| Please check the following boxes if applicable to this report | | Nil Incident Report: ☐ | | Final report for this activity: ☐ | |
|---|---|---|---|---|---|
| **RMS Assessment: 7780** | | | | | |
| **Titleholder name:** | **Woodside Energy (Victoria) Pty Ltd** | **Titleholder business address:** | **Mia Yellagonga, 11 Mount St Perth WA 6000** | **Title of environment plan for the activity:** | **Minerva Decommissioning and Field Management Environment Plan** |
| **Activity type:** (e.g. drilling, seismic, production) | **Decommissioning** | **Month, Year:** | **March 2025** | **Facility name and type:** (e.g. MODU, Seismic Vessel, FPSO) | **Minerva Pipeline (VIC/L22)** |
| **Contact person:** | [redacted] | **Email:** | [redacted]@woodside.com | **Phone:** | [redacted] |

| Incident date | All material facts and circumstances (including release volumes to environment if applicable) | Performance outcome(s) and/or standard(s) breached | Action taken to avoid or mitigate any adverse environmental impacts of the incident | Corrective action taken, or proposed, to stop, control or remedy this incident | Action taken, or proposed, to prevent a similar incident occurring in future |
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| 31/03/2025 | The Seven Sisters was decommissioning the Minerva Pipeline bundle in Commonwealth Waters in March 2025. The Minerva pipeline bundle comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines in Pipeline Licence VIC-PL33.<br><br>The Minerva pipe bundle is secured together with polypropylene piggyback clamps spaced 6m apart and secured together with two stainless steel tensioned straps. The pipeline was laid in 2003 and the clamps have | **PS 9.2**<br>Debris greater than 300 mm x 300 mm created during Minerva subsea infrastructure removal will be recovered where practicable. | **Work Stoppage and Initial Assessment:**<br>Operations were immediately halted upon identification of the incident. Recovery efforts were initiated, accompanied by an assessment of safety and practicality.<br><br>**Incident Investigation:**<br>A formal investigation was commenced to determine root causes and contributing factors.<br><br>**Recovery Measures:**<br>Initiated procurement of telescopic poles with nets as an additional recovery measure.<br><br>Reinforced instructions to vessel personnel to remain vigilant and report any sightings of marine debris or foreign objects floating in | Following the additional losses experienced in March, a comprehensive assessment was carried out by Woodside to quantify the potential impact including mobilisation of [redacted] to the vessel during pipe cutting and retrieval operations. Woodside [redacted] also conducted a review of all pipe recovered from Commonwealth Waters during March at the onshore AusDecom yard to quantify the number of clamps lost during recovery.<br><br>A detailed tracking process for piggyback clamp condition was implemented, with assessments conducted on each pipe and clamp as they were recovered onto the vessel deck. This allows | **Hydrodynamic Drift Modeling and Cutting Methodology Refinement**<br>Hydrodynamic drift modeling has been conducted for each instance of clamp component loss identified, ensuring a comprehensive understanding of potential dispersion patterns.<br><br>Further refinements have been applied to the cutting methodology, incorporating enhanced ROV observation and increased precision in positioning of shear cutters. These improvements aim to further minimise the release of stored energy during the cutting process and thus reduce future clamp losses.<br><br>**Fate and Transport Analysis:**<br>Assess the final resting locations and conditions of the lost components to determine how hydrodynamic and environmental factors influenced their movement post-release.<br><br>**Coastal Survey** |

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| | now reached the end of their 20 year design life.<br><br>It has been observed on ROV footage during pipeline cutting with the hydraulic shears, fragments of piggyback clamps being dislodged and floating to the surface. Stored energy held within the 2-inch injection line and 5-inch umbilical is released placing stress on the piggyback clamps resulting in the breaking of stainless steel straps and releasing piggyback clamp components to the marine environment.<br><br>The piggyback clamps consist of 7 separate components that are held together with two stainless-steel straps (see Figure 3, Appendix A).<br><br>It has been estimated that approximately 150 individual components have been lost in Commonwealth Waters, resulting in the release of approximately 65 kilograms of polypropylene into the marine environment over the period from the 4/03/2025 to 31/03/2025. Whilst the dimensions of some of the individual components are below PS 9.2 debris criteria of 300 mm x 300 mm, this report includes all components lost as a cumulative total during March 2025. | | the water or observed on ROV footage during pipeline cutting.<br><br>**Procedural Enhancements:**<br>Undertook a procedural review of the cutting methodology to cut at least 0.5 m either side of the clamp, to minimise the release of stored energy and reducing stress exerted on the bundle clamps. | for evaluation of saddle integrity and identification of any lost or damaged components.<br><br>In parallel, the shear cutting methodology was revised. Adjustments included targeting cuts at field joints to reduce the number of cuts and the associated stress on both the pipe bundle and clamps. The closure of the shear gap enabled cleaner cuts, which should further minimised stress on the pipe bundle clamps. | Woodside conducted an initial targeted coastal survey was conducted on the 10 April to identify and retrieve any dislodged piggyback clamps. Additional costal surveys are proposed for April utilising a combination of visual inspections from lookout locations using binoculars and beach inspection where access is safe, focusing on likely landing locations from the drift trajectories as determined by hydrodynamic modeling.<br><br>**Environmental Risk Assessment**:<br>An environmental risk assessment was undertaken to review the risk from unplanned release of plastic piggyback clamps to the marine environment, in response to this incident. The risk assessment includes a review of ecological effects resulting from the presence, movement, or degradation of the lost components within the marine and coastal environment.<br><br>The assessment includes consideration of all controls, analysis of the risk reduction proportional to the benefit gained and final acceptance or justification if the control was not considered suitable. The assessment demonstrates that the impacts and risks are reduced to ALARP and are of an acceptable level.<br><br>The Environmental Risk Assessment will be included in a Management of Change to the Minerva Decommissioning and Field Management (Cth) EP, with additional control measures incorporated into the Environmental Commitment and Assessment Register.<br><br>To date clamp losses outlined in this report have been confined to Commonwealth Waters. Woodside intends to follow the same process outlined in this report if clamps are dislodged during decommissioning activities scheduled for April/May in Victorian State Waters. Minerva pipeline removal activities in Pipeline Licence VIC-PL33 are covered under the Minerva Decommissioning and Field Management |

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| | Refer to Appendix A for images and descriptions of the plastic piggyback clamps. | | | | (Victoria) EP, regulated by Victorian Government Department of Energy, Environment and Climate Action (DEECA). |

**Appendix A:**

Figure 1: Piggyback clamp

Figure 2: Piggyback clamp during construction/installation

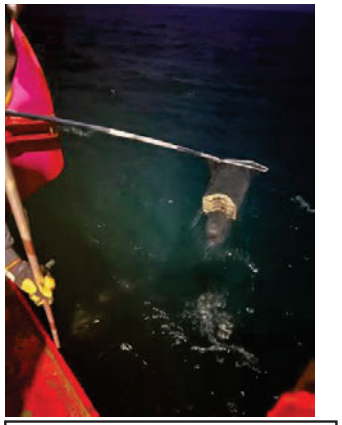

Figure 4: Piggyback clamp being recovered to deck using pool scoop.

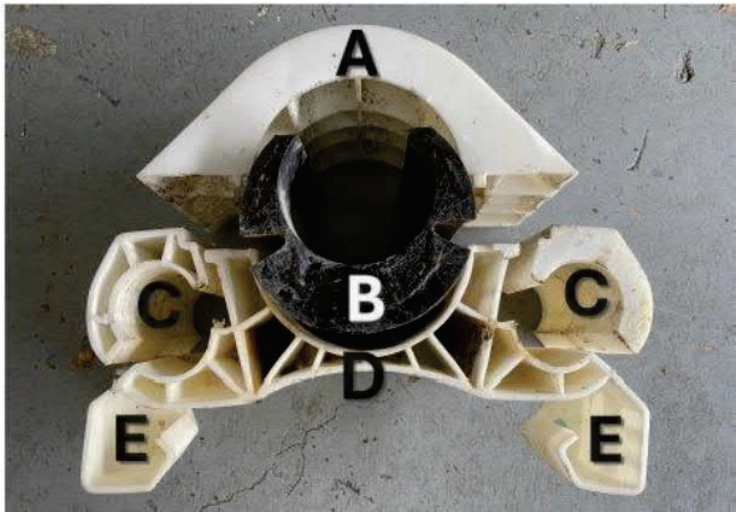


Figure 3: Labelled piggyback clamp

| Description | # | Code | Weight (g) | Float | Dimensions (mm) |
|---|---|---|---|---|---|
| Top saddle | 1 | A | 958 | Yes | 337 L x 150 W x 200 D |
| Black Rubber | 1 | B | 2538 | Yes | 223 L x 160 W x 1800 D |
| Two Inch Saddle | 4 | C | 172 x 4 = 688 | Yes | 120 L x 100 W x 70 D |
| Base Plate (with bolts) | 1 | D | 1876 | Yes | 400 L x 200 W x 200 D |
| Separate Wing | 4 | E | 88 x 4 = 352 | Yes | 100 L x 90 W x 65 D |
| Steel Strap | 2 | | 422 x 2 = 844 | No | Approx 100 L x 32 W |

| Infrastructure | Quantity | Approximate Dimensions | Weight | Primary Materials | Current Status and Condition[1] | Removal under this EP? |
|---|---|---|---|---|---|---|
| Piggyback Clamps | 821 | 360 x 446 x 400 mm | ~ 3.1 Te | Polypropylene<br>Nickel-based alloy | Current Status: Design life of 20 years. Clamps still holding piggybacked lines onto the pipeline.<br>Burial: Predominately buried.<br>Condition: Good condition. | Yes<br>Commonwealth waters component only. |

Figure 5: Description of piggyback clamp from EP