

CHALLENGES IN AIR DISCHARGE CONSENTS DUE TO ENCROACHMENT OF RESIDENTIAL USE AREAS

Anita Lloyd, Senior Process Engineer, Harrison Grierson

Lee Marr, Senior Planner, Harrison Grierson

The Lowe Corp tannery is located in Onehunga adjacent to a Mixed Use zone. The tannery produces blue green and salted hides for export. The tannery has operated from this location for over 60 years, but during this time the zoning of the neighbouring sites has changed from Business to Mixed Use and residential areas have developed closer to the site. The process undertaken on site is odorous and has had historical issues with complaints from neighbours.

This project involved a number of complicating factors for the tannery as proximity to the Mixed Use zone meant that the consideration of a number of different views (including neighbours both residential and commercial and Auckland Council) needed to be considered establishing a pathway to consent.

This paper will discuss the process undertaken with the Auckland Council and neighbours to ensure their concerns regarding odour were considered in the development of the long term air discharge consent application and conditions. Consent was obtained for the site without going to hearing and provided a financially viable outcome for the Tannery whilst meeting the environmental requirements of the surrounding neighbours.

INTRODUCTION

Discharges of contaminants in particular odour from industrial processes can be a key area of concern for the local community, in particular in Auckland where historical industrial zones now in some instances border mixed use or in some cases, residential zones.

The Lowe Corp tannery is located in Onehunga in a business zone adjacent to a mixed use business district. The tannery produces blue green and salted hides for export. The Lowe Corp Tannery was first registered in 1881 and established a tannery and finishing leather operation on a portion of the present site in the early 1900's. Currently the site employs around 58 full time staff. The operating hours for both sites cover two shifts from 6.00am to 2.30pm and then 2.30pm to 11.00pm 7 days a week. Production at the tannery typically ranges from 300,000 to 400,000 wet blue hides per year.

Over the years the underlying zoning of the surrounding area has changed over time from industrial to mixed business use and residential areas have moved steadily closer to the site. The process undertaken on site is itself odorous and has had historical issues with complaints from neighbours.

The Lowe Corp tannery air discharge consent had expired and therefore a new air discharge consent was required for operation of the tannery activity onsite. Whilst the tannery is located in a business zone in which odours are more acceptable given anticipated activities (light to heavy industry), the adjacent mixed use zone has a different expectation of acceptable odour given the wide range of activities that can establish there. Additionally there had been historical odour issues (now resolved) which factored into the perceived odour levels by the surrounding community. The preparation of the consent application involved the consideration of a number of different views, i.e. the neighbours, tannery and Auckland Council. Any long term consent conditions would need to be financially

acceptable to the Tannery and environmentally acceptable to the surrounding land use (commercial and residential).

TRADE WASTE STREAMS AROUND THE SITE AND ASSOCIATED AIR DISCHARGES

The operation of the Tannery includes the following processes: fleshing/trimming, soaking, liming, de-liming, bating, pickling and wet-blue tanning. Each of these steps generates a liquid trade waste stream which is pre-treated on-site before disposal to the Auckland Council sewer. The main sources of tradewaste from around the site are the following streams:

- Untreated Hides (Processing and Storage Areas);
- Tannery Process (i.e. drum treatment); and
- Wastewater Treatment System.

The Tannery process generates the following trade waste streams with associated odours:

- Sulphide Stream (Liming and delime stages of the process);
- General wastewater stream (source from washdown around the site, soaking and bating); and
- Chromium stream (tanning).

The high alkaline condition of the sulphide stream (approximately pH 12) ensures that there is no free hydrogen sulphide within the solution, which instead exists in the ionised HS^-/S_2^- form that remains dissolved in solution. Therefore due to the high pH, negligible amounts of odour are emitted during this stage of the process. The sulphide is pre-treated in an onsite oxidation tank before discharge to the Auckland Council Sewer.

The general wastewater stream is transferred to the on-site wastewater treatment plant for pre-treatment. This is combined with the treated sulphide stream and discharged on a daily basis to the Auckland Council Sewer.

Wastewater from this process is transferred to the chromium recovery plant. No waste from this stream is discharged to the Auckland Council sewer network.

CHANGING USE

While the tannery itself is located within Business 6 zone (for light to heavy industry), within an Industrial Air Quality Management Area, and adjacent to in Neilson Street where there are a number of other businesses which have the potential to emit nuisance odour associated with plastics manufacture and industrial engineering processes, the tannery is also bordered to the north by a Mixed Use zone which has areas of residential development. Therefore the potential effect any air discharge on the neighbours needed to be carefully considered and mitigated where possible.

HISTORICAL COMPLAINTS

According to Auckland Council records between 2003 and 2008 there were 15 complaints in total related to the tannery and all of the complaints related to odour. The large majority of the complaints were not validated. Of the two that were validated (i.e. odour was detected), Auckland Council officers did not consider the odour to be strong enough to be offensive.

Since 2008 there have been an additional seven complaints, all unvalidated. Six occurred within a 4 day period in October 2010, and were unable to be validated as the odour was not present at the time Auckland Council officers attended the site. One additional complaint occurred in February 2011 (again unvalidated).

Auckland Council records indicate that these complaints have largely come from sites to the north-east and north, which is to be expected as this is the direction of the more sensitive receivers. However none of these complaints have been validated as being offensive or objectionable beyond the boundary of the site.

Overall, based on the complaint record, there had been no proof of offensive or objectionable odours going beyond the boundary of the site.

PATHWAY FORWARD TO CONSENT LODGEMENT

Due to the number of historical complaints a pre-application meeting was arranged with Auckland Council. This allowed the Council Officers to air any concerns and issues with the current discharge from the tannery site and help smooth a pathway to consent.

Consultation was also undertaken with the neighbours via a letter drop, but no response was received.

In preparing the application a consideration of the actual and potential adverse effects of the proposal was undertaken. This found that the main adverse effect is likely to be odour generated by untreated hides, the tannery process itself and the wastewater treatment system. There were a range of mitigation measures proposed as part of the application to avoid odour beyond the boundary of the site, including:

- An overall Air Quality Management Plan;
- Management procedures for the storage of untreated hides, including temporary preservation to reduce bacterial degradation of the hides, storing hides indoors at all times, maximising door closures etc;
- An extraction system to remove excess hydrogen sulphide and ammonia from the wastewater treatment plant, including a bio-filter . The use of this bio-filter is considered to be the best practicable option to control odour in this circumstance; and
- Segregated pipes from the wastewater treatment plant to avoid mixing of wastes that might generate odour.

An important positive effect to be considered is that the tannery provides important economic contribution. The tannery operation provides employment for over 50 people. The site converts a waste product (the hides) into a valuable export product, contributing additional export revenue for the country's agricultural products. The cost of relocating the tannery to an alternative site is economically prohibitive.

Auckland Council was concerned with the number of historical complaints regarding the site and had highlighted this during the pre-lodgement meetings. To quantify whether the historical complaints were still valid an environmental phone survey was undertaken to gauge the degree of annoyance from odour in the surrounding area. This survey was carried out following the guidelines of the Ministry for the Environment's Good Practice Guide for Assessing and Managing Odour in New Zealand. The results of this phone survey found that there were some residents with concerns regarding odour that they perceived to be associated with the site.

Typically in an air discharge consent application modelling would be undertaken to quantify the discharge plume and the likely effects on the surrounding environment. However to attempt to quantify and model the potential malodorous emissions from the site and the other sources in the area under various meteorological conditions is a major technical undertaking. Given the fugitive nature of some of the sources of odour, and the significance of error introduced into the model, Auckland Council officers agreed that modelling the site was impractical.

In order to determine the actual odour effects on the surrounding environment, as opposed to the perceived effects as articulated through the environmental survey, Odour Scout Monitoring was undertaken in the surrounding area. The conclusions of this survey found that the tannery was not having a significant effect on the air quality of the surrounding neighbourhood and the application was lodged based on these conclusions.

POST CONSENT LODGEMENT - NOTIFICATION

Auckland Council had been well informed prior to lodgement of the contents of the consent application and was satisfied that the application provided the information that they required to assess the application. However due to the number of historical complaints they considered it appropriate to notify the application. They limited the notification to those highlighted from the phone survey as “potentially affected” which was within a 150m radius of the site boundary. This limited notification was important for Lowe Corp as it significantly reduced the number of potential submitters.

Following the notification period Auckland Council received three submissions, one in support of the Tannery and two in opposition. Following contact from Auckland Council all three submitters withdrew the requirement to be heard.

As a result of the studies undertaken and the lack of submitters wanting to be heard, the Auckland Council officers agreed with the conclusion that there is unlikely that there will be emissions of odour that would be offensive or objectionable beyond the boundary of the site. The site utilises good management practices as outlined in the Air Quality Management Plan to minimise the likelihood of odour occurring, as well as using a best practice control technology to ensure odours that do occur are removed prior to release into the atmosphere, and on this basis the consent was granted without hearing. Lowe Corp was satisfied with this result as it provided them with a timely consent and a significant cost savings both in time and financially from not having to present at a hearing.

CONCLUSIONS

The granting of an air discharge consent with adjacent residential zones can be a difficult process and in some cases costly process. Lowe Corp Onehunga Tannery overcome these potential issues by early interaction with Auckland Council, a comprehensive application which covered off key issues raised by Auckland Council and extensive canvassing of local opinion. .

ACKNOWLEDGEMENTS

Lowe Corp Onehunga Tannery