



DOC21/72687-3

Planning and Assessment Division
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124
Email: emily.pemberton@dpie.nsw.gov.au

23 February 2021

Attention: Ms Emily Pemberton

EPA Advice on Submissions Report – Cabbage Tree Road Sand Quarry

Dear Ms Pemberton

Thank you for the request for advice from Public Authority Consultation (PAE-13492517), requesting the review by the NSW Environment Protection Authority (EPA) of the Submissions Report for the proposed Cabbage Tree Road Sand Quarry – Modification 2 (Application SSD-6125-Mod-2) at 298 Cabbage Tree Road, Williamstown, NSW 2318 (Premises).

The EPA has reviewed and taken into consideration the following documents:

- Mod2 Submissions Report - Wash Plant – Wedgetail Project Consulting – 20 January 2021 (**Submission Report**).
- Modification Report 2 – Wash Plant – Wedgetail Project Consulting – 16 November 2020 (**Modification**)
- Soil and Water Management Plan – Wedgetail Project Consulting – 15 October 2020 (**Stormwater Management Plan**)
- Environmental Impact Statement – Proposed Sand Quarry, Cabbage Tree Road, Williamstown – Umwelt – November 2015
- Environment Protection Licence 21264 for Cabbage Tree Road Sand Quarry

The EPA understands the proposal is to modify the development consent to include a:

- Mobile wash plant to process approximately 150 tonnes of sand per hour.
- Coagulant and flocculant dosing system to separate the suspended solids from water.
- Head tank to receive dosed process water.
- A series of six 50 kL settling tanks to hold approximately 300 kL for the settling of sediments. The settling tanks will be located around the processing plant and will be connected to the wash plant via piping.
- Sump and cone tanks to receive thickened sediment from the settling tanks. The thickened sediment will be applied directly to the rehabilitation areas or placed on a stockpile pad with a shallow sump to recover excess water. The dirty water will be used as dust suppressant or to irrigate rehabilitated areas.

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
ABN 43 692 285 758

Locked Bag 5022
Parramatta
NSW 2124 Australia

4 Parramatta Square
12 Darcy St, Parramatta
NSW 2150 Australia

info@epa.nsw.gov.au
www.epa.nsw.gov.au

- Two 50 kL water storage tanks to hold approximately 100 kL of Hunter Water Corporation mains water. Mains water will pass through a carbon filter before entering the water storage tanks.
- Part of the Premises is located within the Tomago Sand Beds Special Area Boundary.

From our review of the Submission Report, EPA's submissions on this project from 2 December 2020 have been addressed. However, the proposal has been changed to introduce coagulants and flocculants into the washing process, to improve sediment settling and recycling of water.

In this regard, the EPA has the following additional comments and recommendations:

1. Matters to be addressed prior to determination

a. Process chemicals

The Submissions Report has changed the proposal to introduce coagulants and flocculants to the washing process to improve sediment settling and recycling of water. The specific chemicals are not adequately characterised or assessed in terms of the potential risks to surface waters and groundwaters.

The Submission Report simply states that the coagulants and flocculants are “both drinking water grade polymers used in water treatment for potable networks that will biodegrade”; and that “risks would be similar to polymer dust suppressants.” These statements do not provide a suitable assessment of the potential risks to surface water quality or aquatic ecosystems, including that:

- Aquatic systems can be more sensitive than humans and there are different exposure pathways;
- The modes of action of the chemical on soils could have similar modes of action and impact on gills, cilia or other parts of aquatic species;
- Drinking water chemical by-products are typically removed from potable water and managed as a waste stream at water treatment plants, however, the by-products from sand washing (process water and fines) are being reused onsite and could enter surface water and groundwaters;
- Stating that the product will biodegrade is not supported by any evidence, including in relation to when a risk may occur (e.g. discharges offsite could occur before biodegrading), and any risk of any degradation by-products are not considered; and
- Indication that risks would be similar to polymer dust suppressants is not an appropriate assessment as risk from use of polymer dust suppression is not assessed and compared. Different chemicals and use patterns may change the risk profile.

The EPA recommends the following:

- i. The proposed process chemicals are properly characterised with regard to risks to surface water and groundwaters to inform any further assessment and/or mitigation that may be required for:*
 - *Runoff or infiltration from dust suppression or rehabilitation watering that may contain process chemicals;*
 - *Reuse of sediment or fines that may contain process chemicals; and*
 - *Tank failure/bunding requirements.*

b. Wastewater for dust suppression and rehabilitation watering

The Stormwater Management Plan has not been updated to reflect the proposed Modification or use of coagulants and flocculants, however, indicates that prior to the Modification:

- There are no surface water discharges proposed or expected to be required for the operation of the project;
- The water management system is designed based on the high infiltration capacity of the sand onsite, as such no discharge from site is expected; and
- Where excavations intersect groundwater, the water will be pumped to holding tanks and characterised prior to reuse for dust suppression onsite or disposed of to a licenced facility.

The Modification states that processed water will be used for dust suppression and for watering in rehabilitation areas. If stormwater capture basins in these areas are sized based on current licence conditions, then managed overflow discharges could be occurring to surface waters. If the proposed processed water containing chemicals are introduced, then managed overflows could contain these chemicals either in solution or attached to sediment.

Statements about the sandy nature of the site, the stated infiltration design and nil surface water discharges (Stormwater Management Plan), indicate groundwater may be the primary risk pathway. Note that the design may assist in achieving Managing Urban Stormwater Volume 2E runoff containment requirements for surface water discharge and prevent or minimise managed overflows.

Infiltration in areas where processed water containing chemicals will be used for dust suppression, rehabilitation and from the bottom of stormwater capture basins could represent a risk of pollution. These risks should be assessed, and mitigation measures proposed where necessary.

Note that if any lined basins or low infiltration basins are a proposed to address any groundwater infiltration risks, then managed overflow risks would increase and would need to be characterised. Basin sizing and overflow frequency would need to be based on Managing Urban Stormwater Volume 2E plus any additional risk mitigation that may be needed in relation to process chemicals.

The EPA recommends the following:

- i. Assess the potential impacts on surface water and ground water from using processed water containing chemicals as a dust suppressant and for watering in rehabilitation areas. The assessment should be based on the characterisation of the chemicals from point 1a) above. Provide management and mitigation measures to address impacts identified; and*
- ii. The Stormwater Management Plan for the Premises be updated to address any additional risks from the proposed Modification and Submissions Report.*

c. Sediment and fines reuse

Potential process chemical risks have not been adequately assessed in relation to sediment and fines reuse, including:

- Thickened sediment from settling tanks (sump and cone tanks) will be applied directly to areas for rehabilitation, providing dust suppression and additional rehabilitation media or blended with landscape sand on stockpile with bleed water recovered through a shallow sump;

- Stockpiling of any flocculant- and coagulant-affected material for dewatering or storage could result in runoff and groundwater risks. The Modification Report refers to a “Stockpile pad” which is a graded pad (similar to existing hardstand), with a shallow sump used to recover excess water from processed sand; and
- Reusing the material in rehabilitation areas could lead to runoff and erosion of any bound and unbound process chemicals or infiltration of chemicals to groundwaters.

The EPA recommends the following:

- Clarify details of stormwater capture and containment of the stockpile pad wastewater in relation to potential risk from processed water containing chemicals, e.g. sizing of the sump in relation to Managing Urban Stormwater Volume 2E or any groundwater risk; and*
- Assess the potential impacts on surface waters and groundwaters from the reuse of sediment and fines containing processed water impacted by chemicals in rehabilitation areas. Your assessment must consider similar risk factors to processed water reuse but should also consider erosion of chemical affected sediment/fines, leaching of chemicals from the sediment/fines and ensuring the basin sizing is based on Managing Urban Stormwater Volume 2E. Provide management and mitigation measures to address impacts identified.*

d. Water tanks

It is assumed that tanks holding processed water would not reach capacity and are covered/enclosed so there would be no need to discharge or have managed overflows from the tanks.

EPAs submission on the Modification required that “HWC mains water stored within above ground tanks must be bunded” (due to chemicals, such as fluoride and chloride). Tanks holding processed water containing coagulants and flocculants could increase the risks to the environment as a result of tank failure (a risk identified by EPA in its Response to the Modification in relation to chemicals in potable water).

While treatment of incoming potable water is proposed to mitigate some of the identified chemicals risk in potable water, the process chemical risks are not adequately accounted for. The EPA proposed a bunding condition for potable water chemicals (that was not accepted in the Submissions Report). This may be one option to help mitigate the risk to waters or appropriate assessment/mitigation should be conducted for any potential risk of process water chemicals affecting surface or groundwaters if the tanks fail.

The mitigation measures in the Submission Report include infiltration in the quarry area, therefore, overall risks may be primarily related to groundwater. EPA’s Hydrogeologists will review any additional information on groundwater risks.

The EPA recommends the following:

- Re-assess the risk of tank failure, with regard to the risk of processed water containing chemicals entering surface or groundwaters. Provide management and mitigation measures to address impacts identified.*

If you have any questions about this request, please contact Kim Stuart on 02 6659 8292 or via email at EPA.Northopsregional@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M. Hartwell', with a stylized flourish at the end.

MARK HARTWELL
Unit Head Regulatory Operations