



DOC23/399662-2

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12 May 2023

Dear Ms Cameron

**Lake Macquarie Organics Resource Recovery Facility - 413 Wilton Road, Awaba – CNR-36027 – Case Reference A-42407 - DA/1940/2013/B – Environment Protection Licence 20949**

Remondis (the Licensee) owns and operates a composting facility at Awaba (the Facility) under contract to Lake Macquarie City Council (LMCC). Remondis propose to modify the existing MAF composting area and maturation area into an open windrow composting pad that utilises a windrow turner for the management of the windrow stockpiles. No change in capacity is sought.

The EPA has previously responded to this notification providing three letters to Lake Macquarie City Council (Council) dated 07 April 2022, 11 May 2022, 14 July 2022, and 30 March 2023. Additionally, the EPA met with Council representatives on 21 April 2022, and 5 May 2022 regarding the content of the EPA's response. These previous communications provide background and a detailed response to the notification and should be referred to together with this letter.

The EPA has reviewed the report prepared by GHD (the 2023 GHD Report)<sup>1</sup> for the Awaba Organics Resource Recovery Facility (ORRF) Modification DA/1940/2013/B. The 2023 GHD Report describes proposed changes to the development modification and includes a revised air dispersion modelling report prepared by the Odour Unit (the Revised Odour Modelling)<sup>2</sup>. The Revised Odour Modelling:

- Estimates an odour emission reduction of approximately 22% from current operations to proposed operations with the modifications implemented
- Predicts a reduction in ground level odour impacts at sensitive receptors of approximately 52 – 82 % from current operations to proposed operations with the modification implemented.

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<sup>1</sup> Letter report subject *DA/1940/2013/B – Awaba ORRF Modification*, prepared by GHD dated 24 January 2023 (reference 12563453)

<sup>2</sup> DOC23/166719-4: The Odour Unit Letter Report, *Remondis Australia – Awaba ORRF Open Windrow Composting Proposal Revised Odour Modelling Results* (11 January 2023).

The EPA provide the following comments on the reviewed documents:

***Additional modifications have been proposed***

The 2023 GHD Report states (Section 3) that the proposed modification has been revised to include the following modifications;

- enclosure of the receival hall on two sides (final design to be confirmed), with all emissions discharged via vertically mounted roof fans.
- refurbishment of the existing biofilter system.

***Estimated odour emission reductions are associated with the Biofilter***

The modelling scenario for existing operations is based on site specific data recently collected from the outlet of the Biofilter. An odour discharge concentration of 1578 OU has been adopted for estimating biofilter emissions. At face value, this concentration could indicate issues with biofilter performance from current operations, which could be due to failures to maintain or operate the biofilter in a proper and efficient manner. However, a complete assessment of the biofilter performance has not been provided to inform this conclusion. The EPA considers that biofilters can achieve lower emission discharge concentrations than the 1578 OU adopted for the scenario for existing operations. For the proposed scenario the biofilter is based on a nominal odour concentration discharge of 500 OU to represent the proposed refurbishment.

The Licensee has obligations under the Protection of the Environment Operations Act (the POEO Act) to prevent or minimise emissions and to operate and maintain equipment in a proper and efficient manner. As such, the biofilter should be maintained, as part of routine operations, to ensure the performance of the control is consistent with its design.

The EPA consider the modelling approach unfairly attributes reductions in odour concentrations to the changed operations, rather than routine maintenance, which should be occurring as part of business-as-usual. The EPA recommend a condition of approval requiring ongoing monitoring and evaluation of biofilter performance. Recommended conditions are included in Attachment A.

***Reduction in predicted ground level odour concentrations due to the Biofilter and Receival Hall***

The modelling shows a significant reduction in predicted odour impacts under the proposed operating scenario when compared to the current operations. However, the most significant reductions appear to be primarily dependent on the approach used to model emissions from

- 1) retrofit of the biofilter; and
- 2) proposed modifications to the receivals hall.

The EPA considers that there is uncertainty with accurately characterising and predicting fugitive emissions, however it is unlikely that the proposed modifications to the receival hall will result in complete capture of fugitive emissions. The design of the proposed modifications to the receival hall should be undertaken in such a manner so as not to preclude potential future improvements such as complete enclosure or retrofit of end of pipe controls.

***There are limitations and residual uncertainties with the assessment***

The modelling shows a significant reduction in predicted odour impacts under the proposed operating scenario when compared to the current operations. However, the EPA advises that some limitations and information deficiencies have been identified, including, but not limited to:

- Recent site-specific test data is limited to a single sample and may not be reflective of the longer-term trends, or range, of odour emission profiles at the site.
- There is insufficient information provided to allow the SOER's to be replicated and confirmed
- Assumed odour emission rate profiles are not described in detail
- Quality assurance and quality control analysis of the meteorological data used in the dispersion modelling was not provided, which adds uncertainty to predictions.

**Proposal is likely to allow for improved management of the site**

The Licensee has identified numerous benefits to the management of the site from removing 'bottlenecks' to operations. Remondis considers the proposal will improve management of operations. Furthermore, Remondis will be seeking the expertise of a composting consultant for the modification.

The EPA advise that, the proposed change to the composting activities are largely changes to management practices. However, it is difficult to accurately account for managerial changes via dispersion modelling.

Notwithstanding the noted uncertainties regarding the modelling and fugitive emissions from the receipt hall, The EPA acknowledge that improved management could facilitate an improved odour outcome at the site. However, any potential improvements to odour impacts are likely to be highly dependent on the diligence of managing the composting process.

Where the proposed changes to managing the site do not deliver an improvement, further options such as engineering controls, or changes to feedstock may be necessary. The EPA recommend a condition of approval for an Odour Validation Audit to evaluate the performance of the modifications. It is also recommended the Licensee revise and update their odour management strategy and Odour Management Community Engagement Management Plan following implementation of the proposed management measures.

**Further dispersion modelling is not recommended,**

Whilst there are noted uncertainties with the Revised Odour Modelling, further modelling is unlikely to significantly change the overall outcome of the assessment – that the proposal would allow for improved management of operations, and associated odour emissions, at the facility.

**Post approval validation could address uncertainties**

As previously identified, there are inherent uncertainties associated with accurately predicting odour emissions and potential impacts. The actual achieved reduction in odour impacts from the proposal may not be known until the new management system is implemented and operating. An audit of the new system could be undertaken following implementation to evaluate the performance of the modifications. GHD have proposed an odour validation assessment be conducted within six (6) months following implementation works associated with the proposed modification. The EPA support GHD's recommendation and have captured the commitment within the Odour Validation Audit condition provided in Attachment A. The Audit should include an evaluation of the emission performance of the biofilter - post refurbishment.

## Recommendations

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The EPA recommend:

- 1) A condition of approval requiring ongoing monitoring and evaluation of biofilter performance.
- 2) following implementation of the proposed management measures and associated works, the Licensee revise and update their odour management strategy and Odour Management Community Engagement Management Plan to reflect the changes in operations and management measures implemented as part of the modification.

This modification does not require a substantial revision of advice previously provided by the EPA - The EPA does not object to the proposal. The EPA notes that regardless of Council's decision regarding this approval process, Remondis will have ongoing obligations to comply with both their EPL and the Protection of the Environment Operations Act 1997 (POEO Act).

If you have any questions about this matter, please contact Sonja Halbich on 02 9995 6248 or at [sonja.halbich@epa.nsw.gov.au](mailto:sonja.halbich@epa.nsw.gov.au).

Yours sincerely



**Kasey Hills**  
**A/ Unit Head - Regulatory Operations - Metropolitan North**  
**Environment Protection Authority**

## Attachment A - Recommended conditions for EPAs General Terms of Approval

### Environment Protection Licence Conditions

#### **M <X> Monitoring Requirements**

##### Biofilter

| Pollutant | Units of measure | Frequency           | Sampling         |
|-----------|------------------|---------------------|------------------|
| Odour     | Odour Units      | Special Frequency 1 | Special Method 1 |

Special frequency 1 means within 3-months of the biofilter being refurbished, and yearly thereafter.

Special Method 1 means odour sampling conducted across the outlet of the biofilter in accordance with OM-7 of the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*. Sufficient samples must be collected to inform the spatial distribution of odour emission across the biofilter.

#### **6 Reporting Conditions**

<x> The licensee must submit a Biofilter Monitoring and Assessment report in conjunction with the annual return. The Biofilter Monitoring and Assessment report must contain:

- (a) A summary of the odour sampling, and results obtained for the biofilter as required under this licence
- (b) A summary of parameters monitored, and results obtained to inform ongoing operation of the biofilter in a proper and efficient manner. This includes but is not necessarily limited to measurements undertaken of airflow, moisture content, and pressure from key areas of the odour control system.
- (c) A comparison of monitored parameters and odour sample results against key performance indicators for biofilter performance. This includes, but is not necessarily limited to consideration of key performance indicators relating to:
  - a. Odour concentration
  - b. Odour character
  - c. Airflow distribution
  - d. Moisture content
- (d) Nominated actions, where a comparison in (c) identifies that key performance indicators are not being achieved. Any actions nominated must include a timeframe for implementation.

### <X> Special Conditions

#### **Odour Validation Audit**

Within 12 months of implementation of the modifications under development application DA/1940/2013/B, the Licensee must submit an Odour Validation Audit Report (the Report) to the EPA's Manager Regulatory Operations Metropolitan North.

The Report must be prepared by a suitably qualified independent expert experienced in the characterisation and treatment of odours from composting facilities.

The Report must include:

- (a) a summary of any odour complaints received, and actions taken to reduce odour emissions where complaints are verified;
- (b) a detailed description of all activities undertaken at the Premises;
- (c) identification and description of all significant odour generating sources;
- (d) for all sources identified under (c), the odour emission concentration and rate must be determined in accordance with the methods specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*;

- (e) comparison of the odour concentrations and rates measured under (d) against those assumed in the Revised Odour Modelling report (the Odour Unit, 2023);
- (f) discussion of observed changes in odour emission performance of the facility following the implementation management measures and works associated with development application DA/1940/2013/B ;
- (g) benchmark the control and management practices at the premises against industry best practice for minimising odour emissions;
- (h) using the results of (a) to (g) if it is identified that the facility requires additional odour mitigation measures the report must include:
  - i proposed mitigation works and/or management practices to ensure that odour is minimised as far as is practicable; and
  - ii a timetable for the implementation of these works.



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20 March 2023

Dear Ms Cameron

**Lake Macquarie Organics Resource Recovery Facility - 413 Wilton Road, Awaba – CNR-36027 – Case Reference A-42407 - DA/1940/2013/B – Environment Protection Licence 20949**

The Environment Protection Authority (**EPA**) is writing in regarding the notification dated 03 March 2023 of referral CNR-36027 (A-42407) requesting review of the modification of application DA4/1940/2013/B for 413 Wilton Road, Awaba. The application relates to the Lake Macquarie Organics Resource Recovery Facility.

The EPA has previously responded to this notification providing three letters to Lake Macquarie City Council (**Council**) dated 07 April 2022, 11 May 2022, and 14 July 2022. Additionally, the EPA met with Council representatives on 21 April 2022 and 5 May 2022 regarding the content of the EPA's response. These previous communications provide background and a detailed response to the notification and should be referred to together with this letter.

The Development Application (DA/1940/2013/B) is supported by an odour assessment prepared by The Odour Unit (**TOU**), which was previously reviewed by the EPA's technical air team. The EPA understands that the assessment has since been modified, based on feedback provided by both the EPA and Council. Due to the short turn around required for this assessment, the EPA's technical air team were unable to provide further review of this work, however the EPA understands that Council have engaged an independent expert to conduct a peer review.

**Advice and Recommendations**

This modification does not require a substantial revision of advice previously provided by the EPA - The EPA does not object to the proposal. The EPA notes that regardless of Council's decision regarding this approval process, Remondis will have ongoing obligations to comply with both their EPL and the *Protection of the Environment Operations Act 1997* (**POEO Act**).

If you have any questions about this matter, please contact me on (02) 9995 5109 or at [kasey.hills@epa.nsw.gov.au](mailto:kasey.hills@epa.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'Kasey Hills'.

**Kasey Hills**  
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19 July 2022

Dear Ms Cameron

**Lake Macquarie Organics Resource Recovery Facility - 413 Wilton Road, Awaba – CNR-36027 – Case Reference A-42407 - DA/1940/2013/B – Environment Protection Licence 20949**

The Environment Protection Authority (**EPA**) is writing in regard to the notification dated 24 June 2022 of referral CRN-36027 (A-42407) requesting review of the modification of application DA/1940/2013/B for 413 Wilton road, Awaba. The application relates to the Lake Macquarie Organics Resource Recovery Facility (the **Facility**), operated by Remondis under Environment Protection Licence (EPL) 20949.

The EPA has previously provided comment on this matter through two letters to Lake Macquarie City Council (**LLMC**) dated 07 April 2022, and 11 May 2022. The previous letters provide background and a detailed response to the original notification and should be referred to together with this letter. Additionally, the EPA met with LLMC representatives on 21 April 2022 and 5 May 2022 regarding the content of the EPA's response.

It is understood that the Planning Assessment Panel for the development application met to consider the proposal and discussed concerns regarding odour impacts and a further request for information from Remondis regarding odour impacts, odour modelling or changes to proposed composting methods.

The EPA notes the information provided as part of this referral, including the new community hotline that has been established by Remondis, submissions by the public and Remondis' responses to the request for additional information raised by Council and the EPA. The information provided in Remondis' responses is helpful in understanding how Remondis intends to control and mitigate odour on site as part of day-to-day management.

As per prior correspondence, the EPA considers that the proposal is not a substantial change from current operations and while it is likely to have an overall positive impact on odour emanating from the site, the odour reduction will be limited. The EPA notes Remondis will have ongoing obligations to comply with both their EPL and the *Protection of the Environment Operations Act 1997* (**POEO Act**) in relation to odour emissions from the Facility.

Based on this the EPA does not object to the proposal, but additional mitigation measures will need to be considered ensure Remondis can meet their obligations under their EPL and the POEO Act. It is noted that the modification being sought in this proposal is one of several improvements intended for the long-term operations at the Facility.

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The EPA conducted site inspections at the facility on 8 April and 23 May 2022 and has made observations at the Facility regarding factors that may be contributing to the ongoing odour issues being experienced by nearby residents. In particular:

- a. The MAF "hardstand" is compacted dirt engineered to have a 2% downward gradient. This is intended to facilitate excess leachate from MAF composting and rainfall to naturally run towards the leachate dam. However, the hardstand is not performing as designed. During inspections of the Facility, the EPA observed that the integrity of the hardstand has been compromised by mobile plant. This has led to damage in the hardstand and affected the surface gradient, causing leachate to pool within the MAFS which may then turn putrid.
- b. The MAF is exposed to weather and uncontrollable environmental factors, making the composting process at the MAF stage more unreliable and unpredictable.

Significant modifications to the existing operations are required to address the issues outlined above, and reduce potential odour impacts to nearby sensitive receivers. The EPA is currently conducting an Environmental Site Audit, to further identify improvements that can be made at the site to bring it up to best practice standards. The Draft Audit Report will be provided to Remondis for review in August 2022.

If you have any questions about this matter, please contact Kasey Hills on (02) 9995 5109 or at [kasey.hills@epa.nsw.gov.au](mailto:kasey.hills@epa.nsw.gov.au).

Yours sincerely



**GEORGE OREL**

**A/ Unit Head - Regulatory Operations - Metropolitan North  
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11 May 2022

Dear Ms Cameron

**Lake Macquarie Organics Resource Recovery Facility - 413 Wilton Road, Awaba – CNR-36027 – Case Reference A-42407 - DA/1940/2013/B – Environment Protection Licence 20949**

The Environment Protection Authority (**EPA**) is writing in regarding the notification dated 28 February 2022 of referral CRN-36027 (A-42407) requesting the assessment of application DA/1940/2013/B for 413 Wilton road, Awaba. The application relates to the Lake Macquarie Organics Resource Recovery Facility (the **Facility**).

The EPA has previously responded to this notification providing a letter to Lake Macquarie City Council (**LLMC**) dated 07 April 2022. The previous letter provides a detailed response to the notification and should be referred to together with this letter. The EPA met with LLMC representatives on 21 April 2022 and 5 May 2022 regarding the content of the EPA's response. After discussions with LLMC, the EPA provides further clarification of its position, below.

The Facility has operated at the site since July 2018 under Environment Protection Licence (EPL) 20949 and is licenced to receive up to 44,000 tonnes per annum. The site is the source of ongoing odour issues, causing discomfort for many residents in surrounding suburbs and has been the subject of a significant number (>500) complaints since it commenced operations.

In order to reduce odour impacts outside the boundary of the Facility, the EPA considers that significant modifications to the existing operations are required

Remondis have identified existing constraints which impede effected operations at the Facility to reduce the risk of odour emissions. To address the issues identified with the current mobile aerated floor (**MAF**) composting system, Remondis propose to modify the existing MAF composting area and maturation area into an open windrow composting pad that utilises a windrow turner for the management of the windrow stockpiles.

However, the EPAs technical air team have raised concerns regarding the modification report proposed by Remondis in February 2022. The concerns raised are:

- a. The proposal is not a substantial change from current operations
- b. Odour emission reductions estimated in the assessment are low and could be overstated
- c. It is not clear if previous odour management strategies have been implemented

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- d. Any potential odour improvements would be highly dependent on implementation and diligent process management for improving odour at the Facility

The Development Application (DA/1940/2013/B) is supported by an odour assessment prepared by The Odour Unit (**TOU**). TOU predict a limited reduction in odour emissions of up to 41% from the conversion to open-windrow composting (site-wide reduction of 37%) compared to current operations. The EPA considers that this is not an adequate reduction.

The EPA has made observations at the Facility that may be contributing to the ongoing odour issues being experienced by the residents outside the boundary of the Facility:

- a. The MAF hardstand is compacted dirt engineered to have a 2% downward gradient. This allows excess leachate from MAF composting and rainfall to naturally run towards the leachate dam. The hardstand is not performing as designed. During EPA site inspections of the Facility, the integrity of the hardstand has been questioned due to bulldozers used to turn the MAF piles digging up the hardstand, creating holes and reduce the slope of the gradient. This appears to cause leachate to pool within the MAFS which turns the MAF putrid.
- b. The MAF is exposed to weather and uncontrollable environmental factors, making the composting process at the MAF stage more unreliable and unpredictable.

#### **Advice and Recommendations**

The EPA notes Remondis will have ongoing obligations to comply with both Licence No 20949 and the *Protection of the Environment Operations Act 1997 (POEO Act)* in relation to odour emissions outside of the boundary of the Facility. These obligations must be considered by Remondis in relation to any proposed modification and Remondis must ensure they apply best practice to ensure they can meet the obligations of the Licence and the POEO Act.

The EPA considers that the reduction in emissions predicted by TOU are likely to be overstated and any potential odour improvements would be highly dependent on implementation and diligent process management for improving odour at the facility.

The proposal is not a substantial change from current operations and while it is likely to have an overall positive impact on odour emanating from the site, reduction in odours will be limited. Based on this the EPA does not object to the proposal, but additional mitigation measures will need to be considered if Remondis is to meet its obligations in relation to the Licence and the POEO Act.

Remondis should consider additional engineering controls as part of their proposed strategy to address odour issues. Such controls may include covering or enclosing the windrow stockpiles to minimise water ingress and other adverse effects of environmental conditions and allow for greater control and management over the composting process.

The EPA recommends that further information should be requested as part of the proposal about how the proponent will be able to comply with its existing licencing conditions and what other solutions may be possible to achieve a suitable outcome that reduces odours to a level that does not adversely affect the surrounding community and meets the obligations set out in the Licence and the POEO Act.

If you have any questions about this matter, please contact Kasey Hills on (02) 9995 5109 or at [kasey.hills@epa.nsw.gov.au](mailto:kasey.hills@epa.nsw.gov.au).

Yours sincerely



**GEORGE OREL**

**A/ Unit Head - Regulatory Operations - Metropolitan North  
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07 April 2022

Dear Ms Turner,

**413 Wilton Road, Awaba – CNR-36027 – Case Reference A-42407 – Council Reference  
DA/1940/2013/B – Environment Protection Licence 20949**

The Environment Protection Authority (EPA) is writing in response to the notification dated 28 February 2022 of referral CRN-36027 (A-42407) requesting the assessment of application DA/1940/2013/B for 413 Wilton road, Awaba.

The EPA has reviewed the information provided for the modification report and has the following comments to make with respect to the report.

**Background**

In September 2017 Development Consent No. DA/1940/2013/A was approved by Lake Macquarie City Council (LMCC) to build and operate an organics resource recovery facility located off 403 Wilton Road, Awaba (the **Facility**). The Development Consent further approved an increase in capacity of the Facility from 30,000 to 44,000 tonnes per annum and to change the technology used at the Facility.

Remondis (the Licensee) owns and operates the composting Facility. The Facility is operated under contract to LMCC and processes food and green organic (**FOGO**) waste delivered by LMCC and its contractors.

The Facility has operated at the site since July 2018 under Environment Protection Licence (EPL) 20949 and is licenced to receive up to 44,000 tonnes per annum. The Facility has been the subject of a significant number (>500) complaints since it commenced operations.

The Facility produces compost using a combined aerated compost tunnel and mobile aerated floor (**MAF**) composting system. Shredded FOGO material is pasteurised in one of five aerated compost tunnels for a period of one week, the material is then formed into a windrow in the MAF composting area.

The MAF system involves intermittent aeration of the material for up to six weeks, equivalent to two weeks in each MAF processing stage. Each MAF windrow pile is approximately 45 metres (m) in length, 15 m wide, and 4.5 m high. The movement of a windrow for each MAF processing stage is currently undertaken using a front-end loader.

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Upon completion in the MAF processing area, the compost product is moved to the Maturation Area for maturation and stabilisation, followed by screening and transported off-site.

### **The Modification Report**

Remondis has engaged GHD to prepare and lodge an application with LMCC to modify the Development Consent for the Facility. The modification seeks to change the layout and processing operations at the facility in an effort to reduce the risk of odour emissions from the site. No change in capacity is sought.

Currently, the composting system at the facility employs aerated compost tunnels (x5) and a MAF system. Remondis has identified existing constraints which impede effective operation of the MAF system. To address these issues Remondis propose to modify the existing MAF composting area and maturation area into an open windrow composting pad that utilises a windrow turner for the management of the windrow stockpiles.

The Development Application (DA/1940/2013/B) is supported by an odour assessment (the Assessment) prepared by The Odour Unit (TOU). TOU predict a reduction, in odour emissions, of up to 41% from the conversion to open-windrow composting (site-wide reduction of 37%) compared to the current operations.

### **Considerations**

Regardless of the composting system employed, odours will form during composting even under optimal conditions. Even with best practice management employed, there are environmental conditions, such as heavy, or prolonged rain events which can lead to odour events, which management alone cannot prevent.

The operations, and selection of processing technologies, techniques and controls should be informed by factors including the feedstock composition (FOGO), environmental conditions (e.g. temperature, air and water) and physiochemical properties (e.g. particle size, porosity, carbon/nitrogen ratios and other nutrients).

#### *Points of Consideration in providing advice*

In providing advice the EPA has considered the following:

- The proposal development does not seek an increase in current approved capacity.
- The proposed development does not seek a change to the current feedstock.
- Windrows are likely to continue to be impacted by rain events.
- The proposal does not seek to address potential odour issues caused by significant rainfall events, such as engineering controls.

The EPA considers that, the proposed change to the outdoor composting is largely a managerial change. There is potential for odour improvements, however, any potential improvements are likely to be highly dependent on the diligence of managing the composting process. Where the proposed changes to composting operations does not deliver an improvement, engineering controls, or changes to feedstock are likely the only options to resolve existing odour issues. The EPA recommends that an odour control strategy be developed for the premises, which considers additional longer term mitigation options in the event operational impacts occur with the proposed alterations to managing composting operations.

### **Advice**

#### **1 - The proposal is not a substantial change from current operations**

The proposed change to the outdoor composting is largely a managerial change, whereby smaller stockpiles, aerated via a windrow turner, are being proposed to replace the static MAF. The EPA considers that both methods of aeration have advantages and disadvantages.

Remondis considers the current windrow stockpile specifications inhibit their ability to utilise machinery other than a front-end loader for turning stockpiles (e.g. windrow turner).

The EPA acknowledges that windrow turners are more efficient and effective at turning of stockpiles and would allow more frequent stockpile turning. However, turning frequency has been shown to have less impact on the composting process than other key process variables such as feedstock physicochemical characteristics, moisture content and windrow size. Windrow turning also has limited direct effect on maintaining aerobic conditions. Studies have shown that any oxygen which is introduced into a windrow during turning is generally consumed within hours. Windrow turners tend to be a more aggressive form of stockpile turning than front end loaders.

More frequent turning schedules and/ or aggressive turning methods can reduce the porosity of a windrow by breaking down compost particles, which can reduce air flow and lead to anaerobic conditions.

Stockpile turning is often also associated with spikes in odour emissions. More frequent turning may lead to an increase in the frequency of odour spikes. Significant odour spikes may be experienced where odorous gases have formed under anaerobic conditions. For example, research has shown that increased turning may increase the loss of ammonia gas, which is odorous. The intensity of potential spikes is likely to be dependent on the diligence of managing the composting process and preventing anaerobic conditions.

## **2 - Odour emission reductions estimated in the assessment could be overstated**

The EPA considers the reduction in emissions, predicted by TOU, could be overstated. There is noted uncertainty in the estimated odour emissions. The uncertainty is derived from assumptions made by TOU, including;

- Odour emission rates will drop dramatically between week 0 to week 4.
- The area adopted for weeks 1 to 5 will reflect actual operations.
- The increase in total surface area of each stockpile will not have a substantial effect on emissions.
- The actual odour emissions profile will be consistent with the profile shown in Figure 4.
- Odour concentrations remain consistent with measured concentrations from 2019.
- Odour emission rates from windrow turning will be the same as odour emission rates from MAF – as adopted from the 2019 assessment.

The EPA advises that odour emissions can be highly variable, and reiterate, that any observed reductions in odour emissions will be heavily dependent on the diligence of the applied management measures.

## **3 - It is not clear if previous odour management strategies have been implemented**

In 2019, TOU completed an investigation and assessment of odour issues at the Remondis composting facility (the 2019 Odour Report) in response to EPL 20949 Pollution Reduction Program Condition U1. The EPA provided comments and advice on the adequacy of the 2019 Odour Report. The 2019 Odour Report included 4 recommendations:

1. Optimise the aeration frequency in the MAF area.
2. Increase the processing time of the in-vessel aeration tunnels.
3. Undertake turning or mechanical handling activities within the MAF under favourable meteorological conditions, and
4. An odour validation assessment in twelve (12) months.

The EPA is currently not aware of the implementation status of the recommendations previously identified, including the option of increasing the processing time of the in-vessel aeration tunnels. Additionally, in providing advice on the 2019 Odour Report, the EPA recommended that if odour impacts were not improved then long-term odour mitigation options such as fully enclosing the MAF should be considered.

**4 - Any potential odour improvements, would be highly dependent on implementation and diligent process management for improving odour at the facility**

The EPA considers that the overall success of the system will be determined by the management of the facility. Failure to maintain optimal conditions is likely to result in continued, or increased odour issues.

It is highly recommended that the Licensee consider additional engineering controls as part of their proposed strategy to address odour issues at the facility. Such controls may include covering, or enclosing some, or all, of the windrow stockpiles to minimise adverse effects of environmental conditions and allow for greater control and management over the composting process.

The EPA considers that there is potential ongoing risk of odour impacts. Commitment to a robust management strategy is required. Contingency measures should be nominated if odour impacts continue to occur following the change in operations.

If you have any questions about this matter, please contact Rhys Acker on (02) 4908 6858 or email [rhys.acker@epa.nsw.gov.au](mailto:rhys.acker@epa.nsw.gov.au) and [George.orel@epa.nsw.gov.au](mailto:George.orel@epa.nsw.gov.au)

Sincerely

A handwritten signature in blue ink, appearing to read 'G Orel', is positioned above the printed name.

**GEORGE OREL**

**A/ Unit Head - Regulatory Operations - Metropolitan North  
Environment Protection Authority**