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Rebecca Smith
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Via email: rebecca@wildenvironment.com.au

RE: DRAFT Addendum Report to the Air Quality and Greenhouse Gas Assessment for the Proposed Queanbeyan Resource Recovery Facility, Queanbeyan West

Dear Rebecca,
Todoroski Air Sciences has prepared this letter report as an addendum to the Air Quality and Greenhouse Gas Assessment Report for the proposed Resource Recovery Facility, Queanbeyan West (hereafter referred to as the Project) (**Todoroski Air Sciences, 2015**).

It provides two additional odour modelling and assessment scenarios incorporating; the proposed mitigation measures for the Project, and the implementation of further additional mitigation measures (i.e. the use of a filtration odour management system) for the Project.

Approach to assessment
The dispersion modelling in the air quality assessment for the Project (**Todoroski Air Sciences, 2015**) was based on conservative assumptions of the potential odour source and applicable odour emission rate. These assumptions are likely to generate an over prediction of the actual impact in reality. To demonstrate the potential improvement associated with the adoption of the proposed mitigation measures for the Project, the air dispersion modelling has been reproduced to incorporate some of these measures.

Two modelling scenarios are considered in this report. The first scenario (Scenario 1) includes the incorporation of some of the proposed mitigation measures, as outlined in Section 7 of the air quality assessment, such as the effect of the enclosed building which would restrict fugitive odours and the use of odour sprays.

The second scenario (Scenario 2) includes consideration of the mitigation measures as with the first scenario but with the inclusion of an extraction and filtration odour management system. The filtration odour management system would be designed to capture odorous air within the building which would undergo treatment before being ventilated to the atmosphere. The modelling has assumed that the filtration odour management system would have an odour removal efficiency

of 50 per cent and would ventilate via a stack nominally positioned near the centre of the building with a height of approximately 5 metres (m) above the roof line.

Other potential odour sources such as the parked garbage trucks and from the storage of small and large bins are still considered in the dispersion modelling. All the other modelling parameters used in the assessment are consistent with the air quality assessment for the Project (**Todoroski Air Sciences, 2015**).

Dispersion modelling results and analysis

Figure 1 and **Figure 2** present the isopleth diagrams showing the predicted 99th percentile nose-response ground level odour level for the two assessed scenarios.

As expected, the predicted odour levels for Scenario 2 are lower than Scenario 1 and can be attributed to the use of a filtration odour management system.

Both scenarios are lower in comparison to the original scenario presented in the air quality assessment for the Project (**Todoroski Air Sciences, 2015**). The extent of predicted odour impacts would be generally restricted to the areas within the industrial estate.

Figure 1: Predicted 99th percentile nose-response average ground level odour concentrations – Scenario 1, with proposed mitigation measures

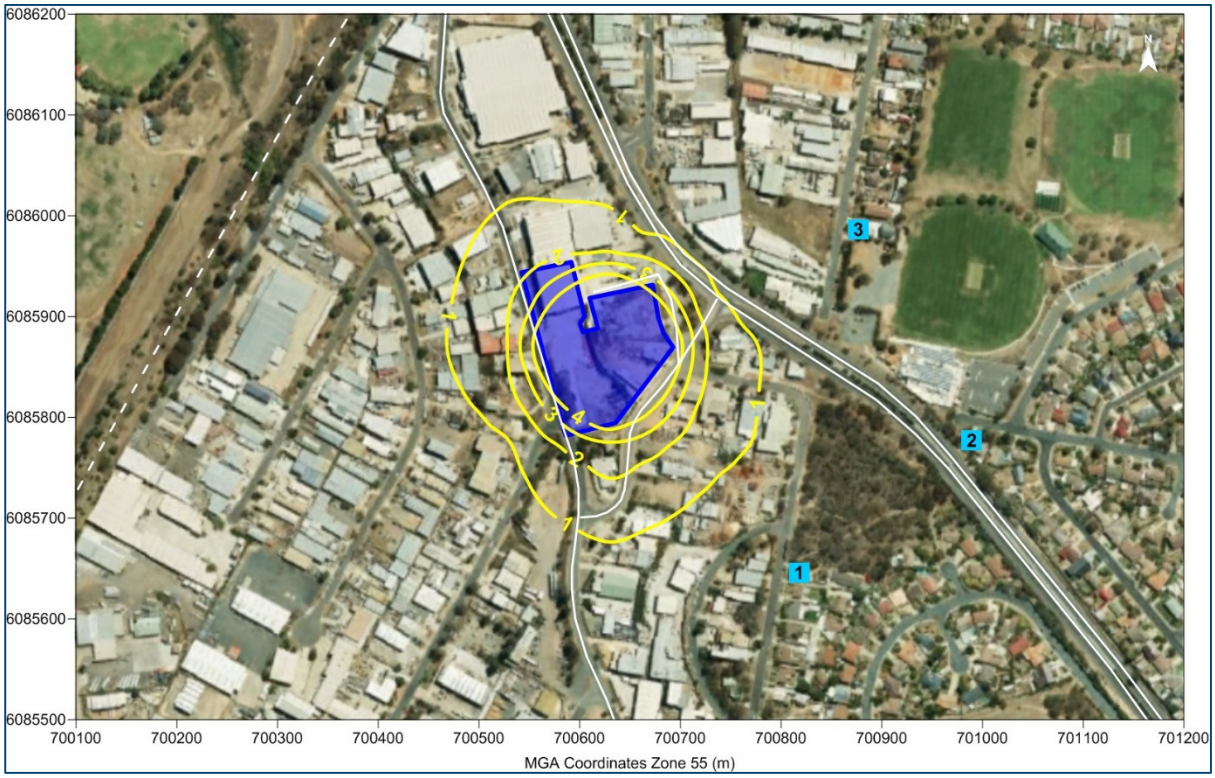

Figure 2: Predicted 99th percentile nose-response average ground level odour concentrations – Scenario 2, with filtration odour management system

Table 1 presents the dispersion modelling results at each of the assessed sensitive receptors. The results indicate that the odour levels at the sensitive receptors from estimated odour emissions emanating from the Project would be well below the applicable criteria for both scenarios. The predicted odour levels at the sensitive receptors for Scenario 2 are approximately half of those for Scenario 1.

Table 1: 99th percentile nose-response average ground level odour concentration at assessed sensitive receptor locations (Odour Units [OU])

Receptor ID	Original modelling	Scenario 1	Scenario 2	Criteria
1	0.6	0.5	0.2	2
2	0.6	0.5	0.2	2
3	0.6	0.5	0.2	2

As shown in **Figure 1** and **Figure 2**, although there would be potential odour impacts outside the Project boundary, the potential impacts would be contained within the industrial area.

Areas are zoned industrial to allow for the operation of facilities that have the potential to cause environmental impacts such as noise or air (that are not under the identified toxic air pollutants in the *Approved Methods* (**NSW DEC, 2005**)) outside its boundary in areas away from sensitive receptors, and thus not impact such receptors.

The NSW EPA odour impact assessment criteria applies to the existing or likely future off-site sensitive receptors as per the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (*Approved Methods*) (**NSW DEC, 2005**). The impact assessment

criteria ranges from 2 OU that are acceptable in the most sensitive receiving environments, such as dense urban areas with potentially many individuals who are highly sensitive to odour, to 7 OU in sparsely populated areas with the likelihood of individuals being less sensitive to odour.

The predicted odour levels for the Project are not expected to be greater than 7 OU in the surrounding area and can be characterised as appropriate for a sensitive receptor located in a rural environment. Thus the level of odour from the Project would be similar to that experienced in a rural setting.

It is noted that it is not possible for a human, including sensitive individuals, to actually perceive any difference between 4 OU and 7 OU in the field. It is also not possible to measure such a difference in the ambient air.

In reality, many factors that cannot be assessed reasonably in a modelling study will play a role in whether an individual finds any odour offensive. These include whether the site is directly visible to an individual, any past negative experiences perhaps related to a similar odour or other issues do to with the site, or simply pre-conceived notions rather than actual odours, etc.

In practice, offensive odour is regulated by the POEO Act, which defines offensive odour as that which may interfere unreasonably with the comfort and repose of a person outside of the premises.

The odour impact assessment criteria are thus used to guide decision making for planning, project design and mitigation purposes, and need to be interpreted as such.

Summary and Conclusions

The results of the dispersion modelling predictions suggest that the operation of the Project would have negligible impact and not lead to any unacceptable level of environmental harm or impact around the area.

The implementation of proposed mitigation measures and other measures would have a positive effect in reducing odour impacts from the Project.

The predicted odour levels for the neighbouring industrial operations are considered generally acceptable, and are not expected to be dissimilar to levels of odour for a rural setting.

Please feel free to contact us if you need to discuss (or require clarification on) any aspect of this report.

Yours faithfully,

Todoroski Air Sciences

Philip Henschke

Michelle Yu

References

NSW DEC (2005)

"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales", August 2005.

Todoroski Air Sciences (2015)

"Air Quality and Greenhouse Gas Assessment – Proposed Resource Recovery Facility, Queanbeyan West", prepared by Todoroski Air Sciences for Wild Environment, February 2015.