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Environment Protection Act 1970 *(No. 8056)*

STATE ENVIRONMENT PROTECTION POLICY No. W-34A
(The Waters of Lake Colac and Catchment)

At the Executive Council Chamber, Melbourne

the twenty-sixth day of January 1982

PRESENT:

The Lieutenant-Governor as Deputy for
His Excellency the Governor of Victoria
Mr. Jona Mr. Lacy

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 notice of intention to declare State environment protection policy in respect of the waters of Lake Colac and Catchment;

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;

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 (WATERS OF LAKE COLAC AND CATCHMENT) No. W-34A

1. This Order may be cited as the State Environment Protection Policy (Waters of Lake Colac and Catchment) No. W-34A (hereinafter referred to as the Policy) and shall come into operation upon publication in the *Government Gazette.*

2. This Policy is divided into parts as follows:

No. 17—46190/82—Price 80 cents

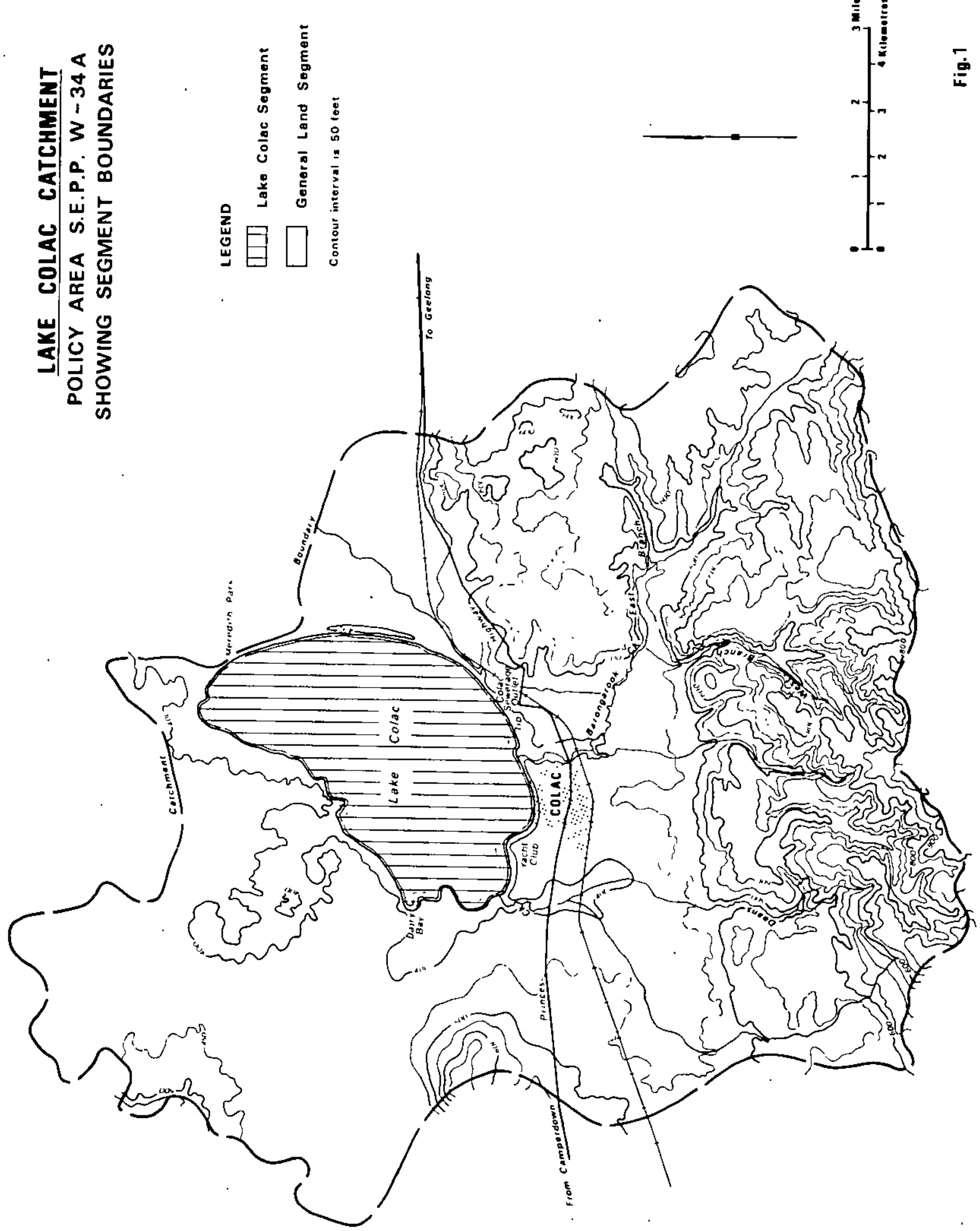
LAKE COLAC CATCHMENT
POLICY AREA S.E.P.P. W-34 A
SHOWING SEGMENT BOUNDARIES
LEGEND
Lake Colac Segment
General Land Segment
Contour interval is 50 feet
Lake Colac
COLAC
Yacht Club
Dairy Bay
Catchment
Boundary
To Geelong
From Camperdown
Princes
Barongarook
East Branch
3 Miles
4 Kilometres

Fig.1

PART I – PRELIMINARY

3. In this Policy unless inconsistent with the context or subject matter:

"Act" means the *Environment Protection Act* 1970 as amended.

"Authority" means the Environment Protection Authority constituted under the Act.

"Background level" means the level of an indicator (measured in a manner and at a location specified by the Authority) in the surface waters and ground waters outside the influence of any waste containing that indicator.

"Beneficial use" means a 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.

"Delegated agency" means a protection agency to which the Authority has delegated powers or functions under section 68 of the Act with respect to the grant, refusal or enforcement of licences.

"Groundwater" means the water beneath the land surface which is contained in aquifers.

"Licence" means a licence issued by the Authority or a protection 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.

"Mixing zone" means an area contiguous to a waste discharge point and designated in a licence for the mixing of wastes with receiving waters.

"Policy area" means the area in which this Policy shall be observed as specified in clause 5.

"Responsible authority" in relation to sewerage means any authority with jurisdiction over the provision of, or requirement for sewerage, including those authorities with control over the subdivision of land.

"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.

"Sewered property" means any sewered land or premises and any land or premises which have been declared by a sewerage authority in the manner prescribed by statute to be a sewered property.

"Sewerage" means works for the collection, treatment and disposal of waste water.

"Surface waters" means the surface waters of the Policy area, and includes any river, stream, reservoir, billabong, creek, anabranch, canal, spring, open drain, swamp, channel, lake, lagoon, natural or artificial water course, bay, tidal waters or coastal waters, excluding lagoons or pondages used exclusively for the purpose of waste treatment, waters within water supply distribution systems, farm dams, private ponds and the interstitial waters of sediments.

"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 of the environment.

4. The purpose of this Policy is to establish a basis for attaining and maintaining a level of water quality sufficient to protect the identified beneficial uses of the surface waters and groundwaters of the Policy area and downstream waters.

PART II – BOUNDARIES OF THE AREA AFFECTED

5. This Policy shall be observed with respect to all surface waters and groundwaters contained within the boundary of Lake Colac and its catchment as shown by the map in Figure 1.

6. For the purpose of this Policy, the following segments of the environment are classified:

(a) *Lake Colac Segment*

The surface waters of Lake Colac including those of any contiguous bays or swamps.

(b) *General Land Segment*

The surface waters of the Policy area not contained within the Lake Colac Segment.

(c) *Groundwater Segment*

The groundwater beneath the Policy area.

PART III – BENEFICIAL USES TO BE PROTECTED

7. The following beneficial uses shall be protected with respect to the water quality of the Lake Colac Segment:

(a) Recreation —

primary contact (e.g. bathing, water skiing)
secondary contact (e.g. boating)
passive (e.g. aesthetic enjoyment)

(b) Recharging of aquifers

(c) Agricultural water supply —

farmstead
stock water

(d) Production of edible fish and crustacea

(e) Maintenance and preservation of aquatic ecosystems and associated wildlife (minimum level of protection).

8. The following beneficial uses shall be protected with respect to the water quality of the General Land Segment:

(a) Recreation —

secondary contact (e.g. boating)
passive (e.g. aesthetic enjoyment)

(b) Recharging of aquifers

(c) Agricultural water supply — stock water

(d) Production of edible fish and crustacea

(e) Maintenance and preservation of aquatic ecosystems and associated wildlife (minimum level of protection).

9. The following beneficial uses shall be protected with respect to the water quality of the Groundwater Segment:

Agricultural water supply —

irrigation
stock water
farmstead

PART IV – WATER QUALITY INDICATORS AND OBJECTIVES

10. The level of water quality required to protect the identified beneficial uses in each segment and downstream waters is defined by the water quality indicators and objectives specified in clause 11.

11. The water quality indicators and objectives for each of the segments referred to in this Policy shall be those prescribed in the respective schedules as follows:

Segment	*Schedule*
Lake Colac Segment	A
General Land Segment	B
Groundwater Segment	C

12. The water quality indicators and objectives specified in clause 11 shall apply to all waters in each segment respectively, except where provisions are made to the contrary in a licence by the designation of mixing zones.

13. The volume, constituency and location of all waste discharges to the surface waters and groundwaters shall be consistent with the attainment and maintenance of water quality objectives for those waters.

PART V – ATTAINMENT PROGRAMME

GENERAL

14. *Implementation.* The objectives of this Policy shall be attained and maintained by the following means:

(a) control of the discharge of wastes to the surface waters through the licensing provisions of the Act and, where applicable, through Regulations introduced under the Act (see detailed clauses 18-24);

(b) adequate sewerage and drainage services (see detailed clauses 25-29);

(c) appropriate location and management of waste disposal and waste generating activities (see detailed clauses 30-38);

(d) educational, research, monitoring and investigation activities insofar as these are necessary to carry out the above (see detailed clauses 39-41).

15. *Implementation plans.* The Authority shall co-ordinate the development of implementation plans, based on the provisions of the Act and the Policy, for the attainment and maintenance of Policy objectives. Such plans may make provision for a staged attainment of Policy objectives.

16. *Planning Policy.* This Policy shall be implemented in conjunction with the relevant Statements of Planning Policy made under the *Town and Country Planning Act* 1961.

17. *Review.* The Policy shall be subject to review and amendment as new information and circumstances warrant.

DETAILED PROVISIONS

Waste Discharge Licensing

18. *Relationship to Policy objectives.* Subject to the provisions of the Act and this Policy, in considering applications for a licence the Authority or delegated agency shall have regard to the effect of the discharge, together with the collective effect of other waste discharges, on the beneficial uses to be protected under this Policy, so that the licence, if granted, and the conditions to which it is subject shall be consistent with the attainment and maintenance of the Policy objectives.

19. *Future waste discharge.* In considering applications for a licence the Authority or delegated agency shall have regard to the need to preserve capacity of the surface waters to receive future waste discharges.

20. *Mixing zones.* In granting a licence the Authority or delegated agency may provide for the mixing of wastes with the receiving waters by designating a mixing zone within which Policy objectives for the indicator or indicators specified in the licence are not required to be achieved. Mixing zones may not be designated for the indicators floatable matter, odour, and settleable matter.

The designation of a mixing zone is subject to the following requirements:

(i) there must be no significant detriment to protected beneficial uses as a result of the mixing zone;

(ii) anaerobic conditions shall be absent at all times in the top 600 mm of water in the mixing zone;

(iii) the mixing zone must be as small as practicable;

(iv) the licence must specify clearly the location and size of the mixing zone and the indicator or indicators to which it applies.

21. *Exemptions.* Exemptions to waste discharge licensing made under Section 20(11) of the Act do not obviate the need for these waste discharges to comply with the objectives and provisions of the Policy.

22. *Rules for licensing.* For the purposes of Section 17(1) of the Act, the surface waters included in this Policy are hereby set aside as an area of the environment in which the discharge, emission or deposit of wastes is prohibited or restricted as follows:

Licences issued after the declaration of this Policy shall not permit the licensed nutrient load to increase by more than the following:

1.5 kg/day total phosphorus (mean daily load)
5 kg/day total nitrogen (mean daily load)

23. *Groundwater.* For the purpose of Section 17(1) of the Act, the Groundwater Segment of the Policy is hereby set aside as a segment of the environment in which the discharge, emission or deposit of wastes is prohibited or restricted as follows:

No licence shall be granted for the direct injection of waste to the groundwaters by means of a bore, well, infiltration basin or other similar structure specifically designed for this purpose, except for the purpose of artificially recharging aquifers without deterioration of water quality.

24. *Heavy metals.* Where a licence is issued for the discharge of wastes to the Policy area from the industries specified in Schedule D, the concentration of heavy metals in such discharges shall not exceed the limits given in Schedule D.

Servicing

25. *Sewerage.*

(a) Responsible authorities shall ensure that no further land is subdivided into allotments where domestic wastewaters cannot be adequately treated and retained within the boundaries of each allotment, unless sewerage is to be provided before the commencement of building works, except where the total number of allotments so created by one or more subdivisions from a single parcel of land existing under one title at the date of gazettal of this policy is less than ten allotments.

(b) Sewerage shall be provided as soon as possible to all existing subdivisions of land where domestic wastewaters cannot be adequately treated and retained within the boundaries of each allotment. Where practicable, sewerage shall be provided prior to the commencement of building works. High priority should be given to sewering existing subdivisions where building works have already commenced.

(c) In determining whether domestic wastewaters are capable of being adequately treated and retained within the boundaries of each allotment, responsible authorities shall have regard to factors such as the dimensions and area of the allotments, the intensity of the proposed use, climatic and soil conditions, water supply conditions and physical characteristics of the site.

(d) In sewered areas, appropriate steps shall be taken by sewerage authorities to ensure that all premises are connected to the sewerage system.

26. *Discharge to sewer.* The discharge of waste from any sewered property or any property where sewerage reticulation is available should be to the sewerage system, if that waste (with pretreatment if necessary) is acceptable to the appropriate sewerage authority.

27. *Review of sewage effluent disposal.* Should monitoring programmes show problems of algal growth caused by nutrient levels in the Lake Colac Segment, detailed consideration shall be given to amending the Policy to provide for the removal of one or more nutrients from any sewage effluent, or to the disposal of the sewage to land; and to measures for the further control of nutrient inputs to the Lake Colac Segment.

28. *Waste water re-use.* In order to minimise inputs of nutrients to surface waters, detailed consideration and encouragement should be given to the reclamation and re-use of waste water, including stormwater. In particular agricultural re-use of waste water is encouraged.

29. *Drainage.* Drainage system design shall ensure that erosion of streambeds, streambanks and other drainage lines does not result from the provision of such services and should make allowance, where practical, for the attenuation of peak runoff and the retention and trapping of contaminants in runoff. Inputs of these contaminants to the drainage system should be minimised by control of activities within the catchment of the drainage system.

Waste Generation and Waste Disposal

30. *Disposal of dairy factory effluent.* There shall be no discharge of dairy factory effluent to the surface waters.

31. *Disposal of wastes to land (including solid wastes and sludge).* The disposal of wastes to the land surface shall be carried out in such a manner and at such locations so as not to cause the pollution of groundwater and surface waters.

32. *Dredging, spoil disposal and other works.* Dredging, reclamation, building of wharves and other works should be carried out in a manner which causes minimal disturbance of plant and animal habitats. The disposal of dredged spoil shall in general be on land above the high water mark.

33. *Contingency plans.* Industries in the Policy area should be encouraged to develop and maintain contingency plans for the prevention and control of breakdowns and spillages. Such plans should include:

(a) emergency holding and clean-up procedures;

(b) actions to minimise the adverse effects; and

(c) methods for disposal of spilled materials.

34. *Oil spillages.* All necessary precautions should be taken to ensure that no oil or grease is spilled into the surface waters of the Policy area.

35. *Land disturbance and erosion.* Land disturbance activities shall be carefully controlled and appropriate soil conservation measures shall be encouraged in order to minimise soil erosion and subsequent runoff of suspended, dissolved and settleable matter.

(a) Construction works should be carried out in accordance with *Guidelines for minimising soil erosion and sedimentation from construction sites in Victoria (1979)* published by the Soil Conservation Authority.

(b) Vegetated buffer zones in which urban development is limited and stock access is restricted and within which land disturbance activities are minimised should be established and maintained along the banks of Dean and Barongarook Creek and the shores of Lake Colac as follows:

In the first instance these buffer zones should be established where bank erosion, substrate disturbance and polluted runoff are evident.

The need to establish buffer zones along all sections of the creeks and lake shore for the purpose of nutrient reduction is to be assessed after the introduction of point source controls.

36. *Management of lake activities.* Management of power boating, lake access and shoreline usage should ensure that areas of high erosion hazard and significant likelihood of sediment disturbance are avoided by these activities.

37. *Agricultural wastes.* The location and operation of milking sheds, piggeries, poultry farms and cattle feedlots should be in accordance with *Guidelines for the Conduct of Intensive Animal Industries* published by the Department of Agriculture and the Authority. In particular:

No buildings or yard associated with intensive animal industry should be constructed within 100 metres of surface waters.

38. *Rules for agricultural waste disposal.* For the purpose of Section 17 (1) of the Act, rules prohibiting and restricting the discharge of waste to the Policy area from farms are hereby made as follows:

(a) Effluents from milking sheds, piggeries, poultry farms and feedlots shall be disposed of by land irrigation or other treatment in such a manner as to preclude any polluted runoff to surface waters.

(b) No solid or liquid effluent from intensive animal industry shall be disposed of within 100 metres of surface waters.

Related Activities

39. *Research.* Further studies and research should be undertaken to assist in the attainment of the Policy including:

(a) the determination of management methods for sediments and lake margins which will reduce the level of suspended solids in the Lake Colac Segment;

(b) an assessment of the efficacy of buffer zones in reducing nutrient input and sediment runoff to surface waters from diffuse sources.

40. *Monitoring.* The Authority shall undertake a water quality monitoring programme for the stated indicators in each segment of the Policy area in order to ensure that sufficient data are available to assist in the implementation of this Policy and to assess the attainment and maintenance of the Policy objectives.

In particular the levels of the nutrients phosphorus and nitrogen in the Lake Colac Segment, together with the nutrient loads of major inputs to, and outputs from, the Lake Colac Segment, should be monitored to provide the basis for an ongoing assessment of the problems of excessive algal growth. The results of such monitoring shall be published.

41. *Public education.* In co-operation with other public and private bodies, the Authority shall promote public education in water quality management, waste disposal and pollution control in the Policy area, particularly with respect to the input of waste from diffuse sources.

SCHEDULE A

THE LAKE COLAC SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Waste discharges shall be consistent with the following water quality objectives:

Indicator	*Objective*
1. Dissolved Oxygen	The concentration of dissolved oxygen in waters of this segment shall not be less than 6.0 mg/l or 60 per cent saturation (whichever is higher).
2. Bacteria (a) Total coliforms	The geometric mean of total coliform organisms shall not exceed 1000 organisms/100 ml based on not less than 5 samples taken over a period of not more than 42 days.
(b) Faecal coliforms	The geometric mean of faecal coliform organisms (*E.coli*) shall not exceed 200 organisms/100 ml based on not less than 5 samples taken over a period of not more than 42 days, nor shall more than 20 percent of these samples exceed 400 organisms/100 ml.
3. pH	The pH shall not vary from the ambient level by more than ± 1.5 units, nor fall outside the range 6.0 to 9.0. Total alkalinity shall not decrease below 25 percent of ambient levels. Ambient levels shall be measured adjacent to the Lake outlet.
4. Temperature	The temperature shall not vary by more than 2.0°C from ambient water temperatures measured adjacent to the Lake outlet.
5. Filterable Residue (Total Dissolved Solids)	The level of filterable residue shall not vary by more than 10 percent from the ambient seasonal limit of variation measured adjacent to the Lake outlet.
6. Light Penetration	(a) The combined effects of turbidity and colour shall not reduce the depth of the compensation point for photosynthetic activity to the extent that such reduction would be of detriment to the aquatic ecosystem. (b) Without limiting the generality of objective (*a*), annual average turbidity shall not be greater than 40 FTU nor shall the annual median turbidity exceed 35 FTU.
7. Toxicants	(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological responses in humans, plants, birds, animals, fish or other aquatic life as these relate to the stated beneficial uses of this segment, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) Without limiting the generality of objective (*a*), the level of toxicants shall not exceed that derived from subclauses (i) and (ii) below or Tables 3 and 4 (whichever is the lower). (i) *Single Toxicants* The concentration of single toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic ecosystems. The threshold concentration (T) may be derived from Schedule E. (ii) *Toxicant Mixtures* The levels of toxic materials in combination shall satisfy the following relationship: $$\frac{C1}{L1}+\frac{C2}{L2}+\ldots\frac{Cn}{Ln}\leqslant 1.0$$ Where C1, C2, Cn are the measured or expected concentrations of the toxicants and L1, L2, Ln are the appropriate levels derived from (*b*) (i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.
8. Nutrients and Biostimulants	Levels of nutrients and other growth stimulants shall be such as to minimise excessive or nuisance growths of algae or other aquatic plants or undesirable changes in species composition of phytoplankton and other aquatic plants.
9. Aesthetic Characteristics (a) Odours, taints and colours	(i) Substances which may produce objectionable odours, taints or colours in waters or edible aquatic organisms shall not be present in concentrations detectable by organoleptic tests. (ii) Without limiting the generality of objective (i), the concentrations of individual substances listed in Table 2 shall not exceed the limits given in the Table.
(b) Floatable matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter. This objective shall also apply to mixing zones.
10. Suspended Solids	The annual median level of suspended solids shall not exceed 80 mg/l nor shall the 95th percentile exceed 400 mg/l (both based on not less than 25 samples taken at regular intervals during any 12 month period).

SCHEDULE B

THE GENERAL LAND SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Waste discharges shall be consistent with the following water quality objectives:

Indicator	*Objective*
1. Dissolved Oxygen	The concentration of dissolved oxygen in waters of this segment shall not be less than 6.0 mg/l or 60 percent saturation (whichever is higher).

2. Bacteria Faecal coliforms	The geometric mean of faecal coliform organisms (*E.coli*) shall not exceed 1000 organisms/100 ml based on not less than 5 samples taken over a period of not more than 42 days, nor shall more than 20 percent of these samples exceed 2000 organisms/100 ml.
3. pH	The pH shall not vary from the background level by more than ± 1.5 units, nor fall outside the range 6.0 to 9.0. Total alkalinity shall not decrease below 25 percent of background levels.
4. Temperature	The temperature shall not vary by more than 2.0°C from background temperatures.
5. Filterable Residue (Total Dissolved Solids)	The level of filterable residue shall not vary by more than 10 percent from the background seasonal limits of variation.
6. Light Penetration	(a) The combined effects of turbidity and colour shall not reduce the depth of the compensation point for photosynthetic activity to the extent that such reduction would be of detriment to the aquatic ecosystem. (b) Without limiting the generality of objective (*a*), annual average turbidity shall not be greater than 40 FTU nor shall the annual median turbidity exceed 35 FTU.
7. Toxicants	(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological responses in humans, plants, birds, animals, fish or other aquatic life as these relate to the stated beneficial uses of this segment, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) Without limiting the generality of objective (*a*), the level of toxicants shall not exceed that derived from subclauses (i) and (ii) below or Tables 3 and 4 (whichever is the lower). (i) *Single Toxicants* The concentration of single toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic ecosystems. The threshold concentration (T) may be derived from Schedule E. (ii) *Toxicant Mixtures* The levels of toxic materials in combination shall satisfy the following relationship: $\frac{C1}{L1}+\frac{C2}{L2}+\ldots\frac{Cn}{Ln}\leqslant 1.0$ Where C1, C2, Cn are the measured or expected concentrations of the toxicants and L1, L2, Ln are the appropriate levels derived from (*b*) (i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.
8. Nutrients and Biostimulants	Levels of nutrients and other growth stimulants shall be such as to minimise excessive or nuisance growths of algae or other aquatic plants or undesirable changes in species composition of phytoplankton and other aquatic plants.
9. Aesthetic Characteristics (a) Odours, taints and colours	(i) Substances which may produce objectionable odours, taints or colours in waters or edible aquatic organisms shall not be present in concentrations detectable by organoleptic tests. (ii) Without limiting the generality of objective (i), the concentrations of individual substances listed in Table 2 shall not exceed the limits given in the Table.
(b) Floatable matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter. This objective shall also apply to mixing zones.
10. Suspended Solids	The annual median level of suspended solids shall not exceed 30 mg/l nor shall the 95th percentile exceed 100 mg/l (both based on not less than 25 samples taken at regular intervals during any 12 month period).

SCHEDULE C

THE GROUNDWATER SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Waste discharges shall be consistent with the following water quality objectives.

Indicator	*Objective*
1. Bacteria	The geometric mean of the faecal coliform organisms (*E.coli*) shall not exceed 1000 organisms/100 ml based on not less than 5 samples taken over a period of not more than 42 days, nor shall more than 20 percent of these samples exceed 2000 organisms/100 ml.
2. pH	The pH shall not vary from the background level by more than ± 1.5 units, nor fall outside the range 6.0 to 9.0. Total alkalinity shall not decrease below 25 percent of background levels.
3. Filterable Residue (Total Dissolved Solids)	The level of filterable residue shall not exceed background levels.
4. Turbidity	The annual average turbidity shall not be greater than 30 FTU, nor shall the annual median turbidity exceed 20 FTU.
5. Toxicants	(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological responses in humans, plants, birds, animals, fish or other aquatic life as these relate to the stated beneficial uses of the segment and surface waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures.

(b) Without limiting the generality of objective (*a*), the level of toxicants shall not exceed that derived from subclauses (i) and (ii) below or Tables 3 and 4 (whichever is the lower).

(i) *Single Toxicants*

The concentration of single toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic ecosystems. The threshold concentration (T) may be derived from Schedule E.

(ii) *Toxicant Mixtures*

The levels of toxic materials in combination shall satisfy the following relationship:

$$\frac{C1}{L1} + \frac{C2}{L2} + \ldots \frac{Cn}{Ln} \leqslant 1.0$$

Where C1, C2, Cn are the measured or expected concentrations of the toxicants and L1, L2, Ln are the appropriate levels derived from (*b*) (i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.

6. Nutrients and Biostimulants — Levels of nutrients and other growth stimulants shall be such as to minimise excessive or nuisance growths of algae or other aquatic plants or undesirable changes in species composition of phytoplankton and other aquatic plants in surface waters.

7. Aesthetic Characteristics

(a) Odours, taints and colours

(i) Substances which may produce objectionable odours, taints or colours in waters or edible aquatic organisms shall not be present in concentrations detectable by organoleptic tests.

(ii) Without limiting the generality of objective (i) the concentrations of individual substances listed in Table 2 shall not exceed the limits given in the Table.

(b) Floatable matter — There shall be no visible floating oil, grease, scum, litter or other objectionable matter in waters drawn from this segment.

8. Suspended Solids — The level of suspended solids shall not exceed background levels.

SCHEDULE D

HEAVY METAL LIMITS FOR THE QUALITY OF WASTE DISCHARGES FROM THE FOLLOWING INDUSTRIES

1. Steel and alloy works
2. Battery manufacturing
3. Pigment and dye manufacturing
4. Electroplating works
5. Metal finishing works
6. Organic and petrochemical manufacturing
7. Plastic manufacturing
8. Fertilizer, pesticide, fungicide manufacturing.

Heavy Metal	*Limit (g/m^3)*
Arsenic	0.50
Cadmium	0.10
Chromium (total)	0.30
Copper	0.20
Iron	2.0
Lead	0.10
Manganese	0.5
Mercury	0.005
Nickel	0.50
Silver	0.10
Zinc	0.50

SCHEDULE E

DERIVATION OF THRESHOLD CONCENTRATION

The threshold concentration (T) for each toxicant may be derived from multigeneration or chronic toxicity tests designed to determine the effects of the toxicant on the physiology, behaviour and reproduction of suitable local species approved by the Authority. The results of these tests may be confirmed by biological studies on the survival and productivity of suitable species in the environment. In determining the most suitable species to be used in these tests due regard shall be given to the level of ecosystem protection afforded each segment and representation of various trophic levels.

In the absence of data from multigeneration or chronic toxicity tests the threshold concentration (T) may be derived from acute toxicity tests on suitable local species approved by the Authority. In particular T may be estimated by multiplying the 96 hour LC50 value for suitable species approved by the Authority by an appropriate application factor specified by the Authority.

In the absence of toxicity data on suitable local species the toxicant concentrations given in Table 1 may be used as an estimate of T. These shall be known as Interim T Estimates (ITE).

TABLE 1

INTERIM T ESTIMATES (ITE) FOR FRESHWATERS

	Toxicant	*ITE (µg/l)*
A.	*Metals*	
	Aluminium	*
	Antimony	*
	Arsenic	*
	Barium	*
	Beryllium	11
	Bismuth	*
	Cadmium	0.4
	Chromium	50.0
	Cobalt	*
	Copper	10.0
	Iron	1000
	Lead	30.0
	Lithium	*
	Manganese	*
	Mercury	0.05
	Molybdenum	*
	Nickel	100
	Silver	*
	Thallium	*
	Uranium	*
	Vanadium	*
	Zinc	30.0
	Other Metals	*
B.	*Pesticides*	
	Acrolein	*
	Aldrin	0.001
	Allethrin	0.002
	Aminocarb	*
	Aminotriazole	300.0
	Azinphosmethyl	0.001
	Azinphosethyl	*
	Benfluralin	*
	Bensulide	*
	Captafol	*
	Carbaryl	0.02
	Carbophenothion	*
	Chlordane	0.01
	Chlorfenac	45.0
	Chlorothion	*
	Chloroxuron	*
	Chloropropham	*
	Chlorthal	*
	Coumaphos	0.001
	Crotoxyphos	0.1
	DDT	0.001
	Demeton	*
	Diazinon	0.009
	Dicamba	200
	Dichlobenil	37.0
	Dichlone	0.2
	Dichlorvos	0.001
	Dieldrin	0.005
	Dioxathion	0.09
	Diphenamid	*
	Diquat	0.5
	Disulfoton	0.05
	Diuron	1.6
	2,4,-D (PGBE)	*
	2,4,-D (BEE)	4.0
	2,4-D (IOE)	*
	2,4-D (Diethylamine salts)	*
	2,2-DPA	110.0
	Endosulfan	0.003
	Endothal (Disodium salt)	*
	Endothal (Dipotassium salt)	*
	Endrin	0.002
	EPTC	*
	Ethion	0.02
	Fanamosulf	*
	Frenchlorphos	*
	Fenoprop (BEE)	2.5
	Fenoprop (PGBE)	2.0
	Fenoprop (IOE)	*
	Fenoprop (Potassium salt)	*
	Fenthion	0.006
	Heptachlor	0.001
	Lindane	0.01
	Malathion	0.008
	MCPA	*
	Methoxychlor	0.03
	Mevinphos	0.002
	Molinate	*
	Monuron	*
	Naled	0.004
	Paraquat	*
	Parathion	0.04
	Parathion-methyl	*
	Phorate	*
	Pebulate	*
	Picloram	*
	Propanil	*
	Propham	*
	Propoxur	*
	Pyrethrum	0.01
	Rotenone	10.0
	Simazine	10.0
	Temephos	*
	Trichlorophon	0.002
	Trifluralin	*
	Vernolate	*
C.	*Miscellaneous*	
	Ammonia (un-ionised)	20
	Boron	*
	Bromine (molecular)	*
	Bromate	*
	Chlorine (total residual)	2.0
	Cyanide (free ion)	5.0
	Fluoride	*
	Phenolics	100
	Phosphorus (elemental)	*
	Polychlorinated biphenyls	0.001
	Pthalate esters	0.3
	Selenium	10
	Sulphides (total)	2
	Surfactants (LAS)	200
	Radioactivity (gross)	10 pCi/l

* indicates insufficient information

TABLE 2

LIMITS FOR CHEMICAL COMPOUNDS IN WATER FOUND TO CAUSE TAINTING OF THE FLESH OF FISH AND OTHER AQUATIC ORGANISMS

Chemical	*Limit (mg/l)*
acetophenone	0.5
acrylonitrile	18
m-cresol	0.2
o-cresol	0.4
p-cresol	0.12
cresylic acids (meta, para)	0.2
n-butylmercaptan	0.06
o-sec. butylphenol	0.3
p-tert. butylphenol	0.03
o-chlorophenol	0.001
p-chlorophenol	0.01
2,3-dichlorophenol	0.084
2,4-dichlorophenol	0.001
2,5-dichlorophenol	0.023
2,6-dichlorophenol	0.035
2-methyl, 4 chlorophenol	0.075
2-methyl, 6 chlorophenol	0.003
o-phenylphenol	1
2,4,6-trichlorophenol	0.003
phenol	1
diphenyloxide	0.05
β,β-dichlorodiethyl ether	0.09
p-dichlorobenzene	0.25
ethylbenzene	0.25
ethanethiol	0.24
ethylacrylate	0.6
formaldehyde	95
gasoline	.005
kerosene	0.1
kerosene plus kaolin	1
isopropylbenzene	0.25
naphtha	0.1
napthalene	1
naphthol	0.5
2-naphthol	0.3
dimethylamine	7
α-methylstyrene	0.25
oil, emulsifiable	15
pyridine	5
pyrocatechol	0.8
pyrogallol	20
quinoline	0.5
p-quinone	0.5
styrene	0.25
toluene	0.25
outboard motor fuel, as exhaust	0.5
guaiacol	0.082

TABLE 3

TOXICANT LIMITS FOR THE PROTECTION OF PRIMARY CONTACT RECREATION

	Toxicant	*Limit*
A.	*Metals*	(μg/l)
	Arsenic	50
	Barium	1000
	Cadmium	10
	Chromium	50
	Lead	50
	Mercury	1
	Selenium	10
	Silver	50
B.	*Pesticides*	(μg/l)
	Aldrin	1
	Chlordane	3
	DDT	50
	Dieldrin	1
	Endrin	0.5
	Heptachlor	0.1
	Heptachlor epoxide	0.1
	Lindane	5
	Methoxychlor	1000
	Total Organophosphates and Carbamates	100
	Toxaphene	5
	2,4,-D	20
	2,4,5-TP	30
	2,4,5-T	2
C.	*Radionuclides*	(pCi/l)
	Radium 226	0.5
	Strontium 90	5
	Gross α concentration	3
	Gross β concentration	30
D.	*Miscellaneous*	(mg/l)
	Boron	1.0
	Cyanide	0.05
	Fluoride	1.5
	Nitrate & Nitrite (as N)	10
	Polynuclear aromatic hydrocarbons	0.0002

TABLE 4

TOXICANT LIMITS FOR THE PROTECTION OF AGRICULTURAL WATER SUPPLY

1. STOCK WATERING

	Toxicant	*Limit*
A.	*Metals*	(mg/l)
	Aluminium	5.0
	Arsenic	0.2
	Cadmium	0.01
	Calcium	700
	Chromium	1.0
	Cobalt	1.0
	Copper	0.5
	Lead	0.1
	Magnesium	250
	Mercury	0.002
	Molybdenum	0.01
	Selenium	0.02
	Sodium	2000
	Vanadium	0.1
	Zinc	20.0
B.	*Pesticides*	(µg/l)
	Aldrin	1
	Chlordane	3
	DDT	50
	Dieldrin	1
	Endrin	0.5
	Heptachlor	0.1
	Heptachlor epoxide	0.1
	Lindane	5
	Methoxychlor	1000
	Total Organophosphates and Carbamates	100
	Toxaphene	5
	2,4–D	20
	2,4,5–TP	30
	2,4,5–T	2
C.	*Radionuclides*	(pCi/l)
	Radium 226	0.5
	Strontium 90	5
	Gross α concentration	3
	Gross β concentration	30
D.	*Miscellaneous*	(mg/l)
	Boron	5.0
	Chloride	1000
	Fluoride	2
	Nitrate & Nitrite (as N)	100
	Nitrite (as N)	10
	Sulphate	1000
	Polynuclear aromatic hydrocarbons	.0002
	Carbon Chloroform Extract & Carbon Alcohol Extract	0.2
	Phenolics	0.002

2. IRRIGATION SUPPLY

	Toxicant	*Limit*
A.	*Metals*	(mg/l)
	Aluminium	5.0
	Arsenic	0.1
	Beryllium	0.1
	Cadmium	0.01
	Chromium	0.1
	Cobalt	0.05
	Copper	0.20
	Iron	1.0
	Lead	5.0
	Lithium	0.07
	Manganese	0.20
	Molybdenum	0.01
	Nickel	0.2
	Selenium	0.02
	Vanadium	0.10
	Zinc	2.0
B.	*Miscellaneous*	(mg/l)
	Boron	0.7
	Fluoride	1.0

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

Environment Protection Act 1970
STATE ENVIRONMENT PROTECTION POLICY NO. W-34A
(The Waters of Lake Colac and Catchment)

EXPLANATORY NOTES

On Tuesday 26 January 1982 the Governor in Council declared a State Environment Protection Policy (SEPP) for the waters of Lake Colac and catchment. This declaration was made under Section 16 of the *Environment Protection Act* 1970, on the recommendation of the Environment Protection Authority. The Policy comes into operation upon publication in the *Government Gazette.*

The Policy area covers the surface waters and groundwaters contained within the boundary of Lake Colac and its catchment (see Fig. 1).

Background

Since the commencement on 1 March 1973 of the waste discharge licensing provisions of the Environment Protection Act, waste discharge control has been exercised by the Authority through Sections 20 to 31 of the Act, having regard to Section 39 which, *inter alia*, provides that:

... No person shall pollute any waters... so that the physical, chemical or biological condition of the waters is so changed as to make... those waters ... unclean, noxious, poisonous or impure, ... detrimental to the health, welfare, safety ... of human beings ... or to any beneficial use ...

Section 39 has been used as a basis for setting licence conditions in the Policy area in the absence of SEPP. The major waste discharge licences which have been granted in the Policy area are those for the effluents from the Colac Dairying Co. and the Colac Sewerage Authority works.

This Policy was formulated to:

(1) formally establish a set of environmental objectives for existing discharges and overcome existing water quality problems;

(2) provide guidance for future industrial and urban development; and

(3) address water quality management as it relates to factors other than licensable waste discharges.

A draft policy was issued for public comment for 3 months from January 1980. A number of submissions were received and the Policy was revised in the light of these submissions before being recommended by the Authority to the Government.

Water quality problems were recognised in Lake Colac at least as early as 1935. In the 1970s these problems (excessive algal growths and low dissolved oxygen levels caused by high nutrient levels and organic matter respectively) were seen to warrant detailed investigations. These were carried out by the Authority and consultants to the Shire and City of Colac.

As a result of these studies and the priority attached to the problems in Lake Colac, the Authority undertook to prepare this Policy with the assistance of an advisory committee. The advisory committee consisted of local representatives and representatives of interested government departments.

Purpose and function

The Policy to which these notes refer is a State Environment Protection Policy, as provided for in Sections 16-19 of the Environment Protection Act. Such a Policy is formulated in draft form by the Environment Protection Authority, circulated for public review and comment and, following any necessary revision, recommended by the Authority to the Governor in Council for declaration.

State Environment Protection Policy is an official declaration by the Government of Victoria of the nature and level of protection to be accorded to the environment. A Policy may relate to the environment in general or to some element of the environment. Policies may be declared for air, water, land or noise or for a combination of these elements. They may encompass the whole State of Victoria or some particular area or areas within the State.

These policies provide a statutory basis for all decision-making in regard to environment protection and pollution control. All licensing of waste discharges must be in accord with the objectives specified in declared Policies. All Regulations made in relation to pollution control must be framed in the light of these objectives.

There are three main features of a State Environment Protection Policy:

1. Beneficial Uses
   A Policy identifies "beneficial uses" of the environment to be protected, i.e. ways in which the public derives benefit or enjoyment from the environment and which need protection from the effects of waste discharges or noise.
2. Quality Objectives
   The beneficial uses determine the level of environmental quality that must be achieved and maintained. If a waterway is to be protected for the purpose of swimming, the water quality obviously needs to be higher than in the case where it is to be protected as a watering place for stock. The quality objectives in a Policy constitute the level of environmental quality that is needed to protect the beneficial uses.
3. Attainment Programme
   As far as possible, a Policy does not stop at defining quality objectives, but also outlines a management programme whereby the objectives can be achieved and maintained. The requirements set forth in the attainment programme are to be implemented by various government agencies such as the EPA.

The policy in general

The Policy seeks to overcome the problem of nuisance algal blooms in Lake Colac by elimination of the most significant input of nutrients, the dairy factory discharge. It is unlikely that such action will completely eliminate algal blooms but a reduction in their frequency and severity is expected as the lake establishes a lower nutrient status. If further measures are called for to reduce algal problems, such as a reduction in inputs from the sewerage works, the Policy requires formal amendment including public review.

The Policy area is divided into three segments based on the beneficial uses to be protected in each case (see Figure 1 accompanying the Policy):

(a) Lake Colac Segment

(b) General Land Segment

(c) Groundwater Segment.

A summary of the beneficial uses protected in each segment is given in Table 1 of these notes. Existing and potential beneficial uses have been assessed in identifying these beneficial uses.

Water quality objectives

Water quality indicators and objectives have been specified for each segment on the basis of the most limiting beneficial use for each indicator, i.e. the beneficial use that imposes the most stringent water quality requirements with respect to each indicator.

Different beneficial uses can result in different quality objectives. For example in the Lake Colac Segment the quality objective in terms of *E.coli* is 200 organisms/100 ml (geometric mean) to protect swimming; whereas in the general land segment, which is not used for swimming, the objective is 1000 organisms/100 ml (geometric mean) to protect wading.

Table 2 of these notes summarizes the water quality objectives for each segment.

It will be noted that there are few differences between the objectives of the various segments. This is because within the comparatively small catchment there is a close association between all the waterbodies. Groundwater interacts with the surface waters and creeks in the General Land Segment. These flow directly into Lake Colac without other diluting flows. Hence despite differences in beneficial uses many objectives remain the same to account for the beneficial uses of interacting or downstream waters.

Attainment programme

The attainment programme consists of two parts — general provisions (clauses 14-17) and detailed provisions (clauses 18-41). The general provisions are an outline of the management means required to implement the Policy and provide a basis for more detailed implementation plans. The detailed provisions are a forerunner of implementation plans which highlight water quality management problems and outline mechanisms and actions for their solution. Those actions which can be identified from the start as necessary for the achievement of the Policy objectives are already included in the detailed provisions of the attainment programme. Responsibility for the various actions rests with all Government agencies in so far as their powers, duties and responsibilities relate to the provisions of the Policy.

As outlined earlier in these notes the major feature of the Policy is to prohibit the discharge of dairy factory effluent to surface waters (clause 30). The existing dairy factory effluent has previously caused a localised dissolved oxygen problem. In order to comply with a waste discharge licence condition the dairying company has opted to dispose of the effluent to land. This Policy by requiring the removal of dairy factory effluent from the lake for nutrient control, endorses this action. The existing dairy factory effluent is estimated to contribute 57-72 percent of the nutrient phosphorus and 12-32 percent of the nutrient nitrogen to Lake Colac. To control other sources of nutrients, licensed nutrient loads are restricted from increasing by more than 1.5 kg/day total phosphorus and 5 kg/day total nitrogen. This will permit minor increases in the sewerage effluent inputs and thus allow for normal urban growth. At the same time no major increases in nutrient load will be possible. Licensed discharges to groundwater are also prevented by the Policy to provide maximum protection of this resource.

The Policy requires that management of power boating, lake access and shoreline usage ensure that areas of high erosion hazard and significant likelihood of sediment disturbance are avoided by these activities (clause 36). Research is called for into this aspect and also to assess the efficacy of buffer zones in reducing nutrient and sediment runoff to surface waters from diffuse sources (clause 39). Buffer zones should be established along the shores of the Lake and input creeks where these will assist in reducing polluted runoff (clause 35).

Other requirements of the Policy concern heavy metal discharges, provision of sewerage, and agricultural waste disposal. Heavy metal discharges from specified industries are limited to levels consistent with traditional technology (clause 24) because of the conservative nature of these pollutants and their capacity to accumulate in the environment. This provision does not prevent the application of more restrictive limits if this should be necessary to achieve the objectives. The provision of sewerage is required for all new subdivisions except for single subdivisions of less than 10 allotments (clause 25a). Existing subdivisions where domestic waste cannot be disposed on-site are also required to be sewered (clause 25b). Requirements for the location of intensive animal industries (clause 37) and for the disposal of wastes from such industries (clause 38) are designed to minimise adverse effects of these wastes by making maximum use of land disposal at locations away from water bodies.

Related activities essential to the implementation of the Policy in addition to research, are the conduct of a monitoring programme (clause 40), the results of which would be used to assess the Policy implementation, and public education (clause 41) which will enable more informed participation in water quality management.

TABLE 1: SUMMARY OF PROTECTED BENEFICIAL USES

SEGMENT	GROUNDWATER	GENERAL LAND	LAKE COLAC		
● ● ●	●	● ●	farmstead stockwater irrigation	AGR
	● ●	● ● ●	primary contact secondary contact passive	REC
	●	●		PRO
	●	●	minimum level of protection	ECO
	●	●		AQU

AGR — Agricultural water supply
REC — Recreation
PRO — Production of edible fish and other aquatic life
ECO — Maintenance and preservation of aquatic ecosystems and associated wildlife
AQU — Recharging of aquifers

TABLE 2: SUMMARY OF WATER QUALITY OBJECTIVES

Indicator	*Lake Colac Segment*	*General Land Segment*	*Groundwater Segment*
Dissolved Oxygen	> 6.0 mg/l > 60% sat.	> 6.0 mg/l > 60% sat.	—
Bacteria (*E.coli*)	< 200 org/100 ml (geometric mean)	< 1000 org/100 ml (geometric mean)	< 1000 org/100 ml (geometric mean)
pH	± 1.5 units 6.0 - 9.0	± 1.5 units 6.0 - 9.0	± 1.5 units 6.0 - 9.0
Temperature	< 2°C var.	< 2°C var.	—
Filterable Residue (Total Dissolved Solids)	< 10% var.	< 10% var.	Background
Light Penetration	< 35 FTU (med)	< 35 FTU (med)	< 20 FTU (med)
Toxicants(*a*)	< T	< T	< T
Nutrients and Biostimulants(*b*)	Qual.	Qual.	Qual.
Aesthetic Characteristics			
— odours, taints, colours (*c*)	Qual.	Qual.	Qual.
— floatable matter(*d*)	Qual.	Qual.	Qual.
Suspended Solids	< 80 mg/l (med)	< 30 mg/l (med)	Background

NOTES: > greater than, < less than, — not applicable, % per cent, sat. — saturation, mg/l — milligrams per litre, org/100 ml — organisms per 100 millilitres, pH units scale 0 — 14 where 7 equals neutral, °C — degrees centigrade, qual. — qualitative objective, var. — variation from background level, med. — median, FTU — Formazin Turbidity Units.

(*a*) Level of toxicants less than T (T equals threshold level of harmful effects — estimated level, ITE) or Tables 3 and/or 4. Sums of fractions of measured/appropriate levels is less than 1.0.

(*b*) Minimise excessive or nuisance growths of aquatic plants.

(*c*) No objectionable odours, taints or colours (Table 2).

(*d*) No visible floating oil, grease, scum, litter or other objectionable matter.

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ORDER IN COUNCIL

TRUSTEE ACT 1958

At the Executive Council Chamber, Melbourne, the seventeenth day of February, 1982

PRESENT:

His Excellency the Lieutenant-Governor as Deputy for the Governor of Victoria

Mr Hunt | Mr Crozier
Mr Granter |

DECLARATION OF BUILDING SOCIETIES UNDER SECTION 4 (5)

In pursuance of the provisions of section 4 (5) of the *Trustee Act* 1958, His Excellency the Lieutenant-Governor as Deputy for the Governor of the State of Victoria, in the Commonwealth of Australia, by and with the advice of the Executive Council of the said State, and on the recommendation of the Attorney-General doth by this Order declare the Building Societies named in the Schedule hereunder to be societies with which a Trustee may make deposits or term deposits.

SCHEDULE

Ararat Permanent Building Society
Bendigo Mutual Permanent Land and Building Society
Capital Permanent Building Society
Dandenong–Westernport Permanent Building Society
Hotham Permanent Building Society
National Mutual Permanent Building Society
Permanent Building Society of Victoria
Port Phillip Permanent Building Society
Provident Building Society
Pyramid Building Society
Security Co-operative Permanent Building Society
South-Eastern Tarago Building Society
Statewide Building Society
Sunraysia Permanent Building Society
The R.E.S.I. Permanent Building Society
The Sandhurst Mutual Permanent Investment and Building Society
Victorian Savings and Loan Society.

And the Honourable Haddon Storey, Her Majesty's Attorney-General for the State of Victoria, shall give the necessary directions herein accordingly.

TOM FORRISTAL
Clerk of the Executive Council

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