



**A GUIDANCE NOTE ON THE
BEST PRACTICABLE MEANS**

FOR

RENDERING WORKS

(FEATHER FACTORY)

BPM 28/3

Environmental Protection Department
Air Management Group

June 1995

1.0 INTRODUCTION

1.1 This note is issued by the Environmental Protection Department as one of a series to provide guidance for the control of specified processes in Part IV of the Air Pollution Control Ordinance (*the Ordinance*). It is a guide in the assessment of an application for a licence under the Ordinance.

1.2 It should be understood that this note sets out the minimum requirements for the applicant to provide and maintain the best practicable means for the prevention of the emission of air pollutants. The applicant should recognize that whether a licence is granted or refused, and on what conditions, will depend on all the circumstances of an individual application, including this note.

1.3 This note covers the cleaning and drying of feather in a factory, which comes within the specified process "Rendering Works" described in Schedule 1 to the Ordinance as:

"Works in which the processing capacity exceeds 250 kg per hour (*expressed as the raw material*) and in which rendering or reduction or drying through application of heat, curing by smoking, of animal matter (*including feather, blood, bone, hoof, skin, offal, whole fish, and fish heads and guts and like parts, and organic manures but not including milk or milk products*) is carried out.

2.0 CONTROL OF EMISSION OF AIR POLLUTANTS

2.1 Emission of air pollutants shall be minimised and controlled to prevent:

- (a) harm to the environment, or adverse effects to human health;
- (b) threatening the attainment or maintenance of the relevant air quality objectives;
- (c) giving rise to an objectionable odour noticeable outside the premises where the process is carried on; and
- (d) imposing undue constraint on the existing and future development or land use.

2.2 Emission from chimneys

2.2.1 Chimneys include vents, structures and opening of any kind from or through which air pollutants (including odorous gas) may be emitted.

2.2.2 Other than steam or water vapour, all emissions to the atmosphere should be colourless, free from persisting mist or fume.

2.2.3 Smoke emission from combustion process should be less than Ringelmann Shade 1.

2.2.4 All odorous emissions have to meet appropriate emission limits (*in terms of odour units*) to be approved by the Authority so as to prevent odour nuisance or imposing unacceptable constraint on land use.

(Note : An odour unit is the measuring unit of odour level and analogous to pollutant concentration. In this context, the odour level is defined as the ratio of the volume which the sample would occupy when diluted with air to the odour threshold, to the volume of the sample. In other words, one odour unit is the concentration of the odorant which just induces an odour sensation.)

2.2.5 Dispersion

- (a) The applicant will need to demonstrate that the proposed chimney will provide sufficient dispersion of air pollutants in determining the adequacy of its height.
- (b) A chimney should be at least 3 metres above the roof of any building to which it attaches, and the roof of any adjacent or attached buildings.
- (c) Releases to air from chimneys should be directed vertically upwards and not restricted or deflected by the use of, for example, plates or caps.
- (d) Chimneys should normally be designed for an efflux velocity of not less than 15 m/s at full load condition. If the chimney is coned to obtain the minimum velocity, care is needed to avoid generating excessive positive pressure zones within the chimney unless the chimney wall is impervious or lined. The cones should be well maintained.
- (e) For combustion process, the exit temperature of flue gas from the chimney shall not be less than the acid dew point.
- (f) Where practicable, hot releases should take place from the minimum number of vents in order to obtain maximum advantage from thermal buoyancy and multiplicity of discharge points should be avoided.

2.3 Fugitive Emission of Air Pollutants

- 2.3.1 The control of the fugitive emissions of air pollutants should be agreed with the Authority. As a general guideline, the loading, unloading, handling and storage of fuel, raw materials, products, wastes or by-products should be carried out in a manner acceptable to the Authority so as to prevent the release of objectionable odour and other air pollutants.
- 2.3.2 The plant surfaces, floor, yards and equipment liable to come into contact with the raw materials, semi-processed or processed materials should be of impervious construction, capable of being readily cleaned and should be kept clean.
- 2.3.3 A good housekeeping should be maintained. Suitable methods should be provided for the effective cleaning of the plant.
- 2.3.4 Without prejudice to the above general requirements, the following control measures should be implemented:–
 - (a) Materials Handling and Processing

- (i) Raw materials should be transported from the point of production to the processing plant as quickly as practicable. The design of containers should such as to minimize the emission of any offensive odour or spillage of any liquid or solid matter.
- (ii) Empty containers should be kept clean.
- (iii) Raw materials should be processed as soon as practicable.
- (iv) Raw materials should not be left unattended in any place other than designated storing areas and should be kept dry and cool, and in a fully enclosed container or buildings.
- (v) Containers and any other equipment used for the collection, transfer and handling of raw materials and waste should all be readily cleanable, impervious and kept clean.
- (vi) Exhaust gas generated from the drying or product collection process should be ducted to a effective filter before discharging to the atmosphere to prevent visible discharge of feather.

3.0 MATERIAL/FUEL RESTRICTION

3.1 Gaseous fuel is the recommended fuel to be used but the Authority will also accept the use of liquid fuel with the following specifications : –

Sulphur content: Not greater than 0.5% (by weight)

Viscosity: Not greater than 6 centistokes (at 40°C)

4.0 MONITORING REQUIREMENTS

4.1 Parameters and sampling frequency will be determined by the Authority. In general, visual and olfactory assessment of emissions should be made frequently and at least once a day.

5.0 COMMISSIONING

5.1 Commissioning trials (*to be witnessed by the Authority whenever appropriate*) should be conducted to demonstrate the performance and capability of the air pollution control measures. A report of the commissioning trial should be submitted to the Authority within 1 month after completion of the trial.

6.0 OPERATION AND MAINTENANCE

6.1 Best practicable means requirements include not only the provision of the appliances, but

the proper operation and maintenance of equipment, its supervision when in use, and the training and supervision of properly qualified staff.

- 6.2 In general, equipment should be repaired as soon as possible. Specific operation and maintenance requirements may be specified for individual equipment.
- 6.3 Malfunction, breakdown or failure of any process or air pollution control equipment that may result in abnormal emission of air pollutants should be reported to the Authority within 3 working days after the incident.