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Environment Protection Act 1970 (No. 8056)

STATE ENVIRONMENT PROTECTION POLICY NO. W-29 (Waters of the Yarra River and Tributaries)

*At the Executive Council Chamber, Melbourne
Tuesday 17th April 1984*

PRESENT:

His Excellency the Governor of Victoria

Mr. Walker

Mr. Spyker

Mr. Mathews

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.

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 Yarra River and Tributaries.

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 NO. W-29 (WATERS OF THE YARRA RIVER AND TRIBUTARIES)

1. This Order may be cited as the State Environment Protection Policy (Waters of the Yarra River and Tributaries) No. W-29 (hereinafter referred to as the Policy) and shall come into operation upon publication in the *Government Gazette*.

2. This Order is divided into parts as follows:

- Part I — Preliminary
- Part II — Boundaries of the Area Affected
- Part III — Beneficial Uses to be Protected
- Part IV — Water Quality Indicators and Objectives
- Part V — Attainment Program

PART I — PRELIMINARY

3. In this Order, 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 discharge 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 or health and which requires protection from the effects of waste discharges, emission 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.

"Implementation plan" means a detailed management plan to implement the provisions of the Policy.

"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, where the receiving water quality objectives applicable in the segment for indicators specified in the licence do not apply.

"Policy area" means the area in which the 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 sewerages, 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 sewered property.

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

"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.

"Treatment" in relation to potable water supply means disinfection by detention, chlorination or other means and 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.

4. (a) The purpose of this Policy is to establish a basis for attaining and maintaining a level of water quality sufficient to protect the beneficial uses of the surface waters of the Policy area and downstream waters.
- (b) The major factors influencing this Policy are:
 - (i) the capacity for the Yarra River and tributaries to provide enjoyment and well being to the community and the future generations; and
 - (ii) the existing and potential water quality degradation resulting from the catchment's high level of settlement.

PART II — BOUNDARIES OF THE AREA AFFECTED

5. The Policy shall be observed with respect to all surface waters within the catchments of the Yarra River and its tributaries with the exception of the Maribyrnong River (shown in Fig. 1). Hereafter these catchments shall be known as the Policy area. The provisions of this Policy shall apply within the Policy area but shall have no application to necessary dredging carried out by or under the control of the Port of Melbourne Authority.

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

- (a) *Yarra Port Segment.* The surface waters of the Yarra River from Spencer Street Bridge to a line drawn across the mouth of the Yarra River at latitude 37° 50' 30" S, including the waters of Stony Creek east of Hyde Street, Swanston Dock, Appleton Dock, Victoria Dock and Railway Canal/Moonee Ponds Creek south of Macaulay Road, and excluding the surface waters of the Maribyrnong River north of the line drawn from the eastern end of Francis Street, Footscray, to the southernmost point of Coode Island (referred to in this Policy as the Yarra Port Segment).
- (b) *Yarra Tidal Segment.* The surface waters of the Yarra River from Spencer Street to Dights Falls (referred to in this Policy as the Yarra Tidal Segment).
- (c) *Middle Yarra Segment.* The surface waters of the Yarra River from Dights Falls to the MMBW off-take at Yering Gorge (referred to in this Policy as the Middle Yarra Segment).

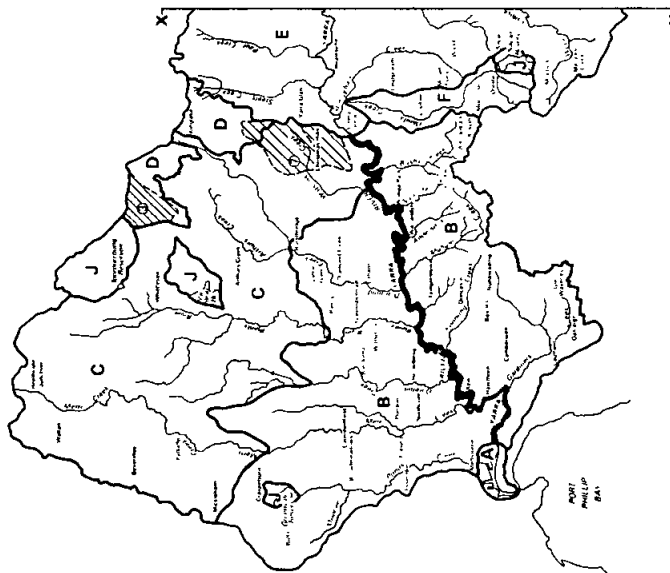
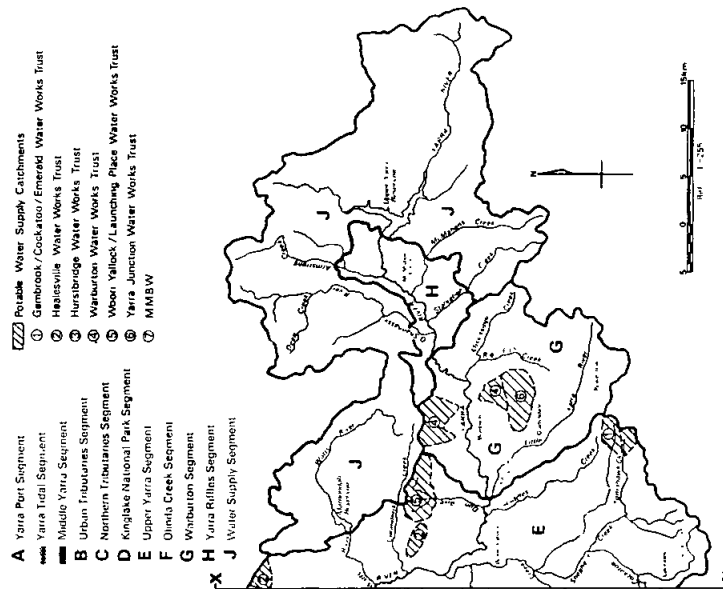
- (d) *Urban Tributaries Segment.* The surface waters of the tributaries of the Yarra River downstream of the MMBW off-take at Yering Gorge, not including those surface waters in the Northern Tributaries Segment, the Kinglake National Park Segment and the Water Supply Segment (referred to in this Policy as the Urban Tributaries Segment).
- (e) *Northern Tributaries Segment.* The surface waters of the Watsons Creek and catchment, unnamed minor tributaries and catchments to the north of the Yarra River between Yering Gorge and Watsons Creek, Diamond Creek and catchment upstream of the point on the Diamond Creek immediately below its confluence with Arthurs Creek, Plenty River and catchment upstream of the point where Memorial Drive meets the Plenty River, Darebin Creek and catchment upstream of the point where Findons Road meets the Darebin Creek, and Merri Creek and catchment upstream of the point on the Merri Creek immediately above its confluence with Malcolm Creek, not including those surface waters in the Kinglake National Park Segment and the Water Supply Segment (referred to in this Policy as the Northern Tributaries Segment).
- (f) *Kinglake National Park Segment.* The surface waters of the Policy area upstream of the boundary of the Kinglake National Park (referred to in this Policy as the Kinglake National Park Segment).
- (g) *Upper Yarra Segment.* The surface waters of the Yarra River and catchment upstream of the MMBW off-take at Yering Gorge and downstream of the point on the Yarra River immediately below its confluence with Little Yarra River, not including those surface waters in the Kinglake National Park Segment, the Olinda Creek Segment and the Water Supply Segment (referred to in this Policy as the Upper Yarra Segment).
- (h) *Olinda Creek Segment.* The surface waters of Olinda Creek and catchment upstream of the point on Olinda Creek immediately above its confluence with Stringybark Creek (referred to in this Policy as the Olinda Creek Segment).
- (i) *Warburton Segment.* The surface waters of the Yarra River and catchment upstream of a point on the Yarra River immediately below its confluence with the Little Yarra River and downstream of the point on the Yarra River immediately below its confluence with Cement Creek (referred to in this Policy as the Warburton Segment).
- (j) *Yarra Riffles Segment.* The surface waters of the Yarra River and catchment upstream of the point on the Yarra River immediately below its confluence with Cement Creek, not including those surface waters in the Water Supply Segment (referred to in this Policy as the Yarra Riffles Segment).
- (k) *Water Supply Segment.* The surface waters of the Policy area which are:
 - (i) upstream of the water supply off-takes at Upper Yarra Reservoir, O'Shannassy Weir, Armstrong Creek Weirs (east and west branches), McMahon's Creek Weir, Big Flume Weir, Cement Creek (east branch) Weir, Coranderrk Creek Weir, Graceburn Creek Weir, Maroondah Reservoir, Sawpit Creek Weir, Donnelly's Creek Weir, Torrounong Reservoir, Yan Yean Reservoir, Silvan Reservoir and Greenvale Reservoir (not including catchment upstream of diversion drains); and
 - (ii) upstream of O'Shannassy Aqueduct in that section in which waters are permitted to drain directly into the aqueduct.
 (referred to in this Policy as the Water Supply Segment).

7. For the purpose of the Policy the following is defined:

Potable water supply catchments: those surface waters which are included in one or more of the segments classified in clause 6 and which are within the natural catchments of the water supply off-takes controlled by the following water supply authorities:

- Melbourne and Metropolitan Board of Works (Sugarloaf Creek, Watsons Creek — proposed)
- Woori Yallock — Launching Place Waterworks Trust (Don River — east and west branches)
- Hurstbridge Waterworks Trust (Running Creek)
- Gembrook, Cockatoo and Emerald Waterworks Trust (McCrae Creek, Tomahawk Creek — proposed)
- Healesville Waterworks Trust (Micks Creek, Boggy Creek)
- Warburton Waterworks Trust (Ythan Creek, Walkers Creek, Four Mile Creek)

FIG 1 POLICY AREA No. W-29 YARRA RIVER AND TRIBUTARIES



— Yarra Junction Waterworks Trust (Britannia Creek) (referred to in this Policy as the Potable Water Supply Catchments).

PART III — BENEFICIAL USES TO BE PROTECTED

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

- (a) Industrial Water Supply
 - cooling
- (b) Navigation and Shipping
- (c) Recreation
 - secondary contact (e.g. boating, fishing)
 - passive (e.g. aesthetic enjoyment)
- (d) Passage of Fish
- (e) Production of Edible Fish
 - estuarine
- (f) Maintenance and Preservation of Foreshore and Stream-bank Vegetation

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

- (a) Watering of Parks and Gardens (freshwater section only)
- (b) Industrial Water Supply
 - cooling
 - other processes (e.g. wool washing)
- (c) Recreation
 - primary contact (e.g. bathing, water skiing)
 - secondary contact (e.g. boating, fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea
 - freshwater
 - estuarine
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (f) Maintenance of Modified Aquatic Ecosystems
- (g) Passage of Fish

10. The following beneficial uses shall be protected with respect to the water quality of the Middle Yarra Segment:

- (a) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
- (b) Watering of Parks and Gardens
- (c) Industrial Water Supply
 - cooling and cleaning
 - other (e.g. paper manufacture)
- (d) Recreation
 - primary contact (e.g. bathing)
 - secondary contact (e.g. boating, fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (e) Production of Edible Fish and Crustacea
 - freshwater
- (f) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (g) Maintenance of Modified Aquatic Ecosystems
- (h) Passage of Fish

11. The following beneficial uses shall be protected with respect to the water quality of the Urban Tributaries Segment:

- (a) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation (except crops to be consumed raw)
- (b) Watering of Parks and Gardens
- (c) Recreation
 - secondary contact (e.g. fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea
 - freshwater
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (f) Maintenance of Modified Aquatic Ecosystems
- (g) Passage of Fish

12. The following beneficial uses shall be protected with respect to the water quality of the Northern Tributaries Segment:

- (a) Potable Water Supply (water supply catchments only)
 - with treatment
- (b) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
- (c) Recreation
 - primary contact (e.g. bathing)
 - secondary contact (e.g. fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea
 - freshwater
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (f) Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (minimum level of protection)
- (g) Passage of Fish

13. The following beneficial uses shall be protected with respect to the water quality of the Kinglake National Park Segment:

- (a) Potable Water Supply (water supply catchments and catchment upstream of MMBW off-take at Yering Gorge)
 - with treatment
- (b) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
- (c) Recreation
 - secondary contact (e.g. fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea
 - freshwater
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (f) Scientific and Educational Use
- (g) Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (high level of protection)
- (h) Passage of Fish

14. The following beneficial uses shall be protected with respect to the water quality of the Upper Yarra Segment:

- (a) Potable Water Supply
 - with treatment
- (b) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
- (c) Recreation
 - primary contact (e.g. bathing)
 - secondary contact (e.g. boating, fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea
 - freshwater
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation
- (f) Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (minimum level of protection)
- (g) Passage of Fish

15. The following beneficial uses shall be protected with respect to the water quality of the Olinda Creek Segment:

- (a) Potable Water Supply
 - with treatment
- (b) Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
- (c) Recreation
 - secondary contact (e.g. fishing, wading)
 - passive (e.g. aesthetic enjoyment)
- (d) Production of Edible Fish and Crustacea (upstream of Nelson Road)
 - freshwater
- (e) Maintenance and Preservation of Foreshore and Stream-bank Vegetation

- (f) Maintenance of Modified Aquatic Ecosystems (upstream of Nelson Road)
- (g) Passage of Fish
16. The following beneficial uses shall be protected with respect to the water quality of the Warburton Segment:
- Potable Water Supply
 - with treatment
 - Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
 - Industrial Water Supply
 - service supply (e.g. food processing, sawmill)
 - Recreation
 - primary contact (e.g. bathing)
 - secondary contact (e.g. boating, fishing, wading)
 - passive (e.g. aesthetic enjoyment)
 - Production of Edible Fish and Crustacea
 - freshwater
 - Maintenance and Preservation of Foreshore and Stream-bank Vegetation
 - Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (moderate level of protection)
 - Passage of Fish
17. The following beneficial uses shall be protected with respect to the water quality of the Yarra Riffles Segment:
- Potable Water Supply
 - with treatment
 - Agricultural Water Supply
 - farmstead
 - stock water
 - irrigation
 - Recreation
 - primary contact (e.g. bathing)
 - secondary contact (e.g. boating, fishing, wading)
 - passive (e.g. aesthetic enjoyment)
 - Production of Edible Fish and Crustacea
 - freshwater
 - Maintenance and Preservation of Foreshore and Stream-bank Vegetation
 - Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (high level of protection)
 - Passage of Fish
18. The following beneficial uses shall be protected with respect to the water quality of the Water Supply Segment:
- Potable Water Supply
 - untreated
 - Recreation
 - passive (e.g. aesthetic enjoyment)
 - Maintenance and Preservation of Foreshore and Stream-bank Vegetation
 - Scientific Reference
 - Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife (maximum level of protection)
 - Passage of Fish

PART IV — WATER QUALITY INDICATORS AND OBJECTIVES

19. The levels of water quality required to protect the identified beneficial uses in each segment and downstream waters are defined by the water quality indicators and objectives prescribed in the respective schedules as follows:

Segment	Schedule
Yarra Port Segment	A
Yarra Tidal Segment	B
Middle Yarra Segment	C
Urban Tributaries Segment	D
Northern Tributaries Segment	E
Kinglake National Park Segment	F
Upper Yarra Segment	G
Olinda Creek Segment	H
Warburton Segment	I
Yarra Riffles Segment	J
Water Supply Segment	K

20. The water quality indicators and objectives specified in clause 19 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, and except for stream spraying of pesticides and herbicides as provided by Schedule L.

21. The water quality objectives specified in clause 19 are the levels of water quality which are required to be attained and maintained by this Policy.

PART V — ATTAINMENT PROGRAM

General

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

- 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 Acts (see detailed clauses 27 — 36);
- Adequate sewerage and drainage services and the construction of streets and roads (see detailed clauses 37 — 44);
- Appropriate location and management of waste disposal and waste generating activities including the use of land (see detailed clauses 45 — 55);
- Management of flows, storages and diversions of surface waters and groundwaters to ensure an adequate minimum flow, having regard to the beneficial uses (see detailed clause 56); and
- Educational research, monitoring and investigation activities in so far as these are necessary to carry out the above (see detailed clauses 57 — 60).

23. *Implementation.* This Policy is binding on all Government departments agencies and instrumentalities. All such bodies shall observe and implement this Policy in so far as it relates to their responsibilities.

24. *Implementation plans.* The Authority shall co-ordinate 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.

25. *Planning Policy.* This Policy shall be implemented, having regard to relevant Statements of Planning Policy made under the Town and Country Planning Act 1961, and in particular Statement of Planning Policy No. 3.

The preparation of such Statements of Planning Policy and planning schemes shall pay special attention to the implementation of this Policy and the attainment of the Policy objectives.

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

Detailed Provisions

Waste Discharge Licensing

27. *Relationship to Policy objectives.* Subject to the provisions of this Policy, in considering any application 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 any conditions to which it is subject shall be consistent with the attainment and maintenance of the Policy objectives.

28. *Future waste discharge.* In considering an application for a licence the Authority or delegated agency may have regard to the need to preserve capacity of the surface waters to receive future waste discharges.

29. *Mixing zones.* In granting a licence, the Authority or delegated agency may designate a mixing zone within which certain water quality objectives in relation to the indicator or indicators specified in the licence are not required to be achieved. Mixing zones may not be designated nor shall licences be granted for the indicators odour, floatable matter and settleable matter. The designation of a mixing zone is subject to the following requirements:

- There must be no significant detriment to any protected beneficial use within the segment concerned as a result of the mixing zones;
- The area of water and the length of stream bank occupied by mixing zones, both individually and collectively, must be as small as practicable having regard to beneficial uses protected within the segment or segments concerned, the optimum location of the discharge point, and the required degree of treatment of the discharge;
- The licence must clearly specify the location and size of the mixing zone and the indicator or indicators to which it applies;

- (d) Within each mixing zone, the level of dissolved oxygen shall not be less than 2 mg/L; there shall be no visible oil and grease, objectionable colour, or excessive growths of algae or other aquatic plants and there shall be no mortality of fish or other important motile species as a result of toxicants, temperature, pH or changes in filtrable residues;
- (e) Licence monitoring programs may require adequate water quality monitoring in and around mixing zones, including biological monitoring and effluent toxicity testing where appropriate;
- (f) Where applicable to the beneficial uses protected in the affected segment or segments, mixing zones for the relevant indicators shall not be designated nor shall discharges of such indicators be permitted in the following areas:
- areas important for primary contact recreation;
 - off-takes for domestic, industrial and agricultural water supplies;
 - spawning and nursery areas of aquatic species and other areas of important ecological significance;
 - areas which create barriers for migratory species.
30. *Exemptions.* Exemptions to waste discharge licensing made under Section 20(1) of the Act do not obviate the need for these waste discharges to comply with the objectives and provisions made in the Policy.
31. *Potable water supplies.* For the purpose of Section 17(1) of the Act the Water Supply Segment, Kinglake National Park Segment and Potable Water Supply Catchments are hereby set aside as segments of the environment in which the discharge, emission or deposit of wastes is prohibited or restricted as follows:
- No licence shall be granted to discharge waste to the Water Supply Segment, to the Kinglake National Park Segment or to the Potable Water Supply Catchments with the exception of waters within the catchment of the proposed Watsons Creek Storage.
32. *Groundwater.* For the purpose of Section 17(1) of the Act, the groundwater beneath the Policy area 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 the purpose, except for the purpose of artificially recharging aquifers without deterioration of water quality.
33. *Heavy metals.* Where a licence is issued for the discharge of wastes to surface waters from the industries specified in Schedule M, the concentrations of heavy metals in such discharges shall not exceed the limits given in Schedule M. More stringent levels shall apply if necessary to achieve the objectives.
34. *Non-filtrable residue (suspended solids), turbidity and settleable matter.* Where a licence is issued for the discharge of wastes to surface waters the level of non-filtrable residue (suspended solids), turbidity and settleable matter shall not exceed the limits given in Schedule N. More stringent levels shall apply if necessary to achieve the objectives. The limits shall not apply to licences granted for the discharge of contaminated stormwater or effluent from sewage treatment plants.
35. *Nutrient strategy.* The annual load of the nutrients, nitrogen and phosphorus to Port Phillip Bay from the Policy area shall not exceed 1979 loads as measured by an analysis of trend and determined by the Authority.
36. *Sewage treatment plants.* Where a licence is issued for the discharge of sewage effluents from a sewage treatment plant to the surface waters of the Policy area, the levels for biochemical oxygen demand (BOD₅), non-filtrable residue (suspended solids), total residual chlorine, ammonia, phosphorus and *E.coli* specified in the licence shall not exceed the limits given in Schedule O. More stringent levels shall apply if necessary to achieve the objectives, except for discharges from interim plants as provided for in clause 38.
- Servicing.**
37. *Sewerage.*
- Responsible authorities shall ensure that new subdivisions of land are provided with sewerage at the time of subdivision or that the allotments created by the subdivision are capable of adequately treating and retaining domestic wastewater within the boundaries of each allotment. Exemption of this requirement may apply, with the approval of the responsible authority, to small subdivisions within or abutting areas of existing development in a zoned township or urban area to which sewerage cannot be readily provided. Such exemption shall be limited to subdivisions where the total number of allotments created by one or more subdivision 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.
 - 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 possible, sewerage shall be provided prior to the commencement of building works. High priority should be given to sewerage existing subdivisions where building works have already commenced.
 - 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 allotment, the intensity of the proposed use, climatic and soil considerations, water supply conditions and physical characteristics of the site.
 - In sewerage 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 wastewater disposal.
 - 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.
38. *Sewerage Strategy.* To enable staged attainment of the objectives, implementation plans may make provision for discharges of effluent from sewage treatment plants to tributaries of the Yarra River, to continue for periods up to 20 years from the date of gazettal of this Policy. By the expiry of this period all such discharges shall cease. Exceptions to this requirement may be made for discharges which by reason of low volume or use of appropriate tertiary treatment or use of land disposal during low flow periods can be shown to accord with the Policy objectives. Prior to the cessation of discharge the quality of effluents shall be subject to the maximum limits permitted by clause 36. This strategy does not apply to Lilydale sewage treatment plant which may discharge in accordance with other provisions of the Policy.
39. *Discharge to sewer.* The discharge of wastewater from any sewerage 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.
40. *Funds for sewerage.* In the allocation of funds for the provision of sewerage services, those sewerage schemes upstream of the MMBW water supply off-take at Yering Gorge should receive high priority.
41. *Sewerage upstream of Yering Gorge.*
- Where practicable alternatives exist, sewage effluents should not be discharged to surface waters upstream of the MMBW water supply off-take at Yering Gorge.
 - Major sewerage works with discharges upstream of the MMBW water supply off-take at Yering Gorge shall provide for the adequate removal of nutrients (see also clause 36).
 - Disinfection of sewage effluents discharged upstream of the MMBW water supply off-take at Yering Gorge should be by means other than chlorination, such as detention.
42. *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 Minimising Soil Erosion and Sedimentation from Construction Sites in Victoria* (1979), 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, thence to natural drainage lines.
43. *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 including litter, in runoff. Input of these contaminants to the drainage system should be minimised.
44. *Litter.* Management of streams, lakes, estuaries 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 and debris, and ensure that sufficient resources are devoted to the enforcement of the *Litter Act*.
- Waste Generation and Waste Disposal**
45. *Land use.* In the development and administration of land use planning provisions consideration should be given to the following:
- All land uses should be so located and managed to ensure that sediment runoff, both from the site as such and within the catchment as a whole, is reduced to a minimum.

- (b) There should be no significant increase to the total planning provision for urban development, rural/residential development, intensive agriculture and agriculture in those segments upstream of the MMBW off-take at Yering Gorge unless it can be demonstrated that such increase would not be inconsistent with the water quality objectives specified for these surface waters. This provision does not obviate other requirements for land use included in Statement of Planning Policy No. 3.
46. *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 including building activities and provision of services 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, stock access is controlled and land disturbance activities are minimised, should be established and maintained along stream banks where necessary to minimise stream bank erosion and filter polluted runoff. Eroding streambanks should be stabilized.
- (c) Land disturbance in the vicinity of surface waters should be minimised during forest operations and to that end the guidelines given in Forests Commission standing instructions should be adhered to. In particular:
- (i) reserves should be recognised along permanent streams in which forest utilization operations are restricted.
- (ii) the location, design and drainage of forest roads and tracks should be such that their impact on water quality is minimised.
- (iii) intensive forest utilization operations should be avoided in areas of high erosion hazard, including steep slopes.
- (d) Land Use Determinations shall be made under the Soil Conservation and Land Utilization Act (1958) for all proclaimed potable water supply catchments, excluding those catchments under the control of the Melbourne and Metropolitan Board of Works.
47. *Disposal of waste to land (including garbage, solid waste and sludge).*
- (a) The disposal of wastes to land shall be properly located and managed so that the discharge of leachate to groundwaters and surface waters is minimised, consistent with the attainment and maintenance of the water quality objectives of this Policy.
- (b) Without limiting the generality of sub-clause (a), no licence shall permit the establishment or extension of any tip within 100 metres of any surface waters protected by this Policy.
48. *Spoil disposal and other works.* Reclamation, river improvements, and other works should be carried out in a manner which causes minimal disturbance of plant and animal habitats. In general, the disposal of dredged spoil shall be on land above high water in estuarine sections of the Policy area, and clear of the floodway and flood plain in upstream sections.
49. *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. Such plans should include:
- (a) Emergency holding and clean-up procedures;
- (b) Action to minimise any adverse environmental effects; and
- (c) Methods for disposal of spilled materials.
50. *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 spills 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.
51. *Transport of hazardous chemicals.* To reduce the risk of contamination of water supplies, controls on the bulk transport of hazardous chemicals including liquid fuel should restrict carriage along public roads in the catchment of Maroondah Reservoir.
52. *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:
- (a) No intensive animal industry should be established within the Potable Water Supply Catchments or the Water Supply Segment.
- (b) No building or yard associated with any intensive animal industry should be constructed within 800 metres upstream of any water supply storage or off-take controlled by a statutory authority or within 100 metres of any watercourse.
53. *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) All effluents from intensive animal industries shall be disposed of by land irrigation in such a manner as to preclude any polluting runoff to surface waters or pollution of groundwaters.
- (b) No solid or liquid effluent from any intensive animal industry shall be disposed of within 800 metres upstream of any water supply storage or off-take controlled by a statutory authority or within 100 metres of any surface waters.
- (c) All farm effluents from vegetable washing and processing shall be re-used or disposed of by land irrigation in such a manner as to preclude any polluting runoff to surface waters or pollution of groundwater.
54. *Forest fires.* All reasonable precautions should be taken to prevent wildfires in order to avoid subsequent loss of soil, nutrients and dissolved matter to streams.
55. *Water Supply Segment.* To safeguard the quality of Melbourne's raw drinking water supplies, access to the Water Supply Segment should continue to be restricted.
- Minimum Flow**
56. *Yarra River flows.* Waste management shall be based on an interim minimum flow of 245 ML/d in the Yarra River at Warrandyte. Subject to ensuring and maintaining safe reserves of water for Melbourne, management of storages and abstractions shall attempt to maintain 245 ML/d at Warrandyte. In the event of a severe drought, the allocation of water and restrictions on abstractions shall be reviewed by the Minister of Water Supply.
- An operational strategy shall be developed to ensure an equitable distribution of restrictions during times when 245 ML/d at Warrandyte cannot be met.
- The interim 245 ML/d figure shall be reviewed based on the findings of further research.
- Related Activities**
57. *Research.* Further studies and research shall be undertaken by the Authority to assist in the attainment of the Policy and should include the following:
- (a) The development of quantitative nutrient objectives for those segments where no quantitative objective currently applies;
- (b) The determination of levels and sources of contamination in urban and rural runoff and the development of management methods to reduce these levels, where necessary, with particular emphasis on nutrients, turbidity, pesticides, heavy metals and other toxicants;
- (c) The determination of levels of nutrients and turbidity resulting from forest utilization practices;
- (d) A survey of aquatic biota and their water quality requirements;
- (e) The determination of the persistence of residual chlorine and ammonia discharges in streams and the significance in streams of phytoplankton from sewage effluents;
- (f) The establishment of means of overcoming any polluting effects of discharges resulting from the maintenance of water supply mains and storages, and stormwater drains. The application of these shall be considered in a Policy review;
- (g) The effects on water quality of dredging by gold prospectors; and
- (h) The influence of groundwaters on surface waters.
58. *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 local species. 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 of this Policy and representation of various trophic levels. Valid data obtained from these local toxicity tests (as it becomes available) shall be used in preference to overseas data in improving the T values by variation of Tables 1 and 2 of this Policy as appropriate.

59. *Monitoring.* 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 results of such monitoring will be made publicly available.

60. *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
YARRA PORT SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

<i>Indicator</i>	<i>Objective</i>
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 5.4 mg/L or 60% saturation (whichever is higher).
2 Bacteria (<i>E. coli</i>)	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
3 pH	The pH shall not vary from the background level by more than ± 0.5 units, nor fall outside the range 6.5 to 8.5.
4 Temperature	The temperature shall not vary by more than 2°C from background levels.
5 Salinity	There shall be no permanent change in isohaline patterns by more than 10% of the background seasonal 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 in downstream waters. (b) Without limiting the generality of objective (a), the annual 50th percentile turbidity level shall not exceed 20 FTU nor shall the annual 90th percentile turbidity level exceed 50 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below (whichever is the lower). (i) Individual Toxicants The concentrations of individual toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T). T may be obtained from Table 2. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T _m). T _m shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 1.0$ Where C ₁ , C ₂ , C _n are the measured or expected concentrations of the toxicants and L ₁ , L ₂ , L _n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
8 Nutrients and Biostimulants	Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
9 Aesthetic Characteristics Odours and Colours Taints	The level of odours and colours in waters shall not be objectionable. (a) The level of taints in edible aquatic organisms shall not be objectionable. (b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
Floatable Matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
10 Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 20 mg/L nor shall the 90th percentile exceed 80 mg/L.
11 Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule B
YARRA TIDAL SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

<i>Indicator</i>	<i>Objective</i>
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 5.4 mg/L or 60% saturation (whichever is higher).
2 Bacteria (<i>E. coli</i>)	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
3 pH	The pH shall not vary from the background level by more than ± 0.5 units, nor fall outside the range 6.5 to 8.5.

4	Temperature	The temperature shall not vary by more than 2°C from background levels.
5	Salinity	There shall be no permanent change in isohaline patterns by more than 10% of the background seasonal variation.
6	Light Penetration	<p>(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.</p> <p>(b) Without limiting the generality of objective (a), the annual 50th percentile turbidity level shall not exceed 30 FTU nor shall the annual 90th percentile turbidity level exceed 75 FTU.</p>
7	Toxicants	<p>(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures.</p> <p>(b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below (whichever is the lower).</p> <p>(i) Individual Toxicants The concentrations of individual toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T). The concentration of zinc shall not exceed 2T. T may be obtained from Table 2. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority.</p> <p>(ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 2 times the threshold concentration of chronic sublethal effects for aquatic life (Tm). Tm shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship:</p> $\frac{C1}{L1} + \frac{C2}{L2} + \dots + \frac{Cn}{Ln} < 2.0$ <p>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.</p> <p>(iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.</p>
8	Nutrients and Biostimulants	Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
9	Aesthetic Characteristics Odours and Colours Taints	<p>The level of odours and colours in waters shall not be objectionable.</p> <p>(a) The level of taints in edible aquatic organisms shall not be objectionable.</p> <p>(b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.</p>
	Floatable Matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
10	Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 20 mg/L nor shall the 90th percentile exceed 80 mg/L.
11	Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule C
MIDDLE YARRA SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 6.0 mg/L or 60% saturation (whichever is higher).
2 Bacteria (<i>E. coli</i>)	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
3 pH	The pH shall not vary from the background level by more than ± 1.0 units, nor fall outside the range 6.0 to 9.0.
4 Temperature	The temperature shall not vary by more than 2°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 500 mg/L.
6 Light Penetration	<p>(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.</p> <p>(b) Without limiting the generality of objective (a), the annual 50th percentile turbidity level shall not exceed 30 FTU nor shall the annual 90th percentile turbidity level exceed 75 FTU.</p>
7 Toxicants	<p>(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures.</p> <p>(b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 6 (whichever is the lower).</p>

- (i) **Individual Toxicants**
The concentrations of individual toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T). The concentration of zinc shall not exceed 2T. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority.
- (ii) **Toxicant Mixtures**
The concentrations of toxicant mixtures shall not exceed 2 times the threshold concentration of chronic sublethal effects for aquatic life (Tm).
Tm shall be derived from appropriate toxicity tests specified or approved by the Authority.
In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship:
- $$\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 2.0$$
- Where C₁, C₂, C_n are the measured or expected concentrations of the toxicants and L₁, L₂, L_n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.
- (iii) **Toxicants in Edible Tissue**
The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
- 8 **Nutrients and Biostimulants** Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
- 9 **Aesthetic Characteristics**
Odours and Colours
Taints
The level of odours and colours in waters shall not be objectionable.
(a) The level of taints in edible aquatic organisms shall not be objectionable.
(b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
- Floatable Matter
There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
- 10 **Non-filtrable Residue (Suspended Solids)** The annual 50th percentile level of non filtrable residue (suspended solids) shall not exceed 25 mg/L nor shall the 90th percentile exceed 100 mg/L.
- 11 **Settleable Matter** The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule D
URBAN TRIBUTARIES SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 4.5 mg/L or 45% saturation (whichever is higher).
2 Bacteria (<i>E. coli</i>)	The geometric mean of <i>E. coli</i> 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, nor shall more than 20% of these samples exceed 2000 organisms/100mL.
3 pH	The pH shall not vary from the background level by more than ± 1.5 units, nor fall outside the range 5.5 to 9.5.
4 Temperature	The temperature shall not vary by more than 4°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 1000 mg/L.
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), the annual 50th percentile turbidity level shall not exceed 40 FTU nor shall the annual 90th percentile turbidity level exceed 100 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 6 (whichever is the lower). (i) Individual Toxicants The concentrations of individual toxicants shall not exceed 2 times the threshold concentration of chronic sublethal effects for aquatic life (T). The concentration of zinc shall not exceed 5T. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 5 times the threshold concentration of chronic sublethal effects for aquatic life (Tm). Tm shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship:
	$\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 2.0$
	Where C ₁ , C ₂ , C _n are the measured or expected concentrations of the toxicants and L ₁ , L ₂ , L _n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.

	(iii) Toxicants in Edible Tissue	The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
8	Nutrients and Biostimulants	Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
9	Aesthetic Characteristics Odours and Colours Taints	The level of odours and colours in waters shall not be objectionable. (a) The level of taints in edible aquatic organisms shall not be objectionable. (b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
	Floatable Matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
10	Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 25 mg/L nor shall the 90th percentile exceed 100 mg/L.
11	Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule E
NORTHERN TRIBUTARIES SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 6.0 mg/L or 60% saturation (whichever is higher).
2 Bacteria (<i>E. coli</i>)	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
3 pH	The pH shall not vary from the background level by more than ± 1.0 units, nor fall outside the range 6.0 to 9.0.
4 Temperature	The temperature shall not vary by more than 2°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 500 mg/L.
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), the annual 50th percentile turbidity level shall not exceed 30 FTU nor shall the annual 90th percentile turbidity level exceed 75 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 (potable water supply catchments only) or Table 6 (whichever is the lower). (i) Individual Toxicants The concentrations of individual toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T). T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T _m). T _m shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 1.0$ Where C ₁ , C ₂ , C _n are the measured or expected concentrations of the toxicants and L ₁ , L ₂ , L _n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
8 Nutrients and Biostimulants	(a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters. (b) Without limiting the generality of objective (a): For waters in the potable water supply catchments the levels of nitrogen and phosphorus shall not exceed the following concentrations: Total Nitrogen: 0.7 mg/L Total Phosphorus: 0.05 mg/L
9 Aesthetic Characteristics Odours and Colours Taints	The level of odours and colours in waters shall not be objectionable. (a) The level of taints in edible aquatic organisms shall not be objectionable. (b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.

Floatable Matter Potability	There shall be no visible floating oil, grease, scum, litter or other objectionable matter. Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table in the waters of the potable water supply catchments.
10 Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 10 mg/L nor shall the 90th percentile exceed 25 mg/L.
11 Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule F
KINGLAKE NATIONAL PARK SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 8.0 mg/L or 85% saturation (whichever is higher).
2 Bacteria	
2.1 Waters other than those within potable water supply catchments specified in 2.2.	
<i>E. coli</i>	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
2.2 Waters within the potable water supply catchment of the Hurstbridge Waterworks Trust — (Running Creek).	
Total Coliforms	The level of the total coliform organisms shall not exceed 5000 organisms/100 mL in more than 10% of samples taken in a year.
<i>E. coli</i>	The level of <i>E. coli</i> organisms shall not exceed 100 organisms/100 mL in more than 10% of samples taken in a year.
3 pH	The pH shall not vary from the background level by more than ± 0.5 units, nor fall outside the range 6.5 to 8.5.
4 Temperature	The temperature shall not vary by more than 0.5°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 500 mg/L.
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), the annual 50th percentile turbidity level shall not exceed 10 FTU nor shall the annual 90th percentile turbidity level exceed 25 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 (potable water supply catchments only) or Table 6 (whichever is the lower). (i) Individual Toxicants The concentration of individual toxicants shall not exceed the levels given by the formula: $N + 0.2 (T - N)$ Where T is the threshold concentration of chronic sublethal effects for aquatic life and N is the natural background level of the toxicant. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 0.2 times the threshold concentration of chronic sublethal effects for aquatic life (Tm). Tm shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C1}{L1} + \frac{C2}{L2} + \dots + \frac{Cn}{Ln} < 1.0$ 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. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
8 Nutrients and Biostimulants	(a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters. (b) Without limiting the generality of objective (a): For waters in the potable water supply catchments the levels of nitrogen and phosphorus shall not exceed the following concentrations: Total Nitrogen: 0.7 mg/L Total Phosphorus: 0.05 mg/L

9	Aesthetic Characteristics	
	Odours and Colours	The level of odours and colours in waters shall not be objectionable.
	Taints	(a) The level of taints in edible aquatic organisms shall not be objectionable. (b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
	Floatable Matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
	Potability	Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table in the waters of the potable water supply catchments.
10	Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 5 mg/L nor shall the 90th percentile exceed 10 mg/L.
11	Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule G
UPPER YARRA SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 6.0 mg/L or 60% saturation (whichever is higher).
2 Bacteria	
2.1 Waters other than those within potable water supply catchments.	
<i>E. coli</i>	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
2.2 Water within the potable water supply catchments.	
Total Coliforms	The level of the total coliform organisms shall not exceed 5000 organisms/100 mL in more than 10% of samples taken in a year.
<i>E. coli</i>	The level of <i>E. coli</i> organisms shall not exceed 100 organisms/100 mL in more than 10% of samples taken in a year.
3 pH	The pH shall not vary from the background level by more than ± 1.0 units, nor fall outside the range 6.0 to 9.0.
4 Temperature	The temperature shall not vary by more than 2°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 200 mg/L in the River Yarra nor 500 mg/L in other surface waters.
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), for the River Yarra the annual 50th percentile turbidity level shall not exceed 20 FTU nor shall the annual 90th percentile turbidity level exceed 50 FTU. For other surface waters the annual 50th percentile turbidity level shall not exceed 30 FTU nor shall the annual 90th percentile turbidity level exceed 75 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 or Table 6 (whichever is the lower). (i) Individual Toxicants The concentrations of individual toxicants shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (T). T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed the threshold concentration of chronic sublethal effects for aquatic life (Tm). Tm shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 1.0$ 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. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.

- 8 Nutrients and Biostimulants (a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
(b) Without limiting the generality of objective (a):
For waters in the potable water supply catchments the levels of nitrogen and phosphorus shall not exceed the following concentrations:
Total Nitrogen: 0.7 mg/L
Total Phosphorus: 0.05 mg/L
For the waters of the River Yarra at the MMBW Yering Gorge offtake, the level of total phosphorus shall not exceed the following:
Annual 50th percentile 0.1 mg/L
Annual 25th percentile 0.05 mg/L
- 9 Aesthetic Characteristics
Odours and Colours
Taints
Floatable Matter
Potability
The level of odours and colours in waters shall not be objectionable.
(a) The level of taints in edible aquatic organisms shall not be objectionable.
(b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table.
- 10 Non-filtrable Residue
(Suspended Solids)
For the River Yarra the annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 10 mg/L nor shall the 90th percentile exceed 25 mg/L. For other surface waters the annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 20 mg/L nor shall the 90th percentile exceed 80 mg/L.
- 11 Settleable Matter
The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule H
OLINDA CREEK SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 4.5 mg/L or 45% saturation (whichever is higher).
2 Bacteria Total Coliforms <i>E. coli</i>	The level of the total coliform organisms shall not exceed 5000 organisms/100 mL in more than 10% of samples taken in a year. The level of <i>E. coli</i> organisms shall not exceed 1000 organisms/100 mL in more than 10% of samples taken in a year.
3 pH	The pH shall not vary from the background level by more than ± 1.5 units, nor fall outside the range 5.5 to 9.5.
4 Temperature	The temperature shall not vary by more than 4°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not exceed 500 mg/L.
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), the annual 50th percentile turbidity level shall not exceed 40 FTU nor shall the annual 90th percentile turbidity level exceed 100 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), upstream of Nelson Road the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 or Table 6 (whichever is the lower). Downstream of Nelson Road the level of toxicants shall not exceed that derived from Table 5 or Table 6 (whichever is the lower). (i) Individual Toxicants The concentration of individual toxicants shall not exceed 2 times the threshold concentration of chronic sublethal effects for aquatic life (T). The concentration of zinc shall not exceed 5T. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 5 times the threshold concentration of chronic sublethal effects for aquatic life (Tm). Tm shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 2.0$ Where C ₁ , C ₂ , C _n are the measured or expected concentrations of the toxicants and L ₁ , L ₂ , L _n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.

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|----|---|--|
| 8 | Nutrients and Biostimulants | <p>(a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.</p> <p>(b) Without limiting the generality of objective (a):
The level of phosphorus shall not prejudice the nutrient objective for water of the River Yarra at the MMBW Yering Gorge off-take (refer objectives for the Upper Yarra Segment).</p> |
| 9 | Aesthetic Characteristics
Odours and Colours
Taints | <p>The level of odours and colours in waters shall not be objectionable.</p> <p>(a) The level of taints in edible aquatic organisms shall not be objectionable.</p> <p>(b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.</p> |
| | Floatable Matter
Potability | <p>There shall be no visible floating oil, grease, scum, litter or other objectionable matter.</p> <p>Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table.</p> |
| 10 | Non-filtrable Residue
(Suspended Solids) | <p>The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 20 mg/L nor shall the 90th percentile exceed 80 mg/L.</p> |
| 11 | Settleable Matter | <p>The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.</p> |

Schedule I
WARBURTON SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 7.5 mg/L or 75% saturation (whichever is higher).
2 Bacteria	
2.1 Waters other than those within potable water supply catchments. <i>E. coli</i>	The geometric mean of <i>E. coli</i> organisms 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% of these samples exceed 400 organisms/100mL.
2.2 Waters within potable water supply catchments. Total Coliforms	The level of the total coliform organisms shall not exceed 5000 organisms/100 mL in more than 10% of samples taken in a year.
<i>E. coli</i>	The level of <i>E. coli</i> organisms shall not exceed 100 organisms/100 mL in more than 10% of samples taken in a year.
3 pH	The pH shall not vary from the background level by more than ± 0.5 units, nor fall outside the range 6.0 to 9.0.
4 Temperature	The temperature shall not vary by more than 1°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not vary by more than 5% from background level.
6 Light Penetration	<p>(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.</p> <p>(b) Without limiting the generality of objective (a), the annual 50th percentile turbidity level shall not exceed 10 FTU nor shall the annual 90th percentile turbidity level exceed 25 FTU.</p>
7 Toxicants	<p>(a) The level of toxicants shall not exceed levels for which there is substantiated evidence of lethal or sublethal toxic effects or undesirable physiological, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures.</p> <p>(b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 or Table 6 (whichever is the lower).</p> <p>(i) Individual Toxicants The concentration of individual toxicants shall not exceed the levels given by the formula: $N + 0.5 (T - N)$ Where T is the threshold concentration of chronic sublethal effects for aquatic life and N is the natural background level of the toxicant. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority.</p> <p>(ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 0.5 times the threshold concentration of chronic sublethal effects for aquatic life (T_m). T_m shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 1.0$ Where C_1, C_2, C_n are the measured or expected concentrations of the toxicants and L_1, L_2, L_n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation.</p> <p>(iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.</p>

- 8 Nutrients and Biostimulants (a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters.
(b) Without limiting the generality of objective (a):
The level of phosphorus shall not prejudice the nutrient objective for waters of the River Yarra at the MMBW Yering Gorge off-take (refer objectives for the Upper Yarra Segment).
For waters in the potable water supply catchments the levels of nitrogen and phosphorus shall not exceed the following concentrations:
Total Nitrogen: 0.7 mg/L
Total Phosphorus: 0.05 mg/L
- 9 Aesthetic Characteristics
Odours and Colours The level of odours and colours in waters shall not be objectionable.
Taints (a) The level of taints in edible aquatic organisms shall not be objectionable.
(b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
Floatable Matter There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
Potability Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table.
- 10 Non-filtrable Residue (Suspended Solids) The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 10 mg/L nor shall the 90th percentile exceed 25 mg/L.
- 11 Settleable Matter The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule J
YARRA RIFFLES SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

Indicator	Objective
1 Dissolved Oxygen	The concentration of dissolved oxygen shall not be less than 8.0 mg/L or 85% saturation (whichever is higher).
2 Bacteria Total Coliforms <i>E. coli</i>	The level of the total coliform organisms shall not exceed 5000 organisms/100 mL in more than 10% of samples taken in a year. The level of <i>E. coli</i> organisms shall not exceed 100 organisms/100 mL in more than 10% of samples taken in a year.
3 pH	The pH shall not vary from the background level by more than ± 0.5 units, nor fall outside the range 6.5 to 8.5.
4 Temperature	The temperature shall not vary by more than 0.5°C from background levels.
5 Filtrable Residue (Total Dissolved Solids)	The level of filtrable residue (total dissolved solids) shall not vary by more than 2% from background levels.
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), the annual 50th percentile turbidity level shall not exceed 10 FTU nor shall the annual 90th percentile turbidity level exceed 25 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, carcinogenic, mutagenic or teratogenic responses in humans, plants, birds, animals, fish or other aquatic life, as these relate to the stated beneficial uses of this segment and downstream waters, with due regard to biologically cumulative effects in food chains and the combined effects of toxicant mixtures. (b) To satisfy objective (a), the level of toxicants shall not exceed that derived from sub-clauses (i), (ii) and (iii) below or Table 5 or Table 6 (whichever is the lower). (i) Individual Toxicants The concentration of individual toxicants shall not exceed the levels given by the formula: $N + 0.2 (T - N)$ Where T is the threshold concentration of chronic sublethal effects for aquatic life and N is the natural background level of the toxicant. T may be obtained from Table 1. For toxicants not listed in this Table, T shall be derived from appropriate toxicity tests specified or approved by the Authority. (ii) Toxicant Mixtures The concentrations of toxicant mixtures shall not exceed 0.2 times the threshold concentration of chronic sublethal effects for aquatic life (T_m). T_m shall be derived from appropriate toxicity tests specified or approved by the Authority. In the absence of such tests the levels of toxic materials in combination shall satisfy the following relationship: $\frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_n}{L_n} < 1.0$ Where C_1, C_2, C_n are the measured or expected concentrations of the toxicants and L_1, L_2, L_n are the appropriate levels derived from (b)(i) for toxicants in isolation. Individual fractions less than 0.2 are not included in the summation. (iii) Toxicants in Edible Tissue The level of toxicants in the water column shall not exceed a level which would cause the concentrations in edible fish and crustacea to exceed that listed in the Food and Drug Standards Regulations as amended.
8 Nutrients and Biostimulants	(a) Nutrients and other growth stimulants shall not be present in quantities sufficient to cause excessive or nuisance growths of algae or other aquatic plants, in the waters of this segment or downstream waters. (b) Without limiting the generality of objective (a): The level of phosphorus shall not prejudice the nutrient objective for waters of the River Yarra at the MMBW Yering Gorge off-take (refer objectives for the Upper Yarra Segment).

9	Aesthetic Characteristics	
	Odours and Colours	The level of odours and colours in waters shall not be objectionable.
	Taints	(a) The level of taints in edible aquatic organisms shall not be objectionable. (b) Without limiting the generality of objective (a) the concentration of individual substances listed in Table 3 shall not exceed the limits given in the Table.
	Floatable Matter	There shall be no visible floating oil, grease, scum, litter or other objectionable matter.
	Potability	Subject to the objective for Filtrable Residue the levels of potability indicators listed in Table 4 shall not exceed the limits given in the Table.
10	Non-filtrable Residue (Suspended Solids)	The annual 50th percentile level of non-filtrable residue (suspended solids) shall not exceed 5 mg/L nor shall the 90th percentile exceed 10 mg/L.
11	Settleable Matter	The level of settleable matter shall not result in deposits which adversely affect the recreation, navigation and ecosystem values of the surface waters as expressed by the beneficial uses.

Schedule K
WATER SUPPLY SEGMENT
WATER QUALITY INDICATORS AND OBJECTIVES

<i>Indicator</i>	<i>Objective</i>
All indicators	No variation from background levels.

Schedule L
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 sublethal effects for aquatic life (T) as included in Tables 1 and 2 (as appropriate); and
- (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 Table 5 at the point of the water supply off-take.

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 the 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.

Schedule M
MAXIMUM HEAVY METAL LIMITS⁽¹⁾ 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. Fertiliser, pesticide, fungicide manufacturing

Heavy Metal	Limit (mg/L)
Arsenic	0.50
Cadmium ⁽²⁾	0.10
Chromium (total)	0.30
Copper	0.20
Iron	2.0
Lead	0.10
Manganese	0.5
Mercury ⁽²⁾	0.005
Nickel	0.50
Silver	0.10
Zinc	0.50

- (1) For existing licensed discharges these limits shall be applied within three years of the date of gazettal of this Policy.
- (2) There shall be no new industrial discharge of mercury or cadmium.

Schedule N
MAXIMUM NON-FILTRABLE RESIDUE (SUSPENDED
SOLIDS), SETTLEABLE MATTER, AND TURBIDITY
LIMITS⁽¹⁾ FOR THE QUALITY OF WASTE DISCHARGES
(EXCEPT DISCHARGES FROM SEWAGE
TREATMENT PLANTS)

Segment	Non-filtrable Residue (Suspended Solids) Limit (mg/L)	Turbidity Limit (FTU)	Settleable Matter Limit (mg/L)
Yarra Port	80	50	nil
Yarra Tidal	80	50	nil
Middle Yarra	80	50	nil
Urban Tributaries	80	50	nil
Olinda Creek	80	50	nil
Others	40	25	nil

- (1) These limits do not apply where the source of the discharge is drawn directly from the receiving waters. For existing licensed discharges the limits shall be applied within three years of the date of gazettal of this Policy.

Schedule O
WASTE DISCHARGE LIMITS⁽¹⁾ FOR EFFLUENT FROM
SEWAGE TREATMENT PLANTS

	Population served ⁽²⁾ (150-1500 people)	Population served ⁽²⁾ (>1500 people)
BOD (mg/L)	60	30
SS (mg/L) ⁽³⁾	80	40
TRC (mg/L)	1.5	1.0
NH ₃ (mg/L)	25	15 ⁽⁴⁾
P (mg/L)	15	15
		2 (mean) ⁽⁵⁾⁽⁶⁾
<i>E. coli</i> (org./100 mL)	2000	2000

- (1) For existing licensed discharges these limits shall be applied within three years of the date of gazettal of the Policy except as provided for in notation (5).
- (2) Population serviced refers to the number of people regularly connected to the treatment plant.
- (3) These limits do not include algal solids.
- (4) The limit for the Lilydale sewage treatment plant shall be 20 mg/L.
- (5) In the case of discharges other than those referred to in notation (6) this limit shall apply from December to March (inclusive) and shall come into effect at a date not later than five years from the date of gazettal of this Policy.
- (6) In the case of discharges from treatment plants with a service population of greater than 3000 people and upstream of the MMBW off-take at Yering Gorge this limit shall apply throughout the year.

TABLE 1
Threshold Concentrations (T) for Freshwaters

Toxicant	T (ug/L)	Toxicant	T (ug/L)
A Metals			
Aluminium	50	2, 4-D (Diethylamine salts)	(x)
Antimony	(x)	2, 2-DPA	110
Arsenic	50	Endosulfan	0.003
Barium	(x)	Endothal (Disodium salt)	(x)
Beryllium	11	Endothal (Dipotassium salt)	(x)
Bismuth	(x)	Endrin	0.004
Cadmium	0.4	EPTC	(x)
Chromium	10	Ethion	0.02
Cobalt	(x)	Fenaminosulf	(x)
Copper	10	Fenchlorphos	(x)
Iron	1000	Fenoprop (BEE)	2.5
Lead	25	Fenoprop (PGBE)	2.0
Lithium	(x)	Fenoprop (IOE)	(x)
Manganese	(x)	Fenoprop (Potassium salt)	(x)
Mercury	0.05	Fenthion	0.006
Methyl-mercury (As Hg)	0.004	Guthion	0.01
Molybdenum	(x)	Heptachlor	0.001
Nickel	30	Lindane	0.01
Selenium	50	Malathion	0.01
Silver	0.1	MCPA	(x)
Thallium	(x)	Methoxychlor	0.03
Uranium	(x)	Mevinphos	0.002
Vanadium	(x)	Mirex	0.001
Zinc	50	Molinate	(x)
Other Metals	(x)	Monuron	(x)
		Naled	0.004
		Paraquat	(x)
		Parathion	0.04
		Parathion-methyl	(x)
		Phorate	(x)
		Pebulate	(x)
		Picloram	(x)
		Propoxur	(x)
		Pyrethrum	0.01
		Rotenone	10
		Simazine	10
		Temephos	(x)
		Toxaphene	0.005
		Trichlorphon	0.002
		Trifluralin	(x)
B Pesticides			
Acrolein	(x)		
Aldrin	0.003		
Allethrin	0.002		
Aminocarb	(x)		
Amitrole	300		
Azinphos-methyl	0.001		
Azinphos-ethyl	(x)		
Benfluralin	(x)		
Bensulide	(x)		
Captafol	(x)		
Carbaryl	0.02		
Carbophenothion	(x)		
Chlordane	0.01		
Chloroxuron	(x)		
Chlorpropham	(x)		
Chlorthal-dimethyl	(x)		
Coumaphos	0.001		
Crotoxyphos	0.1		
DDT	0.001		
Diazinon	0.009		
Dicamba	200		
Dichlobenil	37.0		
Dichlone	0.2		
Dichlorvos	0.001		
Dieldrin	0.003		
Dioxathion	0.09		
Diphenamid	(x)		
Diquat	0.5		
Disulfoton	0.05		
Diuron	1.6		
2, 4-D (PGBE)	(x)		
2, 4-D (BEE)	4.0		
2, 4-D (IOE)	(x)		
		C Miscellaneous	
		Ammonia (unionized) (as N)	16
		Boron	10000
		Bromine (molecular)	(x)
		Bromate	(x)
		Chlorine (total residual)	2.0
		Cyanide (free ion)	5.0
		Fluoride	(x)
		Phenolics	100
		Phosphorus (elemental)	0.04
		Polychlorinated biphenyls	0.001
		Phthalate Esters	
		Di-n-butyl phthalate	4.0
		Di-z-ethylhexyl phthalate	0.3
		Other	0.2
		Sulphides (total)	2
		Surfactants (anionic & non-ionic)	20
		Radioactivity (gross)	0.4 Bq/L

(x) indicates insufficient information

TABLE 2

Threshold Concentrations (T) for
Marine and Estuarine Waters

<i>Toxicant</i>	<i>T (ug/L)</i>	<i>Toxicant</i>	<i>T (ug/L)</i>
A Metals		B Pesticides	
Aluminium	200	Chlordane	0.004
Antimony	(x)	Endosulfan	0.001
Arsenic	10	Lindane	0.004
Barium	500	Others	(As for Table 1)
Beryllium	100		
Bismuth	(x)		
Cadmium	3.0		
Chromium	10		
Cobalt	(x)		
Copper	5.0		
Iron	200		
Lead	10		
Lithium	(x)		
Manganese	20		
Mercury	0.10		
Molybdenum	(x)		
Nickel	20		
Selenium	25		
Silver	1		
Thallium	50		
Uranium	100		
Vanadium	(x)		
Zinc	20		
		C Miscellaneous	
		Ammonia (unionized) (as N)	8
		Boron	1000
		Bromine (molecular)	100
		Bromate (ion)	100 (mg/L)
		Chlorine (total residual)	10
		Cyanide	5
		Fluoride	1500
		Phenolics	100
		Phosphorus (elemental)	0.04
		Petroleum hydrocarbons (soluble aromatic derivatives)	1.0
		Polychlorinated biphenyls	0.001
		Phthalate Esters	See Table 1
		Sulphides (total)	2
		Surfactants (anionic & non-ionic)	20

TABLE 3

Levels for chemical compounds
found to cause tainting of the flesh
of fish and other aquatic
organisms

<i>Chemical</i>	<i>Level (mg/L)</i>	<i>Chemical</i>	<i>Level (mg/L)</i>
acenaphthene	0.02	guaicol	0.082
acetophenone	0.5	hexachlorocyclopentadiene	0.001
acrylonitrile	18	isopropylbenzene	0.25
n-butylmercaptan	0.06	2-methyl-4-chlorophenol	1.8
o-sec. butylphenol	0.3	2-methyl-6-chlorophenol	0.003
p-tert. butylphenol	0.03	3-methyl-4-chlorophenol	3
chlorobenzene	0.02	3-methyl-6-chlorophenol	0.02
o-chlorophenol	0.1 ug/L	o-methylstyrene	0.25
p-chlorophenol	0.1 ug/L	naphtha	0.1
copper	1	naphthalene	1
m-cresol	0.2	naphthol	0.5
o-cresol	0.4	2-naphthol	0.3
p-cresol	0.12	nitrobenzene	0.03
cresylic acids (meta, para)	0.2	oil, emulsifiable	15
p-dichlorobenzene	0.25	pentachlorophenol	0.03
β , β -dichlorodiethylether	0.09	phenol	0.3
2, 3-dichlorophenol	0.04 ug/L	o-phenylphenol	1
2, 4-dichlorophenol	0.3 ug/L	pyridine	5
2, 5-dichlorophenol	0.5 ug/L	pyrocatechol	0.8
2, 6-dichlorophenol	0.2 ug/L	pyrogallol	20
3, 4-dichlorophenol	0.3 ug/L	quinoline	0.5
dimethylamine	7	p-quinone	0.5
2, 4-dimethylphenol	0.4	styrene	0.25
diphenyloxide	0.05	2, 3, 4, 6-tetrachlorophenol	0.001
ethanethiol	0.24	2, 4, 5-trichlorophenol	0.001
ethylacrylate	0.6	2, 4, 6-trichlorophenol	0.002
ethylbenzene	0.25	toluene	0.25
formaldehyde	95	zinc	5

TABLE 4
Potability Indicators and Levels
for Aesthetic Objectives

Indicator	Level	Indicator	Level
A Physical			
Colour (Pt-Co units)	50	Magnesium (as Mg)	50
Odour (T.O.N.) ⁽¹⁾	3	Manganese (as Mn)	0.05
		Oil (Mineral)	0.2
B Chemical			
	(mg/L)	Organics (CCE + CAE) ⁽²⁾	0.2
Ammonia (Total as N)	0.5	Phenolics	0.001
Calcium (as Ca)	75	Sulphate (as SO ₄)	200
Chloride (as Cl)	200		
Foaming Agents (as MBAS)	0.20		
Hardness (as CaCO ₃)	100		
Total Iron	1.0		

(1) T.O.N. — Threshold Odour Number

(2) CCE — Carbon Chloroform Extract

CAE — Carbon Alcohol Extract

TABLE 5
Toxicant Levels for Protection of
Potable Water Supply

Toxicant	Level	Toxicant	Level
A Metals			
	(ug/L)		
Arsenic	50	Dichlofop-methyl	3
Barium	1000	Dicofol	100
Cadmium	10	Dieldrin	1
Chromium	50	Difenzoquat	200
Lead	50	Dimethoate	100
Mercury	1	Dinitramine	600
Selenium	10	Diquat	50
Silver	50	Disulfoton	30
		Endosulfan	40
B Pesticides			
	(ug/L)	Endothal	600
Acephate	60	Endrin	1
Alachlor	10	EPTC	60
Aldrin	1	Ethion	6
Amitrole	10	Ethoprophos	0.006
Asulam	300	Fenchlorphos	60
Azinphos-methyl	10	Fenitrothion	30
Barban	300	Fenoprop	20
Benomyl	200	Fensulphothion	20
Bentazone	400	Fenvalerate	40
Bioretmethrin	60	Flemprop-methyl	1
Bromacil	600	Fluometuron	100
Bromophos-ethyl	20	Fosamine	3000
Bromoxynil octanoate	30	Glyphosate	100
Butachlor	30	Heptachlor	3
Carbaryl	60	Hexazinone	600
Carbendazim	400	Hexaflurate	60
Carbofuran	30	Lindane	100
Carbophenothion	1	Maldison	100
Chlordane	6	Mancozeb	400
Chlordimeform	20	Maneb	30
Chlorfenvinphos	30	Methidathion	60
Chloroxuron	30	Methomyl	60
Chlorpyrifos	2	Metolachlor	40
Cyhexatin	200	Metribuzin	40
2,4-D	100	Mevinphos	6
2,4,5-T	20	Monocrotophos	2
DDT	3	Nabam	30
Demeton	30	Nitralin	1400
Demeton-S-methyl		Omethoate	0.4
Oxy-demeton-S-methyl		Oryzalin	60
Demeton-S-methylsulfon		Paraquat	10
Diazinon	10	Parathion	30
Dicamba	300	Parathion-methyl	6
Dichlobenil	20	Pendimethalin	1000
Dichlorvos	20	Perfludone	20
		Permethrin	300
		Pheniphopham	2
		Picloram	1000
		Piperonyl butoxide	200
		Pirimicarb	100

TABLE 5 Cont'd

<i>Toxicant</i>	<i>Level</i>	<i>Toxicant</i>	<i>Level</i>
Pirimiphos-ethyl	1	C <i>Radionuclides</i>	(Bq/L)
Pirimiphos-methyl	60	(i) Specified Radionuclides	
Profenofos	5	Radium 226	0.4
Promecarb	60	Strontium 90	1.0
Propargite	1000	Gross Beta	40
Propoxur	1000	(in absence of Sr 90 and Alpha emitters)	
Pyrazophos	6	(ii) Unspecified Radionuclides	
Quintozene	40	Gross Alpha activity	0.1
Sulprofos	2	Gross Beta activity	1.0
Temephos	300	(including Sr 90)	
Thiobencarb	50	D <i>Miscellaneous</i>	(mg/L)
Thiobucarb	500	Boron	1.0
Thiophanate	400	Cyanide	0.05
Thiometon	30	Fluoride	1.5
Thiram	30	Nitrate and Nitrite (as N)	10
Trichlophon	30	Polynuclear aromatic hydrocarbons	0.0002
Trifluralin	500		
Zineb	30		

TABLE 6

Toxicant Levels for the Protection of
Agricultural Water SupplyI *Stock Watering*

<i>Toxicant</i>	<i>Level</i>	<i>Toxicant</i>	<i>Level</i>
A <i>Metals</i>	(mg/L)	Demeton-S-methyl	
Aluminium	5.0	Oxy-demeton-S-methyl	
Arsenic	0.2	Demeton-S-methylsulfon	
Cadmium	0.01	Diazinon	10
Calcium	700	Dicamba	300
Chromium	1.0	Dichlobenil	20
Cobalt	1.0	Dichlorvos	20
Copper	0.5	Dichlofop-methyl	3
Lead	0.1	Dicofol	100
Magnesium	250	Dieldrin	1
Mercury	0.002	Difenzoquat	200
Molybdenum	0.01	Dimethoate	100
Selenium	0.02	Dinitramine	600
Sodium	2000	Diquat	50
Vanadium	0.1	Disulfoton	30
Zinc	20.0	Endosulfan	40
B <i>Pesticides</i>	(ug/L)	Endothal	600
Acephate	60	Endrin	1
Alachlor	10	EPTC	60
Aldrin	1	Ethion	6
Amitrole	10	Ethoprophos	0.006
Asulam	300	Fenchlorphos	60
Azinphos-methyl	10	Fenitrothion	30
Barban	300	Fenoprop	20
Benomyl	200	Fensulphothion	20
Bentazone	400	Fenvalerate	40
Bioremethrin	60	Flemprop-methyl	1
Bromacil	600	Fluometuron	100
Bromophos-ethyl	20	Fosamine	3000
Bromoxynil octanoate	30	Glyphosate	100
Butachlor	30	Heptachlor	3
Carbaryl	60	Hexazinone	600
Carbendazim	400	Hexaflurate	60
Carbofuran	30	Lindane	100
Carbophenothion	1	Maldison	100
Chlordane	6	Mancozeb	400
Chlordimeform	20	Maneb	30
Chlorfenvinphos	30	Methidathion	60
Chloroxuron	30	Methomyl	60
Chlorpyrifos	2	Metolachlor	40
Cyhexatin	200	Metribuzin	40
2, 4-D	100	Mevinphos	6
2, 4, 5-T	20	Monocrotophos	2
DDT	3	Nabam	30
Demeton	30	Nitralin	1400
		Omethoate	0.4
		Oryzalin	60
		Paraquat	10

TABLE 6 Cont'd

		II Irrigation Supply	
Toxicant	Level	Toxicant	Level
Parathion	30	A Metals	(mg/L)
Parathion-methyl	6	Aluminium	5.0
Pendimethalin	1000	Arsenic	0.1
Perfluidone	20	Beryllium	0.1
Permethrin	300	Cadmium	0.01
Phenitopham	2	Chromium	0.1
Picloram	1000	Cobalt	0.05
Piperonyl butoxide	200	Copper	0.20
Pirimicarb	100	Iron	1.0
Pirimiphos-ethyl	1	Lead	5.0
Pirimiphos-methyl	60	Lithium	0.07
Profenofos	5	Manganese	0.20
Promecarb	60	Molybdenum	0.01
Propargite	1000	Nickel	0.2
Propoxur	1000	Selenium	0.02
Pyrazophos	6	Vanadium	0.10
Quintozene	40	Zinc	2.0
Sulprofos	2		
Temephos	300	B Miscellaneous	(mg/L)
Thiobencarb	50	Boron	0.7
Thiobucarb	500	Fluoride	1.0
Thiophanate	400		
Thiometon	30		
Thiram	30		
Trichlophon	30		
Trifluralin	500		
Zineb	30		
C Radionuclides	(Bq/L)		
(i) Specified Radionuclides			
Radium 226	0.4		
Strontium 90	1.0		
Gross Beta	40		
(in absence of Sr 90 and Alpha emitters)			
(ii) Unspecified Radionuclides			
Gross Alpha activity	0.1		
Gross Beta activity	1.0		
(including Sr 90)			
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	0.0002		
Carbon Chloroform Extract			
& Carbon Alcohol Extract	0.2		
Phenolics	0.002		

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.

TOM FORRISTAL
Clerk of the Executive Council

EXPLANATORY NOTES

Application

On 17 April 1984 the Governor in Council declared a State Environment Protection Policy (SEPP) for the waters of the Yarra River and tributaries. This declaration was made under Section 16 of the *Environment Protection Act 1970* on the recommendation of the Environment Protection Authority. The Policy covers the waters contained within the Yarra River and all its tributaries except the Maribyrnong River (see Fig. 1).

Background

Since the licensing provisions of the *Environment Protection Act 1970* came into operation on 1 March 1972, environment protection has been exercised by the Authority through sections 20 to 31 of this Act and having regard to section 39 which, inter alia, states:

... 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 health, welfare, safety ... of any beneficial use.

Section 39 has been used to set licence conditions in the Policy area in the absence of a SEPP. The major waste discharge licences which have been granted in the Policy area are those for sewage effluents and cooling water from a paper mill and power stations. Being the most populated catchment in the State, there are numerous waste discharge licences for discharge of lesser significance, particularly in unsewered areas.

This Policy was formulated to:

- (1) formally establish a set of environmental objectives for existing discharges,
- (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 June 1980. A number of submissions were received and these raised some significant issues. The Policy was revised in the light of these submissions and 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 the *Environment Protection Act 1970*. Such a Policy is formulated as a draft by the Environment Protection Authority, circulated for public review and comment and, following any necessary revision, recommended for declaration by the Governor in Council.

State Environment Protection Policy is an official declaration by the Government of Victoria of the kind and level of protection to be accorded to the environment. A Policy may relate to the environment in general or to some element or segment of the environment. Thus, 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.

Such 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 defined 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 sets forth "beneficial uses" of the environment to be protected, i.e. ways in which the public derive 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 Program

As far as possible, a Policy does not rest content with defining quality objectives, but also outlines a practical program whereby the objectives can be achieved and maintained. The requirements set forth in the attainment program are to be implemented by government agencies such as the EPA.

The Policy

The Policy reflects varying levels of water quality which are highest in the forested mountain reaches (where potable water supply is a beneficial use), lowest in the urban reaches and between these levels in the rural areas.

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

1. Yarra Port Segment
2. Yarra Tidal Segment
3. Middle Yarra Segment
4. Urban Tributaries Segment
5. Northern Tributaries Segment
6. Kinglake National Park Segment
7. Upper Yarra Segment
8. Olinda Creek Segment
9. Warburton Segment
10. Yarra Riffles Segment
11. Water Supply Segment

A summary of the beneficial uses protected in each segment is given in Table E1.

TABLE E1
BENEFICIAL USES PROTECTED

Beneficial Uses	Segment	Yarra Port	Yarra Tidal	Middle Yarra	Urban Tribs.	Northern Tribs.	Kinglake Nat. Park	Upper Yarra	Olinda Creek	Warburton	Yarra Riffles	Water Supply
POT Potable Water Supply — Without treatment — With treatment						1	•	•	•	•	•	•
AGR Agricultural Water Supply — Farmstead — Stock water — Irrigation				•	•	•	•	•	•	•	•	•
PAR Watering of Parks and Gardens			2	•	•							
IND Industrial Water Supply — Steam, cooling — Other		•	•	•						•		
NAV Navigation and Shipping		•										
REC Recreation — Primary contact — Secondary contact — Passive		•	•	•	•	•	•	•	•	•	•	•
PAS Passage of Fish		•	•	•	•	•	•	•	•	•	•	•
PRO Production of Edible Fish		•	•	•	•	•	•	•	•	•	•	•
FOR Maintenance and Preservation of Foreshore Vegetation		•	•	•	•	•	•	•	•	•	•	•
SCI Scientific and Educational Scientific Reference							•					•
ECO Maintenance and Preservation of Aquatic Ecosystems and Associated Wildlife							•	•	•	•	•	•
MOD Maintenance of Modified Aquatic Ecosystems										2		

1. Potable Water Supply Catchments Only.

2. Part Segment Only.

All existing beneficial uses are protected with the exception of primary contact recreation (swimming) in urban tributaries, potable water supply for private diversions throughout the Policy area and potable water supply (without treatment) for water supply authorities using open catchments. It is considered in each of these cases the costs of protecting such uses outweigh the benefits. Alternative means of satisfying these beneficial uses exist in all cases.

Swimming is to be protected along the entire length of the Yarra except in the Water Supply and Yarra Port Segments due to conflicting uses. Various levels of ecosystem maintenance are provided for throughout the catchment with few exceptions. Ecosystems are not protected in the Yarra Port Segment because of regular dredging. The water quality however needs to be similar to that required to protect ecosystems in order to support this beneficial use downstream in Port Phillip Bay.

Ecosystems are also not protected in Olinda Creek downstream of the Lilydale Sewerage Authority discharge in view of the nature of the Creek and the high cost associated with eliminating the discharge.

Because of the contamination of urban runoff and the impracticality of completely eliminating the discharges or treating it to an appropriate standard, modified ecosystems only are protected in the urban tributaries and urban section of the Yarra River.

The different levels of ecosystem protection may be summarised as follows:

Maximum level — this represents pristine conditions and as such is only suitable for forested/unmodified areas of the catchment (i.e. Potable Water Supply Segment).

High level and Moderate level — these are arbitrary levels of protection between the maximum and minimum levels. They may represent subtle changes from pristine but would provide for a greater margin of safety in the protection of the ecosystem than provided by the minimum level.

Minimum level — this is represented by an ecosystem with species diversity and abundance still substantially representative of the natural ecosystem. Importantly this ecosystem is at the threshold where if water quality is further degraded substantial changes are expected.

Modified ecosystem — an ecosystem represented by less diversity and abundance of species than the natural ecosystem. This categorisation is also arbitrary as difficulties exist in precisely relating water quality to the species representing such an ecosystem.

Water Quality Objectives

Water quality indicators and objectives have been specified 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 the indicator.

Different beneficial uses can mean different quality objectives. For example in the Yarra River where swimming is a protected beneficial use the objective in terms of *E.coli* is 200 organisms/100 mL (geometric mean). In the urban tributaries where swimming is not a protected beneficial use the objective is 1000 organisms/100 mL (geometric mean). The main differences however are in the degree of protection afforded to the aquatic ecosystem.

Improvements in many water quality indicators to achieve the objectives will be required in the urban sections of the Yarra and the urban tributaries in order to protect the modified ecosystems proposed. Similarly improvements will be required in the bacterial levels of the Yarra River to restore swimming. Studies show that ecosystems are not protected in some rural areas as a result of pesticide runoff and improvements may be required here. Reductions in the turbidity (cloudiness) of the streams will be necessary throughout much of the catchment to enhance aesthetic appeal. It is also important that no risks are taken to prejudice the water quality necessary to protect Melbourne's potable water supply drawn from the Yarra River at Yering Gorge. This is particularly the case with nutrients which enable algae growth which in turn cause discoloration, taste and engineering problems in the supply.

Exceptions to the objectives are permitted to enable short term herbicide/pesticide spraying of streams and streamside weeds and pests. Schedule L of the Policy establishes the limitations to these exceptions.

Attainment Program

The attainment program consists of two parts — general provisions (clauses 22-26) and detailed provisions (clauses 27-60). 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 are already included in the detailed provisions of the attainment program.

Licensing requirements are covered in clauses 27-36. No licences are to be granted in potable water supply catchments (clause 31) or to the groundwater beneath the Policy area (clause 32) with limited exceptions. In order to restrict the input of conservative toxicants into the environment maximum discharge limits consistent with traditional treatment technology are proposed (clause 33). Similarly to minimise pollutant discharges maximum limits are placed on the discharge of a number of other indicators (clause 34) and for sewage treatment plants (clause 36).

The maximum limits for sewage treatment plants are established based on good operation and include a provision for nutrient removal. Based on the size of the plant phosphorus removal is to be required within 5 years in summer periods for discharges downstream of the MMBW water supply off-take at Yering Gorge, and year-round in plants upstream of this point. The nutrient removal requirement for

the larger purification plants will limit the extent of weed and algal growth in the water courses, and in Winneke Reservoir where discharges are upstream of Yering Gorge.

A nutrient strategy to limit nutrient inputs from the catchment to 1979 loads is established (clause 35). This is mainly to protect the Hobsons Bay area of Port Phillip Bay from nutrient enrichment. This strategy is practicable provided the sewerage backlog is overcome by removal of much of the effluent from the catchment.

To overcome many of the water quality problems in the lower catchment, principally bacteria, aesthetic indicators, and some toxicants, will require the provision of reticulated sewerage. With limited exceptions new subdivisions are not to be created without this service (clause 37a), and unsewered areas are to be serviced as soon as possible (clause 37b). The rate of overcoming the sewerage backlog depends on funds made available. At the recent rate of connection of unsewered houses in the metropolitan area, the bulk of the backlog should be overcome within 5 years. As a matter of good practice, all wastes should be discharged via the sewerage system where this is available and acceptable to the sewerage authority (clause 39).

As a long term strategy the Policy requires that sewage discharges to tributaries in the catchment cease within 20 years (clause 38). This is in order to overcome toxicant and possible nutrient problems. Again there are limited exceptions. For the most part it is envisaged that the metropolitan area would dispose of its sewage to the South East Purification Plant at Carrum or the Werribee Sewerage Farm. Land disposal and re-use of other effluents is to be encouraged (clause 37c).

Certain practices are proposed upstream of Yering Gorge in order to lessen the risk of problems associated with the use of this water for potable water supply (clause 41). Limitations are also placed on the intensification of land use upstream of Yering Gorge in order to lessen nutrient runoff (clause 45b). In the allocation of sewerage funds the areas upstream of Yering Gorge are to be given high priority (clause 40). To lessen the risk of contamination of water supplies in the Maroondah Reservoir, the bulk transport of hazardous chemicals including liquid fuels are to be restricted along roads in the reservoir's catchment (clause 51).

One of the major problems in the Yarra catchment is turbidity (cloudiness) which is high because of the naturally occurring dispersive clays. A number of actions are required to reduce turbidity levels. These include the construction of streets and roads (clause 42), attention to drainage design (clause 43), appropriate location and management of land use activities (clause 45a), the application of guidelines to minimise soil erosion at construction sites and forestry operations (clauses 46a and 46c), and the establishment of vegetated buffer zones along stream banks (clause 46b).

Improvement in urban runoff quality is to be tackled primarily by trapping contaminants through retention of the runoff and by general means (e.g. street sweeping) to prevent entry of contaminants including litter into the drainage system (clause 43). The Policy also calls for the development of litter control strategies to assist in this regard (clause 44). Directions are given for the disposal of solid wastes sludges and dredged spoil to land (clauses 47 and 48). In particular tips can no longer be established within 100 metres of water-courses. It is considered that this requirement will provide a safeguard for streams.

Contingency plans are required of industries to avoid and control spills of polluting materials (clause 49). In the case of oil spills alleviation of the problem is to be by the most environmentally acceptable means (clause 50).

The risk of pollution from agricultural enterprises is to be reduced by location requirements (clause 52) and by land disposal of effluents (clause 53).

The control of forest fires is also consistent with maintaining good water quality as such an event can result in the runoff of various contaminants (clause 54).

The Government's commitment to a closed catchment policy for Melbourne's water supply is affirmed (clause 55), thereby ensuring maximum water quality in the Water Supply Segment.

A necessary corollary to managing water quality in a catchment substantially modified by human activity is the management of water quantity. A minimum flow is needed on which to base licence requirements and to flush diffuse inputs. The Policy requires the provision of 245 ML/d measured at Warrandyte subject to ensuring safe reserves of water for Melbourne (clause 56). This was the basis on which the Government approved the Lower Yarra water supply development (Winneke Reservoir). An attempt will therefore be made to provide this flow in the management of the catchment's reservoirs.

A number of areas related to the attainment objectives but not directly affecting them are covered by the Policy (clauses 57-60). These include research needs, toxicity testing, monitoring and public education.

TABLE E2
SUMMARY OF WATER QUALITY OBJECTIVES

Indicator	Unit	Yarra Port Segment	Yarra Tidal Segment	Middle Yarra Segment	Urban Tributaries Segment	Northern Tributaries Segment	Kinglake Nat. Park Segment	Upper Yarra Segment	Olinda Creek Segment	Warburton Segment	Yarra Ranges Segment	Water Supply Segment
DISSOLVED OXYGEN	mg/L	> 5.4	> 6.0	> 6.0	> 4.5	> 6.0	> 8.0	> 6.0	> 4.5	> 7.5	> 8.0	Background
BACTERIA	% variation	> 60	> 60	> 60	> 45	> 60	> 85	> 60	> 45	> 75	> 85	Background
Total Coliforms	orgs./100 mL 90 pc	< 200	< 200	< 200	< 1000	< 200	< 5000 ^w	< 5000	< 5000	< 5000	< 5000	Background
E. coli	orgs./100 mL mean	< 200	< 200	< 200	< 1000	< 200	< 100 ^w	< 100 ^w	< 1000	< 200 ^w	< 100	Background
pH	units variation	6.5—8.5	6.5—8.5	6.0—9.0	1.5	1.0	0.5	1.0	1.5	0.5	0.5	nil
TEMPERATURE	°C variation	< 2	< 2	< 2	< 4	< 2	< 0.5	< 2	< 4	< 1	< 0.5	Background
SALINITY OR FILTRABLE RESIDUE (Total Dissolved Solids)	% variation	< 10	< 10	< 500	< 1000	< 500	< 500	< 200 ^R < 500 ^T	< 500	< 5	< 2	nil
LIGHT PENETRATION	mg/L	< 20	< 30	< 30	< 40	< 30	< 10	< 20 ^R < 30 ^T	< 40	< 10	< 10	Background
TOXICANTS	FTU: 50 pc	< 50	< 75	< 75	< 100	< 75	< 25	< 50 ^R < 75 ^T	< 100	< 25	< 25	Background
	individual ^(a)	< 1	< 2	< 2	< 2	< 1	< 1	< 1	< 2	< 1	< 1	Background
	mixture ^(b)	F & D	F & D	F & D	F & D	F & D	F & D	F & D	F & D	F & D	F & D	Background
	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Table 6	Background
NUTRIENTS	Qualitative	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)(e)	(d)(e)	(d)(e)	Background
total phosphorus	mg/L											
total nitrogen	mg/L											
AESTHETIC QUALITY	mg/L: 35pc/50pc											
odours/colours	Qualitative	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)	Background
floatable matter	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Table 3	Background
potability	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	Background
NON-FILTRABLE RESIDUE (Suspended Solids)	mg/L 50pc	< 20	< 20	< 25	< 25	< 10	< 5	< 10	< 20	< 10	< 5	Background
SETTLABLE MATTER	mg/L 90pc	< 80	< 80	< 100	< 100	< 25	< 10	< 25	< 80	< 25	< 10	Background
	Qualitative	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	Background

NOTES

- mg/L milligrams per litre
 FTU Formazin Turbidity Units
 < less than
 > greater than
 W These objectives apply to potable water supply catchments.
 R These objectives apply to the Yarra River.
 T These objectives apply to the tributaries of the Yarra River.
 Y These objectives apply to the Yarra River at MMBW off-take, Yering Gorge.
- (a) Formula as specified where N equals natural background level and T equals the threshold concentration of chronic sublethal effects. T is obtained from Tables 1 and 2 or toxicity tests specified by the Authority.
 (b) The mixture relationship is the sum of measured/appropriate levels for individual toxicants (fractions < 0.2 not included).
 (c) F&D is the Food and Drug Standards Regulations.
 (d) No excessive or nuisance growths of aquatic plants.
- (e) Phosphorus levels not to prejudice objective for Upper Yarra segment at Yering Gorge.
 (f) No objectionable odours or colours.
 (g) No visible floating oil, grease, scum, litter or other objectionable matter.
 (h) No detrimental effect on protected beneficial uses.

Costs and Benefits of the Policy

The benefits of the Policy are to improve and maintain water quality in the Policy area in order to protect the recognised beneficial uses of the water. Non-implementation of the Policy will result in a poorer environment both in terms of the uses which can be made of the water-courses and in terms of the aesthetic values attached to them.

The beneficial uses most at risk in the absence of a Policy are:

- aesthetic recreation (throughout catchment)
- swimming (lower Yarra segments)
- modified ecosystems (lower Yarra segments and urban tributaries)
- ecosystem protection (some rural areas)
- fishing (lower Yarra segments and urban tributaries)
- potable water supply (Winneke Reservoir)

The costs and consequences of protecting these beneficial uses are determined by the requirements of the attainment program. Many of these requirements are of themselves not new (e.g. the provision of sewerage, minimum flow specification and waste discharge licensing requirements) however the Policy does give a further co-ordination, emphasis and direction to these areas. For this reason, and because of the complexity of the catchment in terms of population and land use it is not possible to assign specific costings. Some observations of the major consequences of the Policy by community sector are possible however:

Industrial/Commercial — By and large the Policy is a continuation of current licensing practice. There will be greater emphasis on sewerage connection and all discharges will be required to meet certain minimum standards for a number of indicators. Discharge of conservative toxicants will be very difficult if not impossible in many areas of the catchment. The development of contingency plans would be a new activity for some companies.

Servicing Sectors — Sewerage authorities will be affected to the extent that treatment plants will need to be operated at optimum performance. In some cases particularly upstream of Yering Gorge nutrient removal is introduced which will result in a cost increment. The overall strategy of eliminating sewage effluent discharges from the catchment in the longer term represents the existing strategy although the time limit of 20 years has not previously been specifically

nominated. The strategy of sewerage all new sub-divisions has also been operative and the Policy gives guidance to the limited areas of exceptions which have previously been a matter of contention.

Drainage authorities are required to use techniques such as retention basins to reduce contaminants in runoff. This practice is becoming more common and is particularly suited to developing areas.

The application of guidelines to minimise erosion at construction sites has previously been introduced and is further promoted in the Policy.

Rural Sector — The implication of the Policy for the rural sector is the application of good agricultural practice. Research may elucidate the details of these practices but no major changes are envisaged in the absence of a Policy revision. This is not to say that in all cases changes will not be required. Obviously the poor practitioners wasteful of soil and agricultural chemicals will need to review their methods. Land application of wastes will be required in many cases where this is not currently practised. The use of the more persistent pesticides such as the organochlorines may need to be reviewed and more environmentally appropriate substitutes used.

Land Use Planning — The Policy is consistent with Statements of Planning Policy and will be implemented in conjunction with them. The Policy particularly affects areas upstream of Yering Gorge where intensification of land use is opposed.

Government Sector — Not including the servicing sector, the major consequences for the public sector are associated with extension work for the Soil Conservation Authority and waste discharge licensing, water quality monitoring, research and implementation activities within the Environment Protection Authority. The total costs of these activities would amount to \$350,000 p.a. Much of this expenditure would be applicable to other areas of the state. In addition some expenditure would be cost effective (e.g. soil conservation which has on site advantages and possible savings to past dredging).

Whilst it is recognised that implementing the Policy involves significant costs and consequences for both the public and private sectors, costs should never be considered in isolation from benefits, which in this case are of value not only to the existing population but to generations still to come.