Amendment Report

CEO-initiated licence amendment

Division 3, Part V of the *Environmental Protection Act 1986*

Licence number	L6146/1990/12
Licence holder	Meneghello Galvanizing Pty Ltd
ACN	008 897 729
DWER file number	DER2016/001399
Premises	Meneghello Galvanizers (“MGalv”) 46 Rogers Way LANDSDALE WA 6065
Date of report	14/11/2022
Decision	Revised licence granted

1. Decision summary

Licence L6146/1990/12 is held by Meneghello Galvanizing Pty Ltd (licence holder) for a hot dip galvanizing facility located in Landsdale (premises).

The Department of Water and Environmental Regulation (department) initiated a review to ensure that conditions on the licence remain adequate to manage the risk of unacceptable air emission impacts on the environment and public health. As a result of this assessment, the department initiated and granted amendments to the licence.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this report, the department has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Assessment summary

The department completed a review of the licence in 2018, taking into account information from site investigations and complaint responses around that time. The review in 2018 determined that pollution control equipment did not adequately capture and treat process related emissions. The licence was amended by the department in August 2018 to include a range of more stringent requirements relating to air emissions control and treatment, noise and complaints management.

Site inspections and complaint responses since the 2018 have continued to identify potential issues with the fugitive release of fumes from the premises. The department therefore requested further air emissions information from the licence holder as part of its 2021 licence renewal application. As this information was not received in time, the department renewed the licence for a limited 12 month period so that information could be properly considered, including the need for any further amendments to the licence.

This Amendment Report documents the limited scope review and assessment of air emissions to ensure the conditions on the licence remain adequate to control the risk of unacceptable impacts from air emissions.

3. Process overview

3.1 Premises background

The premises was established as a hot dip galvanizing facility in 1990 with vacant land to the south of Furniss Road at that time. However, the premises has experience gradual encroachment by commercial and residential development to the south, including commercial premises built along the southern side of Furness Road in the early 2000's and subdivision of Darch in late 2006 and 2007. There are now houses within approximately 150 m of the premises boundary. Complaints relating to fume emissions and nuisance noise from Darch residents commenced in approximately late 2006.

3.2 Process overview

Galvanizing (hot dip galvanizing) is the process of coating iron, steel or ferrous materials with a thin layer of zinc, by immersing the metal in a molten bath of zinc at a temperature of about 450°C. This gives objects a coating of zinc which is highly resistant to corrosion and abrasion.

Galvanizing operations are conducted in a building with a large door to the south where items

to be galvanized enter the building and door on the west where galvanized objects leave to enter the fettling shed.

The process of galvanizing at this facility involves:

- degreasing of metal objects in caustic or acid baths (cleaning);
- zinc stripping in an acid bath when an object is being re-galvanized;
- pre-treating the objects in hydrochloric acid (pickling) to prepare the surface;
- dipping the object in a flux bath of zinc ammonium chloride which optimises the covering of the surface with zinc (fluxing);
- dipping the object in a zinc kettle (size 9.2 metres long, 1.6 metres wide and 2.7 metres deep) containing molten zinc at 440°C to 460°C (galvanizing); and
- dipping the object in a quenching bath containing a weak solution of sodium dichromate.

Objects lowered into the molten zinc kettle cause the emission of the galvanizing white fume which is mainly from the decomposition of the flux. Fumes can contain components such as hydrogen chloride, ammonia, ammonium chloride, zinc oxide, zinc and other particulate material. Dipping into the zinc kettle occurs at approximately 15 to 20 minute intervals throughout a shift and the facility typically operates 24 hours a day, 7days a week.

Fumes can be reduced by ensuring that the item to be dipped is dried after being removed from the flux bath prior to being dipped in the zinc kettle.

A ridge vent in the roof of the building captures air from the interior and vents through a stack driven by a fan. Vapour emissions are generated from the degreasing, stripping, and pickling tanks and are captured by a ridge vent and directed to a stack for discharge to air.

Dense fumes of ammonia and ammonium chloride are generated as objects are dipped into the zinc kettle. Emissions are captured by a fume hood and directed to a baghouse for treatment prior to discharge. The baghouse was installed in 2008 and a movable hood was installed in 2015 to allow direct capture and extraction of zinc kettle fumes to the baghouse.

4. Complaints

The delegated officer has taken into account that ongoing complaints have occurred since the 2018 review and associated amendments to the licence. A summary of complaints between 2018 and 2021 is provided below in Table 1.

In 2017 and 2018, there was a significant increase in complaints that culminated in a targeted inspection that culminated in the 2018 review and licence amendments. The inspection findings are further discussed in section 5.

Table 1: Complaints received by the department between 2018 and 2021

Year	No of Complaints	Type of complaint
2017	12	10 air emissions, fume and odour 4 noise or include noise
2018	25	24 air emissions, fume and odour 2 noise or include noise
2019	12	8 air emissions, fume and odour 5 noise or include noise
2020	11	10 air emissions, fume and odour

Year	No of Complaints	Type of complaint
		2 noise or include noise
2021	3	3 air emissions, fume and odour 0 include noise
2022	4	4 air emissions, fume and odour 1 includes noise

5. Compliance and enforcement summary

5.1 Environmental Protection Notice.

As a result of the department's investigation into complaints, site inspections and monitoring analysis, an Environmental Protection Notice (EPN) was served on the licence holder in January 2008.

The EPN was served as the department suspected on reasonable grounds that emissions of galvanizing process fumes, smoke and/or gases from the premises were likely to contain elevated alkalinity, a hazardous substance (zinc ammonium chloride, ammonium chloride, hydrogen chloride or related break-down products and odour) and were causing pollution in Landsdale and Darch. This included suspected health impacts outside the premises boundary.

The EPN required that the licence holder ensure the premises does not cause irritation of the skin, eyes, nose or throat of any person situated outside the premises boundary. The licence holder responded by installing a baghouse and later a fume hood to capture and treat fumes from the zinc kettle.

Following installation of the baghouse March 2008, the complaints significantly reduced to approximately 2 or 3 complaints per year, predominantly during the winter months.

5.2 Inspections

5.2.1 Compliance inspection (2019)

The department completed a compliance inspection of the premises in May 2019.

Officers observed premises during dip and reported fumes only from authorised emission points. Officers reported that stack 3 had been blocked off and the licence holder advised they had completed works repairing the cladding.

5.2.2 Follow up compliance inspection (2020)

The department completed a compliance inspection of the premises in April 2020.

No emissions other than authorized emission points during inspection.

5.3 Investigations

The Department is currently investigating emissions from the facility which are alleged to have impacted nearby residents and businesses. Once finalised, the Department will determine an appropriate outcome in accordance with its Compliance and Enforcement Policy.

6. Licence summary

6.1 Licence review (2018)

As a result of site investigations and complaint responses in the lead up to the 2018 licence amendments, the department determined that pollution control equipment did not capture all process related emissions and treat them appropriately. The department's investigation indicated that white fume containing ammonia was escaping from the building through openings such as doors, windows and broken sheeting and not being directed to the baghouse. Uncontrolled fumes were also being allowed to escape from the galvanizing shed through a decommissioned stack and the fan extraction system was not located directly over the zinc kettle reducing the effectiveness of the system. There had also been 27 complaints regarding emissions from the premises since January 2017.

As a result of the 2018 review, the licence was amended via Amendment Notice in 2018 with the following changes:

- all galvanizing fumes must be directed to pollution control devices and emitted through approved emission points, including:
  - ensuring doors and windows are closed during hot dip galvanizing;
  - maintaining the cladding of the galvanizing building to ensure there are no holes in the walls and roof;
  - removing decommissioned stack 3 (and covering the resulting hole in the roof);
  - ensuring items removed from the flux bath are dry, before being placed in the zinc kettle; and
  - ensuring the zinc kettle has a hood that encloses the surface of the molten zinc during the hot dip process, so that all fumes are captured and directed to the baghouse;
- an environmental audit on activities that generate, or have the potential to generate, wastes be undertaken;
- engaging a qualified noise specialist to investigate improvements to noise emitted by the premises operations; and
- all complaints must be recorded, investigated and appropriate action be taken and documented.

6.2 Other licence matters

In May 2021 the licence holder applied to renew its licence. The department granted a licence in August 2021. The licence holder was requested to provide air emissions information as part of its renewal application. As this information was not provided in time, the department granted the renewed licence for a 12 month period so the information could be properly considered. The August 2021 renewed licence changes were limited to administrative updates to the format of the licence, definitions and the amalgamation of amendments in the 2018 Amendment Notice.

While the department commenced its targeted review of air emissions in 2022 it was unable to complete the review in time for the August 2022 expiry. The department therefore initiated an amendment to extend its expiry for 6 months on 19 August 2022 to enable finalisation of the review and any amendments to the licence.

7. Risk assessment

The delegated officer assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the

receptor from exposure to that emission.

7.1 Source-pathways and receptors

7.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during Premises operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the current control measures the Licence Holder uses to assist in controlling these emissions, where necessary.

Table 2: Emissions, sources, pathways and licence holder controls

Emission	Sources	Potential pathways	Proposed controls
Odour and fume	Acid and caustic baths Zinc Kettle	Air/windborne pathway	• Baghouse • hood for zinc kettle can be raised and lowered. • Pickling fumes extracted through Ridge vent and discharged at height of 24 metres.

7.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the licence holder from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Closest residential receptor	155 metres from southern boundary of property
Environmental receptors	**Distance from prescribed activity**
Threatened Ecological Community *Banksia Dominated Woodlands of the Swan Coastal Plain*	65 metres from northern boundary

7.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 7.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 7.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the licence holder's proposed controls to be critical to maintaining an

acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L6146/1990/12 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Reasoning
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation								
Pre-treatment	Fumes and odour emissions from acid and caustic baths	Air/windborne pathway causing impacts to health and amenity	Neighbouring business and residential premises 155 m south	Refer to Table 2	C = Moderate L = Possible **Medium Risk**	N	Condition 1**, 2**, **6**	The delegated officer formed the view that the conditions of the existing licence, as amended through review in 2018 are generally reasonable and adequate to control the risk of fumes and odour. The delegated officer will amend the licence to clarify that only objects that completely fit in the zinc kettle and are completely covered by the fume hood shall be hot dip galvanized. This is further discussed in section 7.3.
Hot dip galvanizing of metal	Fumes and odour from the zinc kettle galvanizing process							

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

7.3 Additional risk assessment information

7.3.1 Odour and fume emissions from the zinc kettle

Odour and fumes are generated by the pickling baths and especially during the hot dip galvanizing step. The pickling baths emit hydrogen chloride fumes and there is potential for some odour from the caustic bath. The zinc kettle emits ammonium chloride fumes which are highly opaque, can be irritating to eyes and mucous membranes and carries an unpleasant odour.

In late 2020, the department visited the premises to observe an activity in the zinc kettle known as “double dipping.” It is understood from the licence holder that a small proportion of items for galvanizing are large enough that they do not completely fit in the zinc kettle and are not completely covered by the fume hood during immersion. These objects are dipped in two stages causing the release of fumes outside of the fume hood.

During double dipping, uncaptured fumes can accumulate within the building and be discharged through the ridge vent stack without baghouse treatment. The department observed that the building cladding, doors and windows continued to have significant issues with gaps and holes allowing the escape of fugitive emissions within the building. Double dipping of objects also increase the risk that accumulated fumes in the building are fugitively released through unsealed areas of the building or when doors are opened.

A waste audit was submitted in June 2019 and an updated waste audit submitted August 2019. The department considered that the first report did not address emissions to air other than referring to a stack testing report from February 2019. As the galvanizing process is a batch process and there can be a significant variation in fumes between dips, the stack testing result is unlikely to be representative.

The updated emissions report submitted with the 2021 licence renewal application addressed air emissions in more detail, however discussion was limited to descriptions and a detailed audit reviewing the incidents of fugitive emissions and double dip galvanizing was not carried out. The waste audit was of more value for solid and liquid waste and the delegated officer considered it did not provide meaningful air emissions information for the scope of this amendment report.

8. Consultation

8.1 Local government authority

DWER invited comment from the City of Wanneroo (the City) on 26 July 2021. The City provided a submission dated 9 August 2021 noting that the facility had valid planning approvals and advised the following:

- The City hadn’t had complaints since 2019, however prior to this there were at least 17 complaints from nearby residents of Darch in relation to night time noise and fugitive emissions from the galvansing process, including alleged health impacts.
- The City has not had success in working with the licence holder to achieve improvements and noted that the majority of improvements were due to requirements under the licence.
- Requirements on the licence should protect neighbours from noise and fugitive emissions;
- The department should continue to monitor the site to ensure maintenance and control are maintained to protect residents;
- Periodic testing of all emissions should occur with results provided to DWER to ensure levels aren’t detrimental.

- The licence is time limited so refusal or reassessment can be carried out if the facility deteriorates and causes impacts.

The delegated officer took these comments into account and took the view that the determined amendments outlined in section 10 provide further clarity in the licence holder's obligations and further minimise the risk of fugitive emissions from the zinc kettle that has been linked to incidents of emissions from the shed and associated complaints.

The premises undergoes ad-hoc inspection as part of the departments compliance inspection audit schedules. The most recent compliance inspection on 24 October 2022 has been taken into account in this assessment. The delegated officer notes that the duration of the licence has been limited to five years in aggregate from the last renewal of the licence in 2021.

In relation to noise emissions, the licence holder is required to comply with prescribed noise standards in the *Environmental Protection (Noise) Regulations 1997*.

8.2 Licence holder

The licence holder was provided with a draft licence and decision report for comment on 14 September 2022. The licence holder replied on 6 October 2022 and the comments and delegated officer's response is set out in Appendix 1.

The delegated officer carefully considered the licence holder's request to proceed with the change to Table 1 in condition 1 that will restrict zinc kettle activities to only those object that are no larger than the zinc kettle. As noted in Appendix 1, the licence holder outlined a number of upgrade to the zinc kettle fume hood that the licence holder believes allow the hood to remain enclosed with adequate extraction while galvansing items that don't fit within the standard bath.

The delegated officer has taken the following into account:

- the licence holder did not consult with DWER prior to installing the modifications, and opted not to apply for a works approval or licence amendment so that the proposed fume hood modifications could be properly assessed by the department;
- the licence holder has not provided any scientific evidence, data or studies to qualify claims that the modifications are fit for purpose and adequately provide full extraction of fumes during dipping of objects larger than the bath size;
- On 27 July 2022, DWER officers observed and photographed a large amount of fume exiting the doors of the shed which was also full of fumes. This is understood to have occurred post-fume hood modification indicating that the modifications and the fume hood generally is not fit for the purpose of adequately capturing all fumes from protruding objects.
- DWER officer's observed the fume hood modifications as part of a site inspection on 24 October 2022. Inspector's formed the view that the modifications did not appear fit for purpose or capable of adequately capturing all fumes from protruding objects. It was also noted that the shed continues to have gaps and holes in wall cladding. While the licence holder outlined a plan to progressively address this issue in the next six months, the delegated officer noted that the agency has raised issues with wall cladding and sought rectification over a number of years without timely resolution.
- The licence holder is able to complete sealing of the shed and undertake scientific analysis of the efficacy of the fume hood under various conditions and apply to amend the licence at a later date with sufficient supporting evidence. The delegated officer recommends consultation with the department prior to undertaking any scientific analyses on the fume hood efficacy.
- The licence holder is able make an application under Part V of the EP Act and propose further upgrades to the fume hood, extraction system or air pollution control equipment for the facility to demonstrate the capture and treatment of air emissions is appropriate under

all proposed circumstances.

Based upon the above points, the delegated officer determined to proceed with the amended requirement that restricts objects larger than the zinc kettle bath.

9. Determined licence controls

The licence was amended in 2018 to include more stringent conditions to control the risk of air emission impacts from the premises. Condition 1 specifies a range of requirements that the delegated officer considers remain appropriate to manage the assessed risk of unacceptable air emission impacts. This including operational requirements in respect of the galvanizing shed, zinc kettle, tanks and baghouse. The licence also include two authorised air emission points; the baghouse stack for emissions from the zinc kettle / hot dip process and the ridge vent stack only for emissions from the acid, caustic and quench tanks.

With respect to the zinc kettle and the observed activity of double dipping, the delegated officer noted that the existing licence contains requirements to:

- have a hood enclosing the surface of the molten zinc during the hot dip process so that it captures fumes emitted from the kettle and directs them to the baghouse which must be in operation during the hot dip process (Condition1, Table 1);
- ensure that fumes from the hot dip process are only discharged to the S1 baghouse stack (condition 7); and
- ensure that no visible fumes generated by the activities of the premises cross the boundary of the premises.

However, the delegated officer will amend the licence to provide additional clarity around requirements for control of air emissions from the zinc cattle. Amendments to the licence will include:

- Condition 1, Table 1 (zinc kettle) - ensure that all items or objects placed into the zinc kettle for hot dipping must completely fit within the dimensions of the kettle and no part is to protrude beyond the sides of the kettle during the dipping process; and
- Condition 7 (authorised discharge points) – updated the reference in Table 2 from “fumes during hot dip process” to “fumes from the zinc kettle during hot dip process.”

10. Decision

Based on this assessment, the delegated officer has determined to amend the licence as specified in section 9. The reasons for this decision are:

- Sensitive receptors are in close proximity to the premises with the closest resident approximately 150 m from the premises boundary;
- The existing licence in general has appropriate risk based conditions to manage the risk of air emissions, specifically fumes and odour from the galvanizing process, if the licence holder complies with the conditions.
- The department has observed the activity of “double dipping” large objects in the zinc kettle. This results in fumes from the zinc kettle that can potentially escape capture by the fume hood and treatment by the baghouse. During double dipping, a proportion of fumes are fugitively released and accumulated inside the building where they can be vented untreated by the ridge vent or there is an increased risk of fugitive release via unsealed structures of the building or via doors when opened.
- If not appropriately captured by the fume hood for treatment via the baghouse, the department’s previous assessments and investigations have established that there is an unacceptable risk that zinc kettle fumes during the hot dip process can cause impacts

beyond the premises boundary.

- The amendments don't necessarily change the regulatory obligations, but rather provide further clarity that double dipping of objects that don't fit in the zinc kettle is not to occur.
- Four additional complaints were received between 12 July 2022 and 5 August 2022. A visit by DWER inspectors on 27 July 2022 found significant emissions through an open door and the amount of fume indicated that the hood on the galvanizing bath was not likely capturing the fumes sufficiently.
- Consideration of the licence holder's submission and the delegated officer's response to the points raised in section 8 and Appendix 1.

The delegated officer also deleted condition four related to taking reasonable and practical measures to prevent visible dust emissions from the premises. The delegated officer considered the conditions was not consistent with the department's *Guidance Statement: Setting conditions*. The condition duplicates condition 4 (visible dust across the boundary) and was unlikely to be enforceable.

The delegated officer also took into account the department's *Guidance Statement: Licence duration* and determined to extend the licence for a 5 year duration in aggregate from the date of last renewal.

11. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

11.1 Summary of amendments

Table 5 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 5: Summary of licence amendments

Condition no.	Proposed amendments
Cover Page	Extended the expiry date to 31 August 2027
2	New condition to prevent dipping in zinc bath of objects that project beyond the hood
4	Condition 4 of the existing licence has been deleted

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of licence holder's comments on risk assessment and draft conditions

Condition	Summary of licence holder's comment	Department's response
Decision report description of Galvanizing section 3.2	The licence holder asks to update the description of process	The delegated officer has changed the description of the galvanizing process
Decision report section 3.2 paragraph 4	Delete paragraph 4 because wet galvanizing is an outdated practice which does not occur at this facility.	The delegated officer has agreed to delete the sentence referring to wet galvanizing, however the licence holder is to note that Table 1 in condition 1 continues to specify this activity must not be carried out.
Section 5.1 of decision report	Request more information about suspected health impacts. The licence holder has engaged a consultant to provide personal hygiene monitoring of the licence holders employees and none of the employees were above the relevant exposure limits for respirable dust.	The statement about suspected health impacts in section 5.1 relates to discussion of the grounds for serving an EPN in 2008. It is noted that the department investigated complaints, inspected the site and undertook monitoring analysis. The EPN was served on the basis the department suspected on reasonable grounds that emissions were causing pollution in Landsdale and Darch. Section 5.1 was updated to clarify that suspected health impacts were outside the premises boundary.
Decision Report 7.1.2	The licence holder asks for clarification of the statement: 'In accordance with the Guideline: Risk assessments (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the licence holder from its assessment'	The licence holder is referred to point 11 in section 5 of the department's published *Guideline Risk Assessments*. The department assesses risk based on a source-pathway-receptor model, however does not consider employees, visitors or contractors of the licence holder as receptors as other state legislation protect them from exposure risks and mandates prevention strategies. The licence holder is welcome to contact the department for further clarification on this point as needed.
Decision Report 7.3.1	The Licence holder asks for clarification of the statement: 'The updated emissions report submitted with the 2021 licence renewal application addressed air emissions in more detail, however discussion was limited to descriptions and a detailed audit reviewing the incidents of fugitive emissions and double dip galvanizing was not carried out.'	The delegated officer considered the report was incomplete and not comprehensive. It had limited value to inform the risk of air emissions from the premises as part of this review.

Condition	Summary of licence holder's comment	Department's response
Licence table 1	Request that the amendment to prevent items protruding beyond the hood should not proceed. Upgrades to the hood including: • Heat rated 5-10 mm PVC drop down shroud on the front of hood • Back of hood has heat rated 5-10mm PVC shroud with a split to allow complete closure for single dips and the ability to poke large beams (double dips) through, meaning the hood can be used for both double and single dips. • Both left and right sides there is a 5-10mm thick flexible heat rated PVC joining the sections together and prevent emission escape. The improvements allow the hood to remain enclosed with adequate extraction whilst galvanizing items that do not fit within our standard bath which meets the terms and conditions of the current licence.	The delegated officer considered the licence holder's submission points, however determined to proceed with the proposed amendments. More detailed reasoning to this point is provided in section 8.