



18 March 2024
Our Ref: J2024-001

Mr Bob Mac Smith
MSM Milling
Dederang St
MANILDRA NSW 2865
Via email

Dear Bob,

Request for Advice
**Use of the Liquid Food Waste Order and Exemption for managing liquid wastes
from an expanded MSM Milling facility**

Purpose of this letter

You have requested advice regarding the suitability of liquid wastes generated at an expanded MSM Milling facility for resource recovery under the Liquid Food Waste Order 2014 and the Liquid Food Waste Exemption 2014.

Background

MSM Milling Pty Ltd (MSM) is the holder of Environment Protection Licence (EPL) Number 13228 for the canola seed crushing, oil refining, packaging, and feed mill located at Dederang Street, Manildra NSW. There is a current proposal to expand the existing facility by adding a solvent extraction plant immediately to the west of the existing facility.

Current operations at the facility produces approximately 17,000 litres of wastewater per day. This is typically spread on the gravel roads around the plant for dust suppression, which is approved in the current EPL. This is an effective use of this wastewater in the summer months, but requires closer management in the winter months.

With the addition of the proposed solvent extraction plant, wastewater generation will increase. It is anticipated that the chemical composition of the wastewater will be the same as currently, with the exception of trace amounts of hexane. The solvent extraction plan includes infrastructure to recover as much oil and hexane as possible.

It is proposed to continue the use of wastewater as a dust suppressant around the facility as well as utilising wastewater as an additive in the canola meal produced to meet standard moisture levels for this product. After these uses, there is a potential that up to 40,000 litres per day of wastewater will be surplus to on-site needs.

Sewer disposal under a trade waste agreement is not a viable option as the Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) is anticipated to be in excess of the limits for discharge. Similarly,

a wastewater treatment plant enabling discharge to Mandagery Creek is also not a viable option due to site layout constraints as well as the associated capital and operational costs

Applicability of the Liquid Food Waste Order and Exemption

Under the NSW Environment Protection Authority's resource recovery framework, certain types of wastes are permitted to be used as resources, as long as the conditions of an applicable resource recovery order and exemption are complied with. This framework allows for the beneficial reuse of recovered resources, without the need to hold an environment protection licence.

As the MSM Milling facility produces food products, and the wastewater stream is a liquid, the Liquid Food Waste Order 2014 (the Order) and the Liquid Food Waste Exemption 2014 (the Exemption) would appear to be available for use.

Liquid food waste is defined in the Order as "...liquid food waste from the manufacture, preparation, sale or consumption of food." As all the wastewaters produced at the facility, both currently and proposed, are associated with the manufacture of food, it satisfies this definition. Further, it is a requirement that any liquid food waste must:

- not contain post-consumer food waste, grease trap waste or animal waste.
- not be corrosive, and not contain any physical contaminants, including but not limited to glass, metal, rigid plastics, flexible plastics, or polystyrene.
- be in a form and condition that is suitable for land application.

The wastewater produced at the facility, both currently and proposed, meet these criteria.

Under the Exemption, liquid food waste can be applied to land as a soil amendment. There are thirteen conditions associated with the land application of liquid food waste that deal with issues like the protection of surface waters, calculation of agronomic application rates, depth of injection, and application buffer zones to various protected areas. With the selection of an appropriate application site and use of appropriate application equipment, all of these conditions can be complied with.

In summary, the land application of wastewater generated at the MSM Milling facility, current and proposed, is a viable option.

Suitability for land application

The current wastewater contains carbon (in the form of oils in solution and small solid particles) and trace nutrients. The EPA has already deemed this wastewater as being appropriate for use as dust suppression as this use is permitted under the EPL. The addition of the solvent extraction plant will change the character of the wastewater slightly by the introduction of trace amounts of hexane.

The hexane solvent proposed to be used will be recovered at several points in the process for reuse. In the final wastewater stream, the concentration of hexane is expected to be in the extremely low parts per million range. Further, hexane has low toxicity, (the Australian food code permits it to be present in foods at concentrations up to 20mg/kg), it readily metabolised by microbes, has a high vapour pressure at 25 degrees Celsius, and is not a greenhouse gas.

What this translates to for potential land application is that any trace amounts of hexane that end up in the wastewater stream will either be released to the atmosphere and break down through natural processes, or be used by soil microbes as a source of carbon and energy.

Recommended safeguards

In addition to the thirteen conditions associated with the Exemption for the land application of the wastewater stream, I would also recommend additional safeguards to ensure unintentional excess loading of any land application site does not occur:

- Routine sampling of the wastewater stream. This will allow the land application rates to be adjusted should any variation in the BOD, COD and hexane amounts are detected. This may also be useful from a process monitoring perspective to potentially identify any issues with the operation of the facility as a whole.
- Routine monitoring of the application site(s) to track soil carbon levels and ensure no accumulation of hexane or its metabolites are occurring in soils that the wastewater is being applied to.
- Appropriate infrastructure and management systems to isolate any larger spills / leaks of hexane before entering the wastewater system.
- The venting of any wastewater holding tanks is used to ensure that hexane vapours cannot accumulate over time to produce potentially explosive concentrations.
- The capacity to store at least three full days of wastewater production at the MSM Milling site (ideally in three separate tanks) to provide flexibility in responding to contingency situations.
- The preparation of contingency plans to enable the response to situations like unexpected high concentrations of hexane in the wastewater, wastewater management after a significant leak / spill, and unavailability of the application site due to weather or mechanical breakdown.

Alignment with NSW Government Policy

In February 2019, the NSW Government released the *NSW Circular Economy Statement*. This represented a beginning of a significant shift in resource use from a linear model (“take, make, use, waste”) to a circular one, that values resource productivity and the sustainable management of resources. This policy statement significantly informed the development of the *Waste and Sustainable Materials Strategy 2041* in 2021. One of the key initiatives identified in this strategy is supporting circular design to reduce carbon-intensive materials and increase recycling.

The land application of wastewaters from the MSM Milling facility fits squarely within the intent of these strategy documents.

I trust that this information is useful to you. If you require any further information, or if you wish to discuss the information contained in this letter further, please feel free to contact me directly.

Yours sincerely,



Jason Scarborough
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