

EPA Guidelines

Animal processing works

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EPA 118/02: This guideline provides information to those involved in protein recovery on selecting procedures and equipment that should enable them to comply with the Environment Protection Act 1993 (the Act). Animal processing works are included as a prescribed activity of environmental significance in Schedule 1 to the Act and require a licence under the Act.

Introduction

The Environment Protection Authority (EPA) expects that activities with odorous emissions will incorporate best practice odour management to minimise and manage odour emissions and their potential impacts.

Odour criteria in South Australia are based in principle on compliance with the general environmental duty – to avoid environmental nuisance using 'best available technology economically achievable' (BATEA). You are referred to the EPA Guideline *Odour Assessment Using Odour Source Modelling* (March 2003).

Legislation

The principal legislation addressing pollution in South Australia is the *Environment Protection Act 1993* (the Act). In particular, section 25 imposes the general environmental duty on all persons undertaking an activity that may pollute to take all reasonable and practicable measures to prevent or minimise any resulting environmental harm. In addition, the causing of odour may constitute environmental nuisance, an offence under section 82 of the Act.

Environment protection legislation also includes Environment Protection Policies (EPPs), which may outline both recommendations and mandatory requirements for the protection of a particular aspect of the environment, such as air quality.

Environment Protection (Air Quality) Policy 1994

Air pollution is regulated primarily through the *Environment Protection (Air Quality) Policy 1994* (the Air Policy). Section 4 of the Air Policy requires that the best practicable means of control be used to minimise air pollution of any kind from any activity. The Schedule to the Air Policy specifies maximum permissible pollution levels.



Odour

Offensive odour is the principal environmental nuisance caused by animal processing. The odour emanates from the handling and storage of raw products and from heated reduction processes. Some raw products are highly decayed even before delivery to the plant, and the conveyance and storage of these products cannot help but generate offensive odours.

Handling and storage odours can usually be kept to a tolerable minimum by frequently washing working surfaces and by processing uncooked feedstock as rapidly as possible.

Cooking and drying processes are, however, the largest odour sources. Odorous steam emissions and smoke generated by the presses usually require control. Centrifuges and settling tanks where meal and tallow are heated to accomplish the desired separation also emit odorous steam.

Separation distances

The Air Policy requires that the best practicable means of control be used to minimise air pollution. Such measures use both air pollution control and adequate separation distance between works and residential land use. You are referred to the draft consultation document *Guidelines for Separation Distances*, available on the EPA web site at: www.epa.sa.gov.au/pub.html.

Recommended separation distances

Degree of air pollution control	Other land use	Minimum separation distance
Maximum	Residential zone	1000 m
Minimum	Township boundary	5000 m
	Residential dwelling outside of township boundary	1000 m

Odour control

The principal devices used to control reduction plant odours are afterburners and condensers, installed separately and in combination. Chemical adsorbers and scrubbers also can be of use in mitigating adverse odour.

Selection of odour control equipment is influenced greatly by the moisture content of the malodorous emissions or, conversely, by the percentage of non-condensable gases. It is usually more costly to control non-condensable gases. Reduction plant exhaust emissions fall into two general types:

- those consisting almost entirely (95% or greater) of water vapour, as from rendering cookers and blood cookers
- air drier exhaust gases, which seldom contain more than 30% moisture by volume.

Controlling high moisture emissions

Condensing moisture from wet cooker gases reduces the load on afterburners and can therefore lower the cost of operation. Some offensive odours are condensed or dissolved in the condensate. In any case the volume is reduced by a factor of 10 or more. The remaining noxious gases can be directed to a further control device such as an afterburner or biofilter before being vented to the atmosphere.

Selection of the condenser depends on the particular facilities of the operator. Contact condensers and air-cooled and water-cooled surface condensers have been successfully used for this purpose.

Contact condensers are more efficient control devices than surface condensers, though both types are highly effective when coupled with an afterburner.

Operating conditions

Below are typical conditions applied to licensed animal processing works, grouped together under maximum and minimum controls. Maximum controls would generally apply to larger animal processing works and those within five kilometres of a town. Minimum controls would be acceptable for smaller works working greater than five kilometres from a residential area, albeit some isolated housing may be in closer proximity.

Maximum controls

- All cooking vapours are to be contained and directed through the condenser and afterburner.
- All non-condensable gases from the rendering process are to be incinerated in the afterburner at a temperature not less than 760°C, with a residence time of not less than 0.3 seconds at that temperature.
- Paunches processed in the by-products plant are to be slit and drained of liquid and other contents.
- Control and minimise the emission of odours from the premises.
- Doors in the raw material reception area are to be closed at all times other than to allow the immediate passage of personnel or equipment.
- No storage of raw material is permitted outside of the building.
- Offal is to be processed within 24 hours of the kill.
- The works building shall be designed so as to create a negatively pressured controlled environment, thereby controlling air movement through the building.

Minimum controls

Odours from the rendering operations are to be minimised by efficient operation of the odour control equipment; water supply to the condenser shall be less than 30°C, and shall be maintained at design flow rate through the condenser during the full cycle of the rendering operation.

Self audits

An environmental audit should be conducted every year to ensure that animal processing works are operating in accordance with environmental objectives and within legislative requirements. Implementing environmental complaint procedures and training staff to recognise and minimise environmental hazards are also good ways of achieving on-going plant monitoring.

Currency of these guidelines

These guidelines offer advice to assist with compliance with the general environmental duty and specific environmental policies. They are subject to amendment and persons relying on the information should check with the EPA to ensure that it is current at any given time.

FURTHER INFORMATION

Legislation

Legislation may be viewed on the Internet at: www.parliament.sa.gov.au/dbsearch/legsearch.htm □

Copies of legislation are available for purchase from:

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