Environodour AUSTRALIA PTY LTD

We make scents of odour

EnvironOdour Australia Pty Ltd
ABN: 83 003 175 705 ACN: 103 510 685

Suite 1, 629 Gardeners Road, Mascot, NSW 2020
Tel & Fax: 61(0)2 9662 3388

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Volant Wills

Head of Operations

Goterra

Contact details: +61 426613512

Dear Volant,

We are preparing this response to EPA's letter dated on 30 August 2023.

The odour samples were taken in the morning hours between 8:40 – 9:02AM on 27th March 2023 after the sheds were closed at midday on previous day (26th March) and left shut overnight (26th March). This is evident in Figure 8 (Diurnal variation for CO_2 and the environment conditions). These odour samples were considered as the worst-case scenario for odour emission after the closure of the sheds.

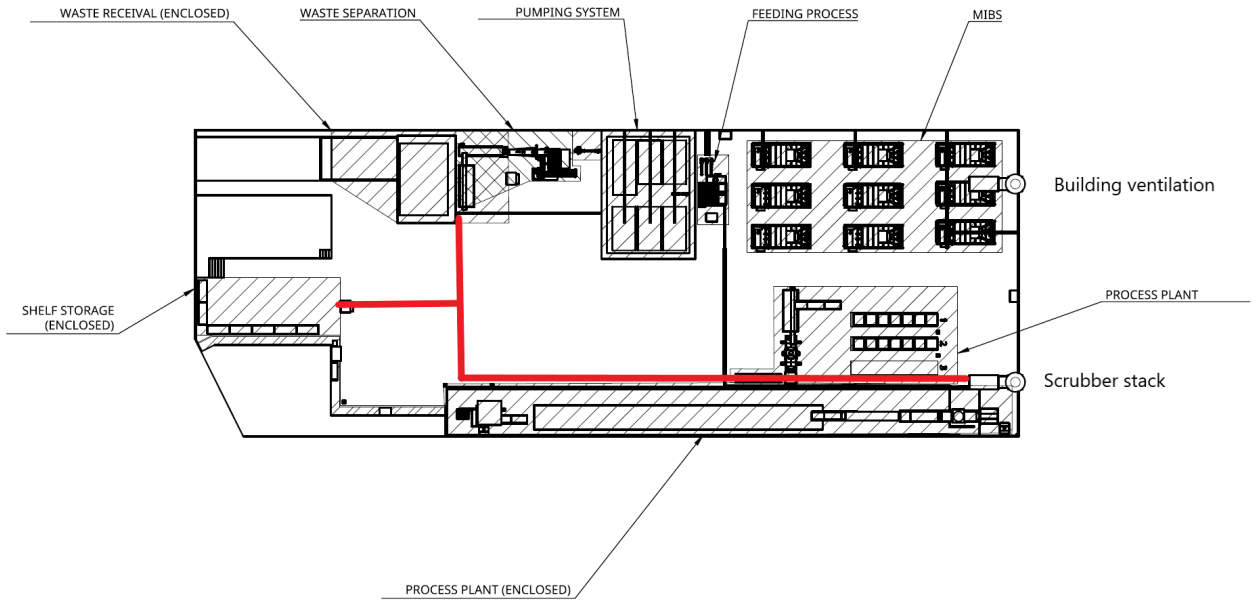

Figure 1 Floor plan for the proposed processing units

The factory at Hume is operated under natural ventilation condition. The proposed factory at Weatherall Park will operate within a giant warehouse shed under a mechanical ventilation condition. These processing units of waste receival, process plant and storage room are all enclosed and ventilated

through a wet scrubber and impregnated activated carbon filters. This part of exhaust is then released at the back of the building via building ventilation fan. Modular Infrastructure Biological Service (MIBS), in the form of shipping containers, are left in the second half of the shed (see Figure 1). The processing units of waste separation and pumping system are sealed and are not considered as the odour sources. The exhaust from this area is hen vented to outside the building via a second centrifugal fan scrubber stack.

From the author's experience in measuring odour emissions from animal farms and industrial buildings, the mechanical ventilation can reduce odour concentrations quite significantly in comparison to naturally ventilated buildings. As the ventilation rate increases, the odour concentration reduces as a result of dilution but the emission rates may remain the same.

We have compared the two operations in Table 1 below.

Table 1 has confirmed that for the same air exchange rate (2 times per hour), the ventilation rate in the naturally ventilated building is half the one in the mechanically ventilated building. Therefore, the odour concentration is also halved. This assumption has not taken into account that the processes are operated within the enclosed building and the exhaust are treated by a chemical scrubber.

As stated in the EPA document (Technical framework: assessment and management of odour from stationary sources in NSW):

> **Level 2 odour assessment procedure**
>
> Level 2 odour impact assessment uses a screening level of dispersion modelling. A Level 2 assessment may be selected by the proponent as the desired level of assessment from the outset if it is likely odour will be a significant issue. Level 2 odour impact assessments use worst case meteorological data and a worst case odour emissions model.

Furthermore,

> **Level 3 odour assessment procedure**
>
> Level 3 odour impact assessments use more comprehensive and site-specific level of dispersion modelling. A Level 3 assessment may either be selected by the proponent from the outset or carried out in circumstances where a proposal has failed a Level 2 assessment. Level 3 odour impact assessments use at least one year of hourly average site-representative meteorological data and, where available, an odour-emissions model.

The current level 3 odour impact assessment was prepared using the sampled odour emission data in a similar factory arrangement under the worst case scenario, five years meteorological data at nearby Bureau of Meteorology weather observation data. It is believed that the odour impact assessment was a rather conservative approach.

Furthermore, it is suggested that after the factory commissioning, an air sampling and testing should be arranged to confirm the design conditions of the wet scrubber such that the odour emissions confirm those in the dispersion model through air assessment of known gases and VOC's at stack discharge. The proposed operation can demonstrate the compliance with the odour performance criteria of NSW EPA.

Table 1 Comparison of two sites

	Hume, Canberra	Wetherill Park, NSW
Process	Batch manufacture and perform collection manually	Continuous process to the final product.
Waste intake	On a hardstand in an open-door system into the waste receival area	Receive inside the building, stored inside the shed area.
Waste receival, Tons/month	160	500
	In an open environment	In an enclosure
Protein, Tons	12	40
	These are stored in the shed	These are processed in an enclosure building
Frass, Tons	40	125
	The frasses are pelletised	Discharged to an offsite composting facility to cure - product will not stand for more than 2 consecutive days
Ventilation	Naturally ventilated through the wheely birds	Mechanically ventilated by two fans at the door opening
Area, m2	15 x 40 = 600	30 x 50=1500
Volume	4800	12000
Ventilation rates, m3/hr	9600	20160
Air exchange rate	2	2
Odour conc.	350	175

The final design for the building is only two ventilation fans. There are no 10 stacks and 3 stacks to remove the heat which was in the early design. The odour report has now been amended to confirm the ventilation arrangement.

As per recommendation - Stack designs will exclude fitted hoods however this would have not impacted the dispersion model due to sufficient reduction in concentration within the building. From an odour dispersion point of view, it is also not necessary to install the fitted hoods for the exhaust fans.

In summary the final wet scrubber design is only recommended to be finalised on approval of the concept drawing and quotation attached. This final design will include a performance clause to ensure discharge gases and VOC's are measured on commissioning.

Your sincerely

John Jiang

Principal | CAQP, CASANZ