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*Environment Protection Act 1970 (No. 8056)*

## STATE ENVIRONMENT PROTECTION POLICY (THE AIR ENVIRONMENT)

*At the Executive Council Chamber, Melbourne, the 2nd day of June 1981*

### PRESENT:

His Excellency the Governor of Victoria  
Mr. Wood                      Mr. Kennett  
Mr. Dixon

Whereas Section 16 of the *Environment Protection Act 1970* provides that the Governor in Council may, on the recommendation of the Environment Protection Authority, declare the Environment Protection Policy to be observed with respect to the environment generally or in any portion or portions of Victoria or with respect to any element or elements or segment or segments of the environment;

And whereas Section 17(1) of the said Act provides that in and by any Order made under Section 16 the Governor in Council may, for securing the observance of State Environment Protection Policy declared by the Order:

- (a) classify any area or any segment or element of the environment in any area for the purposes of the Order;
- (b) set aside any area or areas or any segment or segments of the environment within which the discharge, emission, or deposit of wastes or the emission of noise is prohibited or restricted as specified in the Order;
- (c) make rules to be observed for carrying any such prohibition or restriction into effect; and
- (d) delegate to any protection agency such of the powers of the Authority as are necessary for securing the observance of the Order;

And whereas Section 18 of the said Act provides that State Environment Protection Policy declared in any Order under Section 16 shall establish the basis for maintaining environmental quality sufficient to protect existing and anticipated beneficial uses in the area affected by the Order and in particular shall include in terms sufficiently clear to give an adequate basis for planning and licensing functions:

- (a) the boundaries of any area affected;
- (b) identification of the beneficial uses to be protected;
- (c) selection of the environmental indicators to be employed to measure and define the environmental quality;
- (d) a statement of the environmental quality objectives (where practicable); and
- (e) the programme (if any) by which the stated environmental quality objectives are to be attained and maintained;

And whereas in accordance with Section 19 of the said Act the Authority caused the publication of its notice of intention to declare State Environment Protection Policy in respect of the air environment in the *Age*, *Sun*, *Australian* and *Herald* newspapers on 23rd June, 1979, 30th June, 1979 and 7th July, 1979, the *Sunraysia Daily*, *Portland Observer and Guardian*, *Hamilton Spectator*, *Geelong Advertiser*, *Ballarat Courier*, *Gippsland Times*, *Neos Kosmos* and *Il Globo* on 25th June, 1979, 2nd July, 1979, and 9th July, 1979, and the *Latrobe Valley Express* and *La Fiamma* on 26th June, 1979, 3rd July 1979, and 10th July, 1979;

And whereas the Authority has now considered the information submitted by various persons;

And whereas more than two months have elapsed since the publication of the last notice published in the aforementioned newspapers;

Now therefore His Excellency the Governor of Victoria by and with the advice of the Executive Council thereof and on the recommendation of the Environment Protection Authority doth by this Order declare the following to be the State Environment Protection Policy to be observed for the area referred to in the Order and with respect to the elements and segments of the environment referred to in the Order (that is to say):

## STATE ENVIRONMENT PROTECTION POLICY (THE AIR ENVIRONMENT)

### Clause 1

This Order may be cited as the State Environment Protection Policy (The Air Environment) (hereinafter referred to as the Policy) and shall come into operation on Monday 27 July 1981.

### Clause 2

This Order is divided into Parts as follows:

- Part I — Preliminary
- Part II — Areas Covered by the Policy
- Part III — Beneficial Uses to be Protected
- Part IV — Indicators and Environmental Quality Objectives
- Part V — Attainment Programme
- Part VI — Review of the Policy

## PART I — PRELIMINARY

### Clause 3

For the purposes of Section 17(1)(a) of the Act, the element of environment to which this Policy applies is the atmosphere, referred to herein as the air environment.

### Clause 4

In this Order, unless inconsistent with the context or subject matter:

“Acceptable Level” means that concentration of an indicator at or below which all beneficial uses listed in Clause 8 are protected.

“Act” means the *Environment Protection Act 1970* as amended.

“Air Quality Control Region” means a segment of the air environment which, because of its population size or density, industrialisation, projected development, or meteorological characteristics, has been scheduled as requiring the regional effects of emissions of wastes to the air environment to be considered in formulating control requirements.

“Alert Level” means that concentration of any indicator at or above which most members of the exposed population are likely to be adversely affected.

“Authority” means the Environment Protection Authority constituted under the Act.

“Beneficial Use” means use of the environment or any element or segment of the environment that is conducive to public benefit, welfare, safety, or health and which requires protection from the effects of waste discharges, emissions and deposits.

“Best Available Control Technology” means emission control or production methods, techniques, processes or practices which are capable of achieving a very high

degree of reduction in the emission of wastes from a particular source and which the Authority determines are applicable to that source.

"Buffer Zone" means an area separating a source of waste emissions from areas in which all beneficial uses listed in Clause 8 are protected.

"Class 1 Indicator" means a substance which is widespread in the urban air environment and which is used as an indicator of general air quality.

"Class 2 Indicator" means a waste which is generally source-specific and is not a Class 1 or Class 3 Indicator.

"Class 3 Indicator" means a waste which, because of its recognised carcinogenic, mutagenic, teratogenic, highly toxic or highly persistent nature, should be subject to particularly stringent emission controls.

"Delegated Agency" means a protection agency to which, under Section 68 of the Act, the Authority has delegated powers or functions.

"Detrimental Level" means that concentration of an indicator at or above which a substantial proportion of the exposed population may be adversely affected or significant changes are likely to be caused to some segments of the environment.

"Diffuse Emissions" means emissions of wastes from sources other than point sources.

"Good Control Practice" means the application of established emission control methods, techniques, processes or practices which the Authority determines are capable of achieving an adequate degree of reduction and supplementary dispersion of wastes emitted from a particular source.

"Indicator" means a substance which is used as a measure of air quality.

"Large Source" means a source of wastes which is designated as such in guidelines to be developed by the Authority.

"Licence" means a licence issued by the Authority, or by a delegated agency on behalf of the Authority, being a licence in writing in the prescribed form authorising the person to whom it is issued to discharge, emit, or deposit wastes into the environment.

"Licensing Provisions" means Sections 20 to 31 inclusive of the Act.

"Maximum Extent Achievable by Technology" means a degree of reduction in the emission of wastes which is equivalent to or greater than that which can be achieved by the application of best available control technology and which may require the application of new, original or innovative control technology to a particular source.

"Mobile Source" means a source of wastes which is in motion during its normal operating mode.

"New Source" means a stationary source for which a licence application is accepted, or which commences normal operation, six months or more after the date of promulgation of this Order. An existing source may be classified as a new source if it is to be relocated, or if modifications to its equipment or processes are likely to lead to an increase in the quantity of or an alteration in the nature of wastes emitted.

"Precursor" means a substance which may participate in or influence a reaction in the air to produce one or more indicators prescribed by the Policy.

"Segment" in relation to the environment means any portion or portions of the environment expressed in terms of volume, space, area, quantity, quality or time, or any combination thereof.

"SHED Procedure" means Sealed Housing Evaporative Determination, a procedure to be adopted by the Authority for determining evaporative emissions of hydrocarbons from motor vehicles.

"Source" means a point or an area from which wastes are emitted to the air environment.

"Stationary Source" means a source of wastes which is stationary during its normal operating mode.

"Waste" includes any matter prescribed to be waste and any matter, whether liquid, solid, gaseous, or radioactive, which is discharged, emitted, or deposited in the environment in such volume, constituency or manner as to cause an alteration to the environment.

#### PART II — AREAS COVERED BY THE POLICY

##### Clause 5

The Policy applies to the air environment over the State of Victoria. It does not apply to air inside buildings or structures.

##### Clause 6

For the purposes of the Policy and pursuant to Section 17(1) of the Environment Protection Act, the State is divided into the following areas:

- (a) Port Phillip Air Quality Control Region;
- (b) Latrobe Valley Air Quality Control Region; and
- (c) all other areas of Victoria.

The boundaries of these areas are prescribed by Schedule A.

##### Clause 7

Where it is desirable to maintain a very high level of air quality in particular areas, Areas of Special Significance shall be established pursuant to Section 17(1) of the Act by amendment of the appropriate schedule of the Policy.

#### PART III — BENEFICIAL USES TO BE PROTECTED

##### Clause 8

(1) The following beneficial uses shall be protected with respect to areas covered by the Policy except as provided by Clause 8(2):

- (a) life, health and well-being of humans;
- (b) life, health and well-being of other forms of life, including animals and vegetation;
- (c) visibility;
- (d) useful life and aesthetic appearance of buildings, structures, property and materials; and
- (e) aesthetic enjoyment and local amenity.

(2) Beneficial uses, except life, health and well-being of humans, may not necessarily be protected in a buffer zone established as a means of control in a licence or a schedule to this Policy. The beneficial use or uses not protected will be identified in that licence or schedule.

#### PART IV — INDICATORS AND ENVIRONMENTAL QUALITY OBJECTIVES

##### Clause 9

(1) There shall be three classes of indicators:

- (a) Class 1 indicators, prescribed by Schedule B;
- (b) Class 2 indicators, prescribed by Schedule C; and
- (c) Class 3 indicators, prescribed by Schedule D.

(2) The environmental quality objectives for Class 1 indicators are prescribed by Schedule B at two levels: an Acceptable Level and a Detrimental Level.

(3) The environmental quality objectives for Class 2 indicators are prescribed by Section C-2 of Schedule C.

(4) The design ground level concentrations for Classes 1, 2 and 3 indicators are prescribed by Schedules E, C and D, respectively.

##### Clause 10

In order to protect beneficial uses listed in Clause 8(1), the emission of wastes shall be controlled so that:

- (a) the concentration of any Class 1 indicator except oxidant does not exceed the Acceptable Level on more than three days in any year and remains below the Detrimental Level at all times;
- (b) the concentration of oxidant does not exceed the Acceptable Level on more than one day in any year and remains below the Detrimental Level at all times;
- (c) the concentration of any Class 2 indicator does not exceed the local objectives prescribed by Section C-2 of Schedule C;
- (d) the predicted maximum ground level concentration of any Class 1, 2 or 3 indicator is less than the design ground level concentration when the procedure outlined in Schedule E is used; and
- (e) the emission of any Class 3 indicator is reduced to the maximum extent achievable by technology or prohibited if it is considered by the Authority to constitute a significant threat to public health or to the air environment.

##### Clause 11

Progress towards achieving compliance with Clause 10 (a) and (b) shall be determined by relating measured air quality to air quality objectives.

##### Clause 12

Methods of measurement for various indicators shall be adopted and published by the Authority.

#### PART V — ATTAINMENT PROGRAMME

##### Clause 13

The Policy shall be implemented through the control of wastes emitted to the air environment. The Policy should be considered in the development of State planning, energy and transportation policies or schemes. In the implementation of this Policy, special

attention should be given to the relevant Statements of Planning Policy and the development and implementation of such Statements of Planning Policy should give special attention to this Policy.

**Clause 14**

Control of wastes shall be achieved through the licensing system and by Regulations.

**Clause 15**

Sources which the Authority considers insignificant may be exempted from licensing until the contribution of their emissions is sufficient to justify individual control.

**Clause 16**

Emissions of wastes which are exempt from licensing shall, where appropriate, be controlled by Regulations.

**Clause 17**

Licence conditions and Regulations shall be based on consideration of:

- (a) local control, which is designed to protect beneficial uses in the vicinity of sources; and
- (b) regional control which is designed to manage the total emission of wastes in an Air Quality Control Region.

**Clause 18**

The Authority shall, as soon as practicable, develop and implement comprehensive management programmes for each Air Quality Control Region. Control programmes shall include implementation schedules for the control of Class I indicators and their precursors to achieve and maintain a level of air quality which complies with the provisions of Clause 10(a) and (b).

Initially, a control programme to reduce the total emissions of hydrocarbons in the Port Phillip Air Quality Control Region shall be developed and implemented as soon as practicable.

**Clause 19**

In an Air Quality Control Region consideration shall be given to the need to preserve the capacity of the air environment to receive future wastes without infringing the air quality objectives.

**STATIONARY SOURCES**

**Clause 20**

*General.* Emissions of wastes from stationary sources shall be controlled by licensing, unless exempted. Licences shall control all wastes emitted from a source, unless the wastes are exempted, and shall specify operating conditions and chimney design, where appropriate.

**Clause 21**

Requirements for the control of wastes may be prepared for major categories of sources after consultation with the industries and others concerned and incorporated into Schedule F, following a period of public review.

**Clause 22**

Persons responsible for the emission of wastes shall comply with the control requirements prescribed by appropriate sections of Schedule F.

**Clause 23**

Emissions of wastes from sources for which Schedule F requirements are not prescribed shall be controlled in accordance with good control practice and shall not exceed the emission limits prescribed by Schedule G.

**Clause 24**

*Local Control.* The beneficial uses of the air environment in the vicinity of sources shall be protected by a combination of emission controls or limitations and dispersion of wastes through chimney design.

**Clause 25**

A plume calculation, as outlined in Schedule E, shall be carried out for each source subject to licensing to ensure that, in the vicinity of the source, the predicted maximum ground level concentrations of emitted wastes do not exceed the design ground level concentrations prescribed in Schedules C, D and E.

**Clause 26**

Best available control technology may be applied to a large new source located outside an Air Quality Control Region if the Authority determines that emissions of wastes from that source could have a significant impact on the local air environment.

**Clause 27**

*Regional Control.* Emission limits more stringent than those prescribed by Schedule G may be applied to sources in Air Quality Control Regions if air quality objectives are exceeded or are projected to be exceeded.

**Clause 28**

Emissions from new sources in Air Quality Control Regions shall not exceed the emission limits prescribed by Schedule H unless other requirements apply as provided for under Clause 21. In addition, a large new source may be required to employ best available control technology or, in some cases, may be licensed only where reductions in emissions from other sources in the same region offset the effects of the proposed emissions from the new source.

**Clause 29**

*Specific Controls.* Means of control of diffuse emissions shall be investigated and implemented, wherever possible. These should include the application of planning controls, codes of practice and management guidelines, new technology and Regulations.

**Clause 30**

Open burning for convenience alone shall be discouraged. Where it is necessary, open burning shall be carried out in accordance with guidelines or Regulations to be developed by the Authority in consultation with fire authorities.

**Clause 31**

Restrictions on the use of domestic incinerators which take account of local conditions shall be introduced in co-operation with local authorities. The development of alternatives to incineration for disposal of domestic refuse shall be encouraged.

**MOBILE SOURCES**

**Clause 32**

*General.* Exhaust, evaporative and crankcase emissions shall continue to be controlled. New emission requirements shall be developed, where practicable, in consultation with the Australian Environment Council, other States, Territories and the Commonwealth. Such requirements shall be implemented through Regulations and through amendments to this Policy.

**Clause 33**

The Authority shall implement a surveillance and enforcement programme to control emissions from motor vehicles.

**Clause 34**

A programme of exhaust and evaporative emission testing shall be conducted by the Authority on representative samples of new and in-service motor vehicles to determine the degree of compliance with emission requirements and to enable the preparation of estimates of current and projected emissions from the motor vehicle population. The results of the testing programme shall be published regularly. Manufacturers, importers and distributors may be required to conduct emission tests on representative samples of new vehicles and to supply the results to the Authority.

**Clause 35**

Motor vehicle manufacturers shall be encouraged to produce motor vehicles which meet emission requirements without adversely affecting fuel economy or driveability.

**Clause 36**

Registration of new vehicles of a model type which consistently fails to comply with emission requirements should be refused.

**Clause 37**

*Specific Controls.* New motor vehicles shall be required, as soon as practicable, to meet emission requirements over the full range of adjustments provided by the manufacturer for the engine, ignition and fuel systems.

**Clause 38**

Evaporative emissions from new passenger cars and passenger car derivatives shall be required, as soon as practicable, to comply with an emission standard of 2 grams of hydrocarbons per test as determined by the SHED procedure.

**Clause 39**

Lead emissions from motor vehicles shall continue to be controlled. The lead content of petrol shall be controlled so that the total emission of lead from motor vehicles does not exceed the total emission pertaining in 1973. In addition, if the concentration of lead in a particular segment of the air environment, the Authority shall examine the need for further control of lead emissions and may impose more stringent limits on the lead emissions from motor vehicles for this purpose.

**GENERAL PROVISIONS**

**Clause 40**

During periods when perceived air quality is poor, the Authority shall publicise an assessment of air quality and shall suggest ways in which the community can minimise emissions of waste during these periods.

**Clause 41**

*Emergency Abatement.* An emergency abatement plan shall be developed for adoption as an amendment to the Policy and shall be implemented when the concentration of an air quality indicator is predicted to exceed the Alert Level prescribed by Schedule I. Such a plan shall be developed in consultation with appropriate Government, industry and community groups.

**Clause 42**

*Odorous Substances and Particulates.* The emission of odorous substances or particulates which create or are likely to create objectionable conditions for the public shall be controlled.

**Clause 43**

*Buffer Zones.* The Authority shall encourage land use planning to complement the purposes of the Policy. The provision of buffer

zones in accordance with the guidelines adopted by the Authority shall be encouraged and, where practicable, shall be specified in licence conditions. Where a permanent buffer zone can be provided within the boundary of the premises on which a source of waste emissions is located, the Authority may apply design ground level concentrations for odorous substances or particulates and the local objectives for Class 2 indicators at or beyond the boundary of that buffer zone.

**RELATED ACTIVITIES**

**Clause 44**

**Monitoring.** Air quality shall be routinely monitored especially in Air Quality Control Regions. The location of monitoring stations shall be selected with due regard to areas where protection of identified beneficial uses is, or is likely to be, threatened.

An adequate programme for calibration and testing of instruments used in the monitoring networks shall be maintained. Instrumental monitoring may be supplemented by monitoring the effects of air quality on sensitive organisms and materials. Data collected in the monitoring programme shall be evaluated, along with available meteorological information, and reports shall be published periodically summarising the results and their implications. Licensees may be required to monitor the receiving environment to assist in the assessment of the effect of their discharges.

**Clause 45**

**Source Testing.** Sufficient source testing shall be carried out to provide information needed to implement and enforce the attainment programme. Licensees may be required to monitor their emissions.

**Clause 46**

**Enforcement.** An adequate air quality enforcement programme shall be maintained to achieve compliance with the air quality objectives by enforcing licence conditions. Regulations and other requirements. Complaints from the public relating to air quality shall be investigated.

**Clause 47**

**Public Information Programme.** The Authority shall regularly issue reports and engage in other activities to keep the public informed of air quality, its implications and the progress of the air quality management programme.

**Clause 48**

**Co-ordination, Co-operation and Research.** The Authority shall encourage and, where appropriate, seek the necessary approval to initiate programmes relating to or having a beneficial influence on the air environment. In particular, the Authority should participate in the development of planning, energy and transportation policies so that they aid in the attainment and maintenance of good air quality.

The Authority shall undertake research directed towards specific problem solving activities including the following:

- (a) determining the capacities of major airsheds to assimilate waste discharges;
- (b) investigating methods of modelling plume dispersion characteristics;
- (c) investigating photochemical haze and the factors involved in its formation;

- (d) investigating methods of predicting periods of poor air quality;
- (e) investigating the distribution of particular Class 1, Class 2 and Class 3 indicators such as lead in relation to their sources; and
- (f) developing models which will assist in formulating and evaluating strategies for emission control.

In addition, the Authority should encourage competent research groups at Universities and elsewhere to carry out more fundamental studies on air pollution mechanisms.

**PART VI — REVIEW OF THE POLICY**

**Clause 49**

The Policy shall be reviewed at least every five years.

**SCHEDULE A  
AREAS COVERED BY THE POLICY**

This schedule prescribes the boundaries of the areas referred to in Part II of the Policy. The boundaries of the Air Quality Control Regions are shown in Figure A-1.

**(a) Port Phillip Air Quality Control Region**

This region includes the municipalities listed in the table below, together with those areas of the Shires of Bannockburn and Barrabool which are north of Thompsons Creek and east of longitude 144° 16' east, and the area covered by Port Phillip and Westernport Bays and their islands.

Cities	Cities	Cities	Shires
Altona	Essendon	Northcote	Bass
Berwick	Fitzroy	Nunawading	Bellarine
Box Hill	Footscray	Oakleigh	Bulla
Brighton	Frankston	Port Melbourne	Corio
Broadmeadows	Geelong	Prahran	Cranbourne
Brunswick	Geelong West	Preston	Diamond Valley
Caulfield	Hawthorn	Richmond	Eltham
Camberwell	Heidelberg	Ringwood	Flinders
Chelsea	Keilor	St. Kilda	Hastings
Coburg	Kew	Sandringham	Lillydale
Collingwood	Knox	South Barwon	Melton
Croydon	Malvern	South Melbourne	Mornington
Dandenong	Melbourne	Springvale	Pakenham
Doncaster and Templestowe	Moorabbin	Sunshine	Phillip Island
Borough Queenscliffe	Mordialloc	Waverley	Sherbrook
	Newtown	Williamstown	Werribee
			Whittlesea

**(b) Latrobe Valley Air Quality Control Region**

This region includes the Cities of Moe, Traralgon and Sale; the Shires of Warragul, Morwell and Traralgon; that portion of the Shire of Narracan which is south of latitude 38° south; and that portion of the Shire of Rosedale which is west of longitude 147° 20' east.

**(c) All Other Areas of Victoria**

This area includes all areas of Victoria not included in regions (a) and (b) above.

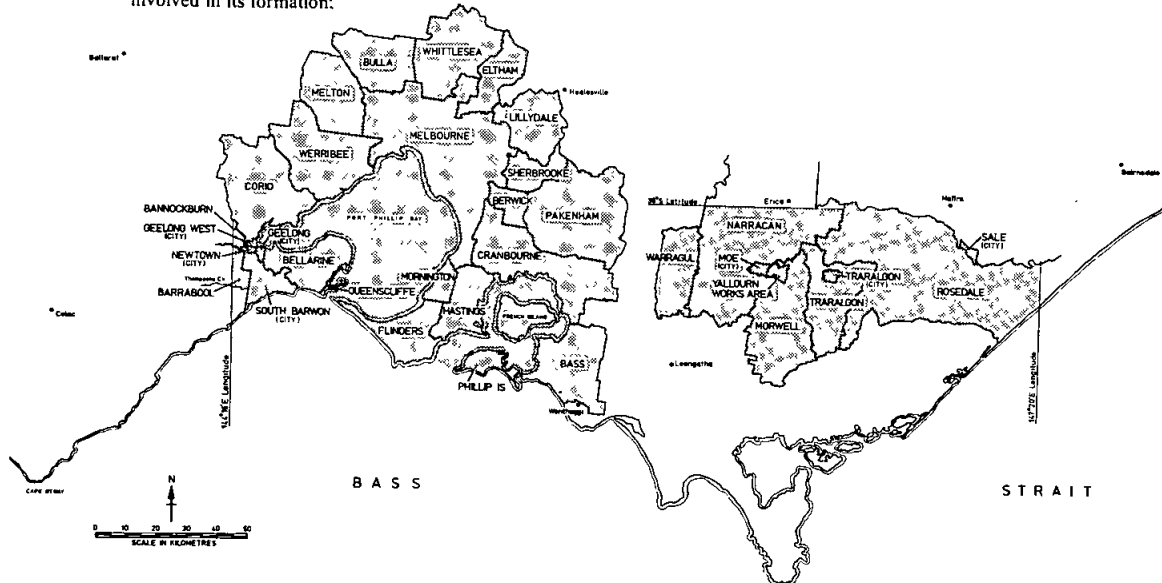


Fig. A-1. Areas included in the Port Phillip and Latrobe Valley Air Pollution Control Regions

**SCHEDULE B  
AIR QUALITY OBJECTIVES**

This schedule prescribes the Class 1 indicators and air quality objectives referred to in Part IV of the Policy.

Indicator	Unit	Averaging period	Acceptable level <sup>a</sup>	Detrimental level <sup>a</sup>
Carbon monoxide	ppm <sup>b</sup>	1 h	30	60
		8 h	10	20
Nitrogen dioxide	ppm	1 h	0.15	0.25
		24 h	0.06	0.15
Oxidant <sup>c</sup>	ppm	1 h	0.12	0.15
		8 h	0.05 <sup>d</sup>	0.08 <sup>d</sup>
Sulphur dioxide	ppm	1 h	0.17	0.34
		24 h	0.06	0.11
Visibility-reducing particulates <sup>e</sup>	km	1 h	20	

<sup>a</sup> Based on health effects unless indicated otherwise.

<sup>b</sup> Parts per million (volume/volume)

<sup>c</sup> Determined by measuring ozone only (the major constituent of photochemical oxidant)

<sup>d</sup> Based on vegetation damage

<sup>e</sup> Based on aesthetic considerations; determined by reference to the light-scattering properties of the air environment at relative humidities of less than 70 per cent

Lead concentrations in the air environment shall not exceed the following objective:

Indicator	Unit	Averaging Period	Objective <sup>a</sup>
Lead	µg/m <sup>3</sup>	3 calendar months	1.5

<sup>a</sup> Attainment of this objective shall be evaluated by measurements carried out for 24 hour periods at a frequency of not greater than once every six days and averaged over 3 calendar months on a moving month-by-month basis.

**SCHEDULE C  
C-1 CLASS 2 INDICATORS AND DESIGN GROUND LEVEL CONCENTRATIONS**

This section prescribes the Class 2 indicators and their design ground level concentrations referred to in Part IV of the Policy. These concentrations are to be applied as design criteria in the calculation of chimney heights by the procedure outlined in Schedule E.

Design ground level concentrations for other Class 2 indicators which do not appear in the table will be derived by the Authority on a case-by-case basis.

Indicator	Design Ground Level Concentrations <sup>a</sup>		Indicator	Design Ground Level Concentrations <sup>a</sup>	
	ppm <sup>d</sup>	mg/m <sup>3</sup>		ppm <sup>d</sup>	mg/m <sup>3</sup>
Acetaldehyde <sup>b</sup>	0.042	0.076	Ethyl butyl ketone	1.7	7.7
Acetic acid <sup>b</sup>	0.20	0.50	Ethyl chloride	35.3	86.6
Acetone	20	48	Ethylene glycol (vapour)	3.3	8.7
Acrolein	0.0033	0.0083	Ethylene oxide	1.7	3.0
Acrylic acid <sup>b</sup>	0.094		Fluorine	0.033	0.067
Acrylonitrile	0.67	1.5	Formaldehyde	0.067	0.10
Ammonia	0.83	0.6	n-Hexane	3.3	12.0
Aniline	0.17	0.63	2-Hexanone	0.83	3.3
Asphalt (petroleum) fume		0.17	Hydrogen chloride	0.2	0.2
Barium (soluble compounds)	0.0094	0.017	Hydrogen cyanide <sup>b</sup>	0.3	0.4
Benzyl chloride <sup>b</sup>	0.0067	0.047	Hydrogen sulphide <sup>b</sup>	0.0001	0.00014
Biphenyl	6.7	0.033	Iron oxide fume	-	0.17
Bromochloromethane	0.017	0.17	Magnesium oxide fume	0.0083	0.033
Bromoform	33	203	Maleic anhydride	4.26	5.5
Bromotrifluoromethane	0.45	1.0	Methanol <sup>b</sup>	0.33	1.2
1,3-Butadiene <sup>b</sup>	0.3	0.9	Methyl acrylate	0.0042	0.005
n-Butanol <sup>b</sup>	0.004	0.012	Methylamine <sup>b</sup>	6.7	24.0
Butyl mercaptan <sup>b</sup>		0.1	Methylene chloride	2.0	5.9
Carbon black	0.042	0.13	Methyl ethyl ketone <sup>b</sup>	0.00042	0.00084
Carbon disulphide <sup>b</sup>	0.33	2.2	Methyl mercaptan <sup>b</sup>	0.05	0.21
Carbon tetrachloride	0.033	0.1	Methyl methacrylate <sup>b</sup>	0.052	0.25
Chlorine	0.003	0.01	α-Methyl styrene <sup>b</sup>	0.1	0.41
Chlorine dioxide	0.042	0.20	Methyl isobutyl ketone <sup>b</sup>	0.0017	0.012
Chlorobenzene <sup>b</sup>	0.83	4.0	Nickel carbonyl	0.067	0.17
Chloroform	3.3	7.0	Nitric acid	0.00094	0.0047
Chloromethane		0.0017	Nitrobenzene <sup>b</sup>	-	0.017
Chromic acid and chromates, as CrO <sub>3</sub>			Pentachlorophenol	20	60
Chromium, soluble chromic and chromous salts, as Cr		0.017	n-Pentane	6.7	23.3
Copper: fume		0.0067	2-Pentanone	0.94	6.3
dusts and mists		0.033	Perchloroethylene <sup>b</sup>	0.0094	0.036
Cotton dust (raw)		0.0067	Phenol <sup>b</sup>	0.0033	0.013
Crotonaldehyde	0.067	0.2	Phosgene	0.0042	0.0056
Cumene <sup>b</sup>	0.008	0.039	Phosphine <sup>b</sup>	0.033	0.20
Cyanide (as CN)		0.2	Phthalic anhydride	0.03	0.075
Cyclohexane	10	35	n-Propanol <sup>b</sup>	3.3	12.0
Cyclohexanol	1.7	6.7	Propylene glycol monomethyl ether	3.3	8.0
Cyclohexanone <sup>b</sup>	0.12	0.48	Propylene oxide	0.0042	0.013
Diacetone alcohol <sup>b</sup>	0.28	1.3	Pyridine <sup>b</sup>		
o-Dichlorobenzene	1.7	10	Silver, metal and soluble compounds (as Ag)		0.00033
1,2-Dichloroethylene	6.7	26.3	Styrene (Monomer) <sup>b</sup>	0.05	0.21

**SCHEDULE C  
C-1 CLASS 2 INDICATORS AND DESIGN GROUND LEVEL CONCENTRATIONS**

Indicator	Design Ground Level Concentrations <sup>a</sup>		Indicator	Design Ground Level Concentrations <sup>a</sup>	
	ppm <sup>d</sup>	mg/m <sup>3</sup>		ppm <sup>d</sup>	mg/m <sup>3</sup>
1,2-Dichloroethane	1.7	6.7	Sulphuric acid	-	0.033
Dichlorvos <sup>b</sup>	0.0033	0.033	Toluene <sup>b</sup>	0.17	0.65
Diethylamine <sup>b</sup>	0.02	0.06	1,1,1-Trichloroethane	11.7	63.3
Dimethylamine <sup>b</sup>	0.0094	0.017	1,1,2-Trichloroethane	0.33	1.5
Dinitrobenzene (all isomers)	0.005	0.033	Trichloroethylene	3.3	17.8
Dinitrotoluene	-	0.050	Trichlorofluoromethane	33.3	187
Dusts <sup>c</sup>	-	0.33	Triethylamine <sup>b</sup>	0.09	0.36
Diphenyl ether <sup>b</sup>	0.02	0.14	Trimethylbenzene (mixed isomers)	0.83	4.0
Epichlorohydrin	0.17	0.63	Vinyl toluene	3.3	16.0
Ethanol <sup>b</sup>	2.0	3.8	Welding fume (total particulate)	-	0.17
Ethanolamine <sup>b</sup>	0.10	0.20	Wood dust, non-allergenic	-	0.17
Ethyl acetate <sup>b</sup>	6.3	22.1	Xylene <sup>b</sup>	0.08	0.35
Ethyl acrylate <sup>b</sup>	0.0002	0.0008	Zinc chloride fume	-	0.033
Ethylbenzene	3.3	14.5	Zinc oxide fume	-	0.17

<sup>a</sup>based on consideration of toxicity unless otherwise specified.

<sup>b</sup>based on consideration of odorous properties of the indicator.

<sup>c</sup>other than cotton, coal, quartz bearing, asbestiform, talc, mica, cristobalite and trichymite.

<sup>d</sup>parts per million (volume/volume).

**C-2 BIOLOGICALLY ACCUMULATED INDICATORS AND LOCAL OBJECTIVES**

This Section prescribes local objectives for fluorides.

Fluoride concentrations in the air environment and in forage shall not exceed the following local objectives.

Indicator	Gaseous Fluorides in the Air Environment <sup>b</sup>		Fluorides in Forage <sup>a,c</sup>
	Averaging period	Local objective <sup>d</sup> ppb µg/m <sup>3</sup>	Local objective <sup>d</sup>
Fluoride	24 hours	3.4	40 ppm average for any 12 consecutive months
	7 days	2.0	60 ppm each month for more than two consecutive months
	90 days	0.59	80 ppm more than once in any two consecutive months

<sup>a</sup>The fluoride content is calculated by dry weight and expressed as fluoride (F<sup>-</sup>) ppm.

<sup>b</sup>Concentrations in the air are calculated as hydrogen fluoride (HF) and expressed at 0°C and one atmosphere (101.325 kPa).

<sup>c</sup>Requirements for sampling shall be developed and published by the Authority.

<sup>d</sup>Lower values may be specified for sensitive receiving environments, such as vineyards.

**SCHEDULE D  
CLASS 3 INDICATORS AND DESIGN GROUND LEVEL CONCENTRATIONS**

This schedule prescribes the Class 3 indicators and their design ground level concentrations referred to in Part IV of the Policy. These concentrations are to be applied to emissions of Class 3 indicators permitted under the provisions of Clause 10(e) in the calculation of chimney heights by the procedure outlined in Schedule E.

Indicator	Design Ground Level Concentrations		
	ppm	mg/m <sup>3</sup>	Other
Asbestos	-	-	33 fibres/litre
Benzene <sup>a</sup>	0.033	0.10	-
Beryllium	-	0.00007	-
Mercury	-	-	-
- organic	0.00003	0.0003	-
- inorganic	-	0.017	-
Radionuclides	-	-	-
TDI (toluene-2, 4-di-iso-cyanate)	-	-	-
Vinyl Chloride	0.0007	0.005	-
MDI (diphenylmethane di-iso-cyanate)	0.033	0.1	-
	0.0007	0.007	-

<sup>a</sup>Excluding petrol and liquid mixtures containing 1 per cent or less of benzene.

**SCHEDULE E  
PLUME CALCULATION PROCEDURE FOR LOCAL CONTROL**

This schedule outlines the plume calculation procedure referred to in Part V of the Policy.

**General**

A plume calculation procedure shall be performed for stationary sources to ensure that the predicted maximum ("worst case") three-minute ground level concentration for any indicator does not exceed the design ground level concentration prescribed below. The plume calculation procedure should consider local conditions, the effect of background concentrations, the contribution of adjacent sources and the need to preserve the capacity of the local air environment to receive future waste emissions.

The Authority shall develop and publish the detailed plume calculation procedure as soon as possible. Existing Authority practice shall continue to be used until the detailed plume calculation procedure is adopted by the Authority.

**Design Ground Level Concentrations**

The design ground level concentrations prescribed below for the Class 1, Class 2 and Class 3 indicators shall be based on an averaging period of three-minutes.

**Class 1 Indicators.** The design three-minute ground level concentration for carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>) and sulphur dioxide (SO<sub>2</sub>) shall be determined by multiplying the Acceptable Levels given in Schedule B for a one-hour averaging period by a factor. This factor shall be determined using established mathematical techniques and accepted technical data and shall be

adopted by the Authority as soon as possible. An equivalent design ground level concentration for lead shall be established.

**Class 2 and Class 3 Indicators.** The design three-minute ground level concentrations of Class 2 and Class 3 indicators shall be those prescribed in Schedules C and D, respectively.

*Plume Calculation Procedure*

The prediction of maximum ("worst case") three-minute ground level concentrations for an individual source subject to licensing should be followed at two levels of complexity: a relatively simple analysis should be used for small-to-moderate sized sources, and an extensive analysis, which may include the use of physical models, should be used for large sources and discharges of significant amounts of Class 2 and Class 3 indicators.

The calculation shall include some or all of the following steps, depending on the complexity of analysis required:

1. Develop emission, meteorological and other data required.
2. Check chimney design in relation to minimum discharge velocity, insulation, height of source in relation to adjacent buildings and neighbourhood topography.

3. Determine any allowances for adjacent discharges.
4. Estimate background concentrations of the indicators of interest based on available monitoring data.
5. Predict plume rise and dispersion under neutral, stable and unstable conditions using the Briggs equation and modified Pasquill dispersion curves or other appropriate equations or methods.
6. Make any necessary allowances or corrections for plant start-up and upset conditions.
7. Make any necessary corrections for the influence of terrain.
8. Make any necessary corrections for chemical transformations of indicators in the plume.
9. Estimate maximum ("worst case") three-minute ground level concentrations.
10. Complete a brief report on the plume analysis and prepare licence conditions.

**SCHEDULE F  
MINIMUM CONTROL REQUIREMENTS FOR STATIONARY SOURCES  
F-1 IRON FOUNDRY CUPOLAS**

This section describes emission controls to be applied to cold and hot blast cupolas. For purposes of this section, cupolas are divided into two broad categories:

*(a) Cupolas Giving Rise to Justified Complaints*

Wherever a particular iron foundry cupola is the source of waste emissions giving rise to justified complaints, the Authority shall specify in writing: (1) the discharge limit to be met for any waste emitted from such cupola; (2) the date by which the limit must be achieved; and (3) the date by which a submission shall be lodged detailing the means by which it is proposed to achieve the limit.

The submission shall include complete plans and specifications of proposed equipment and sampling arrangements and should also include a time schedule for installing, commissioning and testing the equipment.

*(b) Other Cupolas*

Cupolas other than those described in Section (a) above shall be controlled by reference to Table 1-1 and the requirements described in Table 1-2.

Table 1-1. Classification of Cupolas<sup>a</sup>

Nominal melting capacity (c) <sup>b</sup> tonnes/h	In Air Quality Control Region				Not in Air Quality Control Region			
	Jobbing Cupola <sup>c</sup>		Other Cupola		Jobbing Cupola <sup>c</sup>		Other Cupola	
	Existing	New	Existing	New	Existing	New	Existing	New
Cold Blast 4 < (c) ≤ 10 (c) > 10	A	B	B	C	A	A	B	B
	B	C	C	D	A	A	B	C
	C	C	D	D	B	B	C	C
Hot Blast All	D	D	D	D	D	D	D	D

<sup>a</sup> Refer Table 1-2 for description of requirements.

<sup>b</sup> Nominal melting capacity (tonnes per hour) = 6.6 x Area at tuyere zone (m<sup>2</sup>).

<sup>c</sup> The Authority may classify certain cupolas as jobbing cupolas. In general, jobbing cupolas should not be operated for periods aggregating in excess of 8 hours during any 30 day period. Operators of jobbing cupolas may be required to install equipment to record periods of operation.

Table 1-2. Description of Requirements

Classification	Description of Requirements												
A	Basic Requirements a. Smokeless light-up by gas or oil burner; b. Clean metallic charge, uncontaminated by non ferrous metals or non metallic matter; c. Shielding of charge materials from wind effects; d. Unimpeded vertical discharge; e. Discharge velocity not less than 6 metres per second at maximum blower rate; and f. Discharge height as specified in writing by the Authority.												
B	Basic requirements plus a wet cap arrester and associated equipment <sup>a</sup>												
C	Basic requirements plus equipment approved by the Authority to meet a discharge limit for particulates as follows:												
	<table border="1" style="width: 100%;"> <thead> <tr> <th>Nominal melting capacity (c) tonnes/h</th> <th>Discharge Limit mg/Nm<sup>3</sup></th> </tr> </thead> <tbody> <tr> <td>(c) &lt; 4</td> <td>850</td> </tr> <tr> <td>4 &lt; (c) &lt; 6</td> <td>750</td> </tr> <tr> <td>6 &lt; (c) &lt; 8</td> <td>500</td> </tr> <tr> <td>8 &lt; (c) ≤ 10</td> <td>400</td> </tr> <tr> <td>(c) &gt; 10</td> <td>250</td> </tr> </tbody> </table>	Nominal melting capacity (c) tonnes/h	Discharge Limit mg/Nm <sup>3</sup>	(c) < 4	850	4 < (c) < 6	750	6 < (c) < 8	500	8 < (c) ≤ 10	400	(c) > 10	250
Nominal melting capacity (c) tonnes/h	Discharge Limit mg/Nm <sup>3</sup>												
(c) < 4	850												
4 < (c) < 6	750												
6 < (c) < 8	500												
8 < (c) ≤ 10	400												
(c) > 10	250												
D	Basic requirements plus equipment approved by the Authority to meet a discharge limit of 115 mg/Nm <sup>3</sup> for particulates												

<sup>a</sup> Refer to EPA report No. 77/79 (1979) 'Requirements for Air Pollution Control of Iron Foundry Cupolas'.

**SCHEDULE G**  
**EMISSION LIMITS FOR STATIONARY SOURCES IN VICTORIA**

Wastes	Sources to which Emission Limit is Applicable	Emission Limit 1,2	Notes										
1. Visible emissions	All stationary sources except 1. Smoke from fires set for the reduction of a fire hazard or for instruction in the methods of fighting fire or forestry operations. 2. Normal agricultural operation.	Ringelmann 1 (BS 2742C, 1957); or of such opacity as to obscure an observer's view to the same degree as emissions corresponding with Ringelmann 1, above.	1. Ringelmann 2 acceptable for periods aggregating not more than 3 minutes in any 60 minute period. 2. Does not apply to emission of water vapour										
2. Combustion particulates	Solid fuel fired units All other units	0.5 g/m <sup>3</sup> 0.25 g/m <sup>3</sup>	Gas volume calculated to 12 per cent CO <sub>2</sub>										
3. Total particulate matter	All stationary sources	<table border="1" style="display: inline-table; vertical-align: top;"> <tr> <td>Process Weight Rate kg/min</td> <td>Max. Emission Rate g/min</td> </tr> <tr> <td>0 - 5</td> <td>17.5</td> </tr> <tr> <td>3.0 - 10</td> <td>17.5 plus 2.5 per kg/min. process weight in excess of 3.</td> </tr> <tr> <td>10 - 100</td> <td>35 plus 1.0 per kg/min. process weight in excess of 10.</td> </tr> <tr> <td>over 100</td> <td>125 plus 0.2 per kg/min. process weight in excess of 100.</td> </tr> </table>	Process Weight Rate kg/min	Max. Emission Rate g/min	0 - 5	17.5	3.0 - 10	17.5 plus 2.5 per kg/min. process weight in excess of 3.	10 - 100	35 plus 1.0 per kg/min. process weight in excess of 10.	over 100	125 plus 0.2 per kg/min. process weight in excess of 100.	Process weight is the total weight of all materials introduced into any specific process which may discharge contaminants into the atmosphere: solid fuels charged shall be considered as part of the process weight, but liquid and gaseous fuels and air shall not.
Process Weight Rate kg/min	Max. Emission Rate g/min												
0 - 5	17.5												
3.0 - 10	17.5 plus 2.5 per kg/min. process weight in excess of 3.												
10 - 100	35 plus 1.0 per kg/min. process weight in excess of 10.												
over 100	125 plus 0.2 per kg/min. process weight in excess of 100.												
4. Total particulate matter	All stationary sources	0.5 g/m <sup>3</sup>											
5. Sulphur dioxide	Sulphuric acid plants	5.6 g/m <sup>3</sup>											
6. Sulphuric acid mist and sulphur trioxide	All stationary sources	0.2 g/m <sup>3</sup> as SO <sub>3</sub>											
7. Hydrogen sulphide	All stationary sources except the wood pulp industry	7.5 mg/m <sup>3</sup>											
8. Nitric acid and oxides of nitrogen	Nitric acid plants	3.0 g/m <sup>3</sup> of nitric acid plus nitrogen oxides, calculated as NO <sub>2</sub>											
9. Oxides of nitrogen	Fuel burning units (other than internal combustion engines and glass manufacturing plants) having a maximum heat input rate greater than 150 000 MJ/h gross.	1.0 g/m <sup>3</sup>	Nitrogen calculated as NO <sub>x</sub> at a 7 per cent oxygen reference level <sup>3</sup> . Emission limit = $\frac{C_M(20.9 - \% O_2 \text{ reference})}{20.9 - \% O_2 \text{ measured}}$										
10. Lead and its compounds	All stationary sources	10 mg/m <sup>3</sup> expressed as lead											
11. Fluorine compounds	All stationary sources	0.05 g/m <sup>3</sup> expressed as HF											
12. Chlorine and chlorine compounds	All stationary sources	0.2 g/m <sup>3</sup> expressed as chlorine											
13. Total of antimony, arsenic, cadmium, lead and mercury		10 mg/m <sup>3</sup> (Addition of each metal or compound expressed as the metal in each case).											
14. Antimony and its compounds		10 mg/m <sup>3</sup> expressed as antimony											
15. Arsenic and its compounds		10 mg/m <sup>3</sup> expressed as arsenic											
16. Cadmium		3 mg/m <sup>3</sup> expressed as cadmium											
17. Nickel and its compounds except nickel carbonyl		20 mg/m <sup>3</sup> expressed as nickel											
18. Nickel carbonyl		0.5 mg/m <sup>3</sup> expressed as nickel											

<sup>1</sup> Gas volumes are expressed dry at 0°C at an absolute pressure of one atmosphere (101.325 kPa).

<sup>2</sup> Dilution of wastes to meet emission limits shall not be permitted except where noted.

<sup>3</sup> C<sub>M</sub> is the measured concentration of oxides of nitrogen in grams per cubic metre. Oxygen concentrations are expressed on a volumetric basis.



**SCHEDULE H**  
**EMISSION LIMITS FOR NEW STATIONARY SOURCES**  
**IN AIR QUALITY CONTROL REGIONS**

Wastes	Sources to which Emission Limit is applicable	Emission Limit <sup>1,2</sup>	Notes
1. Visible emissions	All stationary sources except 1. Smoke from fires set for the reduction of a fire hazard or for instruction in the methods of fighting fire or forestry operations. 2. Normal agricultural operation.	Ringlemann 1 (BS 2742C, 1957); or of such opacity as to obscure an observer's view to the same degree as emissions corresponding with Ringlemann 1, above.	1. Ringlemann 2 acceptable for periods aggregating not more than 3 minutes in any 60 minute period. 2. Does not apply to the emission of water vapour.
2. Combustion particulates	a. All stationary sources except as described hereunder. b. Incinerators with design burning rates of 300 kg per hour or less	0.25 g/m <sup>3</sup> 0.5 g/m <sup>3</sup>	Gas volume calculated to 12 per cent CO <sub>2</sub>
3. Total particulate matter	All stationary sources	Process Weight Rate kg/min Max. Emission Rate g/min  0 - 3            14 3.0 - 10        14 plus 2.0 per kg/min process weight in excess of 3.  10 - 100        28 plus 0.8 per kg/min process weight in excess of 10  over 100        100 plus 0.18 per kg/min process weight in excess of 100.	Process weight is the total weight of all materials introduced into any specific process which may discharge contaminants into the atmosphere; solid fuels charged shall be considered as part of the process weight, but liquid and gaseous fuels and air shall not.
4. Total particulate matter	All stationary sources except as provided in 2b	0.25 g/m <sup>3</sup>	
5. Sulphur dioxide	Sulphuric acid plants	1.8 kg/tonne of 100% acid	
6. Sulphuric acid mist and sulphur trioxide	a. All stationary sources b. Sulphuric acid plants	0.1 g/m <sup>3</sup> expressed as SO <sub>3</sub> 0.07 kg/tonne of 100% acid	
7. Hydrogen sulphide	All stationary sources except the wood pulp industry	5.0 mg/m <sup>3</sup>	Any source discharging H <sub>2</sub> S at a rate of less than 2 g/h may dilute to meet the provisions of Section 7.
8. Nitric acid and oxides of nitrogen	Nitric acid plants	2.0 g/m <sup>3</sup> of nitric acid plus nitrogen oxides, calculated as NO <sub>2</sub>	
9. Oxides of nitrogen	Fuel burning units (other than internal combustion engines and glass manufacturing plants) having a maximum heat input rate greater than 150 000 MJ/h gross except as described hereunder:  Power station boilers for electricity generation of rated output equal to or greater than 250 MW  Gas turbines for electricity generation: - Rated output equal to or greater than 30 MW - Rated output less than 30 MW	a. 0.35 g/m <sup>3</sup> for gaseous fuels b. 0.5 g/m <sup>3</sup> for liquid or solid fuels  0.7 g/m <sup>3</sup> for solid fuels  a. 0.07 g/m <sup>3</sup> for gaseous fuels b. 0.15 g/m <sup>3</sup> for other fuels 0.09 g/m <sup>3</sup> for gaseous fuels	Nitrogen oxides calculated as NO <sub>2</sub> at a 7 per cent oxygen reference level <sup>3</sup> .  Emission limit = $\frac{C_m(20.9 - \% O_2 \text{ reference})}{20.9 - \% O_2 \text{ measured}}$  This limit may be relaxed to 0.78 g/m <sup>3</sup> in individual cases where it can be shown that 0.7 g/m <sup>3</sup> is too restrictive in relation to such matters as the type of fuel being burned, existing emission control technology and factors of health and safety.  Nitrogen oxides calculated as NO <sub>x</sub> at a 15 per cent oxygen reference level <sup>3</sup> .
10. Carbon monoxide	All stationary sources except internal combustion engines and cold blast cupolas	2.5 g/m <sup>3</sup>	
11. Lead and its compounds	All stationary sources	10 mg/m <sup>3</sup> expressed as lead	
12. Fluorine compounds	Any plant manufacturing aluminium from alumina All other sources	0.02 g/m <sup>3</sup> expressed as HF 0.05 g/m <sup>3</sup> expressed as HF	
13. Chlorine and chlorine compounds	All stationary sources	0.2 g/m <sup>3</sup> expressed as chlorine	
14. Total of antimony, arsenic, cadmium, lead and mercury		10 mg/m <sup>3</sup> (Addition of each metal or compound expressed as the metal in each case).	
15. Antimony and its compounds		10 mg/m <sup>3</sup> expressed as antimony	
16. Arsenic and its compounds		10 mg/m <sup>3</sup> expressed as arsenic	
17. Cadmium		5 mg/m <sup>3</sup> expressed as cadmium	
18. Nickel and its compounds except nickel carbonyl		20 mg/m <sup>3</sup> expressed as nickel	
19. Nickel carbonyl		0.5 mg/m <sup>3</sup> expressed as nickel	

<sup>1</sup>Gas volumes are expressed dry at 0°C at an absolute pressure of one atmosphere (101.325 kPa)

<sup>2</sup>Dilution of wastes to meet emission limits shall not be permitted except where noted.

<sup>3</sup>C<sub>m</sub> is the measured concentration of oxides of nitrogen in grams per cubic metre. Oxygen concentrations are expressed on a volumetric basis.

**SCHEDULE I**  
**ALERT LEVELS FOR SELECTED CLASS 1 CONTAMINANTS**

This schedule prescribes the Alert Levels for the air environment referred to in Part V of the Policy.

Indicator	Averaging period	Alert Level (ppm)
Carbon monoxide	1 h	120
Nitrogen dioxide	1 h	0.50
Oxidant (as ozone)	1 h	0.25
Sulphur dioxide	1 h	0.50

And the Honourable William Vasey Houghton, Her Majesty's Minister for Conservation for the State of Victoria, shall give the necessary directions herein accordingly.

TOM FORRISTAL  
Clerk of the Executive Council

**EXPLANATORY NOTES**

**Background**

In April 1978 the then Minister for Conservation, the Honourable W.A. Borthwick, signed a contract with consultants Caldwell Connell Engineers Pty. Ltd. for the preparation of a draft State Environment Protection Policy for the Air Environment of Victoria. The draft Policy and associated Explanatory Document were prepared, following the collection and analysis of monitoring and meteorological data, preparation of emission inventories and projected inventories, a detailed review of the causes and effects of air pollution and an analysis of available control strategies. An insight into community and industry attitudes to air pollution control was obtained through meetings with a number of interested organisations in the public and private sectors.

The draft Policy was completed in consultation with the Authority and after review and comment by the Environment Protection Council. It was released for public review and comment in June 1979 and extensively advertised in metropolitan and country newspapers. In September 1979 eight public review meetings were held (two in Melbourne and one each in Geelong, Traralgon, Mildura, Bendigo, Portland and Wodonga) to explain the draft Policy to members of the public and to receive verbal submissions. The closing date for receiving public comment was originally set for 26 October 1979, but was extended to 30 November 1979 in response to public request.

In all, approximately 5,000 copies of the draft Policy and associated Explanatory Document were distributed to interested organisations and individuals.

During the five months of public review and comment, 189 submissions were received. After consideration of these submissions the Authority prepared a State Environment Protection Policy (Air Environment) which incorporated several changes to take account of the comments received on the draft Policy.

**Purpose and Function of State Environment Protection Policy**

The *Environment Protection Act 1970* provides for the declaration of State Environment Protection Policies. By State Environment Protection Policies the Government, acting on the advice of the EPA, other government agencies, non-government organisations and the general public, determines the environmental quality which is judged to be appropriate and should therefore be achieved and maintained.

State Environment Protection Policies may apply throughout Victoria or in some part of Victoria only. They may concern the environment generally or some particular element or segment of the environment (e.g. air, land, water or noise — or any combination of these).

According to the Act, a State Environment Protection Policy must establish the basis for maintaining sufficient environmental quality to protect both present and anticipated beneficial uses in the area affected. In particular, the Policy is to include the following details, expressing them in terms that are clear enough to form an adequate basis for planning and licensing functions:

- (a) the boundaries of any area affected;
- (b) identification of the beneficial uses to be protected;
- (c) selection of the environmental indicators to be employed to measure and define the environmental quality;
- (d) a statement of the environmental quality objectives (where practicable); and
- (e) the programme (if any) by which the stated environmental quality objectives are to be attained and maintained.

The statutory procedures for formulating Policies place special emphasis on opportunities for public participation. Before declaration by the Governor in Council, a draft Policy is advertised, issued for public review and comment and revised in the light of comments received before being recommended to the Government for declaration under the *Environment Protection Act*.

Once declared, the Policy forms the basis for waste management decision making in the area affected and becomes a guide to the community, including Government departments and agencies. Waste discharge licensing decisions must be consistent with the Policy and the public has a statutory right of appeal on the ground that a licence is inconsistent with the Policy. Regulations may be enacted to implement the Policy by controlling sources of waste which are exempted from the licensing system. Policies are subject to review and revision, especially in the light of changed circumstances and new data.

'Beneficial uses' constitute the cornerstone of State Environment Protection Policies. A beneficial use is defined as a use of the environment or an element or segment of the environment which is conducive to public benefit, welfare, safety or health and which requires protection from the effects of waste discharges or the emission of noise. Public comment is particularly valuable in establishing the beneficial uses to be protected, since identification of such uses depends very largely on existing or expected public demand.

Protecting beneficial uses means achieving and maintaining a certain level of environmental quality. Thus, a Policy sets environmental quality objectives (in the case of this Policy, air quality objectives) which, if achieved, will adequately protect the beneficial uses.

**Policy in General**

The need to establish air quality control strategies is recognised by most nations throughout the world where industrial development and the establishment of large urban areas have inevitably resulted in increased emissions of pollutants to the atmosphere. In Victoria industrial and urban development has reached a stage where it is necessary that a State Environment Protection Policy be declared for its air environment.

The Policy for the Air Environment proposes a strategy for air quality management in Victoria. It defines beneficial uses in need of protection and air quality objectives which are designed to protect these beneficial uses and to provide a focus for emission control programmes.

The Policy is intended to provide a framework for the evolution of future air quality control programmes. Guidelines will be developed where appropriate and it may be necessary to make additions to the Policy.

The Policy applies to the whole of Victoria. It divides the State into three areas: the Port Phillip Air Quality Control Region, the Latrobe Valley Air Quality Control Region and the remainder of Victoria. The Air Quality Control Regions are established to allow specific control programmes to be developed to meet the particular needs of each Region and to avoid a situation where unnecessary control is imposed on a statewide basis.

Air quality objectives for the common air contaminants (Class 1 indicators) provide the foundation of the Policy. The objectives are established at two levels, the Acceptable Level and the Detrimental Level to reflect the fact that individuals vary in their sensitivity to specific pollutants. Consequently, there is no single value for any pollutant which represents the threshold of effect for all individuals or members of a particular species. All beneficial uses will be protected if air quality for each contaminant is better than the Acceptable

ble Level. On the other hand, air quality which is worse than the Detrimental Level for any contaminant may cause a substantial proportion of the population to be adversely affected and may cause significant changes to some segments of the environment. Air quality between the Acceptable and Detrimental Levels may cause sensitive persons to experience some ill effect and may cause some segments of the environment to be adversely affected.

The Policy recognises that meteorological conditions may sometimes result in a temporary accumulation of pollutants and that it would be extremely costly to insist on a degree of emission control that would ensure that the Acceptable Level is never exceeded for any indicator. The Policy, therefore, allows a limited number of excursions above the Acceptable Level but provides that the Detrimental Level should not be exceeded.

Moreover in the case of Class 1 indicators (except lead and visibility-reducing particulates) Alert Levels are established. If the Alert Level is reached an emergency abatement plan would have to be introduced. It is intended that such a plan be included as a schedule to the Policy at a later date after public review and comment.

Two other classes of indicators are recognised in the Policy. These are the Class 2 and Class 3 indicators.

Class 2 indicators are generally less widespread than Class 1 indicators because they tend to be emitted from relatively few sources. Control of Class 2 indicators is based on a combination of: (1) emission limitations; and (2) the use of tall chimneys to enhance atmospheric dispersion and thus reduce ground level concentrations of indicators in the vicinity of sources. Class 2 indicators, such as fluoride, which are biologically accumulated, must also comply with the local environmental quality objectives.

Class 3 indicators include substances in relatively common use which are carcinogenic, mutagenic, teratogenic, or highly toxic. Because of the potential hazards associated with emission of these substances, it is necessary to prevent or at least minimise their discharge to the atmosphere.

The attainment programme involves an integrated approach to emission control, largely through licensing and Regulations. In general, licences are to be applied to medium and large stationary sources, while Regulations and other means of control are to be used to control emissions from small stationary sources, mobile sources and diffuse sources.

Comprehensive air quality management programmes are to be developed for each Air Quality Control Region.

In the Port Phillip Air Quality Control Region air pollution problems are episodic. During air pollution episodes the Acceptable Levels for oxidant and nitrogen dioxide and the objective for visibility are often exceeded.

In this region the most immediate concern in terms of air quality management is oxidant. Preliminary estimates indicate that significant reductions in hydrocarbon emissions from a wide range of mobile, stationary and diffuse sources will be essential if the air quality objective for oxidant is to be achieved.

The very limited air quality data available for the Latrobe Valley Air Quality Control Region suggest that its air quality is generally acceptable. However, consideration will need to be given to preserving the capacity of the air environment to receive future emissions in view of the projected expansion in electricity generating capacity and other major energy projects planned for the Valley.

The control of emissions from stationary sources is to be achieved through the continued use of the licensing system, through Regulations and the specification of emission control requirements for major categories of sources. The first example of this approach is in Section F-1 of Schedule F in the Policy, which provides for different levels of control for various categories of iron foundry cupolas. Schedule F will be expanded to include other industries and each addition will be subject to public review.

Emission limits for stationary sources throughout the State and for new stationary sources in Air Quality Control Regions are specified in schedules to the Policy. The emission limits are largely based on the Clean Air Regulations 1965 and the National Emission Standards recommended by the National Health and Medical Research Council. Licences, after consideration of local and regional control requirements, may specify more stringent conditions than these limits.

Local control requirements apply throughout the State of Victoria and consist of emission limitations and the provision of adequate dispersion and dilution by the use of tall chimneys. More stringent controls, however, can be applied to large new sources located outside Air Quality Control Regions because of their major impact on the local air environment.

In Air Quality Control Regions special emphasis is placed on the control of large new sources. Such a source may be required to install the best available emission control technology or may be licensed only where reductions in emissions from other sources offset the effects of the proposed emissions from the new source.

Significant reductions in emissions from mobile sources will be essential if the air quality objectives of the Policy are to be achieved in the Port Phillip Air Quality Region. Furthermore, surveys of vehicles certified under Australian Design Rule (ADR) 27A have shown that many new vehicles fail to meet the standard while even more fail in service. The Policy does not attempt to specify the ultimate degree of control required but proposes an initial programme to control emissions from mobile sources. This includes:

- (a) achieving compliance, as soon as practicable, with existing State motor vehicle emission control Regulations over the full range of engine, ignition and fuel system adjustments for the useful life of the vehicle;
- (b) reducing evaporative emissions from new motor vehicles;
- (c) providing for a refusal of registration in the case of new vehicles representing models which consistently fail to meet emission standards;
- (d) testing representative samples of new and in-service vehicles; and
- (e) continuing the present controls on lead emissions by limiting the maximum allowable concentration in petrol. (This measure is to be kept under review and a further reduction in lead emissions may be necessary to achieve the air quality objective for lead.)

The implementation of the Policy will depend very much on support activities such as adequate monitoring, stack testing, the development of mathematical models and an effective enforcement programme and these are referred to in the Policy.

#### The Policy in Detail

The Policy is preceded by the necessary legal preamble for an Order in Council.

#### Clause 1

Gives the title of the Order and indicates that it shall come into operation upon publication in the *Government Gazette*.

#### Clause 2

Divides the Order into six parts.

#### Clause 3

Classifies the element of the environment to which this Policy applies as air. (Section 17(1)(a) of the Act states that any Order may classify the element of the environment to which it applies.)

#### Clause 4

Gives specific interpretations of various words and terms used throughout the Policy. The purpose of these interpretations is not to provide a glossary of technical terms but simply to give a specific meaning to a phrase which may be slightly limited or otherwise different to the meaning commonly accepted in everyday language.

#### Clause 5

Indicates that the Policy applies to the air over the State of Victoria, with the exception of air inside buildings and structures (which comes under the jurisdiction of the Health Commission of Victoria).

#### Clause 6

Divides the Policy area into three areas so that air quality management programmes may be designed to meet the needs of individual areas. Air Quality Control Regions are to be established where it is desirable to control waste emissions on a regional scale. Two Air Quality Control Regions are defined by the Policy: (1) the Port Phillip Air Quality Control Region, which contains most of the State's population and industry; and (2) the Latrobe Valley Air Quality Control Region, which contains the State's major brown coal reserves and the bulk of the State's electricity generating capacity.

#### Clause 7

Provides for the adoption of a higher degree of air quality protection in areas of special environmental value. The major consideration in defining such areas should be the need to avoid significant degradation of air quality. Examples of areas which may warrant classification as Areas of Special Significance are the Grampians, Wilsons Promontory and sections of the Alpine region.

#### Clause 8

Lists the beneficial uses to be protected under the Policy.

#### Clause 9

Establishes environmental indicators and environmental quality objectives in accordance with Section 18(c) of the Act. Three classes of indicators are established: Class 1, Class 2 and Class 3 indicators.

Class 1 indicators are widely distributed in the atmosphere because they arise from many different sources. Because of these characteristics, the Policy establishes air quality objectives which apply generally to the air environment in Victoria as well as design ground level concentrations which apply in the vicinity of individual sources.

Class 2 indicators, unlike the ubiquitous Class 1 indicators, are generally found in significant concentrations only in the vicinity of sources. This is reflected in the criteria established for the control of Class 2 indicators, i.e.,

design ground level concentrations and in the case of fluoride, which is biologically accumulated, local environmental quality objectives.

Class 3 indicators are those contaminants which cause particular concern because they are highly toxic, carcinogenic, teratogenic, or mutagenic. Design ground level concentrations are also established for these indicators.

**Clause 10**

Specifies how the air quality objectives, local environmental quality objectives and the design ground level concentrations for each indicator are to be used in order to protect the beneficial uses of the air environment identified in Clause 8(1). The design ground level concentrations for Class 3 indicators are only to be applied to emissions of these indicators permitted under the provisions of Clause 10(e).

**Clause 11**

Provides that the air quality objectives are to be used in evaluating the necessity and effectiveness of air quality management programmes.

**Clause 12**

Recognises the need to define appropriate methods of measuring various indicators. Such methods may be redefined from time to time to take advantage of advances in technology.

**Clauses 13 and 14**

Indicate that implementation of the Policy shall be based on the control of waste emissions through the licensing system and Regulations, while recognising the relationship between State Environment Protection Policies and Statements of Planning Policy.

**Clauses 15 and 16**

Provide that small and insignificant sources will generally be exempted from licensing, but not necessarily from Regulations. While emissions from individual small sources are usually insignificant when compared with the total atmospheric loading in a particular area, the total emissions from a large number of small sources can be significant. In addition, small sources can give rise to localised problems. Some means of control of these emissions is therefore necessary. The complexity of the licensing system makes it inefficient for controlling emissions from individual small sources and control is better achieved by general Regulations or by specific control requirements issued to individual premises.

**Clause 17**

Recognises the need to consider both local and regional factors in developing licence conditions and Regulations.

**Clause 18**

Directs the Authority to prepare a comprehensive air quality management programme for each Air Quality Control Region as soon as practicable. The information currently available is insufficient to prepare detailed management programmes for all significant Class 1 indicators and their precursors. The pollutant of most immediate concern in the Port Phillip Air Quality Control Region is oxidant. However, little information on the concentration of the hydrocarbon precursors of oxidant or the characteristics of the photochemical reactions is available in Victoria. Experience gained in the US suggests that the most appropriate approach to oxidant control in these circumstances is to reduce non-methane hydrocarbon (NMHC) emissions, as this will always achieve some oxidant control and often has the added advantage of conserving precious petroleum resources. The necessary level of control will require a vigorous control programme covering a wide range of mobile, stationary and diffuse sources.

**Clause 19**

Stresses the need to maintain the capacity of the air environment to receive future waste emissions.

**Clause 20**

Requires that all emissions from stationary sources, including fugitive and diffuse emissions, shall be controlled by licensing, unless exempted. Licences specify maximum allowable emissions for a particular source, but may also contain other conditions. It may be necessary, for example, to specify the operating conditions of control equipment such as afterburners or to specify meteorological conditions under which operations would be restricted.

**Clauses 21 and 22**

Recognise that there are many advantages in specifying emission control requirements for major categories of sources as schedules to the Policy. This will allow specific controls to be developed which are appropriate to particular industries and will simplify the licensing procedure through publication of these requirements.

**Clause 23**

Recognises that the emission limits prescribed by Schedule G represent a level of control which is readily achievable, but not the best control which is technologically possible. These are the maximum limits allowable in any licence, except where Schedule F applies. A licence may, of course, contain more stringent limits to conform with good control practice or where conditions warrant greater control.

**Clauses 24 and 25**

Outline the 'local control' approach, which seeks to protect beneficial uses in the vicinity of sources through emission limitations and the provision of adequate dispersion and dilution by the use of tall chimneys. The appropriate chimney height is calculated by application of an appropriate plume dispersion calculation. The Authority will review the various calculation methods which are available and will adopt and publish methods for use in the implementation of the Policy.

**Clause 26**

Recognises that some large new sources located outside Air Quality Control Regions may have a major impact on local air quality unless their emissions are strictly controlled.

**Clauses 27 and 28**

Provide that more stringent control measures may be required for specific contaminants in regions of the State where air quality fails to meet the Acceptable Level of air quality or where such failure is projected. A regional approach allows specific control programmes to be developed to meet the particular needs of each region and helps to avoid a situation where unnecessarily stringent controls are imposed on a statewide basis. Large new sources in these regions may be required to install emission controls incorporating the best available technology, or in some cases such a source may be licensed only where reductions in corresponding emissions from other sources in the region are made which offset the effects of the proposed emissions from the new source.

**Clause 29**

Outlines the approaches to be explored for controlling diffuse emissions. One example would be the evaporation of solvents from paints and degreasing operations.

**Clause 30**

Recognises that open burning should be controlled to prevent annoyance by reducing particulate and hydrocarbon emissions, especially during periods of poor atmospheric dispersion.

**Clause 31**

Deals with the only control to be considered for domestic premises, namely, control on the burning of wastes. Hydrocarbons from backyard incinerators are estimated to account for about 8 per cent of NMHC emissions in the Port Phillip Air Quality Control Region. This represents a significant contribution and one which can be effectively reduced through increased emphasis on composting, recycling of waste paper and collection of other debris by municipal councils. While domestic waste burning may ultimately have to be prohibited, it is recommended that an attempt be made to limit emissions from these sources during periods of poor atmospheric dispersion. This approach would require an expanded public information programme and advice on the suitability of atmospheric conditions for waste burning.

**Clauses 32 to 39**

Outline a programme for reducing emissions from motor vehicles. The programme recognises the desirability of developing new emission controls which do not incur fuel penalties. These controls would need to be developed jointly with other States and the Commonwealth. Testing of exhaust and evaporative emissions from new and in-service vehicles will be undertaken as the basis for a surveillance and enforcement programme. The specific controls listed are aimed at reducing emissions from poorly tuned vehicles and evaporative and lead emissions.

**Clause 40**

Requires the Authority to seek community support and co-operation in reducing emissions during air pollution episodes.

**Clause 41**

Provides for the establishment of an emergency abatement plan to be implemented if the level of any pollutant reaches the Alert Level defined in Schedule 1. Alert Levels represent concentrations of pollutants which will have adverse effects on most individuals. The plan will contain procedures which can be implemented without delay in an air pollution emergency in order to: (1) minimise the risks to sensitive individuals; and (2) reduce the concentration of pollutants. Steps which could be included in an emergency abatement plan are:

**Advisory messages**

These messages would be prepared in consultation with the Health Commission of Victoria, advising sensitive persons how they can minimise adverse effects resulting from the pollution episode. The messages should be given to the media for dissemination to the public in the event of an air pollution alert.

**Source abatement**

Large sources would be required to prepare source abatement plans which provide for two levels of reduction (50 and 100 per cent) in their emissions.

**Transport strategy**

A transport strategy would be prepared, in consultation with the Ministry of Transport, to reduce the level of emissions from motor vehicles during any air pollution emergency.

The plan should be implemented progressively if the level of a contaminant is predicted to reach the Alert Level presented in Schedule I, beginning with the release of the messages by the media when the detrimental level is exceeded. Steps to reduce the rate of emission of pollutants should also be implemented. Since emissions which result in high oxidant levels occur at least several hours before peak levels are reached, it is important that the Authority develops the capability to predict likely episodes of severe oxidant concentrations so that emissions of oxidant precursors may be controlled in time to prevent the alert levels being reached or exceeded.

Emergency abatement plans in the US have not been altogether effective and often lack the degree of public support which is needed for their success. Consequently, the Authority should develop its emergency abatement plan in consultation with a wide range of Government, community and industry interests and thus ensure a broad base of support for the plan, should it need to be implemented in the future.

**Clause 42**

Recognises that complaints about odour and dustfall comprise a large proportion of the air pollution complaints received by the Authority. Odour nuisances are notoriously hard to document as they often result from short-term process upsets or particular atmospheric conditions which may transport odours to sensitive areas. Sources which create nuisances or objectionable conditions will be required to provide appropriate control equipment or to modify operating conditions in order to prevent a recurrence of the nuisance conditions.

**Clause 43**

Aims to encourage the use of buffer zones to assist in reducing the effects of emissions on surrounding land use.

**Clause 44**

Requires that air quality be routinely monitored to assist in developing and evaluating air quality management programmes. It is intended that monitoring stations be located so as to provide data on both the local and regional levels of air quality. This clause also provides for the analysis and publication of air quality data and monitoring by licensees in some cases to establish the effects of their emissions.

**Clauses 45 and 46**

Provide for a programme of source testing to assess the degree of compliance with licence conditions and assist in enforcing licence conditions, Regulations and other requirements.

**Clause 47**

Recognises the importance of air quality to the people of Victoria. Poor air quality can affect health, welfare and property. It carries with it significant costs to the community and can detract from enjoyment of the world around us. The costs of air pollution control are also high and much of the costs must ultimately be borne by the public. It is therefore in the public interest to maintain a high level of understanding of air quality matters. Information on the effects of air pollution, sources of pollution, trends in air quality and the part the public can play in achieving a high level of air quality should be widely disseminated. Most of all, feed-back from the community must be encouraged and responded to.

**Clause 48**

Provides for a high degree of co-ordination and co-operation between all authorities involved in programmes having an influence on the air environment. Significant reductions in emissions to air can be achieved through local and regional planning and development of alternative strategies for transportation and utilisation of energy resources.

**Clause 49**

Is designed to ensure that the Policy is regularly reviewed and updated to take account of new information and technological advances.

**Schedule A**

Defines the geographical limits of the two Air Quality Control Regions and by difference, the other areas of Victoria. Where possible, Local Government Area boundaries are used to delineate and define the Regions.

**Schedule B**

Lists the air quality objectives for Class 1 indicators. The objectives are based on health effects except in the case of: (1) the eight-hour averaged level for oxidant which is based on effects on vegetation; and (2) the objective for visibility-reducing particulates which, as one would expect, is based on impairment of visibility.

**Schedule C**

Lists relatively common Class 2 indicators and their respective design ground level concentrations. Values for other Class 2 indicators will be derived by the Authority on a case-by-case basis. The design ground level concentrations are used in determining chimney heights according to the procedure outlined in Schedule E. Schedule C also lists local objectives for fluorides which are biologically accumulated; these objectives are prescribed for the air environment and for forage.

**Schedule D**

Lists the Class 3 indicators, which include substances in relatively common use which are carcinogenic, mutagenic, teratogenic or highly toxic. Because of the potential hazards associated with these substances, it is necessary to prevent or at least minimise their discharge to the atmosphere. Discharge of these substances will be permitted only where their predicted maximum ground level concentrations, determined through the procedure outlined in Schedule E, are less than the values shown in the table.

**Schedule E**

Outlines the plume calculation procedure for predicting the ground level concentrations of Class 1, 2 and 3 indicators in the vicinity of sources. The results of the predictions will be used in establishing licence conditions covering chimney heights and emission rates to ensure that design ground level concentrations are not exceeded. The design ground level concentrations are based on a three-minute averaging period, which in the case of Class 1 indicators necessitates the application of an appropriate factor to convert the values given in Schedule B to the equivalent three-minute averaged concentrations. The degree of complexity of the calculation procedure should be commensurate with the size of the source and the potential impacts associated with the discharge. The schedule requires the Authority to develop and publish the detailed plume calculation procedures, based on the guidelines contained in the schedule, as soon as possible.

**Schedule F**

Recognises the advantages of specifying emission control requirements for major categories of sources as schedules to the Policy. This will allow specific controls which are appropriate to particular industries to be developed, and will simplify the licensing procedure through publication of these requirements. The first example of this approach provides for different levels of control for various categories of iron foundry cupolas. Cupolas are categorised according to location, size, frequency of use and whether they are existing or new installations. Cupolas which give rise to justified complaints will be required to adopt more stringent controls than those specified in the particular section of Schedule F.

**Schedule G**

Defines emission limits for stationary sources subject to licensing. The emission limits specified by Schedule G represent a level of control which currently is being achieved by most licensed sources, but is not the best control which is technologically possible. These are the maximum limits allowable in a licence except where Schedule F applies. A licence may, of course, contain more stringent limits to conform with good control practice or where conditions warrant greater control.

**Schedule H**

Provides that new stationary sources in Air Quality Control Regions must achieve a higher degree of emission control than that provided for in Schedule G. This provision has the advantage of controlling emissions in regions experiencing air quality problems while avoiding unnecessarily stringent controls on a statewide basis.

**Schedule I**

Lists the Alert Levels referred to in Clause 41 for selected Class 1 indicators. The Alert Levels are expressed in terms of one-hour averaged values as it is more feasible to develop a predictive capability for the shorter averaging periods. An alert level for lead is not included because it is appropriate to base control of this indicator on longer-term considerations; short-term control would have little bearing on its health effects.

