



<b>Purpose:</b>	This form is used for providing a report regarding a reportable incident as required by regulation 34 (4) of the Petroleum (Environment) Regulations 2016 (NT).
<b>Reference:</b>	Petroleum (Environment) Regulations 2016 (NT)
<b>Date Submitted:</b>	23/02/2023

## Section 1 - Incident Details

<b>Incident Details</b>	<b>Name of Site or Facility:</b> Maverick 1- EP 136	<b>Date:</b> 28/11/2022
<b>Initial Written Report</b>	<b>Person submitted by:</b> Matt Kerneke	<b>Date:</b> 03/12/2022
	<b>Contact Number:</b>	

## Section 2 - Investigation Details

<b>Incident description</b>	<p>On 27 and 28 November 2022, the Maverick 1 wellsite received approximately 93mm of rainfall. A routine, post rainfall-event inspection of the site identified an offsite release of stormwater containing sediment.</p> <p>The Maverick 1 site is fully bunded, with an earthen bund constructed around the (approximately) 11-hectare site as an erosion and sediment control and to contain any potential wastewater spills. Rainwater is diverted to two separate sediment basins on the site, where the water can be tested and released to the adjacent area if within the EMP specifications. The sediment basins are designed to accommodate moderate sized rainfall events (typically 10-20mm), as the basin size required to accommodate the volume of water collected from larger events would be impractical. Once the sediment basins are filled, stormwater is designed to back up into the lease pad until the water can be tested and released.</p> <p>During the rainfall event of 27 and 28 November, stormwater flows accumulated in the southeast (SE) corner of the site where the bund ultimately failed (the failure point). It appears the southeast corner bund was unable to contain the velocity and/or volume of the stormwater from the rainfall event, resulting in the bund failing and releasing stormwater into the surrounding area.</p> <p>An inspection of the bund post incident confirmed that the bunds were not sized or constructed to contain the volume of stormwater collected at the failure point. The failed bund was approximately 400mm high x 300mm wide and contained uncompacted material with felled vegetation. The bund would have been sufficient for most standard erosion and sediment control applications; however, given the size of the lease pad, these bunds were unable to withstand the encountered stormwater flows.</p> <p>The incident was reported to the Department of Environment, Parks and Water Security (DEPWS) as a reportable incident, given the short notification timelines and the insufficient information to determine the potential for material environmental harm. Upon further investigation of the incident and the resulting environmental consequences, Tamboran considers the incident a recordable and not reportable given the following facts:</p> <ul style="list-style-type: none"><li>• No material environmental harm has occurred- with no short-term or long-term impacts that have exceeded the Material Environmental Harm (defined in the Petroleum Act) threshold.</li><li>• Satellite imagery confirms the receiving environment was turbid prior to the release</li></ul>
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	<ul style="list-style-type: none"> <li>Elevated turbidity levels in Savannah waterways are natural, particularly during the early wet season when ground cover is at its lowest (which is well documented and confirmed during previous baseline assessments). The addition of turbidity from a localised, one-off event has no likely or potential change in environmental values or function of the receiving waters.</li> <li>Post incident inspection and available satellite imagery does not identify any material difference between the surrounding area.</li> </ul>
<p><b>Causal or contributory conditions or circumstances (root cause):</b></p>	<p>Contributing factors/root causes identified during the investigation include:</p> <ul style="list-style-type: none"> <li>The EMP, erosion and sediment control plan and civil construction drawings did not have sufficient technical instruction/ information as to how the bunds were to be constructed to withstand high velocity stormwater flows due to the size of the lease pad.</li> <li>A civil construction contractor was engaged to deliver the civil engineering and construction project scope, with engineering design work done by a Tier 1 engineering and environmental services firm. The civil construction contractors were managed by project managers, who relied on the experience of the civil contractors to identify potential stability risks and construct the lease pad to industry standard. An appropriately qualified and experienced civil construction supervisor would have reasonably been expected to have identified the potential likelihood for stormwater to accumulate in the SE corner and bund design.</li> </ul>
<p><b>Extent and nature of possible impacts</b></p>	<p>No material environmental harm was observed.</p> <p>Drone imagery of the release point was captured immediately after the rainfall at approximately 6am on 28 November 2022. The initial imagery identified that the stormwater release had (at its peak) travelled approximately 300m into the adjacent overland flow path. Most of the sediment contained within the stormwater release was restricted to the immediate vicinity of the lease pad. Some stormwater with elevated turbidity (likely fine grained clays) has entered the adjacent overland flow path and is likely to have mixed with the receiving waters of Newcastle Creek at a diluted level.</p> <p>Water quality testing of the onsite sediment ponds indicates that the stormwater had a pH of 4 and an electrical conductivity of 115 <math>\mu\text{s}/\text{cm}</math>. This confirms that the stormwater is rainfall, with low pH likely influenced by a combination of low buffering capacity of the water and disturbed soils/humic acid from felled vegetation onsite used in the bunding.</p> <p>Based upon a review of satellite imagery before and after the incident (<a href="https://www.sentinel-hub.com/">https://www.sentinel-hub.com/</a>) and an inspection completed on the 16<sup>th</sup> of January, no material impact appears to have occurred. This is based upon the following considerations:</p> <ol style="list-style-type: none"> <li>Sentinel Imagery reviewed 5 days before the release showed the receiving waters of Newcastle Creek appeared to have had an elevated level of turbidity (Appendix A, figure A.1). Sediment releases from savanna catchments in the early parts of the wet season are natural and well documented. Elevated turbidity levels within the Newcastle Creek and Lake Woods have been observed during previous baseline studies collected over the broader Beetaloo area (Appendix B).</li> <li>Sentinel Imagery reviewed 5 days post release (Figure A.2) shows no evidence of elevated turbidity within standing water bodies within downstream of Newcastle Creek.</li> <li>The inspection completed on 16 January 2023 confirmed there is no material difference between the surrounding area before (Figure 1) and after (Figure 2) the incident. This confirms that the environmental impacts were negligible and below the material environmental harm classification and reportable incident threshold.</li> </ol>



**Actions taken, or proposed to be taken:**

The following actions have been completed:

- Repair work of the Maverick 1 stormwater management system was completed on 16 December 2022. Remediation works included the installation of an additional sediment basin, improved site drainage to improve flow compartmentalisation, installation of additional rock check drains and repair and upgrade of all earthen bunds onsite.
- A site inspection was completed on 16 January 2023.
- Ongoing routine (typically weekly pending access) inspection of the lease pad is underway to monitor the performance of the repaired bund section.

The following actions are proposed to prevent a similar incident from re-occurring

- All erosion and sediment control plans (ESCP) will be updated going forward to ensure all future lease pad bunds are constructed using layered compaction or other stabilisation method. Update is planned for March/April 2023 during the next planned ESCP revision.
- All future civil design standards are to be updated with detailed bund construction requirements to provide guidance to civil construction contractors to ensure bunds are constructed appropriately.
- Civil construction supervisors to be employed for all major civil construction scopes (such as lease pad construction).
- The environmental work instruction is to be updated for all future programs to include the requirements covering bund construction technical specifications and internal drainage and sediment basin location guidance

## Appendix A Sentinel-2 L2A Satellite Imagery Review



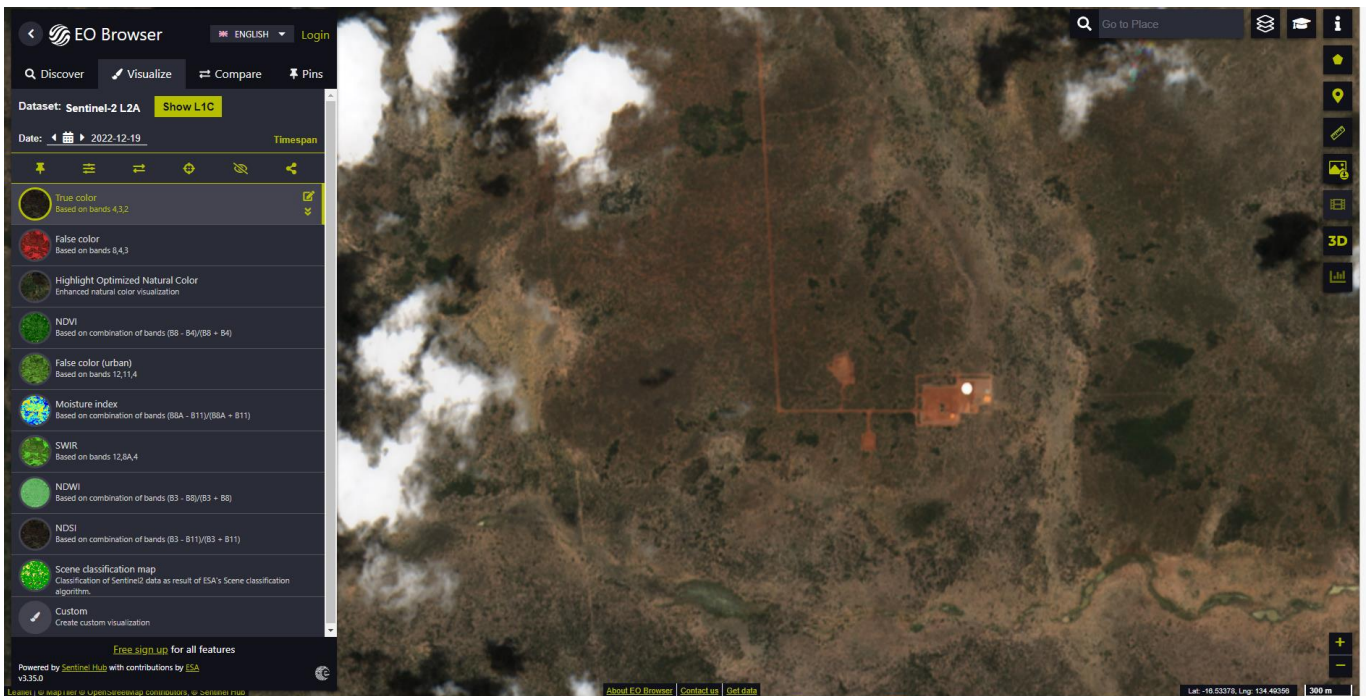
**Figure A.1** Maverick 1 site prior to the stormwater release. Note Newcastle Creek appears to have elevated turbidity levels



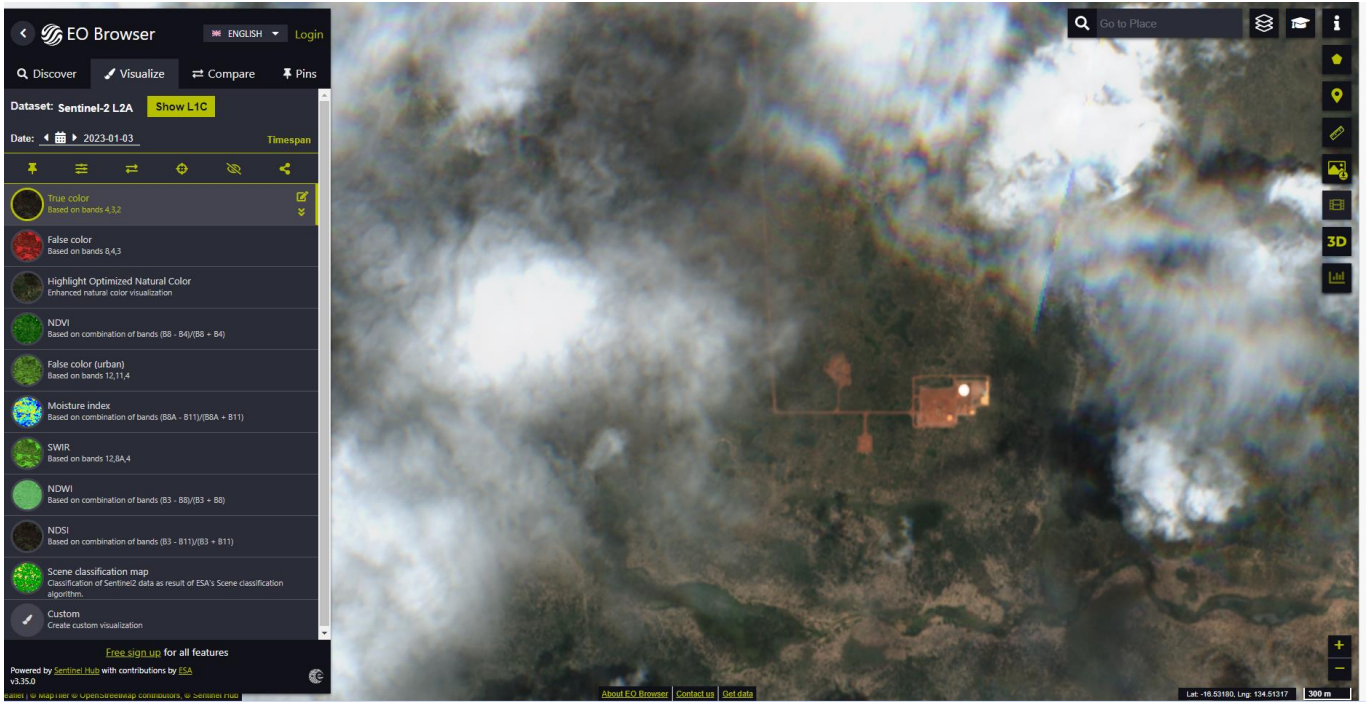
**Figure A.2** Maverick 1 site post stormwater release. Note Newcastle Creek does not appear to have elevated turbidity levels and downstream of lease appears consistent with surrounding area



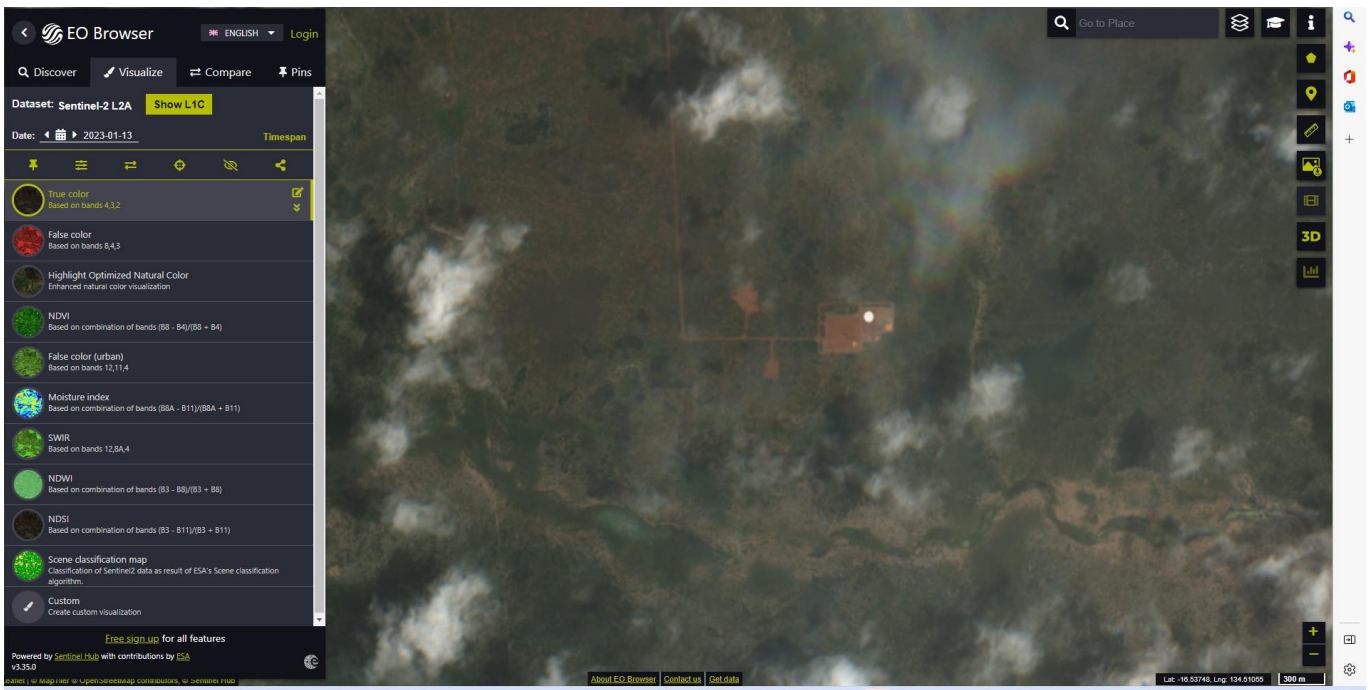
**Figure A.3** Maverick 1 site 11 days post stormwater release. Note sediment levels an downstream of lease appears consistent with surrounding area



**Figure A.4** Maverick 1 site 21 days post stormwater release. Note sediment levels an downstream of lease appears consistent with surrounding area



**Figure A.5 Maverick 1 site 35 days post stormwater release. Note significant vegetation growth in region with no evidence of sediment**



**Figure A.6 45 days post stormwater release. Note significant vegetation growth in region with no evidence of sediment**



Figure A.7 55 days post stormwater release. Note significant vegetation growth in region with no evidence of sediment