

Tooheys Brewery
Wastewater Treatment Plant
(Project Approval 06_0303 Mod 3)
s75W Modification Application
requesting the deletion of Condition
24b

Issue | 1 September 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 234211

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EPA consultation response letter

1 Introduction

Arup have been engaged by Tooheys Brewery to prepare a Section 75W modification application to be lodge with the Department of Planning and Environment (DP&E) to modify Project Approval 06_0303 (Mod 3).

1.1 Background

In July 2006, Tooheys Brewery (29 Nyrang Street, Lidcombe) received single site wide planning approval (06_0303) from the former NSW Department of Planning under Part 3A of the EP&A Act.

Tooheys Brewery subsequently sought a modification (Mod 3) to the existing approval, under Section 75W of the EP&A Act, to construct and operate a wastewater treatment plant (WWTP) and a new cooling tower at the site, which was approved by the former Department of Planning and Infrastructure in December 2011. The WWTP is currently being commissioned.

Odour assessment conditions for the WWTP were included within the planning approval conditions (Conditions 24a- 24c) to comply with Section 129 of the *Protection of the Environment Operations Act 1997*.

It is intended that in compliance with Condition 24a, a WWTP odour validation assessment, would be undertaken focusing on the new odour sources to ensure the WWTP operates in a proper and efficient manner complying with the Environmental Assessment for the approved WWTP (Arup, 2011).

1.2 Proposed Modification

Arup, on behalf of Tooheys Brewery, requests the deletion of Condition 24b from Project Approval 06_0303 (Mod 3).

Condition 24b within the WWTP planning approval requires a facility-wide odour dispersion modelling assessment which would require odour sampling from all existing potential odour sources at the brewery, rather than limited to the new potential odour sources at the WWTP site.

There are many potential sources of odour from the existing brewing processes across the site. Some point sources from existing discharge stacks may be fitted with access ladders or similar means, however many other potential sources are diffuse or fugitive in nature. Sampling of these diffuse or fugitive site wide potential odour sources would be a highly costly and time consuming process. Specifically, such a program would need to ensure both the safety of crews involved in the sampling and implementation of sampling procedures to comply with applicable standards.

As such, through consultation with DP&E and the Environment Protection Authority (EPA), Arup, on behalf of Tooheys Brewery, is requesting the deletion of Condition 24b, the facility-wide odour impact assessment.

Condition 24b: Within 90 days of commencement of operation of the WWTP, the Proponent shall undertake a facility wide Odour Impact Assessment for all approved operations. The assessment shall:

- a) be prepared by a suitably qualified expert;
- b) be submitted to the Director-General and OEH within 6 months of commencing operation of the WWTP;
- c) be conducted in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW;
- d) include:
 - a description of all odour emission sources (fugitive and point) from the facility including the WWTP;
 - facility-wide odour dispersion modelling assessment of the approved operations against the applicable odour criteria;
 - an analysis of the odour control strategies (design features such as stacks or operational logistics) at the brewery;
 - an assessment of the need for additional design features at the brewery (eg. stack points for odour sampling, if any); and
 - details and scheduling for an ongoing odour monitoring program.

1.3 Consultation undertaken

Initial consultation was undertaken with a representative of DP&E in conjunction with a representative from the EPA in April 2014. Through these initial discussions, both government agencies were supportive of an approach to focus on Condition 24a, the odour validation of the new WWTP against the Environmental Assessment (Arup, 2011) and recommended Tooheys submit a Section 75W modification application requesting the deletion of Condition 24b, the facility-wide odour impact assessment.

A consultation letter was sent to a representative from the EPA on 29 July 2014 outlining the proposed modification and justification of the removal of Condition 24b, the facility-wide odour impact assessment. A response was received on 18 August 2014 confirming that the EPA would support a focus on the requirements of the Environmental Assessment (Arup, 2011) and Condition 24a of the Project Approval to ensure proper and efficient operation of the plant. However, in the event of an odour being emitted beyond the premises boundary or impacting surrounding residential development, an investigation would be commenced in accordance with the conditions of Tooheys Environment Protection Licence 1167 and the requirements of sections 124 and 129 of the *Protection of the Environment Operations Act 1997*. Refer to the EPA response letter in Appendix A.

2 Previous odour assessments

Detailed odour assessments have been undertaken for Tooheys Brewery in the site-wide Environmental Assessment in 2007 (Arup, 2007) as well for the Environmental Assessment for the WWTP in 2011 (Arup, 2011).

As detailed in the site-wide Environmental Assessment in 2007 (Arup, 2007), generally odours from breweries are associated with volatile organic compound released during the heating stages of the process. The fermentation and maturation stage of the process produces volatile organic compounds including ethanol and ethyl acetate. However, the gases from the fermentation and maturation process are collected for the purposes of recovery of carbon dioxide. During this process, the carbon dioxide is purified, so that it may be reused in further stages of the beer making process. In this process, the fermentation gas is passed through a gas scrubber, where it is cleaned by counterflow of water removing the water soluble impurities and a gas purifier, removing further substances influencing odour and taste.

As part of the approved site-wide upgrades undertaken in 2008, Tooheys Brewery upgraded the CO₂ recovery plant and increased automation and control which resulted in a decrease in odours.

From a review of Tooheys Brewery process and facilities, the following specific sources of potential odour have been identified:

- direct emissions from wort boiling;
- direct emissions from the maturation and fermentation vessels;
- brewery waste water;
- potential leaks from the ammonia cooling plant;
- ventilation of beer cellars and packaging lines;
- leaks and spills from valves and pipelines; and
- storage of spent grains.

The site is bound on three sides by industrial premises and to the east by residential receivers. The nearest sensitive receivers are the residence to the east and south east of the brewery, with the closest properties located on Nyrang Street.

A complaint was received in 2002 which was found to be due to a mechanical failure of the brewhouse vapour compressor. The EPA was notified of the issue after which Tooheys Brewery was required to implement an odour reduction plan as a requirement of the EPA licence.

The odour reduction programme specifically addressed the risk of volatile wort odours escaping to the atmosphere during wort boiling through management and engineering control methods.

In 2008 numerous odour reduction measures were implemented as a result of the site-wide upgrade of Tooheys Brewery, as shown in Table 1 (Arup, 2007).

Table 1 Odour reduction measures introduced in 2008

Odour Source	Odour Reduction measures (2008)
Direct emissions from wort boiling	Increased automation and control in brew house Increase in heating efficiency
Direct emissions from the maturation and fermentation vessels	Upgrade of CO ₂ recovery plant Increased automation and control
Brewery waste water (being replaced with WWTP)	Reduction in spills diverted to trade waste Being replaced with WWTP
Potential leaks from the ammonia cooling plant	Upgrade of out-dated equipment Partial replacement of ammonia with glycol (non-odorous)
Ventilation of beer cellars and packaging lines	Reduction in spills and leaks due to increased automation and control
Leaks and spills from valves and pipelines	Increased automation and control Replacement of old equipment
Storage of spent grains	Improved technology for used, storage and handling spent grains

3 Odour management practices

Tooheys Brewery Environmental Management System (EMS) outlines a procedure for ongoing odour management onsite. As outlined in the procedure, odour management is triggered in response to a manifested risk onsite (e.g. issue with the vapour compressor) or through receiving an odour complaint. Once triggered, an odour assessment is undertaken by a member of Tooheys Brewery staff by outlining the details of the potential odour event, current weather conditions and assessing the odour condition at six points around the boundary of the Tooheys Brewery site (refer to Figure 1). Odour is assessed using the following detection rating scale (refer to Table 2).

Table 2 Odour Detection rating scale

Detection Rate	Description
0	No odour detected
1	Slight odour, but unlikely to cause complaint
2	Detectable odour, likely to cause complaint
3	Detectable odour, highly likely to cause complaint

Corrective actions are undertaken onsite to rectify odour issues and complaints are managed in accordance with the complaints procedure (refer to Section 3.1) Records of odour management are maintained on Tooheys Brewery internal systems for auditing purposes.

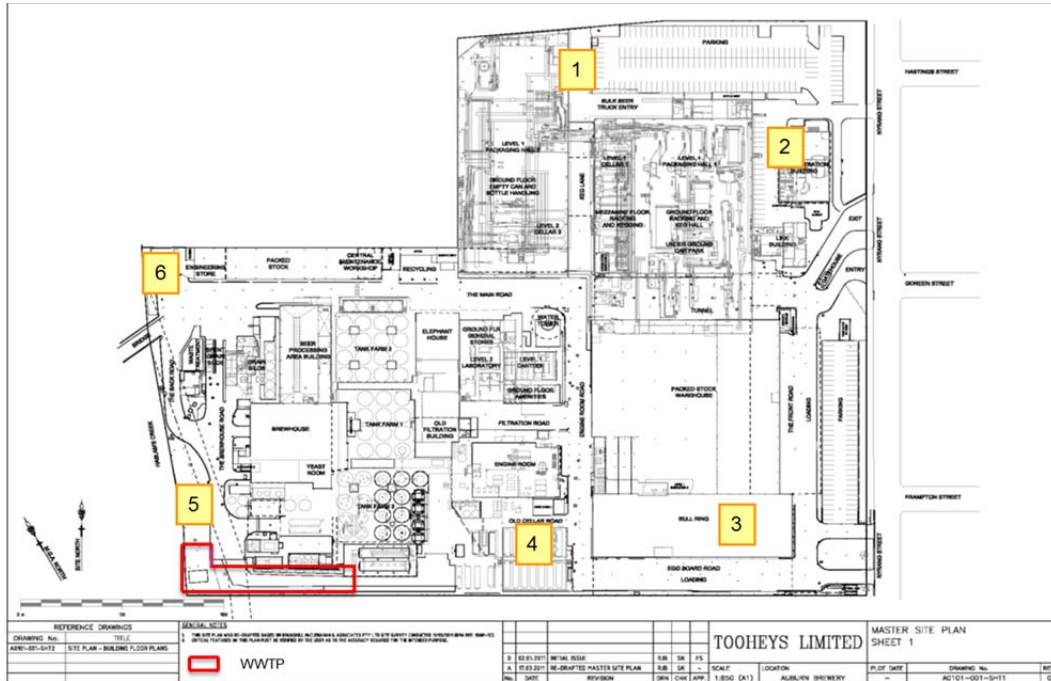


Figure 1 Odour emissions assessment at site boundaries

3.1 Odour audit findings and complaints

Tooheys Brewery has an established communication and environmental complaints procedure to handle issues raised by the community and agency stakeholders. The present system has been in place since 1997 and provides a mechanism for registering complaints and recording, finding resolutions and consulting outcomes for the ongoing operation of Tooheys Brewery. The complaints procedure is outlined in Figure 2.

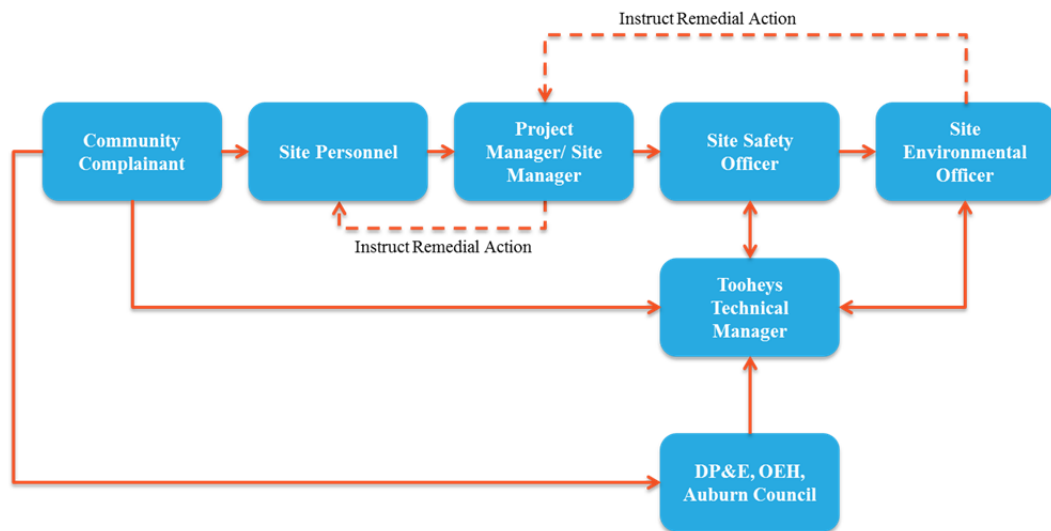


Figure 2 Complaints Response Procedure

The following complaints and audit findings relating to odour have been received since the odour reduction programme was implemented in 2002 (refer to Table 3). The small number of odour complaints received by Tooheys Brewery confirms that, despite the proximity to sensitive receivers, off site odour impacts and associated community complaints are not a significant issue.

Table 3 Odour complaints/audit findings since 2002

Date	Complaint/Audit finding	Details
24/05/2007	Driver (who worked for the Department of Environment and Climate Change) on M4 adjacent to Tooheys site lodged an odour complaint.	Complaint was reported internally to environmental team and investigated No specific source or evidence of odour was identified Tooheys contacted driver to discuss complaint and notified them that no source was found. Driver assumed source was Tooheys Brewery and complainant advised he has closed the complaint and may come out to the brewery for an inspection at another time. Incident closed upon discussing matter with the complainant.
06/03/2008	Audit completed by Environment Essential Pty Ltd identified odour near waste compound on site.	Audit finding was reported internally and investigated. Recommendation provided by audit was to identify alternatives ways of storing waste Tooheys altered waste management strategy to provide smaller waste bins which would be collected more frequently (weekly) Incident closed upon implementation of new waste strategy
30/06/2009	Resident (Kalula Street, Lidcombe) complained of odour from Tooheys site between 7am and 9:30am	Complaint was reported internally to environmental team and investigated. It was found that the ventilation was not operating 100 per cent of the boiling time and odour was therefore venting during the complaint times. Tooheys contacted resident to explain the fault and timeframe (a couple of days) to rectify the situation Incident closed upon completion of corrective action undertaken to rectify the problem.
18/02/2013	Industrial neighbouring property (Offset Alpine) raised concerns about odour from site, southern boundary.	Complaint was reported internally to environmental team and investigated No specific source of evidence of odour was identified Incident closed following the odour management procedure outlined in the Tooheys Brewery EMS.

4 Conclusion

Based on a review of documented community odour complaint data covering the past 12 years, it is considered that odour from Tooheys Brewery is not a significant local issue. The well-established communication and environmental complaints procedure to handle issues has been working well and is considered effective in capturing, investigating, finding resolutions and consulting complaints raised by the community and agency stakeholders. As such, Tooheys Brewery is requesting the deletion of Condition 24b, the facility-wide odour impact assessment.

Condition 24a (Odour Validation) and Condition 24c (facility wide Air Quality and Odour Management and Monitoring Plan) would be undertaken and submitted to DP&E within the required timeframes.

Should the Odour Validation required by Condition 24a identify potentially significant issues with the operation of the WWTP and/or any justified community complaints relating to site-generated odour be received, it is understood that the EPA may require an investigation be commenced in compliance with Toohey's Environment Protection Licence 1997 and in accordance with Sections 124 and 129 of the *Protection of the Environment Operations Act 1997* to ensure that the issues are addressed.

Arup, on behalf of Tooheys Brewery, request that the Department of Planning and Environment approve the deletion of Condition 24b, the facility-wide odour impact assessment.

5 References

Arup (2007) *Upgrade of Tooheys Brewery, Lidcombe, Environmental Assessment.*

Arup (2011), *Tooheys Brewery Wastewater Treatment Plant, Environmental Assessment.*

Appendix A

EPA consultation response letter



Our reference: DOC 14/160113-1
Laura Wythes, 9995 6858

ARUP
Ms Katie Mackenzie
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Dear Ms Mackenzie

The Environment Protection Authority ("EPA") refers to your letter dated 29 July 2014 regarding a modification to Project Approval 06_0303 for Tooheys Brewery located at 29 Nyrang Street, Lidcombe.

The proposed modification, if approved, would remove Condition 24b relating to an Odour Impact Assessment within 90 days of the commencement of the operation of the Waste Water Treatment Plant ("WWTP").

In 2011, as part of advice for the Project, the EPA requested a report on facility-wide emissions prior to undertaking the proposed development of the WWTP. However, the Project Approval requests that this impact assessment take place within 90 days of commencement of operation.

Given that the commissioning of the WWTP is underway, the EPA would support a focus on the requirements of the Environmental Assessment and Condition 24a of the Project Approval to ensure proper and efficient operation of the plant.

In the event of an odour being emitted beyond the premises boundary or impacting surrounding residential development, an investigation would be commenced in accordance with the conditions of Tooheys Environment Protection Licence 1167 and the requirements of sections 124 and 129 of the *Protection of the Environment Operations Act 1997*. Further information on the EPA's approach to compliance can be found in the EPA's Compliance Policy at <http://www.epa.nsw.gov.au/legislation/130251epacompl.htm>

Should you wish to discuss any of the above information please contact Laura Wythes on 9995 6858 (Monday to Wednesday).

Yours sincerely

 13/8/2014

GREG SHEEHY
Manager, Sydney Industry
Environment Protection Authority