Tonkin+Taylor

Job No: 1014454
28 April 2021

NCI Packaging (NZ) Ltd
PO Box 14-443
Panmure 1741
Auckland

Attention: Kevin Leonard

Dear Kevin

NCI Packaging, Upper Hutt - Response to questions raised in PDP technical review

1 Introduction

The purpose of this letter is to provide written confirmation of the response to several issues raised in PDP's technical review of odour investigations and mitigation recommendation (letter dated 18 March 2021).

T+T has recommended a two stage approach to mitigating odour effects from the NCI Plant as follows:

- Stage 1: Install a biofilter to treat odour emissions from the aerosol basecoat processes; and
- Stage 2: If needed, increase the heights of the Line 2 Main Stack and the Assembly Stack to 27 metres.

In its review, PDP raised several technical issues that were discussed at a meeting held between NCI, Jenny Simpson (T+T) and Jeff Bluett (PDP) on 8 April 2021. The responses are summarised below.

2 Issues raised

1. PDP suggests that NCI further investigate the potential efficacy of biofilters for odour control at their site before installing a full-scale system

The issues related to the biofilter that were identified by PDP are:

- Biofilters are not often used in this type of application in New Zealand;
- The biofilter efficacy testing was semi-quantitative; and
- Odour discharge from the biofilter is discontinuous, which may affect the biofilter performance over time.

T+T acknowledges that biofilters are not commonly used to treat odours associated with Volatile Organic Compounds (VOCs) in New Zealand and is aware that there have historically been mixed results. The purpose of the trial was to confirm that a biofilter would perform adequately on the exhaust gases at the NCI site.

The biofilter trial carried out by NCI did not include olfactometry testing to confirm the performance of the biofilter. However, the biofilter headspace was regularly monitored by NCI staff to determine

Tonkin & Taylor Ltd | 105 Carlton Gore Rd, Newmarket, Auckland 1023, New Zealand
PO Box 5271, Victoria Street West, Auckland 1142 P +64-9-355 6000 F +64-9-307 0265 E akl@tonkintaylor.co.nz

if there were any detectable odours. The absence of odour breakthrough from the biofilter at any time during the trial is considered by T+T to be sufficiently reliable to demonstrate that the biofilter was effective at reducing odours.

The trial demonstrated the "real-life" performance of the biofilter at coping with intermittent and variable VOC loads. The only material change required between the trial and full-scale biofilter is the need to cool the emissions from the Basecoat Oven emissions.

Overall, T+T considers NCI has undertaken sufficient investigations to demonstrate that a biofilter is capable of achieving an adequate level of odour treatment at the site.

2. PDP recommends that NCI reconciles the differences between the opinion of the site manager and the odour test emissions results on which stack is the major source of odour

The diagrams in Figure 1 illustrate the main process contributions to each stack. NCI undertook testing of the flow rate and odour concentration in each of the process vents labelled "F" and "O", respectively. This testing indicated that the Basecoat Oven is the main contributor to odours in the Line 2 Main Stack. It also suggested a minimal level of odours in vents contributing to the Internal Lacquer/Assembly stack. This is inconsistent with previous odour emission testing of the stacks (used in the dispersion modelling), which showed a similar level of odour emissions from each stack (Internal Lacquer/Assembly Stack emissions were slightly higher than the Line 2 Main Stack). It is possible that not all processes on the Assembly Line were operating normally at the time of the odour and flow monitoring as the internal lacquer application process would be expected to generate some odours.

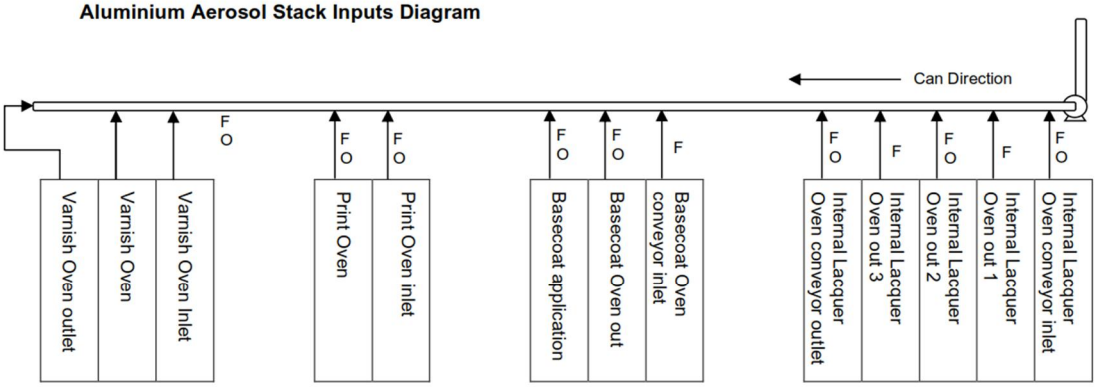
On balance, we consider that the Basecoat Oven would be appropriate as the first source to be targeted for treatment through the biofilter. To address the uncertainty in odour emissions from the Internal Lacquer/Assembly Stack, the biofilter could be designed on a modular basis so that it could be readily modified to treat the air extracted from the Internal Lacquer Application process if needed (i.e. a potential Stage 1B).

1. Line 2 Main Stack

The first process that generates emissions from production of Aluminium Aerosol Cans is the application of the internal lacquer by spray (discharged to the other stack), then the curing of the lacquer in an oven, then application of basecoat and its associated oven, printing and print oven, varnish application and oven. Each of these sources has multiple vents to the main stack.

Aluminium Aerosol Stack Inputs (photographs)

Aluminium Aerosol Stack Inputs Diagram



2. Internal Lacquer/Assembly Stack

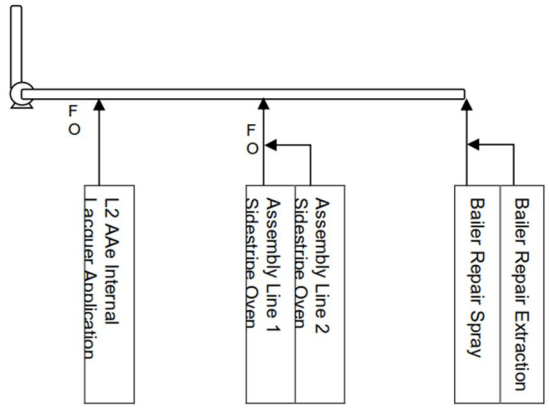


Figure 1: Schematic diagrams of inputs to Stacks

3. PDP recommends that NCI considers the potential for increased odour impacts at elevated receptors before committing to raising the site's stacks

Figure 2 compares the 99.5th percentile odour concentration contour plots from the original dispersion modelling with the plots from the revised modelling with taller stack heights. The modelling shows reduced ground level concentrations at all locations with taller stacks and does not indicate any potential for increased odour impacts at elevated receptors southwest of the site.

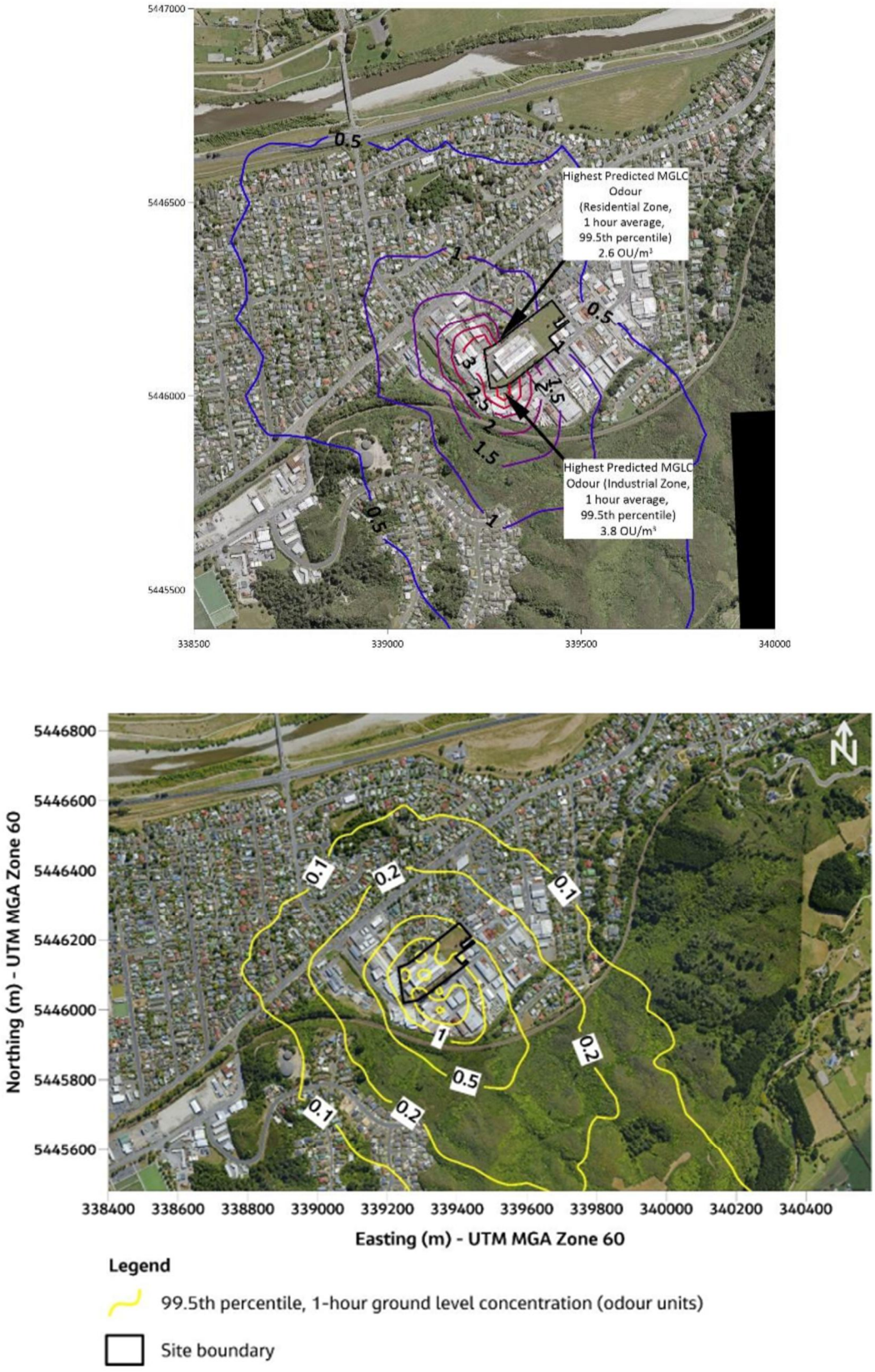


Figure 2: 99.5th odour predictions - original dispersion modelling (top) and with increased stack heights (27m) (bottom)

3 Conclusions

We consider that the technical issues raised by PDP have been adequately addressed and note the overall conclusion of PDP's review that:

> *…. The proposed two stage approach will certainly reduce the frequency, intensity and duration of adverse odour effects that currently occur in the area around the site especially at the end of Mountbatten Road. Given the current impacts as indicated by the complaint record, and considering the results of NCI and GWRC odour observation campaigns, on balance PDP consider that the odour effects are likely to fall to an acceptable level once the proposed mitigation has been implemented.*

4 Applicability

This report has been prepared for the exclusive use of our client NCI Packaging (NZ) Ltd, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Greater Wellington Regional Council as the consenting authority will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
	
.....	.....
Jenny Simpson	Penny Kneebone
Technical Director – Environmental Engineering	Project Director

JMS
p:\1014454\issueddocuments\jms280421.rpt.docx