

NOPSEMA Investigation – Minerva Field Management and Decommissioning – Loss of Plastic Piggyback Saddles to the Marine Environment

Investigation details

Activity	Minerva Decommissioning and Field Management
Titleholder	Woodside Energy (Victoria) Pty Ltd
Date investigation commenced	17 April 2025
Lead Investigator	[REDACTED]
Investigation team	[REDACTED], [REDACTED]
Investigation number	IVT14016

Report distribution

Position	Company
Records management	NOPSEMA
Titleholder	Woodside Energy (Victoria) Pty Ltd

Revision status

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B	27 May 2025	Draft for discussion with duty holders	[REDACTED]	[REDACTED]
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Background

On 15 April 2025, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) received Woodside Energy (Victoria) Pty Ltd's (Woodside) March 2025 Minerva Decommissioning and Field Management Monthly Recordable Environmental Incident Notification Report (MRIR, [1]). The MRIR described an incident whereby pipeline plastic piggyback saddles were being dislodged during decommissioning activities and released to the marine environment. Following receipt of the MRIR, on 17 April 2025 NOPSEMA Inspectors raised notification (NTF13679) through 'Information provided to NOPSEMA' and initiated an investigation into the matter (IVT136964, IVT14016). The investigation was conducted onshore, and a meeting with relevant Woodside representatives in the Woodside Perth office conducted on 20 May 2025.

Investigation scope

NOPSEMA initiated Investigation IVT14016 to determine whether:

- there is non-compliance with the Minerva Decommissioning and Field Management Environment Plan (EP, [2]) or other legislative requirements.
- the titleholder has adequate controls in place to prevent/mitigate further saddle losses or reduce the environmental impacts and risks to as low as reasonably practicable (ALARP)
- there are adequate controls in place to recover already lost debris.

Conclusions

Conclusions and reasons for those conclusions made by NOPSEMA Inspectors are provided in Table 1, with further details provided in the section *Summary of findings*.

Table 1 Investigation conclusions and reasons for those conclusions

Item	Conclusion
1.	<p>Immediate risk associated with the incident</p> <p><i>Conclusion: NOPSEMA Inspectors conclude that the incident is currently being managed</i></p> <p>Reasons for conclusion</p> <ul style="list-style-type: none"> • Woodside has suspended the activity, therefore it is considered that there are currently no works being undertaken that could lead to further saddle losses.

- Woodside has engaged hydrodynamic modelling consultants to predict where lost saddles may be dispersed to and, engaged consultants to conduct coastal surveys to recover already lost debris that may wash up onshore.

2. Evaluation of all impacts and risks in the EP

Conclusion: *NOPSEMA Inspectors conclude that the risk of plastic saddles being lost to the marine environment during pipeline recovery activities was not considered in the EP*

Reasons for conclusion:

- The impacts and risks of loss of plastic saddles was not assessed as part of planned activities or unplanned events in the EP.
- It is noted that the EP identified detachment of the plastic saddles as a risk associated with alternative pipeline de-burial methods. Given that the potential for detachment was identified, it is reasonable to expect that the risk was considered and assessed as part of each decommissioning activity covered by the EP (e.g. during pipeline cutting, pipeline recovery).

3. Non-compliance with the Minerva Decommissioning and Field Management EP

Conclusion: *NOPSEMA Inspectors conclude that Woodside was non-compliant with the EP*

Reasons for conclusion

- The impacts and risks of plastic saddles being lost to the marine environment was not considered or evaluated under planned activities or unplanned events in the EP.
- The release of plastic saddle components to the marine environment first occurred on 12 January 2025 and continued to occur during six subsequent separate 'campaigns' in Commonwealth waters (Table 2) for a total estimated release of 160 components (an additional three campaigns and 269 components in State waters).
- No successful preventative mitigation was implemented.
- Management of the incident included Woodside/Subsea 7 meetings with saddles as a standard agenda item, and implementation of optimised monitoring across campaigns and reassessment of reporting requirements and mitigation actions based on frequency of loss of saddles. These management actions are considered indicative of managing a planned activity.
- The continued cutting of the pipeline with associated known plastic saddle losses was therefore not an activity permitted by the EP.

- It is noted that an MOC is in place for when the decommissioning activities resume. However, the changes made to the EP as described in the MOC appear to include significant changes to the management of the activity.

4. Controls in place to prevent/mitigate further saddle losses or reduce to ALARP

Conclusion: NOPSEMA Inspectors conclude that Woodside currently has controls in place to prevent/mitigate further saddle losses, and work is ongoing to refine and optimise control measures to reduce impacts and risks from saddle losses to ALARP. In addition, NOPSEMA inspectors concluded that Woodside should consider contingency options, adaptive management, decision processes and external reporting in the event that saddle losses continue when the decommissioning works resume.

Reasons for conclusion

- Woodside has suspended the activity, with recommencement anticipated in November 2025 at the earliest. Woodside has advised that during the suspension, additional control measures will be evaluated and refined for implementation when the activity restarts. Primary focus will be on 'mesh nets' successfully trialled in May 2025.
- Summer months are predicted to have better sea states and underwater visibility, therefore recommencing in summer is considered to result in reducing the potential for lost saddles and increasing the potential for recovery of any lost saddles.
- Additional controls already implemented to reduce the risk of lost saddles to ALARP will continue to be applied to the activity, including cutting the pipeline at field joints and recovery of lost saddles from the vessel where practicable.
- Woodside indicated that additional control measures such as the 'mesh nets' will be reviewed and implemented, however it was not clear to the NOPSEMA inspectors what would happen if plastic saddle losses continued when the work resumed.

5. Adequate controls in place to recover already lost saddles

Conclusion: NOPSEMA Inspectors conclude that there are currently controls in place to recover already lost saddles

Reasons for conclusion

- Woodside has engaged a specialist consultancy to undertake hydrodynamic drift modelling to predict the transport and fate of already lost saddles.

- Woodside has engaged consultants to conduct coastal surveys to recover already lost debris (and other non-activity related debris) that may wash up onshore, with survey locations informed by the real-time drift modelling.
- Negatively buoyant debris lost to the marine environment will be recovered via ROV during as-left surveys post-completion of recovery activities where practicable and as required by the EP.
- Given the number of saddles lost, the number retrieved and the dynamic oceanic conditions, NOPSEMA Inspectors understand that the majority of lost saddles will not be able to be retrieved.

NOPSEMA expects the duty holder(s) to consider these findings and conclusions and undertake sufficient action of their own to both fully understand the issues presented and to take action to reduce the risks and impacts to ALARP and acceptable levels and ensure compliance with their duties under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGs Act) and/or the requirements of relevant permissioning document(s).

Inspectors recommendations

The investigation team recommends that NOPSEMA:

- close Investigation IVT14016
- consider requesting a revision of the EP to include the revised activities
- consider enforcement action to secure compliance with legislative requirements
- consider conducting planned inspection of the Minerva Decommissioning and Field Management activity upon Woodside's recommencement of Minerva pipeline removal activities.

Summary of findings

General

NOPSEMA Inspectors made the following general findings in relation to Investigation IVT14016:

- The Subsea 7 vessel *Seven Sisters* was undertaking decommissioning activities as per the Woodside Decommissioning and Field Management EP [2], with NOPSEMA Inspectors understanding the event timeline to be as per Table 2.
- ~2.95 km [11] of ~5 km [2] of pipeline has been recovered from within Commonwealth waters (as of the 20 May 2025).
- The pipeline bundle comprises of a 10" concrete coated rigid-steel flowline, bundled with an electrohydraulic umbilical and two 2" steel chemical injection lines [2]. The pipeline bundle is secured together with ~1600 polypropylene piggyback saddles (821 in Commonwealth waters) that consist of 11 separate components spaced 6 m apart and secured together with two stainless steel tensioned straps [10].
- Stored energy within the uncoiled 2" steel chemical injection lines is being released following hydraulic cutting of the pipeline bundle, placing lateral stress on the piggyback saddles resulting in release of plastic piggyback saddle components to the marine environment [4], [10].
- An estimated 87 kg of plastic saddle-related debris (160 saddle components) has been lost to the marine environment in Commonwealth waters (99 kg and 269 pieces in State waters) [11].
- Woodside's understanding is that all plastic saddle components are positively buoyant, other than potentially the black rubber 'B' component and plastic components covered in marine growth or inundated with sediment [12].
- A decision was made by Woodside at 1600 on 19 May 2025 to suspend the activity, with the intention to resume at earliest November 2025 [12]. This is however dependent on Woodside contractual arrangements with Subsea 7.
- NOPSEMA Inspectors note that General Direction 831 requires removal of the Minerva property by 30 June 2025, and suspension of the activity will impact on Woodside's ability to meet this timeframe.
- The EP identified detachment of the piggyback saddles as a risk associated with alternative pipeline de-burial methods (Table 7-4: Seabed Disturbance – ALARP Assessment, [2]). Given the potential for detachment was identified, and the fact the pipeline was laid in 2003 and the design life of the piggyback saddles stated to be 20 years, it was reasonable to expect that the risk should have been considered as part of each decommissioning activity covered by the EP.

Event timeline

NOPSEMA Inspectors understand the timeline of events related to this investigation to be as per Table 2.

Table 2 **Event timeline**

Date	Event/activity
17 December 2024	Reg 54 form submitted to NOPSEMA advising start of decommissioning activities in Commonwealth waters, with Subsea 7 vessel <i>Seven Sisters</i> and an earliest commencement date of 23 December 2024 [3]
04 January 2025	Woodside commenced decommissioning of the Minerva field, which included de-burial of the pipeline and structure removal [4]
12 January 2025 Release #1 (estimated 1 component)	Incident reported by Subsea 7 – white plastic saddle component observed floating on the port side of the vessel <i>Seven Sisters</i> during Minerva pipeline de-burial activities. Estimated 1 plastic saddle component lost to the marine environment [4], [11]. NOPSEMA Inspectors noted that the incident report predicted that ‘the risk is likely to increase during the pipe cutting stage and if the cutting device is close to the plastic saddle’ [5], [6]
14 January 2025	Woodside First Priority event investigation report submitted for 12 January 2025 saddle loss event [18]
17 January 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
30 January 2025	Dedicated meeting on saddles between Woodside and Subsea 7 [17]
13 February 2025	Woodside initiated Engineering Assessment investigating cutting the pipeline at field joints [7], [9]. Information gathered by NOPSEMA Inspectors during meeting with Woodside on 20 May 2025 indicated that the Engineering Assessment was primarily undertaken to determine optimal pipeline cut location to reduce subsea discharges associated with hydraulic shear cuts [12]. A subsequent consideration was the potential for reducing the risk of losing plastic saddles

14 February 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
23 February 2025	Beach Patrol first reports pieces of moulded white plastic being washed up on Logan's Beach in Warrnambool [8]. NOPSEMA Inspectors note that the article quotes a Woodside spokesperson saying that 'works had only begun in early March' [8], however Minerva pipeline decommissioning works commenced 4 January 2025 [4]
26 February 2025 Release #2 (estimated 1 component)	Subsea 7 observed plastic saddle wing component float up when undertaking shear cutting [15]. Estimated 1 plastic saddle component released to the marine environment [4], [11]. The email states that Subsea 7 would notify Woodside if saddle loss occurred and would 're-assess reporting requirements and mitigation actions based on frequency. i.e. 2 or 3 saddles per 24 hour period'. [15]. Classified as part of 'structure recovery' campaign [7]
27 February 2025	Trial cut: Woodside performed trial cutting at field joint with excavator onshore. Excavator could not cut through the spool section, but no coating material separated, demonstrating that field joint cuts could reduce dislodgement of debris associated with the cut to the marine environment [9]
28 February 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
04 March 2025	Cutting and recovery of the Minerva pipeline in Commonwealth waters commenced [4].
04 March 2025 Release #3 (estimated 1 component)	Pipe cut and recovery campaign 1a – Plastic saddle detached during cut – estimated 1 plastic saddle component released to the marine environment [16],[11]. The email states the release will be logged for tracking and proposes mitigation – aiming for at least 1 m away from saddles for planned cuts [16]
07 March 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]

08 March 2025	Woodside commenced investigation – reviewing information, including ROV footage [7]
09–10 March 2025 Release #4 (estimated 29 components)	Pipe cut and recovery campaign 1b – estimated 29 plastic saddle components released to the marine environment [4], [11]
17 March 2025	Trial cut 1: Carbon steel field joint test cut undertaken onboard Subsea 7 vessel <i>Seven Sisters</i> , with inconclusive results [9]
17 March 2025	Dedicated meeting on the saddles between Woodside and Subsea 7 meeting – process improvements implemented to track missing saddle items, e.g. on deck inspections for inventory tracking [7], and assesses and mitigate the risk of further saddle fragments being lost to the marine environment [17]
19 March 2025	Woodside inspection of pipe sections in dock to quantify saddle losses [7]
23 March 2025	Woodside and Subsea 7 team mobilised to vessel to optimise monitoring processes and further quantify losses [7]
24–25 March 2025 Release #5 (estimated 58 components)	Pipe cut and recovery campaign 2 – optimised monitoring implemented [4], [7]. Estimated 58 plastic saddle components released to the marine environment [4], [11]
27 March 2025	Trial cut 2: Second carbon steel field joint test cut onboard Subsea 7 vessel <i>Seven Sisters</i> , with recommendation to cut at field joints due to reduced risk of releasing debris to the marine environment [9]
28 February 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
28–29 March 2025 Release #6	Pipe cut and recovery campaign 3 – optimised monitoring implemented [4], [7]. Estimated 43 plastic saddle components released to the marine environment [4], [11]

(estimated 43 components)	
31 March 2025	Approval of engineering assessment to cut at field joints [7], [9]. The assessment notes that 'the risk of losing plastic saddles will also be reduced by giving flexibility in cut location' [9]
02 April 2025 Release #7 (estimated 27 components)	Pipe cut and recovery campaign 4 [4] – estimated 27 plastic saddle components released to the marine environment [4], [11]
02 April 2025	Cutting and recovery of the Minerva pipeline concluded in Commonwealth waters [4]
03 April 2025	Woodside timeline states 'first cuts (12 off) at field joint (optimisation) – cleaner cut' [7]
4 April 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
10–11 April 2025	Coastal Survey 1: Woodside performed an Otway coastline search and retrieval of saddle pieces (two days) [10]
11 April 2025	Fortnightly Woodside/Subsea 7 HSE meeting – saddles a standard agenda item [17]
10 April 2025	Woodside met with NOPSEMA and provided update of saddles being lost to the marine environment and that they will be reported in the March monthly recordables report. Last removal activities in Commonwealth Waters was 2 April 2025
13 April 2025	Environmental Advisor onboard to monitor saddles during pipeline recovery [7]
15 April 2025	Woodside submitted the March 2025 MRIR to NOPSEMA [1]

16 April 2025	Cutting and recovery of the Minerva pipeline in Victorian State waters commenced [4]. Total of three cut and recovery campaigns (16–17 April, 19 April, 1–2 May 2025) resulting in estimated 269 plastic saddle components released to the marine environment [4], [11]
23–25 April 2025	Coastal Survey 2: Woodside performed a coastal search to retrieve saddle pieces [10]
02 May 2025	Cutting and recovery of the Minerva pipeline in Victorian State waters concluded [4]
08 May 2025	Beach Patrol 3280–3284 email to NOPSEMA reporting apparent marine pollution incident, with Beach Patrol documenting repeated findings of assumed plastic saddle components since February 2025
08–15 May 2025	Local contractor engaged to continue beachside plastic recovery (8 May 2025) [4], with in-field beach retrieval activities commenced 12 May 2025. As of 15 May 2025, ~15 kg of plastic saddle pieces recovered
09 May 2025	Woodside MOC in place (signed 9 May 2025) and provided to NOPSEMA [10]
12–13 May 2025	Subsea 7 vessel <i>Seven Sisters</i> completed as-left survey of the sections of pipeline already removed. Woodside trialled two additional mitigation measures: 1) the use of 'mesh nets' to secure saddles against the pipeline and prevent loss during, and 2) 'lobster pots' to capture any dislodged saddle components and retrieve from the pot using an ROV. NOPSEMA Inspectors were advised that trials were successful, and no saddles were lost to the marine environment [12]. However, each method was only trialled on two saddles, therefore Woodside acknowledge uncertainty with efficacy of the methods (e.g. the saddles may have remained intact without the additional mitigation measures in place). Further work is required to optimise and test the design of the 'mesh nets' [12]
20 May 2025	Meeting: NOPSEMA and Woodside for the purpose of investigation information gathering [12]. Key outcome that Woodside is suspending the activity, with the intention to resume at earliest November 2025.

Additional information gathered by NOPSEMA Inspectors is described under findings below

Minerva Decommissioning and Field Management EP and other legislative requirements compliance

NOPSEMA Inspectors made the following findings in relation to determining whether there is non-compliance with the Minerva Decommissioning and Field Management EP or other legislative requirements:

- The MRIR [1] recorded the incident as a breach of PS 9.2; a performance standard and associated EPO (EPO 9) for the planned aspect of 'Vessel and Subsea Discharges' (Table 3, [2]). Woodside's decision-making process and justification for reporting against PS 9.2 rather than against the unplanned aspect of 'Loss of Solid Waste (including dropped objects)' (e.g. PS 13.3, Table 3, [2]) was not clear to NOPSEMA Inspectors.
- Section 7.6 (Vessel and Subsea Discharges) of the EP [2] states that no plastic will be released as part of planned cutting activities, therefore the release of plastic saddle components to the marine environment was an unplanned event not covered by the EP.
- The first record of a lost plastic saddle component to the marine environment was 12 January 2025 [5], [6], [11], and written notification of the incident was through the MRIR [1], submitted to NOPSEMA on 15 April 2025. It is not clear if recording the incident against an unplanned aspect performance standard would have resulted in Woodside taking action to investigate and mitigate the incident earlier, as well as submitting notification of the event to NOPSEMA earlier.
- NOPSEMA Inspectors also noted that Subsea 7's incident summary notice [6] stated that regarding the plastic saddles, there is 'a risk of these becoming dislodged during the activity', and that 'the risk is likely to increase during the pipe cutting stage...'. Based on NOPSEMA Inspectors understanding of the timeline, it does not appear that any action was taken by Woodside to investigate or assess the potential risk of saddles lost to the marine environment, despite the risk being raised by Subsea 7. Woodside's internal investigation did not commence until 8 March 2025 [7].

Table 3 Potentially relevant environment plan EPOs, control measures and EPSs

EP Section	EPO	Control	EPS
Planned: 7.6.6 – Vessel and Subsea discharges	EPO 9: Impacts from subsea discharges associated with decommissioning activities limited to localised, temporary changes in water and sediment quality in the vicinity of the discharge location	C 9.2: Debris created during subsea infrastructure removal to be captured where practicable	PS 9.2: Debris greater than 300 mm x 300 mm created during Minerva subsea infrastructure removal will be recovered where practicable
Unplanned: 8.4.6 – Loss of Solid Waste (including dropped objects)	EPO 13: No unplanned release of solid waste or objects to the marine environment greater than a consequence Level 1 during the petroleum activity ¹	C 13.3: Attempt recovery of solid wastes or equipment lost overboard where safe and practicable to do so	PS 13.3: Any solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so. Safety and practicability considerations include: <ul style="list-style-type: none"> • risk to personnel and equipment to retrieve object • ability to recover the object (i.e., nature of object, lifting equipment or, ROV availability and suitable weather) • the risk the object may pose to the environment.

Table notes:

1. Level 1 consequence = assumed Severity Level 1 (Table 6-3; [2]):

- a. 'Minor, temporary impact to the environment, where the ecosystem recovers with little intervention'
- b. 'Minor, temporary community impact that recovers with little intervention'.

- The release of plastic saddle components to the marine environment occurred and continued during six separate 'campaigns' in Commonwealth waters (Table 2). The release of plastic saddle components was not covered by the EP.

- NOPSEMA Inspectors also noted that during pipeline cutting activities, it was ‘suspected that the actual volume of concrete being lost is greater than what was initially described in the EP’ [13], further stating that the estimated material lost per cut to the marine environment included concrete – 300–500 mm either side of each cut site (up to 10 kg)’.
- NOPSEMA Inspectors questioned whether this release should have triggered a recordable event against PS 9.2 (assumed being continuous debris >300 x 300 mm), however Woodside did not deem this to be a breach of commitments within the EP, as the intention is to retrieve debris during as-left surveys to ensure consistency with PS 9.2 [12].
- There appear to have been other releases of debris to the marine environment not considered in the EP – e.g. bailing twine, polypropylene plastic coating, plastic spacers [13]. Some of this material was also recorded as having been recovered during coastal surveys.
- NOPSEMA’s expectation is that Woodside appropriately manages any material being lost to the marine environment to ensure that impacts and risks are reduced to ALARP and acceptable levels throughout the activity, and consistent with commitments in the EP [2].

Adequate controls in place to prevent/mitigate further saddle losses or reduce to ALARP

NOPSEMA Inspectors made the following findings in relation to determining whether adequate controls are in place to prevent/mitigate further saddle losses or reduce to ALARP:

- On Monday 19 May 2025 at ~1600, Woodside made a decision to suspend the activity, with the intention to resume decommissioning activities at earliest in November 2025 after peak southern right whale calving (May–October) [12]. Specific timing is dependent on contractual arrangements with Subsea 7. Suspending the activity eliminates the immediate risk of additional saddles being lost to the marine environment.
- Woodside will continue to refine and evaluate additional control measures to implement upon recommencement to ensure that impacts and risks associated with debris lost to the marine environment are reduced to ALARP. The primary focus will be further engineering of the ‘mesh nets’ to secure saddles against the pipeline and prevent loss during decommissioning [12]. NOPSEMA’s expectation is that Woodside considers contingency options, adaptive management, decision processes and external reporting in the event that saddle losses continue when the decommissioning works resume.
- Additional controls implemented to reduce the occurrence of the loss of saddle pieces to the marine environment are described in the MOC [10]. These include:
 - changing the cutting location of the pipelines to the field joints
 - prioritising removal activities at locations where visibility and environmental conditions allow for improved observation and recovery of lost saddles.

- Regarding suspending decommissioning activities, Woodside advised that pipeline integrity will remain such that subsequent full removal is not precluded, and environmental impacts and risks will continue to be managed to ALARP and acceptable levels. This is because:
 - the remaining ~5.5 km of pipeline is in two long continuous lengths; therefore, Woodside considers that the potential risk of instability/movement is not credible. In addition, the shore crossing section of the pipeline remains buried as horizontally directionally drilled and mattresses to ~800 m offshore
 - interim surveys have been undertaken that confirm the location and as-left status of the pipeline.
- NOPSEMA Inspectors observed the following regarding ALARP considerations in the MOC [10]:
 - The MOC [10] considers a control 'Immediately stop work on pipeline removal activities. Leave field and return after the peak southern right whale calving period and in more favorable weather conditions'. However, the 'Control Adopted' column for this consideration is blank and therefore at the time of receipt of the completed and signed MOC, it was not clear if the control was to be adopted or not. In addition, it does not appear that all controls adopted in the Demonstration of ALARP table have been carried through to the Environmental Performance Outcomes, Standards and Measurement Criteria table, and as such, the MOC does not contain clear commitments in the form of performance standards and measurement criteria. Woodside should consider the completeness of MOCs prior to final sign off to ensure all control measures to be adopted are unambiguous and implemented accordingly.
 - A number of the controls considered in the MOC [10] were not adopted because the 'Control will not meet the schedule requirements'. It was not clear whether the 'schedule requirements' were in relation to General Direction 831 or other schedule drivers (vessel contract, etc.), and NOPSEMA had previously advised that completing works in a safe and environmentally ALARP and acceptable manner is of foremost importance. Woodside should consider increased clarity of wording in MOCs, and NOPSEMA's expectation that all feasible controls will continue to be considered whilst activities are suspended to ensure that upon recommencement, all impacts and risks are managed to ALARP and an acceptable level.
 - The MOC [10] explicitly states in the ALARP assessment that continuing with current controls is not effective at reducing risk to ALARP and acceptable levels. However, the Demonstration of Acceptability table (*Acceptability Statement*) states that adopted controls are appropriate to manage impacts and risks of these unplanned discharges to a level that is acceptable. This is contrary to comments in the ALARP assessment and Woodside should ensure consistency in evaluations throughout the MOC process.

Adequate controls in place to recover already lost debris

NOPSEMA Inspectors made the following findings in relation to determining whether adequate controls are in place to recover already lost debris:

- Buoyant saddle pieces were recovered from the sea surface from the Subsea 7 vessel *Seven Sisters* using scoop nets when possible and safe to do so [7].
- Drift modelling has and will continue to be undertaken to predict where buoyant plastic released to the marine environment is likely to make shoreline contact. NOPSEMA Inspectors understand that a contract is in place with RPS to undertake drift modelling until 30 June 2025, with the ability to extend this.
- Manual recovery of plastic debris from the shoreline was undertaken by Woodside on 10–11 April and 23–25 April, with survey locations informed by the drift modelling. Saddle-related debris was recovered on both surveys, indicating a plausible transport pathway to coastal zones and validating the outputs of the drift modelling.
- On 8 May 2025, Woodside engaged a local consultancy [REDACTED] to continue performing surveys along the coastline based on updated drift modelling to collect any Minerva-related debris, along with other miscellaneous, unrelated plastic debris [10]. The contractor is engaged to undertake 6 x 7-day surveys, with the possibility to extend the contract [12]. By way of example, Woodside noted that 10 saddle components were collected by the contractor on 19 May 2025. Given that decommissioning execution activities are suspended, eliminating further loss of saddles to the marine environment, Woodside is currently working with the contractor to determine the most appropriate survey design and effort in the near-term.
- Woodside is actively consulting with key stakeholders to advise of the incident and the measures being taken in response [4], [12]. Stakeholders include, but are not limited to, Beach Patrol and Traditional Owners.
- Woodside has also reported the loss of plastic saddles to the Environmental Protection Authority Victoria [4] and the Department of Energy, Energy and Climate Action who are the regulators for the removal of the state section of the pipeline.
- Negatively buoyant saddle components observed during as-left surveys post-decommissioning will be retrieved via ROV where practicable [12].

Abbreviations

ALARP	As low as reasonably practicable
MOC	Management of change
MRIR	Monthly Recordable Environmental Incident Notification Report
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
OPGGS Act	Offshore Petroleum and Greenhouse Gas Storage Act
ROV	Remotely operated vehicle

Appendix A: Document and information register

The following documents and information were reviewed during investigation IVT14016:

Reference	Document
[1]	Woodside March 2025 Minerva Decommissioning and Field Management Monthly Recordable Environmental Incident Notification Report to NOPSEMA (MRIR, A1201027)
[2]	Woodside Minerva Decommissioning and Field Management Environment Plan, Document No: 1401801084 (A1130485)
[3]	Reg 54 – Start of Activity Notification – Minerva Decommissioning and Field Management Environment Plan (A1163926)
[4]	Victoria EPA Notifiable Incident Form – NFI-00003791 (A1211429)
[5]	Subsea 7 – Initial Incident Notification (A1208424)
[6]	Subsea 7 – Incident Summary Notice (A1208418)
[7]	Woodside PowerPoint – Minerva Decommissioning – Engagement with NOPSMEA 10 April 2025 (A1202933)
[8]	Media article: Woodside acknowledges releasing almost 200kg of plastic waste into ocean
[9]	File Note – Minerva Decommissioning – Field Joint Cuts Engineering Assessment (A1208420)
[10]	Woodside Commonwealth Environment Management of Change – Minerva Decommissioning and Field Management (Commonwealth and State) Environment Plans, Change No*: DECOM ENV #16, 01 March 2025 (A1208486)
[11]	Lost saddle register WC 9 May 2025
[12]	Meeting: Woodside and NOPSEMA at Woodside office, 1030–1200 on 20 May 2025 for the purpose of investigation IVT14016 information gathering. Attendees:



Woodside – [REDACTED], [REDACTED] (first 15 minutes only), [REDACTED], [REDACTED]
[REDACTED], [REDACTED]; NOPSEMA – [REDACTED], [REDACTED]

- [13] File Note – Minerva Facilities Decommissioning – ALARP Assessment – Pipe Cutting (A1208428)
- [14] Woodside April 2025 Minerva Decommissioning and Field Management Monthly Recordable Environmental Incident Notification Report to DEECA (MRIR, A1212427)
- [15] Email – 28 February saddle loss communications (A1224792)
- [16] Email – 4 March first saddle loss during cutting (A1224794)
- [17] Email – Woodside report review – DRAFT – Investigation IVT14016 (A1219498)
- [18] Woodside First Priority Event Investigation Report (A1230018) and risk assessment (A1230020)