

Attachment 3B Risk assessment of proposed ongoing shipment of washed silica sands at Berth 5

Objective:

To provide an environmental risk assessment to support a Licence amendment allowing ongoing shipments of washed silica sands at Berth 5. This activity is currently approved as a 12-month trial under condition 21 of licence number L6744/1996/12 ([refer to attachment 3B - 1](#)), which commenced on 3 January 2025 and expires on 3 January 2026.

Background

The Southern Ports - Port of Bunbury (SP - PoB) has supported the trial ship loading of washed silica sands from Heidelberg at Berth 5 since January 2025 under licence L6744/1996/12. The total trial loading of 291,297 MT washed silica sand across 6 vessels at the Port's Berth 5 facility from Jan 2025 to October 2025 were completed successfully and without incident or identified emissions or discharges as per the trial shipment reports submitted to DWER.

The risk assessment of the trial loading of washed silica sands using mobile crane and Rotating Tipping Frames (RTF's) at Berth 5 was assessed and approved by DWER in November 2024. As loading methods will continue for ongoing trade the current identified risks will not be significantly changed ([refer to attachment 3B - 2](#)). The key impacts were identified as noise, potential discharge to water, and dust emissions.

Risk of Noise emissions

During the trial shipments no noise impacts were identified, and no noise complaints were received in relation to the loading of these products. It is anticipated that the proposed amendments to the licence are unlikely to result in a perceivable increase in the overall noise levels emitted from the premises. In the event that noise is identified as an issue through complaints received, an investigation and remedial action will be triggered including potential shutdown of operations.

Risk of discharge to Water

Materials loaded using the TRF's have the potential to enter the marine environment through direct spills but risks of impact to the community or marine life are low since:

- Deflector spill trays ('save -all boards') will prevent or minimise spillage
- The stevedores will use road sweepers and vacuum trucks to remove spilt material from hardstand surfaces and sumps. All spilt material will be removed from the premises
- Wash pad and wastewater/storm water sump is available on the southeast side of the Berth. Cleaning of equipment (if required) will only be performed on the wash pad and will be completely cleaned after each vessel residue is collected into the sump and removed by a vacuum truck
- Washed silica sands has low concentrations of leachable metals presenting a low risk to the marine environment ([attachment 3B - 3 – Material Safety Data sheets](#), [attachment 3B - 4 – Silica sands Technical Data sheet](#))
- There is no pathway of leachates to drinking water as the handling areas are sealed and the underlying aquifer is brackish and not used for human consumption (and in any case flows seaward).

Risk of Dust emissions from bulk product handling

The method and controls used for loading washed silica sands will continue from the trial shipments via a mobile crane and RTF system. During the trial shipments, the washed

silica sand was delivered to site by truck in lidded rota-boxes with an average moisture content of 1.6% exceeding the calculated DEM of 0.2%. At no time during the ship loading was any visible dust observed to be emitted.

During the period of January 2025 to October 2025, which continued 24hrs per day, no community contacts (complaints) were received from residents in the nearby East Bunbury residential area. All loads complied with the acceptable PM10 and TSP thresholds, with no visible dust plumes observed during any loading activities related to silica sands as per the trial shipment reports submitted to DWER.

Any minor product spillage on the Berth was removed using a mobile road sweeper. The low-risk rating for dust emissions is unlikely to change during ongoing trade after the trial period ends as the ongoing dust loading controls include:

- A comprehensive dust monitoring network as per its Part V licence conditions to identify any potential dust emissions from the Berth 5 loading operations (see image below).



- The owner of the product will be required to provide product moisture levels prior to any loading to ensure the DEM is met or exceeded.
- All Berths in the Port are monitored by CCTV and this is used to record and monitor the RTF operations for spillage and dust. Any spillage will be immediately recovered and contained. In the unlikely event that dust is an issue, dust management triggers used for other products loaded via RTF on Berth 5 will apply, which include:
 - If visible dust is observed escaping the hatch, dust mitigation measures will be implemented, including monitoring of wind speed, wind direction, discharge height from the RTF and loading rate
 - Loading will be shut down if dust emissions are identified by the live data from the TEOM monitors as an issue by the dust monitoring network located around the port.
- The product in the RTFs will be completely contained until they are lowered into the ships hold when the lid is automatically removed and the container inverted to allow the product to slide out into the hold.
- The RTF is a containerized bulk handling system designed to be weatherproof and can manage various bulk materials. The RTF lid overhangs the walls of the container naturally preventing water or contaminants ingress. RTFs are inspected by stevedores at the end of each shift and inspected/maintained every 24 hours by a Mechanical Fitter.

Conclusions

The proposed handling strategy is Minimum Handling Method 4, but the hazards of the products only require Minimum Handling Method 2. Therefore, combined with the other controls including monitoring and management triggers, the risks will be managed to an acceptable level as demonstrated by emissions during the trial shipments documented in the trial reports. As the trial shipment period expires on 3 January 2026, to allow ongoing trade, SP - PoB requests a three-month extension to cover the period required to amend the Licence.

Attachments Index

Attachment 3B - 1 Letter form Dwer Regarding Trial Notification Under Licence
L6744/1996/12 – Export Shipments of Washed Silica Sand

Attachment 3B - 2 Bulk Loading Operations Via Rotaboxes

Attachment 3B - 3 Material Safety Data Sheets

Attachment 3B - 4 Silica Sands Technical Data Sheet