PRINCIPLES TO ESTABLISH EPA ENVIRONMENTAL OBLIGATIONS FOR WATER BUSINESSES FOR THE 2008–2013 PRICING DETERMINATION

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PAPER PURPOSE

The Victorian water industry is currently developing submissions to the Essential Services Commission (ESC) for underpinning the 2008 pricing determination. This paper is designed to provide clarity, at an overview level, regarding EPA Victoria's environmental requirements that the water industry are obliged to address in its submissions. In this context, the Victorian water industry is considered as being the regional urban water businesses, the metropolitan retail companies, Melbourne Water Corporation and the rural water authorities.

The clarity in environmental obligations is important from two perspectives:

1. so that the industry identifies the relevant obligations in their submissions and therefore ensures the funds are available to meet EPA expectations and environmental needs; and
2. so that the industry has confidence in its planning horizons and that, barring unusual circumstances, EPA requirements will not significantly alter within the 5-year pricing timeframe.

In addition to outlining EPA expectations for the water industry, this paper also discusses possible EPA commitments to assist water industry delivery. These commitments are particularly relevant to clauses in State Environment Protection Policy (Waters of Victoria) [SEPP (WoV)] and the partnership approach EPA is taking to its implementation.

This paper specifically focuses on environmental obligations under the *Environment Protection Act 1970* (EP Act) and associated statutory policies. It does not address environmental obligations that may fall under other legislation such as the *Water Act* or *Water Industry Act* or that are required by Government agencies. It is recommended that the water industry and ESC discuss additional environmental obligations (particularly those resulting from the White Paper – Securing Our Water Future Together (2004)) with agencies such as DSE.

In addition, EPA requirements are largely outcome based and are not prescriptive in how these outcomes should be met. This allows for considerable flexibility in environmental management including options for resource efficiency approaches and environmental offsets (where environmental gains can be achieved in the most cost-effective and sustainable manner).

OVERVIEW

EPA Victoria's environmental obligations for the water industry are derived from the head of power provided by the EP Act. The Act enshrines key principles of environment protection, such as the waste hierarchy and intergenerational equity into Victorian decision-making processes. It also provides for statutory processes such as works approvals, waste discharge licences and statutory policies. Statutory policies provide an additional level of detail to direct EPA and all Victorian organisations and individuals regarding the Government's environment program. With regard to the water industry and EPA obligations, the key statutory policy is SEPP (WoV) and its schedules (F3 - Gippsland Lakes, F5 – Latrobe/ Thomson, F6 – Port Phillip Bay, F7 – Yarra River, F8 Western Port). Other important statutory policies include the SEPP (Air Quality Management) and SEPP (Groundwaters of Victoria). Other policies, such as the SEPP (Prevention and Management of Contamination of Land) 2002 and the Waste Management Policy (WMP)(Prescribed Industrial Waste) 2000, are also relevant.

Policies are generally developed with goals and attainment programs to be delivered over a given period of time (that is, 5-10 years). Some policies will be reviewed within the next regulatory period (2008-2013), however, where possible, any new obligation that arises as part of a policy review will be incorporated into the next water plan (that is post 2013). For any unforeseen new obligation that arises during the 2008-2013 period, EPA will consult with ESC and water businesses as soon as possible to enable adequate time to implement obligations.

To provide technical detail regarding the implementation of statutory policies, EPA prepares guidance material such as the Guidelines for Environmental Management (GEM) series, including the *GEM: Use of Reclaimed Water* (Publication 464.2), *GEM: Dual pipe water recycling schemes – health and environmental risk management* (Publication 1015), *GEM: Biosolids Land Application* (Publication 943). Information is also provided through information bulletins and other documents.

In determining environmental obligations for the 2008-2013 regulatory period EPA seeks to:

- build on previous obligations – moving towards full attainment of SEPP (WoV) by 2013, continuous improvement;
- increase focus on sustainability and resource efficiency, whilst ensuring compliance with licence and other instruments remains strong;
- link with existing programs/policies/requirements for example, 'Securing our Water Future Together' (2004), 'Our Environment Our Future' (2006), and the Government's Statement of Obligations for the water industry;
- identify risks and issues facing the water industry. Increasing focus on water resources and clear policy direction from the Government in White Paper etc;
- acknowledge that the issues facing the water industry can vary dramatically between water businesses, depending on historical features, local environment and a range of

other factors. Therefore, high level, state-wide programs may need to be tailored to individual businesses, both in terms of the requirements and the timeframes for delivery; and

- learn from the previous (first) regulatory process – for example via outcomes of surveys/feedback.

A summary of the key obligations is provided at the end of this document.

DISCUSSION OF KEY PRINCIPLES

Principles of environmental protection

The principles of environmental protection underlying the EP Act are outlined below along with a discussion of how these principles might apply to the water industry. It is the intention that in the administration the EP Act, regard should be given to the principles of environment protection. These principles also form the basis of the SEPP (WoV) and should be used to guide decisions on the protection and management of Victoria's surface waters.

While this paper describes a range of generic and specific environmental obligations, there is flexibility in the measures that can be undertaken, provided the desired environmental outcomes are achieved. The SEPP (WoV) includes an overriding principle of 'practicability' and specific tools such as offset measures to enable innovative approaches. It is important that 'individual' environmental obligations are not addressed in isolation, but as part of an integrated program to deliver the best overall environmental outcomes.

Principle of integration of economic, social and environmental considerations

Sound environmental practices and procedures should be adopted as a basis for ecological sustainable development for the benefit of all human beings and the environment.

This requires the effective integration of economic, social and environmental consideration in decision making processes with the need to improve community well-being and the benefit of future generations.

The measures adopted should be cost-effective and in proportion to the significance of the environmental problems being addressed.

Implementation of this principle requires balanced consideration of all consequences – economic, social and environmental – of business activities.

This principle is applied to the identification of beneficial uses and values for waterways and the overall assessment of wastewater and irrigation discharges, recycling proposals and releases from storages.

An example of this is a water recycling scheme which may not be financially attractive but will deliver a net benefit to the community and the environment in terms of wider environmental, economic and social considerations and therefore could be justified.

The precautionary principle

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for

postponing measures to prevent environmental degradation.

Decision making should be guided by-

a) a careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and

b) an assessment of the risk-weighted consequences of various options.

Water businesses need to balance the cost of taking actions versus not taking action based on the best current understanding of an issue/situation.

In accordance with the 'precautionary principle', the water industry is required to manage discharges to waterways to minimise environmental impact and continuously reduce the mixing zone. In the absence of scientific evidence (that is biological monitoring and an ecological risk assessment) water businesses are required to either upgrade treatment plants to achieve the minimum default criteria for discharges to surface waters, or achieve 100 per cent recycling in accordance with EPA guidelines, along with continuous application of the waste hierarchy.

Principle of intergenerational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

An example of consideration of this principle in a rural context is the management of discharges of saline wastewater and irrigation drainage to surface waters and groundwater so that it does not pose an environmental risk to beneficial uses.

In relation to wastewater discharges, this principle applies to the management of wastewater discharges to surface waters to minimise environmental risks to beneficial uses through continuous improvement programs to reduce mixing zones.

This also applies to the sustainable management of wastewater re-use schemes in accordance with EPA guidelines.

Principle of improved valuation, pricing and incentive mechanisms

Environmental factors should be included in the valuation of assets and services.

Persons who generate pollution and waste should bear the costs of containment, avoidance and abatement.

Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes.

Established environmental goals should be pursued in the most cost effective way by establishing incentive structures, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems.

This principle is better known as the 'polluter pays' principle. It ensures that businesses that are achieving an external economic benefit by using a common good as a form of pollution treatment or disposal are actually paying for the use of that common good.

The polluter pays principle applies to trade waste charges and EPA licence fees for discharges to the environment.

Principle of shared responsibility

Protection of the environment is a responsibility shared by all levels of Government and industry, businesses, communities and the people of Victoria.

Producers of goods and services should produce competitively priced goods and services that satisfy human needs and improve quality of life while progressively reducing ecological degradation and resource intensity throughout the full life cycle of the goods and services to a level consistent with the sustainability of biodiversity and ecological systems.

Principle of product stewardship

Producers and users of goods and services have a shared responsibility with Government to manage the environmental impacts throughout the life cycle of the goods and services, including the ultimate disposal of any wastes.

EPA encourages water businesses to gain a greater understanding of their life cycle impacts to ensure this principle is applied.

Principle of waste hierarchy

Wastes should be managed in accordance with the following order of preference-

a) avoidance

b) re-use

c) recycling

d) recovery of energy

e) treatment

f) containment

g) disposal.

Waste discharges have long been permitted in Victoria as a form of waste management. In 1970 with the introduction of the *Environment Protection Act 1970*, the wastes hierarchy principle was first applied.

The most widespread method for the management of Victoria's sewage effluent remains as disposal (following treatment) followed by recycling and re-use. Water conservation will continue to be a high priority for water businesses and the Government to ensure long-term sustainability of our limited water resources, followed by appropriate recycling and re-use of wastewater, in preference to disposal.

Principle of integrated environmental management

If approaches to managing environmental impacts on one segment of the environment have potential impacts on another segment, the best practical environmental outcomes should be sought.

Wastewater discharge to waterways can have both positive and negative effects on catchment health. A benefit in terms of water quantity is quickly negated if the water quality is poor. Likewise, an increase in surface water flow may have impacts on local groundwater. Other considerations are the effects of the proposal on biodiversity and energy consumption. In implementing this principle, the proponent must demonstrate that the broader implications of the discharge or recycling scheme have been assessed.

Water businesses are encouraged to develop a means of measuring and evaluation their impacts on different segments or the environment (for example, through lifecycle assessment, multi-criteria analysis or through other TBL assessment processes as appropriate).

Principle of enforcement

Enforcement of environmental requirements should be undertaken for the purpose of-

a) Better protecting the environment and its economic and social issues.

b) Ensuring that no commercial advantage is obtained by any person who fails to comply with environmental requirements.

c) Influencing the attitude and behaviour of persons whose actions may have adverse environmental impacts or who develop, invest in, purchase or use goods and services which may have adverse environmental impacts.

Further information on how EPA Victoria interprets this principle can be found in EPA's *Enforcement Policy* – EPA publication 384.2.

Principle of accountability

The aspirations of the people of Victoria for environmental quality should drive environmental improvement.

Members of the public should therefore be given-

a) access to reliable and relevant information in appropriate forms to facilitate a good understanding of environmental issues; and

b) opportunities to participate in policy and program development.

Where there are negative impacts on beneficial uses or values because of a wastewater discharge or re-use scheme, the water business must be held accountable for those impacts. Wastewater discharges to the environment hold an EPA licence. The licence and associated environment improvement plan should include obligations to ensure that the community is adequately informed about these impacts. The water business may be required to erect signage along the waterway, provide reports in local newspapers, annual reports or other mechanisms deemed suitable.

Where water businesses are pursuing sustainability initiatives, community support must be sought and reflected within the Water Plans.

DISCUSSION OF OBLIGATIONS

1. Water Conservation and Resource Efficiency

In accordance with the waste hierarchy (enshrined within the EP Act and in the SEPP (WoV)), the highest priority for water management is conservation. This is achieved through avoiding inefficient use (that is, avoiding water wastage) and by implementing practical re-use and recycling initiatives to reduce demand on drinking and river water supplies.

The SEPP (WoV) requires all water authorities to work with communities and businesses to:

- avoid water wastage (and sewage or irrigation drainage generation) by implementing practical water saving

practices and measures (particularly in new developments);

- recycle sewage and biosolids (see section 2.1); and
- deliver water to customers in an efficient manner and recycle irrigation drainage water (see section 3.1).

It is expected that water conservation obligations identified above will be met through Sustainable Water Plans along with other Government initiatives such as the water conservation rebate program and sustainable irrigation programs.

The waste hierarchy also drives efficient use of resources other than water. This ranges from efficient use of resources required to operate a water business (for example energy, chemicals) to efficient use of resources that might impact on a water business (for example industrial and domestic chemicals). Water businesses are encouraged to demonstrate a commitment to the assessment and minimisation of the use of resources and generation of wastes associated with their activities through the stages of design, material selection, production, distribution, use and end of life. Water businesses need to consider this in their business planning. EPA encourages water businesses to take a life cycle approach to their business looking at everything from the impact of water extraction to the impacts of treating and managing effluent and irrigation drainage. Recycling obligations are detailed in section 2.

2. Sewage Management

2.1 Implementing the waste hierarchy for sewage management

In accordance with the EP Act and the SEPP (WoV), all sewage treatment facilities are required to implement the waste hierarchy. A flow diagram of the application of the hierarchy is provided in Appendix A. The hierarchy means that all water businesses are required to implement all practical options to avoid waste generation. Although the generation of all domestic sewage is clearly unavoidable, the water industry is positioned to influence residential water consumption (as outlined in section 1) and the materials that are disposed to sewer (particularly generated through trade waste (see section 2.6)). The establishment and implementation of programs to minimise inputs to sewage treatment plants should be a fundamental component of water business activities.

As domestic sewage cannot be fully avoided, the waste hierarchy requires the water industry to implement recycling of the remaining sewage as the next highest priority management approach (although the hierarchy describes both re-use and recycling, for simplicity only recycling is discussed here). EPA believes that water recycling is an important component of sustainable water management through potentially:

- reducing discharges to the environment and associated impacts on beneficial uses;
- reducing pressure on our existing water supplies by providing a substitute water source for uses such as irrigation and

thereby transferring nutrients to a beneficial use; and

- in some approved instances, providing benefits through ongoing discharge of treated water to surface waters (this would be considered where re-use provided benefit to the waterway – see below).

The practicality of water recycling options for sewage will be determined based on whether (or not) a sewage treatment plant meets the default minimum criteria detailed in section 2.2:

1. sewage treatment plants that do not comply with the default criteria will be required to meet them, preferably through water recycling practices; and
2. for sewage treatment plants that comply with the default criteria, but that have an ongoing discharge to surface waters, recycling investment decisions should be made in accordance with the principles of the EP Act. Greenhouse emissions from water recycling treatment should be managed in accordance with the waste hierarchy and application of best practice measures. Further details on greenhouse emissions are provided in section 2.7.

Sewage may also be considered to be recycled if it can be re-used within a waterway or aquifer to provide water for the environment. However, this water must be treated and managed to provide a demonstrated benefit to the waterway. It is expected that any impacts on beneficial uses where unable to be avoided, will be offset (see below) to provide equal or greater overall benefit to the waterway. EPA is currently in the process of developing guidance on re-use to waterways. EPA is also working with DHS to develop criteria for recycling treated wastewater via managed aquifer recharge and recovery, as part of the Government's White Paper.

In implementing wastewater recycling, it is required that water businesses adopt the *GEM: Use of Reclaimed Water* (publication 464.2), the *GEM: Dual pipe water recycling schemes* (publication 1015), the *Guidelines for Wastewater Irrigation* (Publication 168), and any other relevant EPA guidance, as released or updated from time to time. The costs of appropriate scheme management, monitoring, reporting and auditing need to be considered in the pricing submissions.

2.2 Sewage treatment and disposal

What is considered effluent disposal?

Within the context of the EP Act and SEPP (WoV), effluent is considered to be disposed of if it is not recycled in accordance with EPA requirements. This means that, in order for treatment plants to be recognised as not discharging to surface waters, a plant needs to have a management framework enabling the reuse of all effluent up to a 90th percentile wet year (refer to EPA publication 464.2 *Guidelines for Environmental Management: Use of Reclaimed Water*).

Environmental obligations – past

As articulated in the 1995 guidance document *Managing Sewage Discharges to Inland Waters* (EPA publication 473), EPA's requirement for managing treated sewage discharges have been based on a hierarchy of:

- avoiding the generation of wastes, through trade waste management programs, sewer

infiltration and water conservation programs and as outlined in section 1;

- implementing all practical and environmentally beneficial wastewater recycling schemes;
- requiring any remaining discharges to **inland** waters to have a default minimum requirement for tertiary treatment. Standards were defined on the basis of 'commonly available technology' of the time. (0.5 mg/L total phosphorus; 10 mg/L total nitrogen) and,
- any remaining **coastal** discharges to have secondary treatment with disinfection as a default standard.

In addition to these 1995 requirements:

- specific requirements that apply to geographical regions were enshrined in SEPP schedules such as Waters of the Yarra Catchment (1999) and Waters of Western Port and Catchment (2001) where discharge quality has been focused on compliance with macro-invertebrate indicators by specified dates; and
- the above standards may be varied for site-specific needs (for example nitrogen target for Port Phillip Bay), which has resulted in varied requirements for some treatment plants (for example Western Treatment Plant).

Environmental obligations – now and future

Within this pricing determination, EPA will be looking for decisions regarding STP operation and discharge standards to build on discharge monitoring programs, identified impacts on beneficial uses (mixing zones) and local priorities identified in Regional River Health Strategies or relevant coastal strategies. Therefore, upgrade programs will become increasingly focused on specific issues identified at individual discharge locations. By the end of the regulatory period, for ongoing discharges to waterways (including marine environments):

- an ecological risk assessment must have been undertaken for all discharges characterising:
  - the extent of mixing zone(s) in terms of impacts on beneficial uses; and
  - the receiving environment;
- where identified as necessary via the ecological risk assessment, a program must be implemented to progressively reduce mixing zones or establish off-sets (see below) in consultation with EPA; and
- a consultation program must be developed and implemented to inform the community on mixing zones/sacrificed beneficial uses and ensure appropriate controls are in place to prevent inappropriate uses within mixing zones.

A flow diagram for expectation in relation to wastewater management is provided in Appendix B.

EPA expects that an activity program will be undertaken by each water business to reduce impacts on beneficial uses through optimisation of treatment processes, implementation of the waste hierarchy and other principles of the EP Act,

upgrades in sewage treatment plants (where current discharges do not provide adequate protection of the receiving environment) and/or offset measures.

Progressive improvements in discharge water quality will be reflected within licences (either directly via licence conditions or through the EIP process). The scope of the activity programs will be particularly important where discharges are identified as having a significant impact on beneficial uses, reflecting the shift in EPA focus from discharge standards to the receiving water quality, in accordance with SEPP (WoV). EPA and Water Businesses should consult as early as possible on any proposed changes to licence conditions prior to formulation of Water Plans.

Offsets

Clause 26 of SEPP (WoV) provides for off-sets for discharges of a lower quality than would be typically expected from a licensed premises for a given period of time, where the off-set measure offers either equivalent or greater protection of beneficial uses within the affected segment or segments. Off-sets must be implemented under an agreed plan in consultation with EPA, waterway managers and other stakeholders (including the community) and be consistent with SEPP (WoV), regional River Health Strategies and relevant coastal plans.

Off-sets will only be considered where all practicable prevention and mitigation measures have been implemented to avoid environmental impacts and where the discharge is being managed and monitored as outlined above.

2.3 Sludge and biosolids management

The 5-year program for delivering appropriate sludge and biosolids management was delivered by the process described in *Moving Towards Sustainable Biosolids Management – A Cooperative Venture* (2002). This process involved the water industry:

- reviewing the environmental risks associated with existing management strategies via an assessment provided to EPA in February 2003; and
- developing plans for sustainable sludge management at each STP, building on the risk assessment process and defining timelines and expenditure. The management plans were due for submission to EPA in July 2003.

Implementation of sludge management and biosolids recycling programs has been varied across water businesses. Within the 2008-13 regulatory period, the emphasis will be on those businesses that have not adequately developed and implemented:

- sludge management and handling programs (including programs to manage continuously produced sludge); and
- biosolids recycling strategies.

EPA will be working with those water businesses that have not adequately met the above requirements to:

- review and update (where appropriate) the sludge management plans or EIPs based on current biosolids and sludge management practices, risk profile, biosolids recycling programs etc; and

- undertake biosolids and sludge management in accordance with the agreed sludge management plans.

Targets and programs for recycling and sludge management will generally be incorporated into the licence via EIPs or via agreed sludge management plans. EPA will include specific requirements and targets within individual licences where progress is not considered adequate towards reducing stockpiles and storage of biosolids and to adequately manage sludge. EPA will work with water businesses to establish agreed programs to eliminate the practice of long-term stockpiling of biosolids, and to implement programs for treatment of sludges and recycling of continuously produced biosolids, with an ultimate aim of 100 per cent biosolids recycling.

2.4 Sewerage planning

Clause 33 of SEPP (WoV) requires water businesses to, where reticulated sewerage is identified in a domestic wastewater management plan as the preferred option for domestic wastewater management, work in conjunction with municipal councils and EPA to develop a sewerage management plan for submission to Government.

In accordance with SEPP (WoV), sewerage management plans must:

- review available wastewater management options;
- identify the preferred types and levels of sewerage services to be provided together with costs and funding options;
- identify priorities and possible timelines for the provision of services;
- identify how the wastewater collected will be sustainably managed in accordance with the waste hierarchy (described in section 2.1 and 2.2); and
- periodically review the plan and priority areas for sewering. While the SEPP (WoV) recommends 3-yearly review, it is acknowledged that the review process should now correspond with the pricing determination to allow for inclusion within Water Plans.

Local councils are currently finalising domestic wastewater management plans for unsewered townships as part of the State Government's Country Towns Water Supply and Sewerage Program. This program is being overseen by DSE. In regional towns that do not qualify for the Country Towns Water Supply and Sewerage Program (that is, where sewerage infrastructure exists), provision of sewerage is to be addressed via backlog programs. These programs should be developed in consultation with DSE and EPA, and identified within Water Plans.

Within Metropolitan Melbourne, South East Water and Yarra Valley Water provision of sewerage is undertaken in accordance with the Metropolitan Sewerage Backlog Program. Water Plans for the 2008-2013 must include costs associated with backlog sewerage programs, including accelerated backlog programs, as required by the Minister.

Within Metropolitan Melbourne and some regional centres, unsewered industrial areas exist that typically fall outside backlog programs. Where risks are identified (that is, by Councils within Domestic Wastewater Management Plans), EPA requires water

businesses to, where appropriate, include provision of sewerage for these areas within the Water Plan.

2.5 Management of the sewerage system

Clause 35 of SEPP (WoV) requires losses of wastewater through sewer overflows, leakages and collapses to be avoided to protect beneficial uses of surface and groundwaters. Where these cannot be practically avoided, they must be minimised and controlled. The EP Act also has general provisions in relation to the pollution of waterways and associated penalties.

An overflow or chronic leakage from the sewerage system has the potential to cause environmental harm. In order to meet the requirements of SEPP (WoV), EPA requires that the sewerage system be designed and managed to:

- eliminate dry weather spills and chronic leaks;
- contain flows associated with a 1-in-5 year rainfall event or a comparable design standard.

Individual water business programs to bring systems into compliance vary due to historical differences in system design and performance. Typically, metropolitan areas have developed and implemented programs to meet the 1 in 5 design standard and for ongoing system assessment, management and reporting in relation to environmental risks. These standards have not necessarily been applied to regional areas, and in some cases there is limited understanding of the environmental risks of sewerage systems in non-metropolitan areas.

- These differences notwithstanding, EPA requires businesses to progressively bring their system (with consideration for growth) to SEPP compliance through sewerage system management plans.

Programs to bring the system into best practice design and management will likely extend beyond the 2008-2013 regulatory period for the majority of water businesses. Upgrade programs and priorities for this regulatory period should be based on a risk-based assessment, and developed in consultation with EPA. Sewerage system management plans must include programs to aim for zero overflows from sewer systems except in wet weather events greater than 1 in 5 average rainfall, or through major failures that are unforseen. Since the unlicensed discharge of sewage will typically represent a breach of the EP Act and a pollution event, EPA will consider the existing EPA enforcement policy, compliance history and existing plans and procedures in determining the nature of appropriate enforcement action to undertake.

In developing sewerage system management plans, EPA requires water businesses to conduct a review of the sewerage system, including management, incident response, maintenance and reporting procedures and develop an implementation program. Actions within the implementation program must be costed within the 2008 Water Plan. As such, the review and sewerage system management plan, including the implementation program, must be completed prior to the final submission of 2008 Water Plans. Water businesses are also required to conduct an EPA statutory audit of the implementation program during the 2008-2013 regulatory period. This is to ensure that the

implementation program adequately identifies and manages environmental risk. Outcomes from the statutory audit will be required to be either acted upon immediately (that is where there is environmental hazard) or catered for in future Water Plans.

EPA has prepared more detailed guidance on these review and audit requirements, see Attachment A – *Guidance on Sewerage System Review and Audit*.

Where limited progress is made in relation to the above requirements, EPA will require water businesses to undertake works and programs to reduce the risks to the environment, via statutory tools, including enforcement notices and licences in accordance with the EP Act.

Beyond 2013, EPA will consider appropriate standards for wet weather spill abatement in consultation with water businesses and other stakeholders, as part of the SEPP (WoV) review process.

2.6 Trade waste management

The waste hierarchy and its application to trade waste is contained within the Waste Management Policy (Prescribed Industrial Waste).

As discussed above for STP management (sections 2.1 and 2.2), EPA is looking for sewage management to move from compliance with end-of-pipe standards, to a more holistic framework that involves input minimisation and progressive reductions in mixing zones. As such, EPA requires the development of programs to progressively tackle key parameters that cause impacts on beneficial uses in receiving environments, or which limit the potential for recycling and re-use. This is in relation to both discharges to surface waters, and protecting the long-term sustainability of land application of biosolids and reclaimed water.

Water businesses must have a trade waste management plan. It is important that these plans target those parameters that impact on receiving waterways and inhibit recycling of reclaimed water and biosolids, as well as other parameters that are managed for protection of assets and OH&S issues.

2.7 Management of odour, greenhouse gas emissions and noise

There are environmental obligations that apply generically to water industry activities and are implicit in all activities, for example management of offensive odours in accordance with the requirements of SEPP (Air Quality Management) 2001 and noise control provisions in SEPP (Control of Noise from Commerce, Industry and Trade) 1989.

EPA's expectations for odour management

The SEPP (Air Quality Management) sets the framework for the management of air emissions, including odour, to protect the beneficial uses of the environment, including amenity and aesthetic enjoyment.

New proposals that have the potential to emit odour and impact on beneficial uses must be designed to best practice, and to meet any relevant design criteria given in SEPP (AQM). For odour, this relates to a design criteria of one odour unit (OU) at the premise boundary for general odours, while specific quantitative criteria apply to compounds such as hydrogen sulphide. If these design criteria will not be achieved by the proposal, the proponent must carry out a risk assessment to determine whether or

not the beneficial uses of the environment will be protected. If the risk assessment demonstrates that the beneficial uses are protected, despite failing the design criteria, the proposal may be acceptable to EPA. The level of detail in the risk assessment should be commensurate with the potential risk, and consider such factors as the likely frequency and severity of plant upsets that may lead to increased emissions as well as surrounding land use and the location of sensitive receptors such as houses and schools close to the site.

For existing treatment facilities that have been identified as causing offensive odours outside the site boundary, EPA will look at each facility on a case-by-case basis in determining the most appropriate management actions. EPA requires best practice (as discussed above) to be applied to assist resolution of the issue. The design criteria such as one OU at the premises boundary for general odours is not used as a statutory tool (that is a licence limit) for decision making, but modelling in conjunction with risk assessment may be useful in considering the benefits of various processes and management options. If best practice is already applied at the site, then mitigation measures during periods of increased emissions or additional end of pipe treatment will be required. The identified risks to beneficial uses will be crucial in determining the extent of the required works.

Since the detection of offensive odours outside a premise boundary will typically represent a licence breach and a pollution event, EPA will consider the existing EPA enforcement policy and compliance history in determining the nature of enforcement action to undertake.

EPA's expectations for greenhouse gas management and energy efficiency

The water industry has been identified as a sector that is vulnerable to climate change through reduced security of supply and increased population growth.

In order to meet the challenge of reducing greenhouse gas emissions from the Victorian water industry, a working group was established in December 2005. Membership consists of the Victorian water industry, Sustainability Victoria, the Department of Sustainability and Environment and EPA Victoria.

The group is developing a discussion paper for greenhouse emissions reduction within the Victorian water industry. EPA will continue to work with the water industry to reduce greenhouse emissions across the water sector through this process.

In accordance with Clause 33 of SEPP (AQM) generators of greenhouse gases must manage their emissions in accordance with the principles of the waste hierarchy and pursue continuous improvement in their environmental management practices and environmental performance and apply best practice to the management of their emissions.

The waste hierarchy as it applies to greenhouse emissions can be adapted as:

1. avoid greenhouse emissions
2. reduce greenhouse emissions
3. use renewable energy
4. recover waste energy
5. sequestration and abatement schemes

Conflicts will sometime arise between energy use and other environmental issues. For example, increased treatment to provide recycled water of appropriate quality for recycling schemes that may result in increased greenhouse emissions. In such cases the relative importance of issues must be judged on a case-by-case basis, with supporting reasons for the decision to be provided. Relevant policy decisions made by Government or EPA may clarify relative priorities.

The Protocol for Environmental Management (Greenhouse Gas Emissions and Energy Efficiency in Industry) [PEM (GG&EE)] 2002 details the actions required to implement the SEPP (AQM) requirements for statutory approval processes such as licensing and works approvals.

The program typically requires action plan initiatives to be completed by the end of 2006. In addition, companies wanting to construct new works or modify existing works are, through the EPA works approval process, required to meet best practice for energy efficiency and GHG emissions.

EPA will work with water businesses and other stakeholders on implementation of any greenhouse programs and policies beyond 2006.

2.8 Licence compliance

EPA requires all water businesses to fully comply with all conditions of waste discharge licences. STPs with ongoing licence compliance less than 100 per cent must have a detailed activity program to achieve full compliance within the 2008-2013 regulatory period. EPA will consider its enforcement policy and compliance history in determining appropriate enforcement action for any non-compliance.

3. CATCHMENT, WATERWAY AND GROUNDWATER MANAGEMENT

The White Paper outlines broad environmental obligations for irrigation management and environmental flows and the SEPP (WoV) outlines waterway management obligations. It is anticipated that the outcomes of the White Paper will assist water businesses and other relevant agencies such as catchment management authorities and Melbourne Water better determine the full environmental obligations associated with management areas such as environmental flows. Businesses are encouraged to discuss these issues with DSE and in consultation with EPA.

This section outlines requirements in SEPP (WoV) regarding environmental obligations for irrigation, environmental flows, groundwater management and waterway management including releases from storages. It is important that these obligations are not only built into pricing submissions but that they are reflected in and consistent with key strategies and plans, including regional catchment strategies, river health strategies and sub-ordinate plans.

*3.1 Management and auditing of irrigation discharges**

The SEPP (WoV) requires water businesses with responsibilities for irrigation provisions and drainage to implement the waste hierarchy to reduce

* This section does not apply to recycled water sourced from sewage treatment plants used for irrigation, that are managed in accordance with EPA publication 464.2 'GEM: Use of Reclaimed Water'.

the impact of irrigation drainage on receiving water environments. This includes measures to:

- conserve water (see section 1);
- avoid contaminated irrigation runoff to irrigation drains (and seepage to groundwater) by working with landholders, CMA's and government agencies to implement the most efficient on-farm water use and recycling practices;
- avoid the generation of pollutants from within channels and drains (that is to ensure infrastructure is maintained to reduce erosion, avoid sediment suspension and ensure that chemicals are used in a manner that does not impact on natural ecosystems); and
- as a second order measure (after avoidance opportunities have been maximised), recycle irrigation water on-farm and then recycle remaining irrigation drainage water to minimise irrigation runoff entering natural waterways (that is rivers, streams, wetlands etc).

These measures (and associated priorities, targets and timelines) should be clearly identified in regional catchment strategies and sub-ordinate plans. EPA requires relevant water businesses to have plans for implementing the waste hierarchy and to have implemented those plans by 2013, building on the previous water plans.

The SEPP (WoV) also requires relevant water businesses to monitor the impact of irrigation drains on receiving environments and as part of that program, ensure that these impacts are independently audited. In particular, over the 2008-2013 regulatory period, EPA requires water businesses to further develop and implement programs for independently auditing the impact of irrigation drains.

3.2 Provisions and auditing of environmental flows

Clause 41 of SEPP (WoV) requires adequate environmental flows to be provided to waterways, wetlands, lakes and estuaries. An important aspect of this is the requirement to independently audit:

- the provision of agreed environmental flows; and
- the effectiveness of that environmental flow in protecting the ecology.

This is a role shared by waterway managers, water businesses (with obligations for bulk water provision), and DSE. As water authorities are required to provide water releases in accordance with the waterway manager's requirements, they are responsible to ensure that releases from storages are in accordance with the waterway managers requirements.

Refer to section 2.1 for information on re-use to waterways from sewage treatment plants.

3.3 Waterway management obligations

In the White Paper action plan, the Government assigned Melbourne Water the role of caretaker of Metropolitan Melbourne river health with responsibility for waterway management, regional drainage and flood plain management. Additionally, Melbourne Water was assigned responsibility for management of the environmental water reserve (within the Melbourne Water waterways) and

drainage boundary and diversions (within the Yarra Catchment and Maribyrnong catchment downstream of Deep Creek). Outside the Melbourne Water waterways and drainage boundary, CMAs manage waterways when delegated to do so under the *Water Act*. Diversions in the upper Maribyrnong, Dandenong and Westernport catchment are managed by Southern Rural Water.

Under the SEPP (WoV), Melbourne Water is a 'protection agency' (any person or body, whether corporate or unincorporated, having powers or duties under any other Act with respect to the environment or any segment of the environment in any part or parts of Victoria) and has obligations to:

- ensure that works within or adjacent to surface waters do not cause un-natural erosion, sediment resuspension or other risks to the environment;
- manage activities so that waterway water quality objectives to protect beneficial uses are progressively attained or where SEPP environmental quality objectives are not likely to be met in the ten year time frame of a SEPP, regional targets are established to guide capital and operating expenditure (regional targets are set through regional catchment planning processes);
- ensure that existing and new in situ structures do not pose a barrier to native fish movement;
- contribute to the management of water quality in urban and rural waterways to achieve beneficial uses; and
- establish programs to improve aquatic and riparian habitat.

These obligations have to be taken into account to the extent that Melbourne Water's role as a protection agency applies.

The Government's White Paper action plan emphasises that the price of water should incorporate the cost of rehabilitating water environments that are impacted by activities undertaken to supply water (for example water extractions and flow regulation). Therefore the cost of waterway management actions undertaken to either supply water for consumptive use or address environmental impacts of such activities should be incorporated into the price of water. The extent to which this is achieved will be addressed through the Government's White Paper action plan.

As a waterway management authority under the Water Act and a protection agency under the *Environment Protection Act*, Melbourne Water will need to assess the cost of activities to address poor water quality in urban and rural waterways due to drainage, runoff issues and catchment activities so that beneficial uses are protected. The cost of these activities should be included in the charges made for drainage and waterway management as part of the Water Plan.

3.4 Releases from storages

It is expected that as part of meeting the Statement of Obligations requirements for managing and monitoring impacts on river health, that consideration be given to clause 42 of SEPP (WoV) which requires water authorities operating water storages to minimise potentially negative

environmental impacts of water releases from the storages. In particular, the clause highlights the need to minimise the impact of nutrient enrichment and altered flow patterns on beneficial uses and the need to monitor for the impacts of water releases, both to ensure that impacts are identified and publicly reported and to assist planning for management actions.

If impacts are identified, water authorities and other water storage operators must put in place actions to address those impacts.

3.5 Groundwater management provisions.

The objective of the SEPP (Groundwaters of Victoria) [SEPP (GoV)] is to maintain and where necessary improve groundwater quality sufficient to protect existing and potential uses of groundwater throughout Victoria. The SEPP (GoV) recognizes that the protection of groundwater and aquifers is fundamental to the protection of the environmental quality of surface waters.

Clause 21 of SEPP (GoV) requires any proposal to discharge, deposit or dispose of waste to land (including saline waste discharges to evaporation basins as outlined in section 3.6) where the discharge, deposit or disposal has potential to cause detriment to groundwater quality, to include an assessment of:

- any background rate of rise of the water-table;
- any rise of the water-table expected to be caused by recharge induced by the discharge, deposit or disposal of the waste;
- the impact of any rise of the water table on the sustainability of –
  - the proposal;
  - the surrounding land use; and
  - any nearby ecosystem.

The SEPP (WoV) reinforces the importance (Clause 45) of the existing rural water authority practice for licensing groundwater use and the need to ensure that groundwater use does not impose a risk to the beneficial uses of adjoining surface waters. This means that groundwater diversions need to be managed to ensure adequate quantity of water for surface waters.

Requirements for protection of groundwater are also generally contained within the requirements for existing practices such as sewage treatment licensing and management guidelines such as for biosolids land application and the use of reclaimed water. Groundwater management obligations outlined in the Groundwater SEPP have also been incorporated (where relevant) into groundwater management plans.

3.6 Saline discharges to surface waters and groundwaters

Clause 36 of SEPP (WoV) requires saline wastewater, including discharges from groundwater pumping and irrigation drains, to be managed in such a way that it does not pose an environmental risk to beneficial uses to surface water and groundwater. To do this, water businesses are required to work with DSE, DPI and relevant businesses to implement the waste hierarchy to maximize avoidance, re-use and recycling of saline wastewater before discharging it to surface waters. Where saline discharges cannot practically be avoided, its impact on surface waters needs to be minimised by

discharging saline wastewater to artificial drains or evaporation basins or through treatment, including dilution, to minimise environmental risks posed to beneficial uses. Any discharge of saline water to surface waters needs to be in accordance with Government approved salinity plans and strategies and the Murray Darling Basin Agreement.

4. ASSESSMENT, MONITORING, AUDITING AND REPORTING

4.1 Monitoring, auditing and risk assessment

See section 3.1 for obligations with respect to irrigation drainage monitoring and auditing and 3.2 for environmental flow auditing.

During the 2005-2008 regulatory period, EPA's expectation was for all STPs with a surface water discharge to have an agreed monitoring program to assess:

- the impact of the discharge on beneficial uses of the waterway and the size of the mixing zone for the discharge (through a biological monitoring program); and
- the management activities that may be necessary to protect beneficial uses of the relevant waterway (as identified through an ecological risk assessment).

As such, it is now expected that risks to the water environments have been assessed using the above data and other available data from waterway and catchment managers. For the 2008-2013 regulatory period, programs and reporting must be established in relation to:

- working with waterway and catchment managers to address priority areas of risks (as identified through ecological risk assessment) in accordance with river health strategies;
- any offsets projects;
- reporting to community on affected waterways (mixing zones).

Relevant EPA guidance is provided in such publications as *Rapid Bio-assessment of Victorian Streams* (1998, publication 604) and in Information Bulletins underpinning the SEPP (WoV), for example Publication 790.1 *Risk Assessment Approach – Ecosystem Protection* (2003), Publication 961 *Guideline for Environmental Management: Risk-Based Assessment of Ecosystem Protection in Ambient Waters* (2004). The SEPP (WoV) builds on the risk assessment framework described in the 2000 *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

To ensure adequate costs are attributed to monitoring of STP discharges, the water industry should, at an early stage in the 2008-2013 planning period, discuss the nature and extent of the expected monitoring with EPA and other relevant stakeholders.

4.2 Water industry reporting

EPA licensing requires annual reporting of STP licence performance, including water and biosolids recycling schemes in accordance with EPA guidelines. EPA anticipates that ongoing reporting programs will align as much as possible with reporting requirements for other organisations for example ESC, VicWater, National Water Initiative. EPA also anticipates that this reporting will move to a proforma model involving centralised collection

and summary reporting. While this will represent an increase in the information to be collected from the water industry, this may not translate to increased industry demands due to the harmonisation of criteria and proforma approach.

Within the 2008-2013 regulatory period, water businesses will also be required to report to the community and other stakeholders any impacts on beneficial uses of surface waters from activities including wastewater discharges and releases from storages. EPA will work with water businesses and ESC to further develop these reporting requirements.

SUMMARY OF OBLIGATIONS

General

- Compliance with principles of the EP Act and SEPP (WoV)
- Comply with attainment measures as set out in SEPP (WoV) and its schedules as relevant

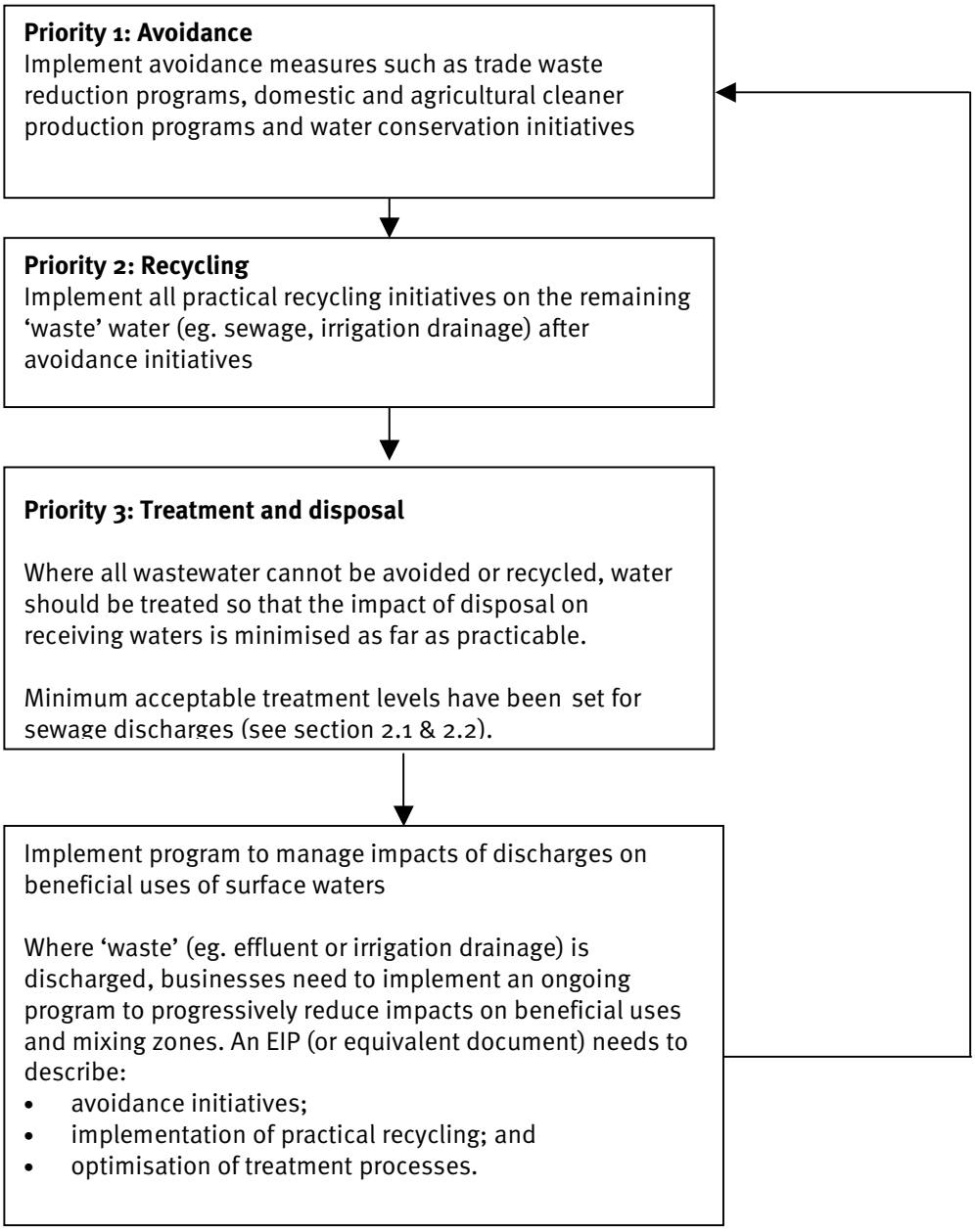
Specific

- ***Water conservation and resource efficiency***
  - Develop sustainable water plans requiring water conservation in accordance with SEPP (WoV) and White Paper requirements;
  - Integrate efficient use of resources (for example, water, energy, fertilisers, industrial chemicals etc) into business activities.
- ***Sewage management***
  - *Implementing the waste hierarchy for sewage management*, including water conservation and recycling for sustainable water management;
  - *Sewage treatment and disposal:*
    - upgrade treatment plants to meet minimum standards for discharge to waterways as per EPA requirements;
    - undertake recycling of reclaimed water in accordance with EPA requirements;
    - undertake biological monitoring of discharge impacts to waterways and identify mixing zones;
    - conduct ecological risk assessment of the impact of discharges and develop a program to progressively reduce impacts on waterways in consultation with waterway managers and coastal plans and EPA;
    - report impacts on beneficial uses (mixing zones) to the community via an agreed mechanism;
  - *Sludge and biosolids management*
    - develop and implement plans for management and handling of continuously produced sludge;
    - develop and implement plans for 100 per cent biosolids recycling in accordance with EPA requirements;
  - *Management of the sewerage system,*
    - undertake a review and develop a sewerage system management plan, including an implementation program, to address environmental risks of the sewerage system (including design, management, maintenance, incident response and reporting) in consultation with EPA, prior to finalisation of 2008 Water Plan;
    - ensure costs associated with actions within the implementation program are included in the 2008 Water Plan;
    - undertake an EPA statutory audit in the 2008-2013 regulatory period on the adequacy of the implementation plan to identify and manage environmental risks;
  - ensure *trade waste* is managed in accordance with the waste hierarchy;
  - manage greenhouse gas emissions in accordance with the waste hierarchy and best practice as per SEPP (AQM) requirements;
  - manage odour, from sewage treatment plants, sewerage systems and biosolids and water recycling practices in accordance with SEPP (AQM).
- ***Catchment, waterway and groundwater management***
  - manage irrigation drainage and saline discharges to surface water and groundwaters, in accordance with the waste hierarchy and as outlined in the SEPP (WoV);

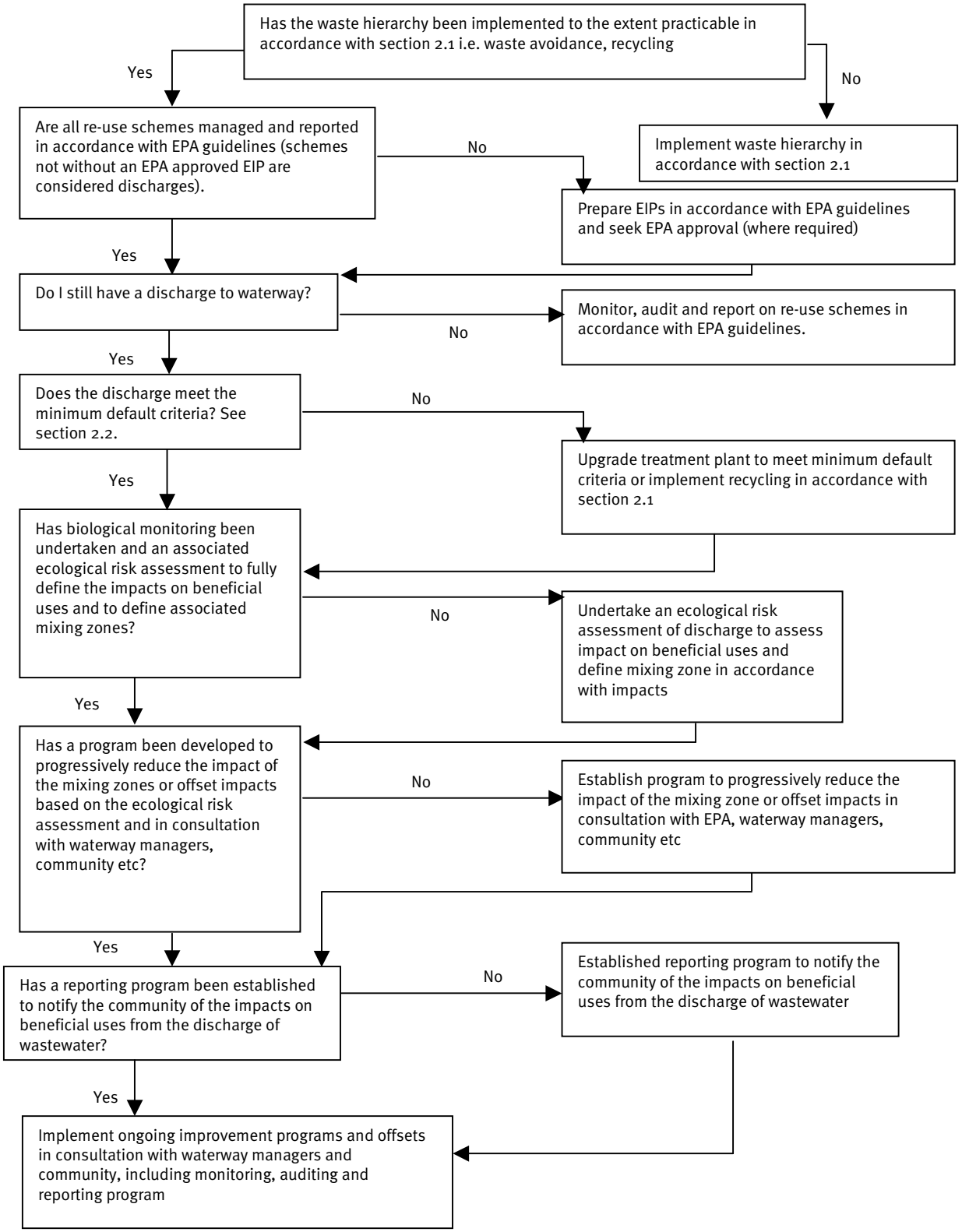
- ensure appropriate environmental flows provision and auditing in accordance with SEPP (WoV);
- ensure appropriate waterway management with consideration of SEPP (WoV) requirements;
- provide and manage releases from storages in accordance with SEPP (WoV); and
- ensure appropriate groundwater management in accordance with SEPP.

- ***Monitoring, auditing and reporting***
  - monitoring and auditing of the environmental impacts of water industry functions; for example monitoring of discharges to surface waters; and
  - reporting of water industry activities and performance, eg annual reporting of sewage treatment plant licence compliance and water recycling, auditing of performance.

Appendix A: Figure describing the implementation of the waste hierarchy into environmental obligations



Appendix B: Process for Wastewater Management



Appendix C

Guidance on sewerage system review and audit

Introduction

Clause 35 of State environment protection policy, Waters of Victoria (SEPP (WoV)) states:

"Losses of wastewater through sewer overflows, leakages and collapses need to be avoided to protect beneficial uses. Where these cannot be avoided, they must be minimised and controlled."

The EP Act also has general provisions in relation to the pollution of waterways and associated penalties.

In order to meet the requirements of SEPP (WoV), EPA requires that the sewerage system design, management and maintenance systems be implemented with the overall aim to:

- eliminate dry weather spills and chronic leakage; and
- contain flows associated with a 1 in 5 year rainfall event or a comparable design standard approved by EPA.

Individual water business programs to bring systems into compliance vary due to historical differences in system design and performance. Generally, metropolitan areas are further developed with respect to programs to meet the 1 in 5 design standard and ongoing system assessment, management and reporting in relation to environmental risks. These standards have not necessarily been applied to regional areas, and in some cases there is a limited understanding of the environmental risks of sewerage systems in non-metropolitan areas. Therefore, timelines for compliance with the above standards will vary from business to business across the state based on a range of factors. EPA will work with businesses in both metro and regional areas to ensure consistency depending on business characteristics as far as practicable.

These differences notwithstanding, EPA requires all businesses to progressively bring the sewerage system (with consideration for growth) to SEPP compliance through development and implementation of sewerage system management plans that:

- establish integrated processes within management systems to identify and minimise environmental risks;
- set priorities for actions to address non-compliance; and
- ensure a culture that actively seeks to minimise environmental risks.

Sewerage system management plans must outline how water businesses will meet the above requirements including a timetable for undertaking any required works (via an implementation program), based on a risk based approach. It is acknowledged that water businesses will also have existing processes and systems for design, management and maintenance of their sewerage

system, that is, through asset management plans. These processes may not adequately capture environmental risks. As such, all systems and processes should be considered in light of environmental risks when developing sewerage system management plans.

Objectives and Scope of Sewerage System Review

Water businesses must develop sewerage system management plans and most importantly implementation programs within these plans, to identify and prioritise risks related to sewerage system management, and in turn set out actions to address these risks. Development of sewerage system management plans needs to occur in time to allow actions within the implementation program to be agreed with EPA and included in 2008 Draft Water Plans.

Where opportunities for system improvement are identified, recommendations must be made and reflected as actions within an implementation program component of the sewerage system management plan. The timing of the required works should reflect the risk to the environment. It is expected that metropolitan water businesses and major regional centres have made significant progress towards eliminating dry weather spills to surface waters and containing flows associated with a 1 in 5 year rainfall event by the end of 2013. Regional water businesses may take longer to achieve the required standards, but timelines for improvements should reflect the relative risks posed by the sewerage system.

Development of Sewerage System Management Plans and Implementation Programs

This work is required to be completed in time to allow for incorporation of implementation program actions in the 2008-2013 Draft Water Plan.

To assist in developing the sewerage system management plan, EPA recommends that a comprehensive sewerage system review process, similar to an internal business audit, should be undertaken, including the following:

- objectives of the review;
- scope of the review, including the criteria;
- methodology, including:
  - the documentation reviewed;
  - site visits;
  - data collection and evaluation; and
  - risk assessment approach;
- evidence used to assess the review criteria;
- findings and recommendations including prioritisation consistent with the outcomes of any risk assessment undertaken for the purpose of the review included within a sewerage system management plan.

Further information regarding the scope and methodology of the review is provided later in this document.

Requirement:

1. Undertake a review and produce a sewerage system management plan to document:

a) the risk of any possible harm or detriment to surface waters and groundwater from the sewerage system and related activities;

b) the efficacy of the current sewerage system and related activities and plans in identifying and managing risks to surface waters and groundwater, preventing dry weather spills and meeting 1 in 5 requirements for wet weather events; and

c) an order of priority by which the risks to environment identified in parts 1. a) and 1. b) should be addressed (see under "Risk Classification" later in this document).

2. The review referred to in (1) should be determined by:

a) a desk-top review of the sewerage system, plans (including asset management plans), procedures (including incident response, operations and maintenance procedures), monitoring programs (including leak detection programs), data, records or other information relevant to the planning, design, management and maintenance of the sewerage system;

b) inspections specific for the purposes of the review of any relevant activities in relation to the sewerage system (if appropriate); and

c) collection and/or modelling of any data (if appropriate); and

d) any existing similar auditing activities.

3. The sewerage system management plan referred to in (1) must:

a) indicate if any activity or procedure conducted in relation to the sewerage system represents an unacceptable risk of any possible harm or detriment to the water environment as determined by an assessment of:

i. impacts on beneficial uses of surface water or groundwater environments;

ii. measures for the prevention of dry weather sewage spills to the environment and wet weather spills associated with a 1 in 5 year rainfall event;

iii. compliance with the requirements of the State Environment Protection Policy (Waters of Victoria);

iv. application of best practice to the management of sewerage system activities;

v. adequacy and compliance with any relevant plan (that is, asset management plans); and

vi. adequacy and compliance with relevant industry standards.

b) Where an unacceptable risk of possible harm or detriment to the environment has been determined in part 3 (a), recommend measures and actions necessary to reduce the risk to an acceptable level as part of an implementation program within the sewerage system management plan.

Environmental Audit

An environmental audit pursuant to section 53V of the *Environment Protection Act 1970* is to be conducted during the 2008-2013 regulatory period (nominally mid way through the period, that is, 2010-2011), as agreed with EPA, as follows:

4. Conduct an environmental audit prepared by an Environmental Auditor appointed in accordance with part IXD of the *Environment Protection Act 1970*. The audit must include:
    a) an assessment as to whether risks to the surface water and groundwater environments have been adequately identified in the sewerage system management plan referred to in part (1); and
    b) an assessment of the adequacy of the implementation program of the sewerage system management plan referred to in part (3) (b) in managing risks to surface and groundwaters.

The overall objective of this audit is to identify the means and actions by which businesses can continuously improve their sewerage system management.

Further Information

Approach and Methodology

The review to produce a sewerage system management plan should be conducted using the following methodology:

- review of existing assets, management, maintenance and planning processes in relation to the sewerage system activities including:
    - spill and leakage history of sewers;
    - preventative maintenance programs;
    - alarm and notification systems;
    - incident and emergency response to sewer spills and leaks; and
    - review of employee training and organizational culture in relation to avoiding risks to environment.
- Developing a risk assessment process for prioritisation of works in agreement with EPA. This can be based on factors such as:
    - likelihood of sewage entering waterway if an event were to occur; and
    - daily flow quantities (that is, based on population served).
- Providing recommendations for improving the efficacy of sewerage management systems in identifying and managing risks to surface waters and groundwater; and
- undertaking actions in the implementation program to reduce environmental risks from sewerage systems and prevent dry weather flows and meet 1 in 5 containment.

Risk Classification

A qualitative assessment of risk must be performed. This risk assessment should then be used to assign priorities to the actions of the implementation program component of the sewerage system management plan.

The following provides an example of a possible risk priority basis for various scenarios:

- high risk: where a failure in the sewerage system is likely and would result in direct or indirect release of sewage to a waterway for example, pump stations without back up power or failure alarms.
- Moderate risk: practices that do not represent best practice management or conform to recommended industry standards.
- Low risk: non-compliance with administrative requirements.

Best Practice/Recognised Industry Standards

Best practice management techniques should be based on recognised and established local and international standards and operating practices for sewerage systems. These are indicative of a level of performance and there may be alternative solutions or management practices which provide an equivalent level of protection to the environment.

Best practice management may differ for metropolitan centres and regional areas with small populations reflecting the relative risks of sewer spills and leakages. EPA will work with water businesses to apply consistency across the water industry based on sewerage system characteristics.

Some examples of best practice as considered by EPA are outlined below.

Pump stations

Pump stations are required to be fitted with:

- standby pumps and pump failure alarms;
- back up/standby power to enable operation without mains power;
- alarm systems;
- telemetry systems to notify a central location of any system upset including partial blockage, rising main bursts/leaks, infiltration/inflow and abnormal or illegal flow; and
- detention storage capability commensurate with likely response time.

It is expected that the alarm notification and telemetry system will provide a high level of reliability to enable appropriate response to prevent or contain dry weather spills in the event of any failure.

Preventative maintenance program

Worn or expired components are replaced in accordance with manufacturers instructions and that this is reflected in asset management plans or equivalent.

Electrical preventative maintenance program to include regular electrical, switch and control equipment inspection and testing, where a failure of these systems would result in a discharge of sewage to the environment.

Definitions

Sewer Overflows:

Sewer overflows are discharges to the environment of raw or partially treated sewage from sewerage systems. In the context of this document, sewer overflows are from all sources, except STPs which are covered by EPA licences.

Sewerage System:

Sewerage systems include emergency relief structures, access chambers (also known as

manholes), sewage pumping stations, and pipes and sewage treatment plants (STPs).

Dry weather spill:

A dry weather spill is any sewer overflow not associated with a rainfall event. Response to any dry weather spill will be dependant upon a number of factors, including volume, receiving environments/proximity to waterways and potential public exposure. Such factors should be expressed in response protocols agreed with EPA.