The table below describes the steps and actions necessary to be undertaken prior to commencement of the removal campaign in order to be prepared to safely remove and dispose of the RTM, and an associated schedule (timeline).

Item	Activity	Deliver	Progress
Engineering deliverables	Engineering, design, and analysis of offshore heavy lift	July 2023	Complete
	Tow route analysis	June 2023	Complete
	HAZID risk assessment	June 2023	Complete
	Removal method constructability	July 2023	Complete
	Heavy lift simulation	July 2023	Complete
	Detailed design documents	August 2023	Complete
	Line handling and tow constructability	August 2023	Complete
	RTM weight and structural verification	August 2023	Complete
	Procedures for offshore heavy lift	September 2023	In review
	Barge mooring and RTM load-in procedures	September 2023	In review
RTM disposal procedure	September 2023	In review	
Contracting, Procurement, and Fabrication	Heavy lift vessel contract award	June 2022	Complete
	Disposal contract award	September 2022	Complete
	Procurement of lifting aids and equipment	June 2023	Complete
	Fabrication of lifting aids, inspection, and testing	August 2023	Complete
	Sub-contract tug and barge spread	July 2023	Complete
	Procurement of load-in equipment	June 2023	Complete – includes SPMT
	Quayside and disposal yard booking	September 2023	Commenced
	Procurement of contingency equipment, on standby if changes to RTM condition impact primary removal method	September 2023	Equipment ordered and on standby in Dampier
Pre-mobilisation activities	RTM early works in preparation for heavy lift	June 2023	Complete
	RTM inspection and cleaning	June 2023	Complete
	Heavy lift vessel inspections and assurance activities	August 2023	Complete – includes health & safety, environment, marine, helideck, and crane
	Barge outfitting; installation of grillage, guides and bumpers	August 2023	Delayed to September, no impact to offshore commencement
	Aegir validation statement	August 2023	Delayed to September, no impact to offshore commencement
	Transportation of equipment to site of mobilisation	September 2023	Planned
	Invasive Marine Species analysis of RTM marine growth	September 2023	Planned
	Preparation of disposal yard	October 2023	Planned
Regulatory approvals	Aegir safety case project addendum acceptance	July 2023	Complete
	Nganhurra Operations Cessation Environmental Plan acceptance	July 2023	Complete
	Nganhurra safety case acceptance	September 2023	Submitted to NOPSEMA in August. RFWI received.
	Tow permit acceptance	September 2023	Application planned in September

RTM removal execution plan and schedule

The table below describes the works to be completed during the removal campaign, including information about offshore works and onshore works, and an associated schedule (timeline). The activities below will occur sequentially, and the duration is cumulative unless otherwise stated. The activities are expected to commence in October 2023.

Location	Activity	Duration (days)	Progress
Offshore	Mobilise heavy lift vessel, tugs, and barge to field	8	Planned
	RTM preparation and installation of top lift point	5	Planned
	Disconnect RTM mooring lines	2.5	Planned
	Tow to sheltered location	1	Decision milestone – skip this step if the RTM can be recovered in-situ within a 10-day weather window
	Lift RTM and secure onto barge	5.5	Planned
	Seabed ROV survey	<1	Planned
	Barge tow to Henderson	6	Planned
Onshore / Henderson	Barge preparation for load-in	2	Planned
	RTM load-in to quayside	3	Planned
	Hazardous material inspections	9	Planned – concurrent with other activities
	RTM set down and preparation works for deconstruction	13	Planned
	Mechanical deconstruction of RTM	32	Planned
	Processing and removal of deconstructed materials	11	Planned
	Demobilisation of site	28	Planned

RTM integrity monitoring

An online draft monitoring system informs Woodside of the RTM draft. The RTM is visually observed weekly by personnel on other vessels and facilities in the area, to confirm the draft monitoring system and the navigation aids are functioning properly. The most current observations confirm the average draft is 75.5m and remains stable. The last notable change was a modest increase in draft of 0.2m over the 2023 winter season.

Several inspection activities have been performed in 2023 and prior years, including a 2.5 yearly in-water class survey in June 2023. Further inspection is not planned prior to removal of the RTM by the Aegir.

Emergency response preparedness

Woodside has preparedness to respond to an unplanned sinking of the RTM. This is an unplanned event that is described in the Nganhurra Operations Cessation Environmental Plan (EP).

The response activities are outlined in the EP. The table below describes Woodside's preparedness to implement these response strategies.

Location	Activity	Progress
Initial response	Notifications to relevant persons or organisations	Relevant persons and organisations identified
	Deployment of a standby vessel	Specific RTM sinking event recorded in Sea Response program, including response vessel requirements
	Controlled free flooding of the RTM	Magnetic drill procured and on standby
	Post-sinking ROV survey	Specific RTM sinking event recorded in Sea Response program, including response vessel requirements
	Stabilisation of the RTM to prevent re-floating (if required)	Magnetic drill on standby in Dampier
	Containment of any identified breaches to compartment 13 to prevent potential foam release to surrounding environment	Foam containment equipment on standby in Dampier
	Flooded member detection (FMD) survey (if required)	FMD survey procedure complete
Recovery planning	Consult alternative contractors for RTM removal from seabed	Discussions held with alternate contractors
	Continuing engagement and review of preparation needs	Continuing market engagement
	Vessel availability tracking	Continuing market engagement
	Engineering and procurement for seabed recovery method	Recovery concept identified. Recovery equipment to be procured following post-sinking survey

Further Information

For further information or request to be consulted by Woodside on this activity please see contact details below:

Email: Feedback@woodside.com

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