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Environment Protection Act 1970 (No. 8056)

STATE ENVIRONMENT PROTECTION POLICY
No. W-15A

(The Waters of the Wimmera River and Catchment)

At the Executive Council Chamber, Melbourne, the twenty-third day of April 1985

PRESENT:

His Excellency the Governor of Victoria

Mr Cathie | Mr Wilkes
Mrs Kirner | Mr Jolly

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 program if any by which the stated environmental quality objectives are to be attained and maintained including, where appropriate, the specification of—

(i) maximum quantities and qualities of waste permitted to be discharged to the environment;

(ii) maximum levels of noise permitted to be emitted to the environment;

(iii) minimum standards for the installation and operation of works or equipment for the control of waste or noise from specified sources or classes of premises; and

(iv) measures designed to minimize the possibility of the occurrence of pollution.

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 the Wimmera River 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 the State 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 No. W-15A

WATERS OF THE WIMMERA RIVER AND CATCHMENT

1. This order may be cited as the State Environment Protection Policy No. W-15A (Waters of the Wimmera River and Catchment), 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:

Part I—Preliminary

Part II—Boundaries of the Area Affected

No. 49—5216/85—Price $1.40

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 outside the influence of any waste containing a measurable level of 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, health or aesthetic enjoyment and which requires protection from the effects of waste discharges, emissions or deposits.

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

"Groundwater" means any water contained in or occurring in a geological structure or formation or an artificial land fill.

"Intensive animal industry" means an operation where animals are confined for the purpose of agricultural production and includes piggeries, poultry farms and cattle feedlots.

"Licence" means a licence issued under the Act.

"Mixing zone" means an area contiguous to a licensed waste discharge point and specified in that licence, where the receiving water quality objectives otherwise applicable in this Policy do not apply with respect to certain indicators as specified in the licence.

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

"Regulation" means regulation made under the Act.

"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 wastewater.

"Surface waters" includes any river, stream, reservoir, billabong, creek, anabranch, canal, spring, swamp, channel, lake, lagoon, natural or artificial water course or dam and excludes waters within waste treatment systems, waters within water supply distribution systems, farm dams, private ponds, open piped or underground drains and the interstitial waters of sediments.

"Treatment" in relation to potable water supply means disinfection by detention, chlorination or other means and/or clarification to remove turbidity, colour and suspended solids using processes such as flocculation, coagulation, sedimentation and filtration, as these processes may be required by the water supply authority.

"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.

"Works approval" means an approval of works issued under the Act.

"96 *hour LC*50" is the concentration of a toxicant or toxicant mixture which causes mortality of 50% of a test population of aquatic organisms within 96 hours.

4. *Policy goal.* The overall goal of this Policy is to attain and maintain levels of water quality which are sufficient to protect the specified beneficial uses of the surface waters of the Policy area.

PART II—BOUNDARIES OF THE AREA AFFECTED

5. This Policy shall be observed with respect to those surface waters within the Wimmera River catchment specified below.

(*a*) Included are;

(i) the Wimmera River, anabranches and tributaries including Mt Cole, Mt William, Concongella, Fyans, Burnt, Norton and Darragan Creeks and the McKenzie River;

(ii) Lakes Hindmarsh and Albacutya, Outlet Creek and the terminal lakes to the north of Lake Albacutya; and

(iii) the water storage Lakes Bellfield, Fyans, Lonsdale, Taylors, Pine, Dock and Green, and the Wartook Reservoir.

(*b*) Excluded are;

(i) the water supply channels of the Wimmera-Mallee Domestic and Stock System (WMDSS), irrigation supply channels and drainage lines;

(ii) outflowing streams such as Yarriambiack, Dunmunkle and Swede's Creeks; and

(iii) various water bodies in the Australian Water Resources Council Drainage Basin 15 which are not connected to the Wimmera River, including the Richardson and Avon Rivers and various isolated lakes and swamps.

The catchment area is shown in Figure 1, and shall hereinafter be called the Policy area.

FIGURE 1

SEGMENT MAP
POLICY AREA No. W–15A
WIMMERA RIVER
AND CATCHMENT

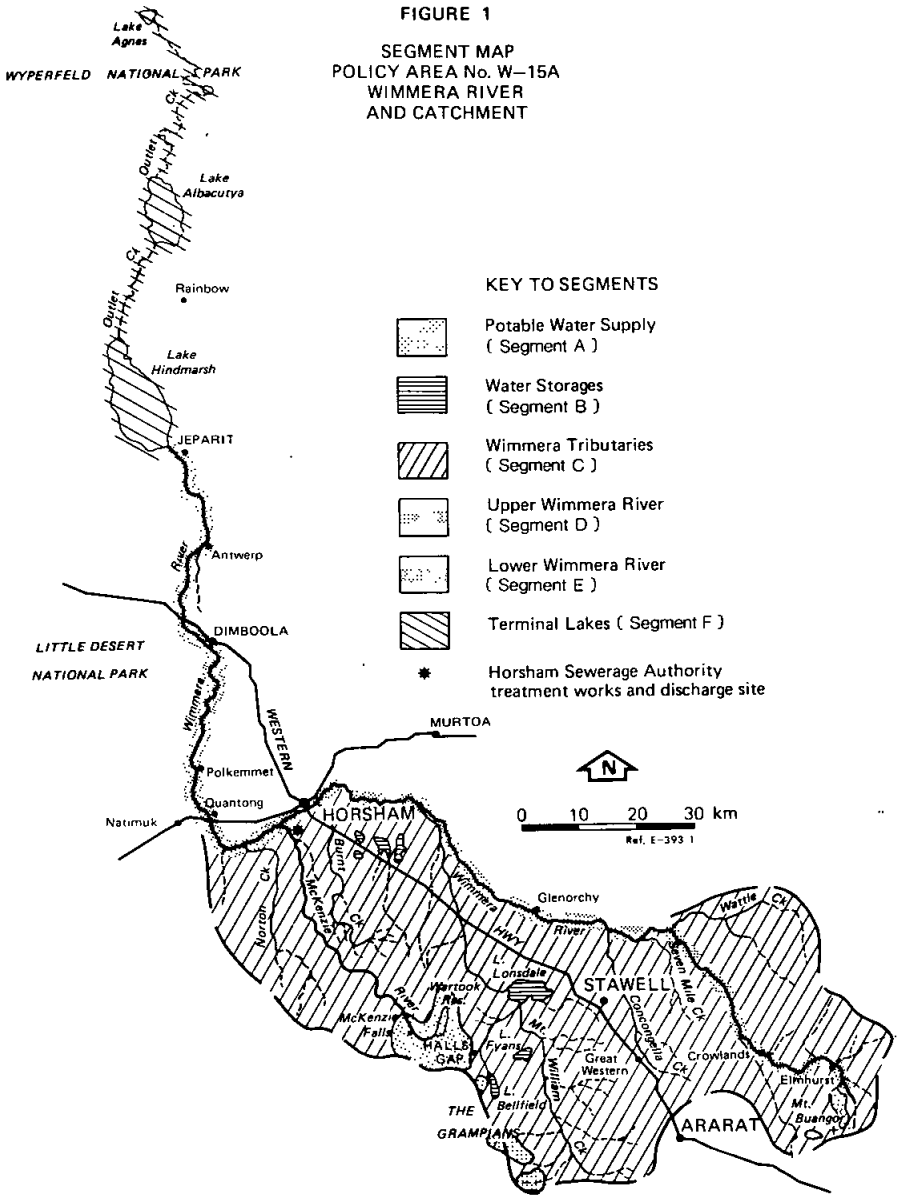
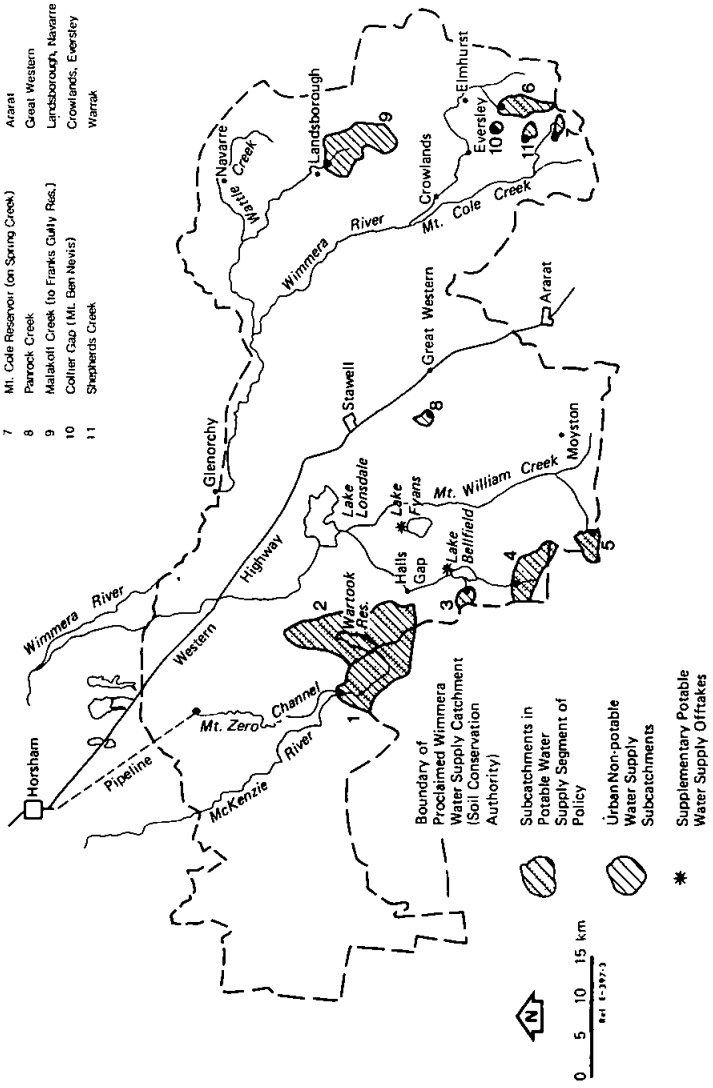


FIGURE 2

POLICY AREA No. W–15A
DETAIL OF WATER SUPPLY
SUBCATCHMENTS



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

Segment A: Potable Water Supply Segment—the surface waters of the catchments of;

(i) the McKenzie River upstream of the offtake to the Mt Zero channel;

(ii) the Wartook Reservoir, including the reservoir itself;

(iii) Dairy Creek upstream of the Halls Gap water supply offtake;

(iv) Fyans Creek upstream of the Stawell water supply offtake;

(v) Reservoir (Mt William) Creek upstream of the water supply offtake for Moyston, Willaura, Wickliffe and Lake Bolac;

(vi) Hickmans Creek upstream of the Elmhurst water supply offtake; and

(vii) Spring Creek upstream of the Ararat water supply offtake.

Segment B: Water Storages Segment—the surface waters of Lakes Bellfield, Fyans, Lonsdale, Taylors, Pine, Dock and Green.

Segment C: Wimmera Tributaries Segment—the surface waters of the catchments of the tributaries of the Wimmera River upstream of and including Darragan Creek, including those in the urban non-potable water supply sub-catchments shown in Figure 2 and those which are tributaries of lakes in the Water Storages Segment, but excluding those in the Potable Water Supply Segment.

Segment D: Upper Wimmera River Segment—the surface waters of the Wimmera River (including anabranches) upstream of the Horsham weir.

Segment E: Lower Wimmera River Segment—the surface waters on the Wimmera River (including anabranches) between the Horsham weir and Lake Hindmarsh.

Segment F: Terminal Lakes Segment—the surface waters of Lakes Hindmarsh and Albacutya, the various non-perennial lakes and swamps north of Lake Albacutya, including Lakes Werrebean, Brimin, Black Flat, Brambruk, Wonga and Agnes, and Outlet Creek connecting the various lakes.

The boundaries of these segments are shown in Figures 1 and 2.

PART III—BENEFICIAL USES TO BE PROTECTED

7. The following beneficial uses will be protected with respect to the water quality of the *Potable Water Supply Segment (Segment A)*.

(*a*) Potable water supply
—with treatment

(*b*) Urban non-potable water supply (via WMDSS channel system)

(*c*) Agricultural water supply (via WMDSS channel system)
—farmstead (e.g. washing, dairies)
—stock water
—irrigation

(*d*) Watering of parks and gardens

(*e*) Recreation
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)

(*f*) Recharging of aquifers

(*g*) Production of edible fish and crustacea

(*h*) Maintenance of streambank and foreshore vegetation

(*i*) Maintenance of freshwater aquatic ecosystems and associated wildlife
—moderate level of protection.

8. The following beneficial uses will be protected with respect to the water quality of the *Water Storages Segment (Segment B)*.

(*a*) Potable water supply (supplementary supplies to Stawell and Ararat from Lake Fyans and to Halls Gap from Lake Bellfield
—with treatment

(*b*) Urban non-potable water supply (via WMDSS channel system)

(*c*) Agricultural water supply (via WMDSS channel system)
—farmstead (e.g. washing, dairies)
—stock water
—irrigation (mainly from Pine Lake, supplemented by Dock and Green Lakes as required)

(*d*) Watering of parks and gardens

(*e*) Recreation
—primary contact (e.g. swimming, water skiing)
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)

(*f*) Recharging of aquifers

(*g*) Production of edible fish and crustacea

(*h*) Maintenance of foreshore vegetation

(*i*) Maintenance of freshwater aquatic ecosystems and associated wildlife
—moderate level of protection.

9. The following beneficial uses will be protected with respect to the water quality of the *Wimmera Tributaries Segment (Segment C)*.

(*a*) Urban non-potable water supply (via WMDSS channel system and from sub-catchments shown in Figure 2, that is from Panrock Creek to Great Western, from Malakoff Creek and Franks Gully Reservoir to Landsborough and Navarre, from Collier Gap to Crowlands and Eversley and from Shepherds Creek to Warrak)

(*b*) Agricultural water supply (via WMDSS channel system and by direct abstraction)
—farmstead (e.g. washing, dairies)
—stock water
—irrigation (may be restricted by salinity of abstracted water in some locations)

(*c*) Watering of parks and gardens (may be restricted by salinity of abstracted water in some locations)

(*d*) Recreation
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)

(*e*) Recharging of aquifers

(*f*) Production of edible fish and crustacea

(*g*) Maintenance of streambank vegetation
(*h*) Maintenance of modified freshwater aquatic ecosystems (except in Pleasant and Sandy Creeks downstream of the points of discharge of sewage effluent from the town of Stawell).

10. The following beneficial uses will be protected with respect to the water quality of the *Upper Wimmera River Segment (Segment D)*.

(*a*) Urban non-potable water supply (via WMDSS channel system and to Glenorchy by abstraction adjacent to the town)
(*b*) Agricultural water supply (via WMDSS channel system and by direct abstraction)
—farmstead (e.g. washing, dairies)
—stock water
—irrigation (restricted by salinity of the river upstream of Glenorchy weir)
(*c*) Watering of parks and gardens (restricted by salinity of the river upstream of Glenorchy weir)
(*d*) Recreation
—primary contact (e.g. swimming, water skiing)
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)
(*e*) Recharging of aquifers
(*f*) Production of edible fish and crustacea
(*g*) Maintenance of streambank vegetation
(*h*) Scientific and educational uses
(*i*) Maintenance of freshwater aquatic ecosystems and associated wildlife
—minimum level of protection.

11. The following beneficial uses will be protected with respect to the water quality of the *Lower Wimmera River Segment (Segment E)*.

(*a*) Agricultural water supply (by direct abstraction)
—farmstead (e.g. washing, dairies)
—stock water
—irrigation (restricted by salinity of the river downstream of Dimboola weir)
(*b*) Watering of parks and gardens (restricted by salinity of the river downstream of Dimboola weir)
(*c*) Recreation
—primary contact (e.g. swimming, water skiing)
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)
(*d*) Production of edible fish and crustacea
(*e*) Maintenance of streambank vegetation
(*f*) Scientific and educational uses
(*g*) Maintenance of freshwater aquatic ecosystems and associated wildlife
—minimum level of protection.

12. The following beneficial uses will be protected with respect to the water quality of the *Terminal Lakes Segment (Segment F)*.

(*a*) Agricultural water supply (by direct abstraction)
—farmstead (e.g. washing, dairies)
—stock water (restricted at most times by elevated salinity)
(*b*) Recreation
—primary contact (e.g. swimming, water skiing)
—secondary contact (e.g. wading, boating)
—passive (e.g. aesthetic enjoyment)
(*c*) Production of edible fish and crustacea
(*d*) Maintenance of streambank and foreshore vegetation
(*e*) Scientific and educational uses
(*f*) Maintenance of freshwater aquatic ecosystems and associated wildlife
—minimum level of protection.

PART IV—WATER QUALITY INDICATORS AND OBJECTIVES

13. The levels of water quality required to protect the identified beneficial uses in each segment and downstream waters, and which are required by this Policy to be attained and maintained, are defined by the water quality indicators and objectives prescribed in Schedule A.

14. The water quality indicators and objectives specified in clause 13 shall apply to all surface waters in each segment respectively, except;

(*a*) where provisions are made to the contrary in a licence by the designation of mixing zones;
(*b*) where the background level of any water quality indicator does not comply with the relevant objective, in which case maintenance of the background level shall become the objective; or
(*c*) for temporary non-compliance caused by stream and streamside spraying of pesticides and herbicides as provided in Schedule B.

PART V—ATTAINMENT PROGRAM

General Provisions

15. *Summary.* 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, works approval and pollution abatement notice provisions of the Act and, where applicable, through regulations introduced under the Act (see clauses 19-28);
(*b*) Adequate sewerage and drainage services and the construction of streets and roads (see clauses 29-33);
(*c*) Appropriate location and management of waste disposal and waste generating activities including land use (see clauses 34-47);
(*d*) Management of the water resources of the catchment including flows, storages and diversions of surface waters to ensure adequate water quality having regard to the beneficial uses and achievement of Policy objectives (see clause 48);
(*e*) Education, research and monitoring programs, and codes of best management practice will be used where applicable to achieve the Policy objectives (see clauses 49-54).

16. *Implementation.* All State Government departments, agencies and instrumentalities should have regard to this Policy in so far as it relates to their powers, duties and responsibilities. The Authority shall

co-ordinate the implementation of the Policy for the attainment and maintenance of Policy objectives. Implementation may allow for a staged attainment of Policy objectives through works approval, licensing or other means, where this does not contravene other provisions of the Policy.

17. *Planning Policy.* This Policy shall be implemented having regard to relevant statements of Planning Policy made under the *Town and Country Planning Act* 1961.

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

Detailed Provisions

Waste Discharge Control

19. *Relationship to Policy Objectives.* The Authority or delegated agency shall ensure that any works approval, licence or licence amendment which is granted is consistent with this Policy, and may refuse any application which is not. Existing licences shall be amended as necessary to ensure compliance with this Policy. More stringent conditions may be imposed if local environmental conditions warrant, or if more effective pollution control technology is commonly available in the industry. All premises which are not scheduled under the Act and all discharges which are exempted from licensing must nevertheless comply with the Policy provisions.

20. *Future Waste Discharges.* In considering any application for a works approval or licence the Authority may have regard to the need to reserve sufficient assimilative capacity of the surface waters to receive future waste discharges.

21. *Discharge Studies.* In the development of conditions for works approval or licensing, or in the assessment of compliance with these conditions, the Authority may require water quality monitoring, biological monitoring or toxicity testing as appropriate.

22. *Mixing Zones.* In issuing a licence the Authority may designate a mixing zone or zones in relation to an indicator or indicators specified in the works approval or licence, within which the corresponding water quality objectives are not required to be achieved.

(*a*) The designation of a mixing zone is subject to the following requirements;

(i) there must be no significant adverse effect on any protected beneficial use within the segment concerned as a result of the presence of the mixing zone;

(ii) the works approval or licence must clearly specify the location and size of the mixing zone and the indicator or indicators to which it applies; and

(iii) where applicable to the beneficial uses protected in the affected segment or segments, mixing zones for the relevant indicators shall not be designated in the following;

—areas important for primary contact recreation;

—offtakes for domestic water supplies;

—spawning and nursery areas of aquatic species and other areas of important ecological significance;

—areas where such zones would create barriers to the passage of migratory species.

(*b*) Monitoring programs specified in works approvals or licences may require water quality monitoring in and around mixing zones, including biological monitoring and effluent toxicity testing where appropriate.

(*c*) Within each mixing zone;

(i) the level of dissolved oxygen shall not be less than 2 g/m^3;

(ii) there shall be no objectionable colour or odours and no excessive growths of algae or other aquatic plants;

(iii) there shall be no visible floating foam, oil, grease, scum, litter or other objectionable matter;

(iv) the level of toxicants, individually or in combination, shall nor exceed the 96 hour LC50 for representative motile aquatic organisms of the receiving waters, as determined by tests or methods specified or approved by the Authority, except where it can be reasonably expected that mortality of fish and other important motile species will not occur; and

(v) there shall be no mortality of fish or other important motile species as a result of the presence of mixing zones for other indicators, such as temperature, pH or filtrable residue (total dissolved solids).

23. *Potable Water Supply Segment.* For the purpose of section 17 (1) (*b*) of the Act, the Potable Water Supply Segment is hereby set aside as a segment of the environment in which the discharge, emission or deposit of waste is prohibited as follows:

No licence shall be granted for the discharge of wastes to the waters of the Potable Water Supply Segment.

24. *Urban Non-Potable Water Supply Sub-catchments.* For the purpose of section 17 (1) (*b*) of the Act, urban non-potable water supply sub-catchments in the Wimmera Tributaries Segment and shown in Figure 2 are hereby set aside as segments of the environment in which the discharge, emission or deposit of waste is prohibited as follows:

Licences to discharge wastes to the waters of the urban non-potable water supply sub-catchments shall be granted only when the Authority is satisfied that no practicable alternative exists and the waste discharge will not preclude the future upgrading of the water supply to potable standard by treatment.

25. *Heavy Metals.* For the purpose of section 17 (1) (*b*) of the Act, all surface water segments of the Policy area are hereby set aside as segments of the environment in which the discharge, emission or deposit of waste is restricted as follows:

Where a licence is granted for the discharge of wastes to the surface waters of the Policy area, the concentrations of heavy metals in such discharges shall not exceed the limits given in Schedule C. More stringent levels shall apply if necessary to achieve the Policy objectives.

26. *Nutrient Discharges.*

For the purpose of section 17 (1) (*b*) of the Act, all surface water segments of the Policy area are hereby set aside as segments of the environment in which the discharge, emission or deposit of waste is prohibited or restricted as follows:

(*a*) No licence shall be granted for any new discharge of waste containing a significant load of total phosphorus.

(*b*) The sewage treatment works and effluent disposal facilities for sewage from the City of Horsham shall be designed, constructed and operated such that, as from a date no later than three years after the gazettal of this Policy, a discharge of treated effluent to the waters of the Wimmera River or tributaries shall only occur as a result of extreme wet weather. In particular;

(i) facilities for effluent storage and disposal by land irrigation shall be designed and constructed to contain all waste in at least the 90th percentile wet year;

(ii) the period and volume of discharge to the river in very wet years shall be minimized by optimum management of available effluent storage and irrigation facilities; and

(iii) persons or bodies employing land irrigation as a means of disposal of treated sewage effluent should seek the advice of the Environment Protection Authority, the Land Protection Service and the Department of Agriculture and Rural Affairs (as appropriate) on the location and establishment of irrigation sites, crop selection and irrigation management, in order to avoid problems of land degradation, including salting.

(*c*) For the period of up to three years after gazettal of this Policy referred to in sub-clause (*b*), the City of Horsham shall take all reasonable measures to minimize the discharge of effluent to the Wimmera River or tributaries.

27. *Existing Sewage Discharges.* Existing dischargers of treated sewage effluent, other than provided for in clause 26 (*b*), shall maximise the proportion of treated effluent disposed of by land irrigation, consistent with the area of irrigation land available and good agricultural practice. Dischargers are encouraged to increase the land available for irrigation by further land acquisition or the re-use of effluent on public or private land under permit in accordance with the *Health (Use of Waste Water) Regulations* 1978 as amended. The objective should be complete containment of effluent on land except during very wet periods. Dischargers should seek the advice of the appropriate Government agencies as described in clause 26 (*b*) (iii).

28. *New Sewage Discharges.* New works for the treatment and disposal of sewage effluent shall be designed to dispose of treated effluent to land, in accordance with good agricultural practice and with regard to potential adverse environmental effects. It is recognized that complete containment of effluent on land may not be practical during very wet periods, and sewage treatment works may therefore be designed to allow for discharge to surface waters (subject to appropriate licence conditions) during such wet periods. Intending dischargers should, at an early stage in the planning of new sewage disposal schemes, seek the advice of the appropriate Government agencies as described in clause 26 (*b*) (iii).

Servicing

29. *Provision of Sewerage.* Urban areas shall be provided with a reticulated sewerage system as soon as possible.

(*a*) Responsible authorities shall ensure that new subdivisions and major urban developments are connected to a reticulated sewerage system at the time of occupation. Such authorities may approve exceptions to this when;

(i) the size of the allotments in the development is sufficient to adequately treat and retain domestic wastes within the boundary of the allotments;

(ii) sewerage cannot easily be provided to small developments. In the case of subdivisions, this shall be limited to those subdivisions where the total number of allotments created by one or more subdivisions from a single parcel of land, existing under one title at the date of gazettal of this Policy, will be less than 10 allotments. A responsible authority, acting in accordance with its own powers and responsibilities, may impose more stringent requirements than provided by this exemption.

(*b*) In other cases of new urban development, if sewerage is not available within five years, the minimum acceptable treatment for domestic wastes shall be an all-waste septic tank and sandfilter system in accord with the Health Commission of Victoria publication *Code of Practice—Septic Tanks*, or other manual approved by the Authority.

(*c*) In sewered areas, the appropriate steps shall be taken by sewerage authorities to ensure that all premises are connected to the sewerage system for the purpose of domestic waste disposal.

(*d*) Detailed consideration and encouragement shall be given to the reclamation and re-use of wastewater and, in particular, to the discharge of sewage effluent to land under permit, where applicable, in accordance with the *Health (Use of Waste Water) Regulations* 1978 as amended. Effluent re-users should seek the advice of the appropriate Government agencies as described in clause 26 (*b*) (iii).

30. *Discharge to Sewer.* The discharge of trade and industrial wastewater from any sewered property or any property where sewerage reticulation is available should in general be to the sewerage system, if that waste (with pre-treatment if necessary) is acceptable to the appropriate sewerage authority. Land disposal of trade or industrial wastewaters from sewered properties will be permitted if appropriate.

31. *Street Construction.* Streets and roads shall be constructed to the appropriate standards as soon as practicable and provided with adequate drainage. Such construction should be carried out in accordance with *Guidelines for Minimizing Soil Erosion and Sedimentation from Construction Sites in Victoria* (1979) or *Control of Erosion on Construction Sites* (1984), published by the Soil Conservation Authority.

Surface drainage from unmade or partially constructed streets and roads should be conveyed through or across appropriate sediment control structures, including grassed areas, and thence to natural drainage lines.

32. *Drainage.* Drainage system design shall ensure that erosion of streambeds, streambanks and other drainage lines is minimized and should make allowance, where practical, for the attenuation of peak run-off and the retention and trapping of contaminants, including litter, in run-off. Input of these contaminants to the drainage system should be minimized by the control of activities within the catchment of the drainage system. In particular, urban drainage management shall include good housekeeping practices such as regular street sweeping and the use of stormwater detention basins. The use of porous ground surfaces which allow infiltration of rainfall rather than run-off should be encouraged in urban areas.

33. *Litter.* Management of streams, lakes and environs shall include the formulation of a litter control strategy which will make provisions for community education and for the regular collection and removal of litter or debris, and ensure that sufficient resources are devoted to the enforcement of the *Litter Act* 1964.

Waste Generation and Waste Disposal

34. *Land Use.* In the development and administration of land use planning schemes, due regard shall be given to the need for land use to be located and managed to ensure that contaminated run-off, both from specific sites and within the catchment as a whole, is reduced to a minimum.

35. *Diffuse Source Control.* Where diffuse stormwater run-off is causing Policy objectives to be exceeded, the following means of control shall be investigated and applied where appropriate:

(*a*) Elimination or treatment of the source of the contaminated run-off.

(*b*) Changes to land use practices.

(*c*) Establishment of vegetated streamside buffer zones to filter run-off. Within such zones;

(i) stock access should be restricted to defined watering and crossing points;

(ii) vermin and noxious weeds should be controlled; and

(iii) urban development should be restricted.

36. *Land Disturbance and Erosion.* Land disturbance activities shall be carefully controlled and appropriate soil conservation measures shall be taken in order to minimize soil erosion and subsequent run-off of suspended, dissolved and settleable matter.

(*a*) Construction works, including building activities and provision of services, should be carried out in accordance with *Guidelines for Minimizing Soil Erosion and Sedimentation from Construction Sites in Victoria* (1979) or *Control of Erosion on Construction Sites* (1984) published by the Soil Conservation Authority.

(*b*) Eroding streambanks should be stabilized by vegetative or other means. Where necessary, streamside buffer zones should be established as described in clause 35 (*c*).

(*c*) Where stock access is contributing to the degradation of water quality or the erosion of streambanks, stock should be restricted to stabilized watering and crossing points or, where necessary, should be provided with off-stream watering points and direct access to the stream prevented.

(*d*) In locations where nuisance aquatic plant growths (in particular macrophytes) are established or have the potential to establish on stream beds or banks, measures such as;

(i) physical removal of nuisance growths by appropriate harvesting means;

(ii) spraying of herbicides in accordance with clause 14 (*c*) and Schedule B of this Policy; and

(iii) stream bed and bank maintenance works in order to reduce the suitability for colonization by nuisance growths;

may be carried out provided that these measures do not expose streambanks to increased risk of erosion. Physical means of control which remove or inhibit the growth of nuisance aquatic plants are preferred to herbicides which permit the dead plant material to remain in the riverine ecosystem.

(*e*) Land disturbance activities, in particular the excavation and removal of soil, on streambeds, streambanks, flood plains and lake shores should be avoided, except for necessary river management works.

(*f*) Land Use Determinations should be made under the *Soil Conservation and Land Utilization Act* 1958 for all proclaimed potable water supply catchments as soon as possible.

37. *Forestry Operations.* Forestry operations in the vicinity of surface waters should be controlled to minimize land disturbance and the input of sediments to streams and damage to aquatic habitats.

(*a*) Guidelines given in Management Prescriptions prepared by the State Forests and Lands Service, or the former Forests Commission, including *Water Catchment Management Prescriptions for Operations Under Forests Commission Control Within the Grampians State Forest*, shall be adhered to and enforced. In particular;

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(i) reserves should be recognized along permanent streams in which forestry operations are restricted;

(ii) filter strips should be recognized along non-permanent watercourses in which land disturbance activities, including the use of logging machines, are minimized; and

(iii) intensive forestry operation should be avoided in areas of high erosion hazard, including steep slopes; and

The Management Prescriptions should be continually reviewed on the basis of new information, particularly with respect to the design and managment of buffer zones and filter strips, to ensure that Policy objectives are being met.

(*b*) All reasonable precautions should be taken to prevent wildfires in order to avoid subsequent loss of soil, nutrients and dissolved matter to streams.

38. *Recreation Activities.* Recreation activities in the catchment shall be subject to regulations and/or guidelines administered and publicised by the appropriate management bodies, such as the State Forests and Lands Service, the National Parks Service, the Rural Water Commission and local government bodies. In particular:

(*a*) Primary and secondary contact recreation and camping may be prohibited or otherwise controlled as appropriate in the Potable Water Supply Segment.

(*b*) Sewage and sullage wastes generated by campers and others shall be disposed of to land at locations and in such a manner as to prevent adverse effects on water courses and water storages.

(*c*) The use of power boats may be restricted in locations where the resulting wave action may result in unacceptable levels of streambank or foreshore erosion.

39. *Run-off from Agricultural Land.* Agricultural practice shall be improved where necessary to reduce contamination of run-off from agricultural land. In particular, the following means of control shall be investigated and applied where appropriate:

(*a*) Reduction in nutrient run-off by improved management of the rates, frequencies and methods of fertilizer application.

(*b*) Reduction in sediment run-off by the adoption of appropriate soil conservation practices, including improved cropping and cultivation practices, gully erosion control and tree planting or other forms of revegetation.

(*c*) Reduction in pesticide run-off by improved management of rates and frequencies of application, and the use of less environmentally hazardous and less persistent pesticides.

40. *Run-off from Irrigated Farmland.* Where the application of irrigation water to farmland results in the run-off of surplus water from the site, the following means of control shall be investigated and applied where appropriate:

(*a*) Reduction or elimination of the run-off by improved management of application rates and frequencies.

(*b*) Direction of run-off water from one or more sites to a common point for return and re-use or disposal by evaporation.

(*c*) Establishment of vegetated streamside buffer zones to filter run-off, as described in clause 35.

41. *Intensive Animal Industries.*

(*a*) The location and operation of intensive animal industries and milking sheds should be in accordance with *Guidelines for the Conduct of Intensive Animal Industries*, published by the Department of Agriculture and the Authority.

(*b*) No piggery, poultry farm or cattle feedlot shall be established within the Potable Water Supply Segment.

(*c*) All farm effluents from intensive animal industries, milking sheds and vegetable washing and processing shall be disposed of by land irrigation in such a manner as to preclude any polluting run-off to surface waters or pollution of groundwater.

(*d*) No solid or liquid effluent from any intensive animal industry, milking shed or vegetable washing and processing shall be disposed of within 800 metres of any potable water supply offtake controlled by a statutory authority, or within 200 metres of any surface waters supplying potable water, or within 100 metres of any other surface waters.

42. *Wastes from Past Mining Operations.* The rehabilitation and revegetation of past mining sites shall be encouraged where practicable.

(*a*) The treatment, removal or disturbance of material which has previously passed through a mercury amalgamation process and which is contaminated with mercury shall not be undertaken unless wastewater, including stormwater and run-off from disturbed areas, is contained on site.

(*b*) Operations which disturb waters or sediments shall be restricted in areas where significant risk of mercury mobilization is expected.

43. *Disposal of Waste to Land (Including Garbage, Solid Waste and Sludge).*

(*a*) The disposal of wastes into or onto land shall be carried out in such a manner and at such locations so as not to cause the pollution of groundwater and surface waters.

(*b*) Without limiting the generality of sub-clause (*a*), no wastes, other than inert solid wastes, shall be deposited in or on land within the Potable Water Supply Segment, or within 60 metres of a watercourse, or on a flood plain (as defined by a flood frequency of one in ten years). Exceptions may be made where the use of such sites is in accord with a waste management plan approved by the Authority, and provided that specified precautions are taken to ensure that there is no unacceptable risk to water quality. In assessing

applications for works approvals or licenses particular attention shall be given to these aspects.

44. *Plant and Animal Habitat Protection.* Dredging, river improvement, reclamation, nuisance weed control measures, spoil disposal and other works should be carried out in a manner which causes minimal disturbance of beneficial plant and animal habitats.

45. *Flood Plain Management.* The control and management of activities within flood plains shall include provisions to ensure that Policy objectives are achieved and maintained. In particular:

(*a*) Sewage treatment and pumping works shall not be located on a flood plain (as defined by a flood frequency of one in ten years). Where the Authority is satisfied that no practicable alternative exists, lagoons may be located on a flood plain, provided they conform to the requirements of the appropriate drainage authority, and are constructed so as to prevent the entry of flood water from a flood with a frequency of one in ten years.

(*b*) Toxic chemicals, including pesticides, herbicides and fungicides, shall not be stored or disposed of on a flood plain (as defined by a flood frequency of one in fifty years).

46. *Contingency Plans.* Industries in the Policy area should develop and maintain contingency plans for the avoidance and control of spills or breakdowns so as to prevent pollution of surface waters. Works approvals may include appropriate contingency plans. Such plans should include;

(*a*) emergency holding and cleaning-up procedures;

(*b*) action to minimize any adverse environmental effects; and

(*c*) methods for disposal of spilled materials.

47. *Oil Spills.* All necessary precautions should be taken to ensure that no oil or grease is spilled into the surface waters of the Policy area, including mixing zones. Where practicable spilled material should be physically reclaimed. In other circumstances methods which cause least damage to aquatic biota and the environment should be adopted. Any dispersant used should be of minimal toxicity.

Related Activities

48. *Management of Water Resources.* While it is recognized that the high degree of utilization of the limited water resources in the catchment makes the maintenance of minimum stream flows or lake replenishment flows impracticable, the water resources of the catchment shall be managed such that:

(*a*) Reduction in stream flows below natural levels is kept to a minimum in order to reduce water quality problems resulting from stagnation and stratification.

(*b*) Due regard is given to the importance of stream flows and lake replenishment in considering future utilization of the water resources of the catchment.

(*c*) Measures to conserve water resources are implemented wherever possible, including;

(i) the progressive replacement of the open channels of the Wimmera-Mallee Domestic and Stock System with pipelines in order to reduce evaporative and seepage losses, subject to cost-benefit analysis;

(ii) improved management of water-consumptive activities such as irrigation, in order to reduce water usage; and

(iii) the re-use of waste water including treated sewage effluent and run-off from irrigated farmland where appropriate, for uses such as irrigation of crops or pasture and watering of parks and gardens.

(*d*) Downstream discharges of poor quality water from on-stream and off-stream impoundments are avoided. Measures which should be considered are the timing of releases to avoid periods of poor water quality, the provision of multi-level offtakes and the use of artificial destratification procedures.

49. *Salinity Control.* The Government will co-ordinate public and private sector involvement in the development of a salinity control strategy for Victoria.

50. *Codes of Practice.* In co-operation with other public and private bodies, the Authority shall encourage and participate in the development of appropriate codes of practice with the aim of improving the management of activities which lead to a deterioration in water quality. In particular, urban run-off, soil conservation practices and salinization require consideration.

51. *Research.* The Authority shall initiate research directed towards solving specific problems and will encourage competent research groups to carry out fundamental and applied studies on water pollution mechanisms and control. Priority areas for study are:

(*a*) The further development of nutrient objectives for streams and lakes.

(*b*) The characterization of diffuse sources of pollutants, including run-off from irrigated and non-irrigated agricultural land and urban areas, and the evaluation of alternative methods for the control of nutrient, sediment and pesticide loads contributed by diffuse sources.

(*c*) Investigation into the control of nuisance aquatic plant growths by means other than the limitation of nutrient availability, including mechanical harvesting and the use of herbicides.

(*d*) Investigation of heavy metal concentrations in waters, sediments and biota and identification of contributing sources such as sewage discharges, diffuse sources and mining activity.

(*e*) The determination of the effects of stream and streamside spraying of pesticides and herbicides on aquatic biota.

52. *Monitoring.* Subject to the availability of funds, the Authority shall undertake a water quality monitoring program to ensure that sufficient data are available to assist in the implementation of this Policy and to assess the attainment and maintenance of Policy objectives. The reports of such monitoring will be publicly available.

53. *Toxicity Testing.* The Authority shall initiate acute and chronic toxicity tests designed to determine the effects of individual toxicants or toxicant mixtures on the physiology, behaviour and reproduction of suitable native species, subject to the availability of funds. 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 representation of various trophic levels and taxonomic groups. Valid data obtained from these local toxicity tests (when available) shall be used to complement overseas data in improving the T values cited in *Recommended Water Quality Criteria* published by the Authority.

54. *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.

Schedule A

WATER QUALITY INDICATORS AND OBJECTIVES

For the following segments of the Wimmera River and catchment
Segment A: Potable Water Supply Segment
Segment B: Water Storages Segment
Segment C: Wimmera Tributaries Segment
Segment D: Upper Wimmera River Segment
Segment E: Lower Wimmera River Segment
Segment F: Terminal Lakes Segment

Indicator	*Objective*
1. Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than; *Segments A and B:* 7·5 g/m³ or 75% saturation. *Segment C* (other than at the locations specified below): 4·5 g/m³ or 45% saturation. *Segments D, E and F:* 6·0 g/m³ or 60% saturation. *Segment C* (in Pleasant and Sandy Creeks downstream of the points of discharge of sewage effluent from the Town of Stawell): 2·0 g/m³ or 20% saturation (whichever is greater).
2. Bacteria *(E. coli)*	(*a*) *Segment A:* The concentration of *E. coli* organisms shall not exceed 100 organisms per 100 mL in more than 10% of samples taken in any one year. (*b*) The geometric mean concentration of *E. coli* organisms, based on not less than 5 samples taken within a 42 day period, shall not exceed: *Segments B, D, E and F:* 200 organisms per 100 mL *Segment C:* 1000 organisms per 100 mL
3. pH	(*a*) The pH shall not vary from background levels by more than: *Segments A and B:* ± 0·5 unit *Segment C:* ± 1·5 unit *Segment D, E and F:* ± 1·0 unit (*b*) The pH shall not fall outside the range: *Segments A, B, D, E, F:* 6·0 – 9·0 *Segment C:* 5·5 – 9·5
4. Temperature	The temperature shall not vary from background levels by more than: *Segments A and B:* ± 1·0°C *Segments C, D, E and F:* ± 2·0°C

5. Filtrable Residue (Total Dissolved Solids)

(*a*) The annual 90th percentile concentration of filtrable residue shall not exceed:
Segment A: 250 g/m³
Segment B: 1000 g/m³
Segments C and D (upstream of Glenorchy weir): 3000 g/m³
Segment D (downstream of Glenorchy weir): 2000 g/m³
Segment E (upstream of Dimboola weir): 1500 g/m³
Segment E (downstream of Dimboola weir): 2500 g/m³

(*b*) *Segment F:*
The concentrations of filtrable residue shall not vary by more than 10% from background levels.

6. Light penetration

(*a*) *All Segments:*
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.

Turbidity

(*b*) Without limiting the generality of objective (*a*), annual 90th percentile turbidity values shall not exceed:
Segment A: 25 FTU
Segments B, C, D, E and F: 50 FTU

7. Toxicants

(*a*) *All Segments:*
The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sub-lethal toxic effects or undesirable physiological, mutagenic, carcinogenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of these segments, 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:
Segments A and B (at points of offtake of supplementary potable water supply only): the level derived from sub-clauses (i), (ii), (iii), (iv), (v) and (vi) below (whichever is the lower).
Segment B (other than at the points specified above), *C* (other than at the locations specified below), *D and E:* the level derived from sub-clauses (i), (ii), (iii), (v) and (vi) below (whichever is the lower).
Segment C (in Pleasant and Sandy Creeks downstream of the points of discharge of sewage effluent from the Town of Stawell): the level derived from sub-clauses (iii), (v) and (vi) below (whichever is the lower).
Segment E: the level derived from sub-clauses (i), (ii), (iii) and (v) below (whichever is the lower).

(i) *Individual Toxicants*—Aquatic Ecosystems.
The concentration of individual toxicants shall not exceed:
Segments A and B: N + 0·5 (T−N)
Segment C: 2T
Segments D, E and F: T
where T is the threshold concentration of chronic sub-lethal effects for aquatic life and N is the natural background level of the toxicant.
T may be obtained from Table 14 of RWQC[a]. For toxicants not listed in that source, T shall be derived from appropriate toxicity tests specified or approved by the Authority.

(ii) *Toxicant Mixtures*—Aquatic Ecosystems.
The concentration of toxicant mixtures shall not exceed:
Segments A, B, D, E and F: Tm
Segment C: 2Tm
where Tm is the threshold concentration of chronic sub-lethal effects for aquatic life. Tm shall be derived from appropriate toxicity tests specified or approved by the Authority.

	(iii) *Toxicants in Edible Tissue* *All Segments:*The level of toxicants in the water column shall not exceed a level which would cause the concentration in edible fish and crustacea to exceed that listed in the *Food and Drugs Standards Regulations* 1966 (as amended).
	(iv) *Toxicants in Potable Water Supplies* *Segments A and B* (at points of offtake of supplementary potable water supply only): The concentration of individual toxicants shall not exceed the criteria in Schedule 1 of RWQC[a].
	(v) *Toxicants in Agricultural Water Supplies*—Stock Watering *All Segments:* The concentration of individual toxicants shall not exceed the criteria in Schedule 5 of RWQC[a].
	(vi) *Toxicants in Agricultural Water Supplies*—Irrigation. *Segments, A, B, C, D and E:* The concentration of individual toxicants shall not exceed the criteria for phytotoxic trace elements in Schedule 6 of RWQC[a].
8. Nutrients and Bio-stimulants	(*a*) *All Segments:* Levels of nutrients and other growth stimulants shall be such that excessive or nuisance growths of algae or other aquatic plants are minimized in these segments and downstream waters.
Total Phosphorus	(*b*) Without limiting the generality of objective (*a*), the concentration of total phosphorus (as phosphorus) shall not exceed the following levels: (i) *Segments D and E* (upstream of the point specified in (ii) below): annual 90th percentile: 0·2 g/m³. (ii) *Segment E* (at the point of entry of the Wimmera River to Lake Hindmarsh): annual 90th percentile: 0·1 g/m³
9. Non-filtrable residue (Suspended Solids)	The concentration of non-filtrable residue (suspended solids) shall not exceed the following levels: *Segment A:* annual 50th percentile: 10 g/m³ annual 90th percentile: 30 g/m³ *Segments B, C, D, E and F:* annual 50th percentile: 25 g/m³ annual 90th percentile: 80 g/m³
10. Settleable matter	*All Segments:* The level of settleable matter shall not result in deposits which adversely affect the recreation and ecosystem values of the surface waters as expressed in the beneficial uses.
11. Aesthetic Characteristics Odours, taints and colours	(*a*) *All Segments:* There shall be no objectionable odours or colours in waters, or objectionable taints in edible aquatic organisms. (*b*) Without limiting the generality of objective (*a*), the concentrations of individual substances or characteristics shall not exceed the levels given in the following sources. *Segments A and B* (at points of offtake of supplementary potable water supply only): (i) the current acceptable aesthetic criteria for potable waters in Schedule 1 of RWQC[a]; or (ii) the concentrations of chemical compounds in water found to cause tainting of the flesh of fish and other aquatic organisms, in Table 11 of RWQC[a] (whichever is the lower). *Segments B* (other than at the points specified above), *C, D, E and F:* the concentrations of chemical compounds in water found to cause the tainting of the flesh of fish and other aquatic organisms, in Table 11 of RWQC[a].
Floatable matter	*All segments:* There shall be no visible floating foam, oil, grease, scum, litter or other objectionable matter.

Note a.—RWQC means the most recent edition of *Recommended Water Quality Criteria,* published by the Authority. The first edition was published in May 1983 as Authority Publication No. 165.

Schedule B

STREAM AND STREAMSIDE SPRAYING OF PESTICIDES AND HERBICIDES

1. Stream and streamside spraying of chemicals for the eradication of pests and weeds may cause the receiving water quality objectives to be temporarily exceeded subject to the following requirements:

(*a*) Except as provided in clause 2 of this Schedule the level of the chemical in the receiving waters shall not exceed 100 times the threshold concentration of chronic sub-lethal effects for aquatic life (T) as included in Table 14 of RWQC[a].

(*b*) Except as provided in clause 2 of this Schedule the level of the chemical in the receiving waters where potable water supply is a protected beneficial use shall not exceed the levels specified in Schedule 1 of RWQC[a] at the point of the water supply offtake.

2. The Minister responsible for the Act may permit the levels of chemicals used for stream and streamside spraying of pests and weeds to temporarily exceed those required by clause 1 of this Schedule, provided the Minister is satisfied that, having regard to all circumstances, the non-protection of the beneficial uses concerned would be in the greater public interest. Any such decision shall be published in the *Government Gazette* as soon as possible after it is made.

Note a—RWQC means the most recent edition of *Recommended Water Quality Criteria*, published by the Authority.

Schedule C

HEAVY METAL LIMITS FOR WASTE DISCHARGES

Heavy metal	*Limit* (g/m³)
Arsenic	0·50
Cadmium	0·10
Chromium (total)	0·30
Copper	0·20
Iron	2·00
Lead	0·10
Manganese	0·50
Mercury	0·005
Nickel	0·50
Silver	0·10
Zinc	0·50

And the Honourable Evan Walker, Her Majesty's Minister for Planning and Environment for the State of Victoria, shall give the necessary directions herein accordingly.

L. G. HOUSTON
Clerk of the Executive Council

EXPLANATORY NOTES

Application

On 23 April 1985 the Governor in Council declared a State Environment Protection Policy (SEPP) for the Waters of the Wimmera River and Catchment. The 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 includes the Wimmera River, its tributaries and associated water storages and the lakes in which the river terminates, notably Lakes Hindmarsh and Albacutya. The Policy area is defined in detail in clause 5 and is depicted in Figures 1 and 2 of the Policy.

Background

Since the commencement on 1 March 1973 of the waste discharge licensing provisions of the *Environment Protection Act*, waste discharge control in the Policy area has been exercised by the Authority through sections 20-31 of the Act, without the benefit of SEPP.

In December 1982, the Minister for Conservation announced that the Authority would prepare a Policy for the Wimmera River and its catchment. The priority for this Policy was brought forward as a result of concern over water quality in the catchment and controversy over appropriate waste management strategies. This controversy centred on the disposal of treated sewage effluent by the City of Horsham. In July 1982 the Environment Protection Appeal Board (EPAB) decided that the Horsham treatment works shall cease all discharges to the Wimmera River or tributaries after 31 December 1985. In making his announcement, the Minister for Conservation stressed the need for socio-economic analyses to form part of the Policy formulation process in order that cost-benefit questions, which the EPAB was not empowered to consider, may be taken into account. In this way the Policy is intended to be a comprehensive water quality management plan consistent with the Government's other goals and policies.

Preliminary public submissions were invited in late 1982, and formulation of the draft Policy commenced with the preparation of a background report in early 1983. At the same time the Authority engaged Kinhill Stearns as a consultant to perform a socio-economic study of the area. The study included an engineering appraisal and costing of waste treatment and disposal options available to the City of Horsham.

A draft Policy was prepared and issued for public comment for four months from early March 1984. The draft Policy was revised in the light of public comment and then recommended by the Authority to the Government.

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, that is 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 swimming, the water quality obviously needs to be higher than 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 Program*

As for as possible, a Policy does not stop at defining quality objectives, but also outlines a management program whereby the objectives can be achieved and maintained. The requirements set forth in the attainment program are to be implemented by various government agencies such as the EPA.

Segments and Beneficial Uses

The Policy area has been divided into six segments:

Segment A—Potable Water Supply Segment

Segment B—Water Storages Segment

Segment C—Wimmera Tributaries Segment

Segment D—Upper Wimmera River Segment

Segment E—Lower Wimmera River Segment

Segment F—Terminal Lakes Segment

These segments have been defined on the basis of areas with a similar set of beneficial uses. The location of the various segments is shown in Figures 1 and 2 of the policy. Figure 2 also shows the location of the non-potable urban water supply subcatchments.

The beneficial uses identified for protection in the Policy are summarized in Table E1. In general, the beneficial uses to be protected are the existing uses in the respective segments.

Potable water supply is only protected in the Potable Water Supply Segment and at points of offtake of supplementary water supplies from Lakes Fyans and Bellfield in the Water Storages Segment.

Urban non-potable water supply covers reticulated supplies to urban communities by direct abstraction from streams or via the Wimmera–Mallee domestic and stock water supply system (WMDSS). These supplies are not recommended for potable use, but are usually satisfactory for other domestic uses such as washing and garden watering.

Agricultural water supply is protected throughout the catchment, although some forms of agricultural use may be restricted in some locations by salinity.

Recreation is divided into primary contact, secondary contact and passive forms. Primary contact recreation (swimming) is protected in all segments except in the Potable Water Supply Segment where it would increase the risk of bacterial contamination of potable supplies, and in the Wimmera Tributaries Segment where lack of water and the physical characteristics of the streams make them generally unsuitable for swimming. Secondary contact and passive forms of recreation are protected throughout the catchment.

Production of edible fish and crustacea is protected in all segments, recognizing the widespread recreational and commercial fishing activities in the catchment.

Maintenance of streambank or foreshore vegetation is protected throughout the catchment in view of the importance of such vegetation in erosion control. Such protection applies to vegetation at beneficial but not excessive or nuisance levels.

Maintenance of aquatic ecosystems and associated wildlife is divided into different levels of protection depending on the ecological significance of the waterbody and its water quality. The Potable Water Supply and Water Storages Segments are given a moderate level of protection, but the Wimmera River and Terminal Lakes Segments are given a minimum level of protection only, in view of the combined effects of unreliable and variable flows and water quality degraded by the effects of diffuse waste inputs. A modified ecosystem only is protected in the Wimmera Tributaries Segment in view of the low stream flows and poor water quality in many parts of this segment.

Water Quality Objectives

The water quality indicators and objectives for each segment are given in Schedule A of the policy and summarized in Table E2. The objective for each indicator is generally chosen for the requirements of the limiting beneficial use of each segment. The limiting beneficial use is that use which imposes the most stringent requirement for that indicator, and in most cases it is aquatic ecosystem protection or a use related to the protection of public health. In selecting an appropriate objective, scientific information on water quality criteria and the prevailing water quality in the segment have been considered.

The most significant water quality related problems in the catchment are depressed dissolved oxygen levels and nuisance aquatic plant growths. The common factor in these problems is excessive nutrient availability, since high nutrient concentrations stimulate aquatic weed and algal growths which in turn decay with the consumption of dissolved oxygen. A range of beneficial uses are adversely affected, including aquatic ecosystem protection, fish production, all forms of recreation and aesthetic values.

Nutrient Objectives

The selection of appropriate objectives for nutrients is therefore critical to the attainment and maintenance of acceptable water quality and the protection of the beneficial uses. Nutrient concentration data suggest that phosphorus is likely to be the limiting nutrient and thus the most important to control.

Little evidence of nuisance aquatic plant growths in the Potable Water Supply, Water Storages and Wimmera Tributaries Segments exists, and little nutrient concentration data is available. The Policy applies a qualitative nutrient objective to these segments, requiring control of nutrient concentrations such that nuisance plant growths are minimized.

Excessive macrophyte growths occur at various locations in the Upper Wimmera River Segment, but they are not widespread nor do they greatly interfere with beneficial uses. The Policy applies a quantitative objective which permits no further degradation of present water quality. The phosphorus concentration shall be less than 0·2 grams per cubic metre (g/m^3) 90 percent of the time.

The Lower Wimmera River Segment contains extensive areas of nuisance plant growths, including widespread phragmites (cane grass) and ribbon weed stands, azolla downstream of the McKenzie River confluence and algae in places between Quantong and Dimboola. The phosphorus concentration at present reaches high levels downstream of the McKenzie River confluence as a result of the Horsham sewage effluent discharge. Available data shown a median phosphorus concentration of 0·78 g/m^3, and concentrations in excess of 1·5 g/m^3 10 per cent of the time downstream of the confluence.

The phosphorus concentration drops further downstream as the nutrient is taken up by aquatic plant growths or sedimented, until concentrations at Dimboola are similar to those at Horsham. In order to contain the plant growths in the Lower Wimmera River, the Policy sets the same objective as is applied to the Upper Wimmera, that is a 90th percentile phosphorus concentration of less than 0·2 g/m^3. Furthermore, to protect the Terminal Lakes Segment the phosphorus concentration shall be less than 0·1 g/m^3 90 percent of the time at the point of entry of the Wimmera River to Lake Hindmarsh.

Attainment Program

The attainment program consists of two parts. The general provisions (clauses 15–18) are an outline of the management means required to implement the Policy, and provide for implementation to be co-ordinated by the Authority. The detailed provisions (clauses 19–54) highlight existing and potential water quality management problems and outline selected strategies for their solution.

As the water quality in much of the Policy area for which data is available is satisfactory, with objectives in most segments being met, many of the provisions of

the attainment program are preventative measures aimed at ensuring that water quality is maintained.

Serious examples of unsatisfactory water quality are dissolved oxygen and phosphorus concentrations in the Lower Wimmera River Segment, associated with excessive aquatic plant growths. Controls on Horsham's sewage effluent disposal address this problem in the most cost-effective way. Nuisance plant growths will not be eliminated by control of point sources of waste alone, and the attainment program identifies measures to restrict diffuse run-off from agricultural, urban and forested land, as well as to minimize reductions in natural river flows.

The attainment program is explained in more detail below.

General provisions. These clauses outline the general means of achieving the Policy objectives (clause 15), provide for implementation (clause 16) and ensure that the Policy will be consistent with other planning policies (clause 17). As a State Government Policy, it will guide State Government agencies and departments in carrying out their environmental management functions (clause 16). Clause 18 provides for a review of the Policy as circumstances change and new information becomes available.

Waste discharge controls. Under the *Environment Protection Act*, proposed works on scheduled premises which will result in a waste discharge must receive a works approval from the Authority and all waste discharges must be licensed, unless specifically exempt. Clause 19 requires works approvals, licensing decisions and licence conditions to be consistent with the attainment of Policy objectives and requires discharges which are exempt from licensing to comply with Policy objectives and provisions. Clause 20 provides for consideration to be given to reserving assimilative capacity for future waste discharges.

Clause 14 (*a*) permits the designation of mixing zones in licences, being areas where certain water quality objectives of the Policy need not be maintained. Clause 22 describes the characteristics of mixing zones, and the requirements which must be met if a mixing zone is to be designated in a licence.

To protect the quality of the potable water supplies derived from the Potable Water Supply Segment, no licences for waste discharges to waters of this segment will be granted (clause 23). Licences will be issued for discharges in urban non-potable water supply subcatchments only if there is no practical alternative and only if future use of the catchment for potable supplies is not precluded (clause 24).

As heavy metals are not degraded in the environment, but accumulate in sediments and biota, the Policy imposes upper limits on the concentrations of heavy metals that may be permitted in discharge licences (clause 25 and Schedule C). While these limits represent reasonably achievable levels, lower levels may be set in licences if necessary to achieve Policy objectives.

In view of the concern over total phosphorus loads and concentrations in the catchment, no licence will be issued permitting a new discharge of waste containing a significant load of total phosphorus to waters in any segment of the Policy area (clause 26 (*a*)).

The controls on existing and future sewage discharges are described by clauses 26 (*b*) to 28. Existing sewage effluent dischargers in the catchment are required to maximize disposal to land, with the objective of complete containment on land except in very wet periods (clause 27). In future, new sewage effluent discharges are to be primarily to land (clause 28). In order to avoid problems of land degradation, in particular salting, clauses 26 to 28 stress the need for proper siting, establishment and management of land irrigation schemes. This provision applies to both sewerage authorities and other effluent re-users.

Horsham sewage effluent disposal. Attainment of the nutrient objectives for the Lower Wimmera River and Terminal Lakes Segments requires effective removal of the Horsham sewage effluent nutrient load from the river.

The draft Policy proposed two options for control of Horsham's effluent.

* disposal to land by irrigation with an occasional discharge to the river in very wet years when the dilution available is at least 100:1.
* further treatment by chemical means to remove phosphorus to a low level prior to discharge to the river, supplemented by some extra irrigation and storage to avoid a discharge to the river when less than 1:1 dilution is available.

The Authority expressed a preference for disposal by irrigation but invited comments on both options. The public response was strongly in favour of an irrigation re-use scheme for the effluent. The Authority recommended that the further treatment and discharge to the river option be ruled out in favour of the re-use option, for the following reasons:

Environmental impact. The limitations of economically achievable phosphorus removal would mean that the phosphorus concentration objective of 90th percentile less than 0·2 g/m^3 could not be met between Horsham and Quantong. Other harmful components such as toxicants (ammonia, heavy metals and chloro-organics) and viruses would also remain in the discharge. As a result, aquatic ecosystem and recreational beneficial uses could not be adequately protected in this part of the river.

Public acceptance. People have a strong aversion to using a river which they know receives a regular discharge of treated sewage effluent, no matter how well treated it is. Effluent disposal to land is common in other towns in the region and the concept of re-use of wastewater on land has growing public support. The discharge to land option is therefore more in line with community values than the treat and discharge option.

Economic benefits. Should the effluent be used to irrigate previously dry farming land, the potential increase in farm productivity is considerable. The regional demand for irrigation water cannot be met by the present over-committed WMDSS. The State has spent about $26m to establish a system which can deliver about 70 000 megalitres of water per annum to consumers. If a similar value was to be placed on the Horsham

effluent as an irrigation resource, the cost of the re-use option to the community as a whole is significantly reduced.

The potential benefits of the treat and discharge option are minor compared to the disadvantages. The benefits in supplementing downstream river flows and supplying water to diverters are marginal.

Accordingly, clause 26 (*b*) of this Policy requires the design and construction of further irrigation and storage facilities to contain all effluent in at least the 90th percentile wet year. On average a discharge to the river can occur in one year in ten, for a period limited by the further requirement that in the wettest 10% of years, the period and volume of discharge to the river shall be minimized by optimum management of the irrigation and storage facilities. So clause 26 (*b*) provides a design basis for additional works and emphasizes their proper operation. The load of phosphorus discharged to the river will be very small. For example, a discharge for one month in one year in ten will result in less than 1% of Horsham's total phosphorus load reaching the river.

A period of up to three years from the date of gazettal of this Policy is allowed to implement this Policy requirement. This period varies from the two years proposed in the draft Policy, but is considered reasonable considering the need to plan, design, finance, construct and commission substantial additional works. The Policy provides that during the three year period all reasonable measures shall be taken by Horsham to minimize the discharge of effluent to the Wimmera River (clause 26 (*c*)).

The Policy will have the effect of removing the adverse environmental impact of Horsham's waste disposal operations in the most cost-effective way. Many public comments on the draft Policy called for strict implementation of the nil discharge decision of the EPAB. To do so would require a large reserve effluent storage for use in very wet years at an estimated cost of $0·6m. (1983 costs). The Authority and the Government believe that this is not a proper use of public or ratepayers funds. Instead, the controls in this Policy are a practical implementation of the EPAB decision, taking economic and engineering realities into account.

Servicing. Unsewered areas can be a source of pollutants to surface waters (principally nutrients, bacteria and some toxicants). Accordingly, clause 29 (*a*) of the Policy requires sewerage to be provided wherever wastewater cannot be retained on-site, with limited exceptions. The Policy encourages appropriate re-use of treated wastewater (clause 29 (*d*)), and advocates the disposal of trade and industrial wastes to a sewerage system wherever they are acceptable to the sewerage authority (clause 30).

The provision of services such as constructed roads (clause 31) and drainage (clause 32), should minimize the input of contaminants to surface waters. Clause 33 advocates the control of litter.

Waste generation and waste disposal. These clauses outline guidelines for the location and operation of a number of waste generating activities. In general land use planning should ensure that sediment run-off is minimized (clause 34).

Control techniques applicable to diffuse stormwater run-off are identified (clause 35). Land disturbance activities in the catchment, such as construction works (clause 36 (*a*)) and forestry operations (clause 37), should use best practice management techniques and be carried out in accordance with published guidelines. Activities in or adjacent to waterbodies should be managed to minimize erosion of stream beds or banks (clause 35 (*c*), (*d*) and (*e*)), and where erosion is evident buffer zones should be established (clause 36 (*b*)).

Recreation activities such as swimming, boating, picnicking and camping have potential for waste generation and should be practised in accordance with guidelines prepared by appropriate management bodies (clause 38).

Means to overcome the adverse effects of run-off from agricultural land (clause 39) and run-off of surplus irrigation water from irrigated farmland (clause 40) are identified. The location and waste disposal practices of intensive animal industries are restricted by clause 41. The management of past mining operation sites should minimize the risk of water contamination by mercury (clause 42).

Disposal of wastes to land must not cause water pollution (clause 43). Where dredging and similar works are carried out, there should be minimal disturbance to habitats (clause 44). Special provisions have been made for flood plain management (clause 45) and the preparation of contingency plans for accidental spills (clauses 46 and 47).

Related activities. In a catchment which has generally low and unreliable natural stream flows, a high degree of commitment of water resources for various water supply purposes has particularly serious implications for water quality. The Authority recognizes that for practical and historical reasons the commitment of a share of the water resources for environmental purposes is not feasible at this stage, and so the draft Policy does not require the maintenance of minimum stream or lake replenishment flows. Instead, clause 48 identifies various ways in which the available water resources should be managed to conserve water and so reduce the demand for diversion from natural waterways.

A number of other activities need to be undertaken in conjunction with the implementation of the Policy. These include the development of codes of practice for control of diffuse sources of pollution (clause 50), further research (clause 51), water quality monitoring (clause 52), and public education (clause 54). Clause 49 commits the Government to a co-ordinating role in the development of a salinity control strategy for Victoria.

Costs and Benefits of Policy Implementation

The major immediate consequence of the Policy is the requirement for the City of Horsham to implement additional land-based effluent disposal works.

Implementation of a private farmer re-use scheme was estimated in 1983 to involve capital expenditure by the City of about $1·3m., or $276 000 p.a. (without government subsidy). This would require an increase in Horsham's average residential sewerage rate bill of about $43 p.a. This rise would be reduced if Government interest rate subsidies continue to apply.

For example, in 1984–85 interest rates on loans were subsidized back to 8%, and if this level of subsidy continues the rise in domestic rate bills would be about $33 rather than $43.

In 1984–85, Horsham's average domestic sewerage rate bill was $95, compared to a State average of $165. Increases of the order described above would not raise rates to the State average.

TABLE E1: SUMMARY OF PROPOSED BENEFICIAL USES

SEGMENT USE	*Potable Water Supply*	*Water Storages*	*Wimmera Tributaries*	*Upper Wimmera River*	*Lower Wimmera River*	*Terminal Lakes*
POT						
—with treatment	●					
—supplementary with treatment		● (1)				
URB	●	●	● (2)	● (3)		
AGR						
—farmstead	●	●	●	●	●	●
—stockwater	●	●	●	●	●	● (6)
—irrigation	●	● (4)	● (5)	● (5)	● (5)	
PAR	●	●	● (5)	● (5)	● (5)	
REC						
—primary		●		●	●	●
—secondary	●	●	●	●	●	●
—passive	●	●	●	●	●	●
AQU	●	●	●	●		
PRO	●	●	●	●	●	●
VEG	●	●	●	●	●	●
SCI				●	●	●
ECO						
—moderate level	●	●				
—minimum level				●	●	●
MOD			● (7)			

Key to Beneficial uses;
POT—Potable water supply
URB—Urban non-potable water supply
AGR—Agricultural water supply
PAR—Watering of parks and gardens
REC—Recreation
AQU—Recharging of Aquifers
PRO—Production of edible fish and crustacea (freshwater)
VEG—Maintenance of streambank or foreshore vegetation
SCI—Scientific or educational uses
ECO—Maintenance of aquatic ecosystems and associated wildlife (freshwater)
MOD—Maintenance of modified aquatic ecosystems (freshwater)

Notes:
(1) From Lake Fyans to Stawell and Ararat, Lake Bellfield to Halls Gap.
(2) In urban water supply subcatchments, and by diversion to WMDSS.
(3) At Glenorchy, and by diversion to WMDSS.
(4) Mainly Pine Lake, supplemented by Dock and Green Lakes.
(5) Water usage and crop selection may be restricted in some locations by salinity levels (e.g. upstream of Glenorchy and downstream of Dimboola).
(6) Use restricted under most conditions by elevated salinity.
(7) Except immediately downstream of Stawell Sewerage Authority discharge.

TABLE E2: SUMMARY OF WATER QUALITY OBJECTIVES

Indicator	Units	SEGMENT A Potable Water Supply	B Water Storages	C Wimmera Tribs.	D Upper Wimmera R.	E Lower Wimmera R.	F Terminal Lakes
Dissolved Oxygen	g/m³ % Saturatn.	> 7.5 > 75%	> 7.5 > 75%	> 4.5 (11) > 45%	> 6.0 > 60%	> 6.0 > 60%	> 6.0 > 60%
Bacteria (*E. coli*)	organisms per 100 mL	90pc < 100	g.m. < 200	g.m. < 1000	g.m. < 200	g.m. < 200	g.m. < 200
pH	range variation	6.0–9.0 ± 0.5	6.0–9.0 ± 0.5	5.5–9.5 ± 1.5	6.0–9.0 ± 1.0	6.0–9.0 ± 1.0	6.0–9.0 ± 1.0
Temperature	variation (°C)	± 1.0	± 1.0	± 2.0	± 2.0	± 2.0	± 2.0
Filtrable Residue (TDS)	g/m³	90pc < 250	90pc < 1000	90pc < 3000	(3) 90pc < 3000 (4) 90pc < 2000	(5) 90pc < 1500 (6) 90pc < 2500	
	variation						< 10%
Light Penetration	— Turbidity (FTU)	Qual. 90pc < 25	Qual. 90pc < 50	Qual. 90pc < 50	Qual. 90pc < 50	Qual. 90pc < 50	Qual. 90pc < 50
Toxicants	Single (7) Mixtures RWQC (8) Schedules	N+0.5 (T−N) < 1 1, 5, 6	N+0.5 (T−N) < 1 (1) 1, 5, 6 (2) 5, 6	2T (12) < 1 (12) 5, 6	T < 1 5, 6	T < 1 5, 6	T < 1

Nutrients and Biostimulants	— Total P (g/m³)	Qual.	Qual.	Qual.	Qual. 90pc < 0.2	Qual. (9) 90pc < 0.2 (10) 90pc < 0.1	Qual.
Non-filtrable Residue (SS)	g/m³	50pc < 10 90pc < 30	50pc < 25 90pc < 80	50pc < 25 90pc < 80	50pc < 25 90pc < 80	50pc < 25 90pc < 80	50pc < 25 90pc < 80
Settleable Matter	—	Qual.	Qual.	Qual.	Qual.	Qual.	Qual.
Aesthetic Characteristics	— taints (8) potability (8)	Qual. Table 11 Schedule 1	Qual. Table 11 (1) Sched. 1	Qual. Table 11	Qual. Table 11	Qual. Table 11	Qual. Table 11

Abbreviations:
90pc = 90th percentile
g.m. = geometric mean
Qual. =qualitative objective

Notes:
(1) To apply at point of offtake and times of offtake of supplementary potable water supply from Lakes Fyans and Bellfield.
(2) All storages including Lakes Fyans and Bellfield except as specified in (1).
(3) Upstream of Glenorchy Weir.
(4) Between Glenorchy Weir and Horsham Weir.
(5) Between Horsham Weir and Dimboola Weir.
(6) Between Dimboola Weir and entry to Lake Hindmarsh.
(7) N = natural background level, T = threshold concentration of chronic sub-lethal effects.
(8) RWQC is "Recommended Water Quality Criteria", published by the Authority. References are to Schedules and Tables in the RWQC.
(9) Upstream of the point specified in (10).
(10) In the Wimmera River at the point of entry to Lake Hindmarsh.
(11) Except immediately downstream of the Stawell Sewerage Authority discharge where the objective shall be > 2.0 g/m³ or 20% saturation.
(12) Objectives shall not apply immediately downstream of the Stawell Sewerage Authority discharge.

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