REGULATORY IMPACT STATEMENT

PROPOSED
ENVIRONMENT PROTECTION (WATER QUALITY) POLICY 2015 UNDER THE ENVIRONMENT PROTECTION ACT 1993

Environment Protection Authority

March 2015

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EXECUTIVE SUMMARY

The *Environment Protection (Water Quality) Policy 2003* (the Policy) under the *Environment Protection Act 1993* (the Act) was introduced to provide a consistent state – wide approach to the protection of water quality across all South Australian water bodies. It is heavily based on the traditional 'command and control' approach to regulation and provides mechanisms for ensuring that all activities, irrespective of scale of operation and whether or not an activity is subject to licensing under the Act, operate under uniform conditions regarding water quality. This includes setting mandatory water quality criteria for inland and marine waters, establishing pollution management obligations for industry and the community and using enforceable Codes of Practice.

South Australia's Strategic Plan which was first released following the commencement of the Policy acknowledges that water is critical to the state's economic and environmental aspirations and contains two targets regarding water quality. These are maintaining the health of South Australia's marine environments and ensuring that the state's water resources are managed within sustainable limits. The Policy has an important role to play in achieving these targets. However, monitoring has identified significant water quality issues, whilst significant advances have been made regarding understanding of the impact of pollutants on water quality, required water quality standards and technological and legal mechanisms for protecting water quality, including an increasing emphasis on a risk-based approach to environmental regulation. The risk-based approach is reflected in the Environment Protection Authority's (EPA) compliance and enforcement policy which as was also released following the commencement of the Policy. In this context a thorough review of the Policy has been undertaken taking account of legislative reform, strategic plans and policies implemented since the commencement of the Policy, as well as updates of important national guidelines. In addition to the Strategic Plan and the EPA's compliance and enforcement policy, these include the Adelaide Coastal Water Quality Improvement Plan, the *Aquaculture Regulations 2005*, the *Environment Protection (Waste to Resources) Policy 2010*, updated national guidelines regarding fresh and marine water quality, drinking water and recreational waters, the Murray-Darling Basin Plan and a national ban on the use of antifoulants containing tributlyltin.

The review identified about 30 issues with the Policy and proposed over 20 reforms. Key findings and proposed reforms are summarised as follows.

Clause 4 - Application of the Policy

Issues

- The Policy has broad application across most waters of South Australia. However, it does not apply when contaminated water, or water that is dosed with chemicals is contained within 'closed systems' (ie pipes and tanks), but does apply when discharges from these systems to waters occur. The pipes and tanks of salt interception schemes are also 'closed systems', but water within these pipes and tanks is not excluded from the application of the Policy. This water is suitable for use in aquaculture and could then be discharged back into the pipes of the salt interception scheme subject to the discharge not resulting in the water of evaporation basins contravening water quality standards specified in the Policy. However, the inclusion of water in the pipes and tanks of salt interception schemes in the application of the Policy has the potential to discourage its use for aquaculture.

- The term 'public stormwater disposal system' is not defined in the Policy. Pipes, gutters and streets are a part of public stormwater systems and consequently, the Policy applies to discharge of stormwater to pipes, gutter and streets. The absence of a definition of public stormwater disposal systems may be resulting in some parties discharging pollutants and waste to stormwater without realising that this contravenes the Policy.

- Land-based disposal of pollutants can result in water contamination. Whilst various clauses of the Policy address this issue, Clause 4 makes no reference to application of the Policy regarding this matter. This may be resulting in uncertainty regarding compliance requirements.

Proposed Reforms

- Exclude water within the pipes and tanks of salt interception schemes from the application of the Policy, but continue to apply the Policy to evaporation basins where this water is finally discharged.

- Define public stormwater systems to clarify that any equipment or infrastructure used for the purpose of collecting, treating or conveying stormwater are part of a public stormwater system.

- Revise the definition of 'contaminated stormwater' to reflect the proposed changes to the list of Scheduled Pollutants that are subject to disposal restrictions under the Policy.

- Insert a provision to confirm that the Policy applies in the case of discharges of contaminated stormwater to land from where it may enter waters.

- Provide transitional arrangements for existing licensees to undertake prescribed activities of environmental significance under the Act ensuring that where the authorisation is undertaken lawfully, but contravenes any provision of the proposed new Policy, that provision would not apply in relation to the licensed activity until two years after commencement of the proposed new Policy.

Clause 13 - Water Quality Criteria

Issues

- The current approach to protecting the environmental values of the state's waters is highly rigid. The Policy specifies mandatory concentration limits for 90 pollutants and performance standards regarding dissolved oxygen and pH (ie acidity/alkalinity) in South Australia's water bodies that must be complied with regardless of possible variations to environmental risk of a discharge in different locations of a water body and in different water bodies. These inflexible specifications have also been very difficult to administer and achieve, in particular, identifying offending parties and sites in situations where there are multiple sources of pollutant discharge to a water body.

- Exemptions from compliance with these water quality criteria can be approved, for example in situations where disposal of a pollutant to water that contravenes these criteria represents, a lower environmental risk than other means of disposal. These exemptions, which require the establishment of mixing zones in the case of surface waters and attenuation zones in the case of underground waters, are subject to strict requirements regarding a range of matters including size and location where they are permitted. These requirements have caused difficulties as they are restrictive and often cannot be complied with where an exemption may be the best course of action.

- South Australia is the only jurisdiction in Australia that uses mandatory compliance standards to implement its general water quality objectives. The general approach in other jurisdictions is that while water quality criteria are specified using national guidelines, they are not mandatory compliance standards. Rather, the significance of water quality criteria in these jurisdictions is to inform decision making including regarding enforcement, and the development of strategies to protect and enhance water quality.

- South Australia faces significant water quality problems. Large areas of valuable seagrass beds have been lost, or are threatened primarily because of high nutrient loads in discharges from wastewater treatment plants, septic tanks, aquaculture and agricultural run-off, whilst sediment in stormwater discharges has also been a contributing factor. The majority of the state's rivers and creeks are in very poor to fair condition, very few are in good condition, with high nutrient loads being a key reason for their degraded condition. The nutrient concentration limits specified in the current Policy are too high to be protective of the state's aquatic ecosystems.

Proposed Reforms

- Via proposed Clause 9, replace mandatory requirements to comply with prescribed water quality criteria, with a requirement to take all reasonable and practicable measures to prevent or minimise environmental harm from the discharge of pollutants in compliance with the General Environmental Duty under Section 25 of the Act. Water quality criteria would act as a 'risk assessment trigger' to require parties to determine whether risk of environmental harm can be adequately managed.

- Via proposed Clauses 9 and 7, make South Australia's water quality criteria consistent with national standards by requiring reference to the full range of water pollutant standards and characteristics listed in national guidelines ie the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000', 'Guidelines for Managing Risks in Recreational Water 2008' and 'Australian Drinking Water Guidelines 2011'.

- As a consequence of the replacement of a mandatory requirement to comply with prescribed water quality criteria by a requirement to comply with the General Environmental Duty, the exemption provisions from water quality criteria would no longer be required and as a consequence, would be removed.

Clauses 17 and 19 - Scheduled Pollutants

Issues

- Clauses 17 and 19 together with Schedule 4 – Listed Pollutants control pollution from activities that are not licensed under the Act by prohibiting the direct or indirect discharge of listed pollutants to water. However, compliance requirements can be confusing to interpret.

- There are conflicting provisions in the Policy regarding the use of pesticides and herbicides. Whilst Clause 17 indicates that pesticides or herbicides manufactured for use in relation to waters which are used in concentrations not exceeding maximum levels specified by manufacturers or by law, are excluded from the ban on discharges, this is not strictly the case. Schedule 2 – Water Quality Criteria of the Policy indicates that no pesticides are permitted in waters with ecosystem values, or waters that are used as a source of drinking water.

- Pollutants listed in Schedule 4 are not fully integrated with the Policy, licensing under the Act and the *Environment Protection (Waste to Resources) Policy 2010*. This has resulted in conflicting provisions within the Policy and unnecessary duplicative regulation via the Policy.

- The Policy conflicts with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* as it prohibits the discharge of chemicals designed for therapeutic use on animals into any waters and the discharge of animal faeces. However, the *Aquaculture Regulations 2005*, permits the use of chemicals for therapeutic or prophylactic purposes under certain conditions, while in the case of aquaculture, the discharge of animal faeces to water is unavoidable and is regulated via licensing under the *Aquaculture Act 2001*. All applications for aquaculture licences and variations to licence conditions are referred to the EPA for approval.

- The Policy also conflicts with environmental watering undertaken to achieve the objectives of the *Natural Resources Management Act 2004*, the *River Murray Act 2003*, the *Water Act 2007* (Commonwealth) and the Murray - Darling Basin Plan. Environmental watering may contain animal faeces, fertilisers, green waste and soil, clay, gravel or sand which are listed pollutants in Schedule 4. However, the potential risks to water quality

associated with environmental watering are managed through a range of regulations and plans under these statutes.

Proposed Reforms

- Rationalise specifications of compliance requirements regarding scheduled pollutants to ensure that they are more easily understood by separating scheduled pollutants into two separate schedules and specifying compliance requirements for these schedules separately.

- Revise the list of pollutants that are not permitted to be discharged to water either directly, or indirectly via land-based disposal. In recognition of licensing requirements under the Act and disposal restrictions under the *Environment Protection (Waste to Resources) Policy 2010*, remove wastes listed in Part B of Schedule 1 of the Act. However, a range of additional pollutants would become subject to these discharge restrictions including wastewater or liquid waste that are not authorised under the Act, hazardous and radioactive waste and biosolids.

- Remove conflict with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005*, by exempting the use of chemicals for therapeutic or prophylactic purposes, and the discharge into waters of faeces from aquatic organisms under aquaculture licences from the proposed clauses prohibiting the discharge of scheduled pollutants.

- Remove conflicting provisions regarding the use of pesticides and herbicides by the replacement of pesticide (including herbicides) concentration limits specified in Schedule 2 – Water Quality Criteria with the proposed Clauses 9 and 7 of the new Policy. This would necessitate avoiding the activation of trigger values in the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', and having regard to the 'Australian Drinking Water Guidelines', while the 'Guidelines for Managing Risks in Recreational Water' may also apply. Under these Guidelines it is recognised that residual concentrations of pesticides and herbicides in water may occur as a result of their lawful use.

- Remove conflict between the Policy and the Act by excluding licensed activities from the proposed clauses prohibiting the discharge of scheduled pollutants. Remove conflict within the Policy by inserting provisions in these clauses specifically allowing the discharge of scheduled pollutants when permitted under other provisions of the Policy.

- Remove conflict with the objectives of a number of state and national statutes and the Murray – Darling Basin Plan by allowing the incidental discharge of animal faeces, fertilisers, green waste and soil, clay, gravel or sand when undertaking environmental watering.

Clause 18 - Wastewater Storage Lagoons

Issues

- Regulation applies to facilities covered by the definition of a wastewater lagoon in the Policy ie a 'wastewater storage lagoon' being a dam, pond or lagoon constructed and used for the purpose of holding wastewater, but does not include a sediment retention basin. The exclusion of sediment retention basins is problematic as they are used as part of public stormwater management systems, and as part of pollution control for extractive industries and infrastructure projects. This definition has generated debate regarding its application. Firstly, the term 'storage' has led to the argument that the Policy only applies in situations where waste is stored in lagoons, and does not apply when waste is treated and/or disposed of in lagoons. The intent of the Policy is that it applies when waste is either temporarily stored, treated, or disposed of in lagoons. Secondly, it has been argued that the Policy does not apply to a number of liquid storage, treatment and disposal systems that may also contain significant contaminants ie artificial wetlands used for the capture and treatment of contaminated water at industrial sites, leachate ponds and tailings dams. It is clear that sediment retention basins as well as these facilities are all wastewater lagoons and should be regulated via the Policy.

- The Policy directs the EPA to take into account a list of areas where lagoons should not be built when considering development applications involving wastewater lagoons under the *Development Act 1993*, and also licence applications involving wastewater lagoons. However, as not all lagoons are developments within the meaning of the *Development Act 1993*, or are part of an activity that requires a licence under the Act, it does not apply to all lagoons. This requirement is therefore inconsistent and limited in application, and consequently, does not ensure effective environmental management.

- It is prohibited to use wastewater lagoons to store oil and petroleum products, paint and paint products, sewage, timber preservatives and wastes listed in Part B of Schedule 1 of the Act in the 1956 River Murray Flood Plain and Water Protection Areas which together cover a large area of the state. Given

the location of regional centres, it is impractical to be so restrictive regarding the use of wastewater lagoons.

- Lagoons used for storage of the above listed pollutants must be constructed of, or lined with an impervious material, or be equipped with leak collection facilities. However, there are a broad range of other pollutants that pose significant environmental risk, whilst leakage is a particularly important issue to manage as all types of lagoon liners leak. Given these matters high quality lining may also be required at lagoons where a broad range of pollutants are discharged, while the use of such lining together with leak collection facilities may be required to ensure adequate environmental protection.

- Installation of bore holes to undertake leak detection via groundwater monitoring is required. However, there are other more accurate, cost-effective leak detection methods that are not recognised in the Policy and therefore are currently not permitted to be used.

Proposed Reforms

- Redefine wastewater storage lagoons by excluding the word 'storage' and including sediment retention basins, artificial wetlands, leachate ponds (containing leachate from composting or landfill works) and tailings dams in the definition.

- Remove the directive regarding areas where lagoons should not be built and the rigid mandatory provisions regarding construction and operation. Replace these with new detailed risk-based guidelines to help operators of lagoons comply with the proposed new compliance requirements regarding water quality criteria. Recognise situations where overflow is factored into design and normal operations.

Clause 22 - Antifoulants

Issue

- Antifoulants are chemicals designed to prevent the growth of aquatic organisms on submerged objects such as the hulls of boats. Under the current Policy, limited use of tributyltin (TBT) is permitted. Notwithstanding its effectiveness in controlling risks posed by invasive species, TBT is highly toxic, with impacts seen on marine organisms at extremely low levels. Consequently, pursuant to the 'International Convention on the Control of

Harmful Anti-fouling Systems on Ships', the Australian Government banned the use of TBT in September 2008 as suitable alternatives have become available. The explanatory report regarding the current Policy indicated that should a total ban on TBT come into effect, the Policy would be amended to be consistent with national legislation.

Proposed Reform

- Reflect the national ban on the use of TBT in the Policy.

Impacts of the Proposed Reforms

Due to significant data limitations and the impracticality of conducting quantitative analysis regarding these reform proposals, the impact assessment is heavily based on qualitative analysis. Key impacts of the proposed reforms are summarised as follows.

Compliance

The proposed reforms would not increase overall compliance requirements. Rather they would provide greater clarification regarding compliance requirements and greater regulatory certainty in a manner that is more consistent with the risk-based approach to environmental regulation. This would be achieved by a range of reforms including the following.

- The proposed transitional arrangements would provide regulatory certainty for existing licensees in the event that a provision of the new Policy conflicts with the conditions of a licence by providing them with two years to comply with the requirements of the proposed Policy.

- The proposed definition of public stormwater systems.

- Confirmation that the Policy applies to discharges of contaminated stormwater to land from where it may enter waters.

- Replacement of the mandatory requirement to comply with a fixed set of water quality criteria under Clause 13 with an obligation to take all 'reasonable and practicable' measures to prevent or minimise environmental harm in compliance with the General Environmental Duty under Section 25 of the Act would provide greater clarity for all parties regarding their existing responsibilities under the Act. Section 25 provides guidance regarding factors

that need to be taken into consideration when determining measures that are consistent with this duty ie environmental impacts, costs of taking action and knowledge about available measures and their likelihood of success. Direction is also provided via conditions of environmental authorisations (ie licences, works approval and exemptions) under the Act. The reforms would provide further guidance by reference to national water quality guidelines, codes of practice and other standards and guidelines. The water quality criteria in the national guidelines would act as a 'risk assessment trigger' to require parties to determine whether risk of environmental harm can be adequately managed. Existing powers to set discharge limits as a means of providing regulatory certainty would be retained under the new Policy.

- Replacing Clause 13 with a General Environmental Duty would not weaken the enforcement capacity of the EPA, as its powers under the Act to require holders of environmental authorisations (ie licences, works approvals and exemptions) to implement environment improvement programs and to issue environment protection orders and clean-up orders would remain. The way these reforms would be administered would however, ultimately be subject to some discretion on the part of the EPA. This reflects the need to consider a range of factors identified in Section 25 of the Act, and also the nature of the EPA's compliance and enforcement policy. This policy recognises that environmental legislation provides the EPA with a variety of regulatory tools and the ability to exercise discretion to determine which tool is appropriate for particular circumstances, and that in determining an appropriate course of action it considers a variety of factors including the seriousness of a contravention, compliance history and the extent and speed of required remediation action. Under this policy, any measure taken by the EPA is proportional to the risks posed to the environment and the seriousness of the offence, whilst regulatory effort is directed towards those activities that pose the greatest risks and cause the greatest environmental damage.

- The inclusion of a range of additional pollutants as scheduled pollutants would provide greater clarity regarding existing compliance requirements under the Act and Policy.

- Removing provisions that conflict with state and national statutes and the Murray - Darling Basin Plan regarding the use of chemicals for therapeutic purposes or prophylactic purposes and discharge of faeces by aquatic organisms in the aquaculture industry, and also the discharge of certain pollutants as a result of environmental watering and the use of antifoulants.

- The proposed reforms regarding the use of pesticides and herbicides would ensure that compliance requirements are in accordance with national

standards and that the lawful use of these chemicals is consistent with the requirements of the General Environmental Duty under Section 25 of the Act. In effect, when parties use pesticides or herbicides in accordance with concentrations specified by the manufacturer or by law, they must also comply with the requirements of proposed Clauses 9 and 7**.**

- Removing conflicting provisions within the Policy and provisions that conflict with the Act regarding the discharge of scheduled pollutants.

- The proposed new definition of wastewater lagoons would clarify that the requirements of the Policy apply to the operators of a very broad range of liquid waste storage, treatment and disposal systems. However, pursuant to Section 7(4) of the Act it would not apply to wastes produced by an activity that is authorised by a lease or licence under *Mining Act 1971*, the *Petroleum and Geothermal Energy Act 2000,* or the *Roxby Downs (Indenture Ratification) Act 1982*.

- The proposed reforms regarding wastewater lagoons would provide a flexible risk – based approach regarding siting, construction and operation. They would provide operators of lagoons with greater flexibility in ensuring compliance and significantly more information about issues that need to be addressed in ensuring compliance with the Policy and the Act. Greater flexibility would be provided regarding locations at which wastewater lagoons can be built, types of pollutants that can be stored at lagoons, and lining and leak detection systems using a risk-management framework. The new Guidelines would also provide advice and guidance about issues not discussed in the current guidelines including noise and odour control and protecting the health and safety of people.

Economic Impacts

The proposed reforms would provide economic benefits to South Australia that are summarised as follows.

- Providing greater clarity regarding compliance requirements would result in savings for industry by reducing time spent inquiring about compliance requirements. However, it is not possible to quantify potential savings arising from this benefit.

- Excluding water within the pipes of salt interception schemes from the application of the Policy would help to enable the use of saline water captured

by these schemes for aquaculture businesses, thereby encouraging further expansion of the state's aquaculture industry.

- The proposed new approach regarding compliance with water quality criteria is more equitable than current regulatory arrangements as it would highlight an existing requirement for all parties that discharge pollutants into water bodies to have a reasonable understanding of the hazards of these pollutants and the environment into which they discharge. This is a standard requirement for licensees and holders of other environmental authorisations under the Act. While this may result in increased effort regarding water quality management by some parties, who currently do not comply with the General Environmental Duty under the Act, it would mean that all parties that discharge pollutants into water bodies would be subject to the same required standards as licensees and holders of other authorisations, if their activities pose environmental risks. In the case of licensees, improved environmental performance arising from these reforms may also result in reduced licence fees.

- The proposed approach regarding compliance with water quality criteria is essentially risk-based. This means that prevention of environmental harm from discharges would become the priority focus, with the national guidelines used to identify the need for risk assessment and improved environmental management where necessary, rather than setting rigid compliance requirements that do not adequately account for variations in environmental risk. Linking compliance requirements to observance of the General Environmental Duty would allow industry to work with the EPA to achieve substantial improvements, over a realistic timeframe rather than being liable to immediate financial penalties for non-compliance with the current inflexible 'one size fits all' water quality criteria.

- The inclusion of a range of additional pollutants as scheduled pollutants would not result in increased compliance costs as disposal of these wastes is regulated via Clause 10 of the *Environment Protection (Waste to Resources) Policy 2010* which specifies the only ways in which wastes can be disposed of and sets penalties for non-compliance.

- Improvements to water quality as a result of these reforms would reduce stormwater clean–up costs and water treatment costs, and enhance the economic value of the state's waters for a range of industries including commercial and recreational fishing, aquaculture, agriculture and tourism. It is not possible to estimate these benefits as it would depend on the extent of water quality improvements that can be achieved, and also the businesses that take advantage of improved environmental conditions. Significant data

limitations also prevents detailed quantitative analysis regarding these impacts. However, available evidence highlights the economic benefits of achieving sustained reductions in discharges of nutrients and suspended sediments to coastal waters to protect seagrasses.

- Allowing greater flexibility regarding the locations at which wastewater lagoons can be built and the types of pollutants that can be stored in lagoons, subject to appropriate risk management would remove potential restrictions on economic development.

- A risk-based approach to the siting, construction and operation of wastewater lagoons would result in costs for operators of lagoons being consistent with appropriate environmental management requirements. In some cases this may result in costs being lower than under existing regulatory arrangements, whilst in other cases it may result in costs being higher if necessitated by environmental issues.

Environmental Impacts

The proposed reforms provide mechanisms for significant improvements to water quality that is consistent with the objectives of South Australia's Strategic Plan. Key environmental impacts of the proposed reforms are summarised as follows.

- Research indicates that the use of water from salt interception schemes by aquaculture businesses and its subsequent discharge back into the pipes of salt interception schemes would have minimal effects on levels of nutrients and suspended solids in downstream water. However, if necessary, waste discharge from aquaculture businesses to salt interception schemes could be restricted to ensure that concentrations of nutrients and suspended solids in evaporation ponds comply with required standards under the Policy.

- Providing greater clarity regarding the application of the Policy to land-based disposal of contaminated stormwater that can subsequently enter waters, defining public stormwater systems, and updating the definition of contaminated stormwater to ensure that it is reflective of the proposed revised list of scheduled pollutants would encourage reduced discharge of pollutants in stormwater. This would help contribute to the Adelaide Coastal Water Quality Improvement Plan which seeks to achieve a 75% reduction in discharges of nitrogen and a 50% reduction in discharges of suspended solids in order to prevent further losses of seagrasses with associated benefits including protection of fish stocks, carbon sequestration and erosion control.

- The more stringent water quality criteria for nutrients in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality in comparison with the concentration limits specified for these pollutants in the current Policy are more consistent with the objectives of the Adelaide Coastal Water Quality Improvement Plan and the need for reduced discharges of nutrients in many areas of South Australia's inland and coastal waters. Pursuit of more stringent criteria regarding nutrients would also reduce the loss of valuable seagrasses.

- The reforms would also result in greater focus on the discharge of metals, metalloids and organic industrial chemicals into water bodies. These pollutants are found in urban stormwater with sources including brakes and tyres of motor vehicles, roofs, stormwater from industrial sites and run-off from mine sites. A greater focus on these pollutants is consistent with the proposed improvements to the regulation of stormwater and wastewater lagoons.

- A requirement for parties to have regard to the Australian Drinking Water Guidelines is expected to result in improved water quality in water catchment areas which are subject to multiple land uses.

- Greater clarity regarding comprehensive regulation of water pollutants under the Act and associated Policies as a result of these reforms would help ensure more effective environmental management by increasing awareness regarding the range of pollutants that should not be discharged into waters because of their potential to cause adverse environmental impacts. A reduction in the discharge of pollutants would contribute to achievement of the targets in South Australia's Strategic Plan regarding both inland and marine waters.

- The removal of conflict with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* regarding aquaculture, and various state and national statutes and the Murray-Darling Basin Plan regarding environmental watering is not expected to result in inadequate environmental protection regarding these matters.

- Removal of conflict between the Policy and the Act regarding licensed activities would not weaken environmental protection. Licensing under the Act enables the EPA to set conditions of operation that are intended to provide adequate environmental protection.

- Clarification that the requirements of the Policy and hence also the General Environmental Duty under Section 25 of the Act apply to the operators of a broad range of liquid waste storage and disposal systems is expected to result in greater compliance with the Policy, thereby reducing the incidence of environmental damage due to leakage from wastewater lagoons. The proposed new guidelines regarding wastewater lagoons are also expected to result in improved environmental management of wastewater lagoons by providing more extensive and detailed guidance regarding best practice construction and operation.

Family and Social Impacts

The proposed reforms highlight the fact that all members of the South Australian community have a responsibility regarding the protection of water quality and offer a range of benefits to the community that are summarised as follows.

- Communities in some regional areas may benefit from increased employment opportunities arising from growth in the aquaculture industry that may be facilitated via use of water from salt interception schemes.

- The benefits of reduced water pollution include improved drinking water quality, reduced health risks, improved amenity associated with use of recreational waters and potential employment opportunities with businesses that take advantage of improved water quality.

- A range of community benefits are also expected from the proposed reforms regarding wastewater lagoons. These include enabling the use of lagoons in areas where they are required, providing greater protection to properties adjacent to lagoons from contamination and odour issues and ensuring that the health and safety of people is accounted for.

Consultation

Consultation was undertaken in accordance with the requirements of the Act. This included referral of the Draft Policy and explanatory report to prescribed bodies listed in the *Environment Protection Regulations 2009* and holding a series of public meetings around the state. Stakeholders focussed their comments on issues of interest to them rather than all the reform proposals.

Key comments and issues raised, along with the EPA's response are summarised as follows.

- The proposed exclusion of water within the pipes and closed tanks of salt interception schemes from the application of the Policy is supported by SA Water, the Department of Primary Industries and Regions, the Department of Environment Water and Natural Resources and the Stormwater Industry Association.

- The Stormwater Industry Association and Adelaide City Council expressed support for the proposed inclusion of a definition of public stormwater systems, whilst Business SA considers that the proposed definition would function effectively.

- The City of Onkaparinga, the District Council of Mount Barker and Barossa Council all expressed concern regarding the proposed revised definition of contaminated stormwater. However, the proposed revisions would not significantly change the position that stormwater is invariably considered to be contaminated.

- The proposed approach to seeking compliance with water quality criteria based on the General Environmental Duty under Section 25 of the Act was the subject of supportive comments from a number of energy suppliers, SA Water, the SA Wine Industry Association, OneSteel and Adelaide City Council. However, some stakeholders expressed concern regarding the practical application of this approach and consequently, sought further clarification. Parties that would be subject to these compliance requirements would be provided with significant direction and guidance regarding what this involves. This includes via Section 25 of the Act, the Policy itself which specifies national water quality guidelines, Codes of Practice and other guidelines that parties must refer to or comply with, conditions of environmental authorisations under the Act and via the preparation of guidance documents by the EPA regarding use of the national water quality guidelines.

- The Environmental Defenders Office expressed concern that seeking compliance with water quality criteria based on the General Environmental Duty may lead to an inconsistent approach by the EPA in dealing with pollution. It is acknowledged that administration of these reforms by the EPA would ultimately be subject to some discretion. This reflects the need to consider a range of factors identified in Section 25 of the Act ie environmental

impacts, costs of taking action and knowledge about available measures and their likelihood of success, and also the EPA's Compliance and Enforcement Policy. This Policy recognises that environmental legislation provides a variety of regulatory tools and the ability to exercise discretion in determining which tool is appropriate for particular circumstances, and that in determining an appropriate course of action, the EPA considers a variety of factors including the seriousness of a contravention, compliance history and the extent and speed of required remediation action.

- No objections were expressed regarding the proposed reforms to the list of Scheduled Pollutants.

- The Stormwater Industry Association and Adelaide City Council expressed concerns about the inclusion of facilities for the capture and treatment of stormwater in the proposed revised definition of wastewater lagoons. Contaminated stormwater is however considered to be wastewater under both the existing and proposed Policy. Consequently, facilities used for the capture and treatment of stormwater are appropriately defined as wastewater lagoons under the proposed reforms.

- The process of finalising the proposed new Policy resulted in some matters being identified following the completion of the consultation process. This included some conflicting provisions within the Policy and also regarding the Act. No additional consultation was undertaken regarding these matters as the proposed reforms that are summarised above provide practical clarification regarding application of the Policy and its relationship with other statutes, rather than resulting in reforms themselves.

Implementation, Monitoring and Review

As indicated, the proposed new Policy provides transitional arrangements for existing licensees to undertake prescribed activities of environmental significance under the Act. This would ensure that where an authorisation is undertaken lawfully, but contravenes any provision of the proposed new Policy, that provision would not apply in relation to the licensed activity until two years after commencement of the new Policy. This would provide regulatory certainty for licensees in the event that a provision of the new Policy conflicts with the conditions of a licence by providing them with two years to comply with the requirements of the proposed Policy.

It is also recognised that upon commencement of the proposed new Policy, there may be existing exemptions from the requirements of Clause 13 that would no longer be required. Pursuant to Section 116 of the Act – Waiver or Refund of Fees and

Levies and Payment by Instalments, the EPA intends to seek Ministerial approval to refund a portion of payments for these exemptions equivalent to the portion of time that exemptions have been provided for that have not yet elapsed

All parties that participated in the consultation process would be advised of the reforms. In addition, the EPA has developed a detailed implementation plan that contains seven components including an external stakeholder engagement program, the release of support documentation to aid interpretation of national water quality guidelines, updates to licences, and evaluation of implementation.

Concluding Comments and Recommendation

As a state-wide mechanism for ensuring the protection of water quality, the Policy has an important role to play in achieving the water quality targets of South Australia's Strategic Plan. The proposed reforms would significantly enhance the effectiveness of the Policy in helping to achieve these targets including by clarifying compliance responsibilities regarding stormwater and scheduled pollutants, requiring reference to the full set of water quality criteria in national water quality guidelines including tougher standards regarding nutrients, and improving environmental management of wastewater lagoons.

Implementation of these reforms offers significant potential economic benefits and would also result in the Policy being fully integrated with state and national legislation, thereby removing any potential confusion regarding compliance requirements. Key industries and activities that would benefit from these reforms include aquaculture, agriculture, commercial and recreational fishing, tourism and other water based recreational activities, public stormwater systems and the treatment and supply of potable water. As indicated, the community would also benefit from reduced health risks and potential new employment opportunities including in regional areas. The only parties that would realise increased costs are those who currently do not comply with the General Environmental Duty under the Act and would do so as a result of implementation of these reforms.

These reforms are also consistent with the Government's economic priorities in particular 'Priority 2 – Premium food and wine produced in our clean environment and exported to the world' by improving the economic value of the state's waters and 'Priority 7 – South Australia, the best place to do business by providing a modern equitable risk-based approach to the protection of water quality across all the state's water bodies.

On this basis it is concluded that the reforms offer a significant net benefit to the South Australian community and are therefore recommended.

1 INTRODUCTION

Prior to the commencement of the Environment Protection (Water Quality) Policy 2003 (ie the Policy) under the *Environment Protection Act 1993* (ie the Act), South Australia lacked a consistent state – wide approach to the protection of water quality from both point and diffuse source pollution across all water bodies.

In the case of point source pollution from industry, this resulted in a major inconsistency in regulatory arrangements. Many medium – large businesses conducting a range of activities are subject to licensing under the Act and are therefore required to comply with licence conditions, including those regarding the protection of water quality. However, there are many smaller businesses conducting these activities that are not subject to licensing requirements as the scale of their activities are below prescribed licensing thresholds, whilst not all activities that can adversely affect water quality can be regulated via licensing. In the case of these businesses and activities, environmental compliance requirements were limited to observance of the General Environmental Duty under Section 25 of the Act. This provision of the Act prevents parties from undertaking an activity that pollutes, or might pollute, the environment unless all reasonable and practicable measures to prevent or minimise any resulting environmental harm are taken. The General Environmental Duty applies to all members of the community. However, the Act only provides basic guidance regarding what constitutes compliance with this requirement and nothing specifically about water quality. Regulatory mechanisms under the Act, such as environmental authorisations including licenses, works approvals and exemptions along with Environment Protection Policies are key mechanisms for providing greater clarity regarding what is required to ensure compliance with the Act, including the General Environmental Duty.

The current Policy was introduced to provide a consistent state – wide approach to the protection of water quality across all South Australian water bodies in accordance with the principles of ecologically sustainable development. It provided a mechanism for ensuring that all activities, irrespective of scale of operation and whether or not an activity is subject to licensing under the Act, operate under uniform conditions regarding water quality. The current Policy which is heavily based on the traditional 'command and control' approach to regulation aims to achieve this by:

- Setting environmental values and mandatory water quality criteria for streams, rivers, oceans and groundwater. The protected values or uses of water include: aquatic ecosystems, drinking water, recreation and aesthetics, agriculture and aquaculture, and industry.

- Establishing obligations for industry and the community to manage and control different forms of pollution.

- Encouraging better use of wastewater by avoiding the production of wastewater, eliminating or reducing wastewater, recycling and reusing wastewater, treating wastewater to reduce potential harm to the environment and disposing of waste in an environmentally sound manner.

- Using Codes of Practice that describe best practice environmental management for particular activities and which can be enforced using Environment Protection Orders.

- Promoting within the community environmental responsibility and involvement in environmental issues.

- Providing powers to set discharge limits for particular activities.

Since the commencement of the Policy, the importance of water quality has been increasingly recognised. This is reflected in South Australia's Strategic Plan which acknowledges that water is essential for all aspects of life and is critical to South Australia's economic and environmental aspirations and viability as a state. Consequently, the Strategic Plan contains two targets that are of relevance regarding water quality. These are maintaining the health and diversity of South Australia's unique marine environments and ensuring that the state's water resources are managed within sustainable limits by 2018.

As a state-wide mechanism for ensuring the protection of water quality, the Policy has an important role to play in achieving these strategic targets. As a consequence of the recognition of the importance of water quality in securing South Australia's future, increasing emphasis has been placed on local monitoring and research regarding this matter. Much of this work has identified that the state faces significant water quality issues. At the same time, advances have been made regarding understanding of the impact of a broad range of pollutants on water quality, water quality standards that are required to protect ecosystems, primary industry and human health, and also technological and regulatory mechanisms for protecting water quality, including an increasing emphasis on a risk-based approach to environmental regulation. This approach is reflected in the Environment Protection Authority's (EPA) compliance and enforcement policy, 'Compliance and Enforcement Regulatory Options and Tools'. In this context a thorough review of the existing Policy has been undertaken. This review identified a range of significant issues regarding the Policy and resulted in major reform proposals. These matters and

impacts of the proposed reforms are discussed in this Regulatory Impact Statement. It is noted however, that due to significant data limitations and the impracticality of conducting quantitative analysis regarding these reform proposals, the impact assessment in this document is heavily based on qualitative analysis.

2 APPLICATION OF THE WATER QUALITY ENVIRONMENT PROTECTION POLICY

2.1 Current Legislative Requirements

The scope of application of the current Policy is specified in Clause 4 – Application of Policy. This indicates that it applies to surface waters and underground waters including water within a public stormwater disposal system and irrigation drainage channel. Situations in which it does not apply include water within the pipes and tanks of a water reticulation system, within sewage systems or wastewater management systems, within impervious tanks and swimming pools. It also does not apply to the discharge of clean stormwater into any waters and the ultimate discharge of stormwater from a public stormwater disposal system into any waters by a government or public authority responsible for the system, except under Part 5 ie Management and Control of Diffuse Sources of Pollution. Part 5 provides direction regarding the management of some of these sources via Codes of Practice.

Clause 4 in its entirety is provided below.

4—Application of policy

(1) Subject to section 7 of the Act and this clause, this policy applies in relation to all surface waters and underground waters including the water within a public stormwater disposal system or irrigation drainage channel, but excluding—

(a) water within the pipes and closed tanks of a water reticulation system; and

(b) water within a sewage system or wastewater management system; and

(c) water within a closed tank constructed of or lined with material impervious to water; and

(d) water within a private or public swimming pool.

(2) This policy does not apply to the discharge of clean stormwater into any waters.

(3) Except for Part 5, this policy does not apply to the ultimate discharge of stormwater from a public stormwater disposal system into any waters by a government or public authority responsible for the system.

(4) Nothing in this policy affects the operation of an environmental authorisation granted under the Act, or any authority or exemption given by or under any other Act or law, and in force immediately before the commencement of this policy.

2.2 Rationale of Current Legislation

Clause 4 is consistent with the objects of the current Policy (refer to Clause 7) in that it indicates that the Policy has broad application across most waters of South Australia as a means of achieving sustainable management of these resources. However, Clause 4 also identifies situations in which the Policy does not apply. This is primarily situations in which contaminated water, or water that is dosed with chemicals for specific purposes is contained within 'closed systems' and there is little chance of significant water leakage and associated contamination problems. However, when discharges from these systems to waters occur, the Policy applies.

In the case of stormwater, Clause 4 indicates that the Policy applies to water in a public stormwater disposal system, but does not apply to the ultimate discharge of stormwater into any waters. The fact that the Policy applies to water in a public stormwater disposal system means that all parties that discharge water to stormwater disposal systems are responsible for pollutants contained in discharges from their properties. This is because these systems include all infrastructure used for the collection of stormwater such as streets and gutters. However, the Policy does not apply to the ultimate discharge of stormwater from a public stormwater disposal system into the environment. This is because the discharge comprises of 'upstream' discharges from a large number of sources, and in nearly all cases it would be impossible to identify parties responsible for contamination issues, and the public authority that owns the system (usually a Local Council) cannot be held responsible for the action of others.

2.3 Problems with Current Legislation

Problems with the current scope of application of the Policy are summarised and discussed as follows.

- Water within the pipes and tanks of salt interception schemes.
- Definition of public stormwater disposal systems.
- Definition of clean stormwater.

- Absence of reference to disposal of waste to land that may subsequently enter waters.

- Inconsistency between Clause 4 and the Act.

2.3.1 Water within the Pipes and Tanks of Salt Interception Schemes

As indicated above, the current Policy does not apply in a range of situations where water is contained within 'closed systems' and there is little chance of significant water leakage and associated contamination problems. The pipes and tanks of salt interception schemes operated by SA Water along the River Murray are also 'closed systems' where there is little chance of significant water leakage and associated contamination problems. However, despite this, the water within these pipes and tanks are not excluded from the application of the Policy.

Research undertaken by the Aquatic Sciences Division of the South Australian Research and Development Institute (SARDI) has found that water from the state's salt interception schemes is suitable for use in rearing fish via aquaculture. This potential is recognised in South Australia's water security plan 'Water for Good'. Exploring the economic and environmental feasibility of using saline water from salt interception schemes is listed as an action item in the plan. However, inclusion of this water in the application of the Policy has the potential to discourage its use for aquaculture. In the case of aquaculture, water from the pipes and tanks of salt interception schemes could be extracted for use by an enterprise in rearing fish, with the water then being discharged back into the pipes of the salt interception scheme after its use. However, given that this discharge would contain increased concentrations of faecal waste, nutrients from the faeces and also suspended solids, this may result in contraventions of Clauses 13 and 17 of the Policy. Clause 13 bans the discharge of a range of pollutants including nutrients if it will result in water quality criteria specified in Schedule 2 of the Policy being exceeded. Clause 17 bans the discharge of animal faeces into waters.

2.3.2 Definition of Public Stormwater Disposal System

The term 'public stormwater disposal system' is used in the current Policy but is not defined. As indicated above, water within these systems is included in the application of the Policy, but ultimate discharges from these systems are excluded from application of the Policy. Pipes, gutters and streets are a part of public stormwater systems and consequently, the Policy applies to discharge of pollutants to pipes, gutters and streets. The absence of a definition of public stormwater disposal systems in the Policy may be resulting in some parties discharging

pollutants and waste to stormwater systems without realising that this contravenes the Policy. Additionally, since the commencement of the current Policy, there have been significant developments in stormwater management to improve disposal systems and also enhance treatment of water prior to its disposal. The increasing use of artificial wetlands is a key example of this. For compliance purposes, an appropriate definition is required to ensure a clear understanding of what constitutes a public stormwater management system.

2.3.3 Definition of Clean Stormwater

As indicated above, the current Policy does not apply to the discharge of clean stormwater into any waters. Clean stormwater is defined in the current Policy as "stormwater that is not contaminated stormwater". This definition is imprecise and can be interpreted as meaning that any impurities in stormwater render it contaminated. It is impossible for stormwater not to contain impurities and consequently, clause 4(2) is problematic.

2.3.4 Absence of Reference to the Discharge of Contaminated Stormwater to Land that may subsequently enter Waters

Land-based disposal of waste or pollutants can subsequently result in contamination of water. Consequently, Clause 11 of the current Policy (ie General obligation to avoid discharge etc into waters) specifies that all parties must take all reasonable and practicable measures to avoid discharges of waste onto land in a place from which it is reasonably likely to enter any waters. Additionally, Clause 17 of the current Policy (ie Obligation not to discharge or deposit listed pollutants into any waters or onto certain land) also specifies that a person must not discharge or deposit a pollutant listed in Part 1 of Schedule 4 onto land in a place from which it is reasonably likely to enter any waters. Despite these key provisions, Clause 4 makes no reference to the application of the Policy in the case of the discharge of contaminated stormwater to land that may subsequently enter water. This may be resulting in uncertainty regarding compliance requirements under the Policy.

2.3.5 Inconsistency between Clause 4 and the Act

As discussed above, Clause 4 indicates that the current Policy does not apply to the ultimate discharge of stormwater from a public stormwater disposal system into any waters by a government or public authority responsible for the system, except under Part 5 ie Management and Control of Diffuse Sources of Pollution which provides direction regarding the management of some of these sources via Codes of Practice. However, under Activity 4(2) of Schedule 1 – Prescribed Activities of Environmental

Significance of the Act, the discharge of stormwater to underground aquifers in the City of Mount Gambier, the Western Industrial Zone of the District Council of Mount Gambier (now known as the District Council of Grant) and Metropolitan Adelaide are subject to licensing requirements. As part 5 of the Act provides the basis for creating Environment Protection Policies, they are required to be consistent with the Act. Consequently, the Policy should also apply in situations where the discharge of stormwater to underground aquifers is subject to licensing requirements.

2.4 Options

There are two options with regard to specification of the scope of the application of the Policy. Firstly, to retain current legislative requirements, or to implement amendments that address the problems with current legislation discussed above. Proposed legislative reforms are summarised and assessed as follows.

- Exclude water within the pipes and closed tanks of salt interception schemes from the application of the new Policy, but continue to apply the Policy to the evaporation basin where this water is finally discharged, to ensure that the discharge does not result in the water of evaporation basins contravening water quality standards specified in the Policy. These basins are generally expansive natural depressions that support ecosystems rather than engineered ponds as seen in industrial settings.

- Define public stormwater system to clarify that any equipment or infrastructure used for the purpose of collecting, treating or conveying stormwater, including streets and gutters, detention basins and artificial wetlands operated by a public authority are part of a public stormwater system. In recognition of the fact that stormwater management involves both treatment and disposal, the word 'disposal' would also not be included in the definition.

- In recognition of the fact that stormwater will always contain impurities and consequently, can never be truly described as 'clean', reword the Policy to make it clear that it applies in the case of discharge of contaminated stormwater which is clearly defined. It is proposed that the definition of 'contaminated stormwater' be updated to reflect the proposed changes in the list of Scheduled Pollutants that are to be targeted under the proposed new Policy. It is therefore proposed that 'contaminated stormwater' be defined as stormwater that is contaminated by a Class 1 pollutant, a Class 2 pollutant, or any material that could be reasonably prevented from entering the pipes, gutters and other channels used to collect and convey the stormwater. Class 1 and 2 pollutants are listed in Schedules 1 and 2 of the proposed new Policy. The term 'reasonably prevented' provides clarification that water from household gutters that may contain pollutants such as bird faeces or sediment

would not be included in the definition of contaminated stormwater. The proposed amendments to Scheduled Pollutants is discussed in Section 4.

- In recognition of the fact that the Policy does apply in the case of the disposal of waste and pollutants to land when it can subsequently result in contamination of water, insert a provision to confirm that it applies in the case of discharges of contaminated stormwater to land from where it may enter waters. However, in recognition of the fact that the Policy does not however, apply to the ultimate discharge of stormwater from a public stormwater disposal system into the environment (for the reason discussed above), insert a provision to indicate that the Policy does not apply in relation to the ultimate discharge of stormwater from a public stormwater system onto land from where it may enter waters.

- Remove the inconsistency between Clause 4 of the current Policy and the Act by inserting a provision indicating that the Policy applies to the ultimate discharge of stormwater from a public stormwater disposal system by a public authority responsible for the system in situations where the discharge of stormwater to aquifers is subject to licensing requirements under the Act.

- Provide transitional arrangements for existing holders of environmental authorisations (ie a licence) to undertake prescribed activities of environmental significance under the Act ensuring that where the authorisation is undertaken lawfully, but contravenes any provision of the proposed new Policy, that provision would not apply in relation to the licensed activity until two years after commencement of the proposed new Policy.

The proposed new clause regarding application of the Policy and definitions of contaminated stormwater and public stormwater system are provided below.

8—Application of policy

(1) This policy applies in relation to all surface and underground waters (whether or not on or below private land) including the water within a public stormwater system or an irrigation drainage channel, but excluding—

(a) water within the pipes and closed tanks of a water reticulation system or salt interception scheme; and

(b) water within sewerage infrastructure or any other wastewater management system; and

(c) water within a closed tank constructed of or lined with material impervious to water; and

(d) water within a private or public swimming pool.

(2) This policy does not apply in relation to the discharge of uncontaminated stormwater into any waters or onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table).

(3) Except for clause 9(e) and (f) (and Schedule 4) and Part 2 Division 3, and subject to an environmental authorisation held by a public authority relating to a prescribed activity of environmental significance referred to in Schedule 1, Part A, clause 4(2) of the Act (Discharge of Stormwater to Underground Aquifers), this policy does not apply in relation to the ultimate discharge of stormwater from a public stormwater system by a public authority responsible for the system into any waters or onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table).

(4) Nothing in this policy affects the operation of an authority or exemption given by or under any Act or law (other than the *Environment Protection Act 1993*) and in force immediately before the commencement of this policy.

(5) If, immediately before the commencement of this policy, a prescribed activity of environmental significance was being lawfully undertaken by a person in a manner that would contravene a provision of this policy, that provision will not apply in relation to the activity so undertaken until the expiry of the second year of operation of this policy.

(6) In this clause—

uncontaminated stormwater means stormwater other than contaminated stormwater

Public Stormwater System is defined in the proposed new Policy as any equipment or infrastructure for collecting, treating or conveying stormwater for the purposes of stormwater management, or flood mitigation, conducted by a public authority, and includes catchment management equipment and infrastructure.

2.5 Analysis of Benefits and Costs

2.5.1 Compliance

As indicated above, the current Policy does not apply in a range of situations where water is contained within 'closed systems' and there are no environmental values of that confined water. The pipes and tanks of salt interception schemes are also 'closed systems' where there is little chance of significant water leakage and associated contamination problems. Excluding water in these pipes and tanks from the application of the new Policy, but applying the Policy when this water is discharged to the environment is consistent with the approach of requiring compliance where contaminated water poses a significant risk to the environment.

The inclusion of the proposed definition of public stormwater systems would provide a clear indication that such systems comprise of a broad range of integrated equipment and infrastructure which also includes pipes, gutters and streets. Consequently, this would provide clarification that discharging pollutants or waste to pipes, gutters and streets is considered a discharge to waters under the Policy and is therefore subject to compliance requirements and also penalties and the imposition of Clean-up Orders under Section 99 of the Act for non-compliance. It would also clarify that public authorities responsible for the management of these systems cannot be held accountable for the cumulative discharges of others.

Rewording the Policy to make it clear that it applies to discharges of contaminated stormwater, rather than indicating that it does not apply in the case of clean stormwater, and updating the definition of contaminated stormwater to ensure that it is consistent with pollutants targeted by the proposed new Policy would also provide greater clarity regarding compliance requirements.

Inserting a provision to indicate that the Policy applies to discharges of contaminated stormwater to land from where it may enter waters, but does not however, apply to the ultimate discharge of stormwater from a public stormwater disposal system onto land from where it may enter waters would ensure consistency between various clauses of the Policy and therefore provide greater clarity regarding compliance requirements.

Removing the inconsistency between Clause 4 of the current Policy and the Act by inserting a provision which indicates that the Policy applies to the ultimate discharge of stormwater from a stormwater disposal system into waters by a government or public authority responsible for the system in situations where the discharge is subject to licensing requirements would remove any confusion regarding the relationship between the Act and the Policy and associated compliance requirements.

The proposed transitional arrangements would provide regulatory certainty for existing licensees in the event that a provision of the new Policy conflicts with the conditions of a licence by providing them with two years to comply with the requirements of the proposed Policy.

2.5.2 Economic Impacts

Excluding salt interception schemes from the application of the new Policy in the way proposed would help to enable the use of the saline water captured by these schemes for aquaculture businesses. This reform would therefore help encourage further expansion of South Australia's aquaculture industry. Regional economies would improve as new and existing aquaculture is supported by an additional supply of suitable water.

Providing greater clarity regarding the definition of public stormwater systems and contaminated stormwater, the application of the Policy to land-based disposal of contaminated stormwater, and ensuring greater consistency between the Policy and the Act would result in savings for industry by reducing time spent inquiring about compliance requirements. Reduced disposal of pollutants and wastes to waters as a result of greater understanding regarding compliance requirements would also result in a reduction in stormwater clean–up costs.

2.5.3 Environmental Impacts

Extracting water from the pipes of salt interception schemes for use in the aquaculture industry is not expected to have adverse environmental impacts. Aquaculture businesses would however, then discharge this water back into the pipes of a salt interception scheme following its use. This discharge would then be managed by SA Water and would also be subject to regulation under the Policy. However, the above mentioned research conducted by SARDI indicated that the aquaculture trials it conducted had minimal effects on levels of key nutrients and suspended solids in downstream water. If necessary, waste discharge volumes to the pipes of salt interception schemes from aquaculture businesses could also be restricted to ensure that concentration levels of nutrients and suspended solids in the evaporation ponds comply with required standards under the Policy.

Providing greater clarity regarding the application of the Policy to land-based disposal of contaminated stormwater that can subsequently enter waters, defining public stormwater systems, and updating the definition of contaminated stormwater to ensure that it is reflective of the proposed revised list of pollutants to be targeted

under the new Policy would encourage reduced discharge of pollutants and waste in stormwater across South Australia. This would help contribute to key strategies of the Adelaide Coastal Water Quality Improvement Plan which, as indicated, are to achieve a 75% reduction in annual discharges of nitrogen and a 50% reduction in annual discharges of suspended sediment in order to prevent further losses of seagrasses in these waters. Reduced pollutants and waste in stormwater discharges to coastal waters across the state would also help contribute to achieving South Australia's Strategic Plan target of maintaining the health and diversity of the state's marine environment. This issue and the high environmental values of seagrasses is discussed in more detail in section 3.3.4 of this document.

2.5.4 Family and Social Impacts

The proposed definition of public stormwater systems would help to further highlight the fact that all members of the community have a responsibility to prevent the discharge of pollutants and waste to stormwater wherever possible.

Reduced contamination of stormwater would provide significant community benefits including reduced risks of adverse health impacts arising from contact with this water and improved amenity arising from reduced pollution of coastal waters in Adelaide and elsewhere across the state.

Families and communities in some regional areas may also benefit from increased employment opportunities arising from growth in the aquaculture industry that may be facilitated via use of water from salt interception schemes.

2.6 Consultation

The proposed amendments regarding application of the Policy were subject to the extensive consultation process that is discussed in Section 7 of this document. Key comments from stakeholders are summarised as follows, whilst the EPA's response is also provided.

Stormwater Industry Association – Supports the proposal that water within the pipes and closed tanks of salt interception schemes be excluded from the application of the new Policy. It also supports inclusion of the proposed definition of public stormwater systems.

SA Water - Supports the proposal that water within the pipes and closed tanks of salt interception schemes be excluded from the application of the new Policy.

Contaminated stormwater - Clarification was sought regarding the following matters.

- At what point is stormwater contaminated from an environmental perspective? For example, we know that stormwater is often contaminated by animal faeces (class 2 pollutant).

- Is there an obligation from landholders, such as farmers, not to allow 'contaminated stormwater' runoff to waterways?

Public stormwater system - It is not clear how potential negative water quality impacts through mismanagement of such infrastructure would be dealt with under the Policy.

It suggested that, by limiting the definition of public stormwater to those activities undertaken by a public authority, this may create inconsistencies in application of elements of the Policy. Catchment management infrastructure/detention basins are not only managed by public authorities but may also be managed by developers, construction contractors etc. In some cases, such infrastructure may be permanent artificial wetlands or it could include temporary stormwater basins to improve/manage stormwater before it enters the public system. The inconsistency arises that where such infrastructure is undertaken by a public authority it may be subject to an exemption (e.g. associated with overflows) but the same proposal by a private entity would not. The resultant environmental considerations would be no different as they relate to water quality be it a public or private entity.

Stormwater - This definition suggests stormwater includes runoff from land (potentially containing class 1 and 2 pollutants. However it does not identify where it runs to (pipes, gutters and other channels used to collect and convey stormwater). This may be a useful addition to the definition to make it consistent with the contaminated stormwater definition.

It sought confirmation that stormwater, in combination with contaminated stormwater can be interpreted to mean that contaminated stormwater would be created if runoff occurs from land (into a watercourse), where the land contains a class 1 and/or class 2 pollutant.

Adelaide City Council - Supports the proposed definition of a 'public stormwater system' to include discharge 'to' public infrastructure on the understanding that the policy does not apply to discharge 'from' public infrastructure.

City of Onkaparinga - Strongly supports the proposals to exclude discharge of stormwater (other than contaminated stormwater) into any waters from the operation

of the Policy and provide clear distinctions between the management obligations required for stormwater and wastewater.

It expressed concern regarding the proposed definition of contaminated stormwater as the nature of urban catchments is such that the proposed definition of contamination will almost always be triggered. This has very significant implications for both current and future stormwater infrastructure as it would mean that stormwater facilities/infrastructure such as wetlands and detention ponds may be regarded as wastewater lagoons and subject to the same "aggressive" management requirements as applies to wastewater lagoons. Examples of the practical difficulties that this would pose for councils are provided below.

- Applying the requirements for wastewater lagoons to stormwater infrastructure would 'quarantine' large areas of new land developments. This is likely to have a range of negative social, economic and environmental outcomes. It also runs contrary to principles of water sensitive urban design which seek to integrate the management of water into urban environment rather than segregate it.

- Wetlands are now regarded as an integral component of urban stormwater management. They need a natural subgrade and the imposition of requirements for rubber liners is likely to be counterproductive.

- The draft policy identifies, quite appropriately, that wastewater lagoons must not be permitted to overflow. However much stormwater infrastructure (such as wetland and detention ponds) is, equally appropriately, designed to overflow. To re-engineer existing infrastructure would have huge costs for our communities.

- The City of Onkaparinga has established water quality service levels for stormwater infrastructure as part of its asset management approach. These have been set with reference to the findings of the Adelaide Coastal Waters Study. However, they do not approach the water quality outcomes anticipated by the draft policy.

As a consequence of this, the City of Onkaparinga sought an urgent review of the definition of contaminated stormwater in the draft Policy. It also argued that if the proposed definition is retained practical transitional arrangements should be introduced to enable progressive compliance and that significant additional funding should be provided for councils to meet the likely infrastructure costs.

Clarification was also sought regarding how the proposed new Water Quality EPP would work with the Adelaide Coastal Waters Quality Improvement Plan.

In relation to the codes and guidelines identified in Schedule 3 of the Policy it noted the ongoing inclusion of the *Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government 1998.* It was argued that this document is now 15 years old and in urgent need of review.

PIRSA Fisheries and Aquaculture - Supports the proposal that water within the pipes and closed tanks of salt interception schemes be excluded from the application of the new Policy as it would potentially facilitate the use of this water for aquaculture prior to discharge.

Business SA – Considers that the proposed broader definition of 'public stormwater system' will function effectively. It also sought clarification regarding whether public and non-engineered/informal stormwater disposal systems will be treated the same under this definition.

Joint Councils: District Council of Mount Barker, Barossa Council and City of Onkaparinga - The Councils argued that under the proposed revised definition of contaminated stormwater, all urban stormwater will be considered to be contaminated leading to a greater cost burden on local government without any environmental imperative. An example of the new listed pollutants is "Rubbish and Litter". It is listed as "Rubbish" in the current Water Quality EPP and did not mention cigarette butts. The new term "Rubbish and Litter" includes cigarette butts. This raises the question – 'Does a single cigarette butt in a stormwater pond make the pond contaminated stormwater and therefore wastewater?' There is no threshold for contamination and given the nature of urban stormwater, Council submits that all stormwater will be 'contaminated'. The EPA could well say that they will take a practical approach to assessing contamination but that needs to be documented so that Council can determine which side of the line it falls on with this issue.

DEWNR (Strategy and Advice Group) – Supports the exclusion of water in the pipes of salt interception scheme water from the application of the Policy as it would enable the use of this water by aquaculture. However, it raised issues regarding the environmental management of such use that are summarised as follows.

- It is unclear how the source of an exceeded trigger value at the point of discharge would be identified if water quality is not monitored both at an aquaculture off take and point of wastewater return.

- Would an exceeded trigger value lead to an investigation to identify the source of the exceeded trigger, or would the owner and operator of the

pipeline be responsible for the exceeded trigger value? If the owner and operator of the pipeline is responsible for the exceedance, this is not acceptable as this will then require the owner and operator to police the water quality that is disposed into its pipeline by aquaculture operators.

Additional clarification around the responsibilities of the owner and operator of the pipeline regarding monitoring and enforcement action would be beneficial.

EPA Response

Salt Interception Schemes

As discussed in Section 2.4 above, under the proposal to exclude water within the pipes and closed tanks of a salt interception scheme from the application of the Policy, it would continue to apply to the evaporation basin where this water is finally discharged. Consequently, it would be the responsibility of the operator of salt interception schemes ie SA Water to ensure that this discharge does not result in the water of evaporation ponds contravening water quality standards specified in the Policy. Consequently, the pollutant loads that operators of aquaculture businesses could discharge back into the pipes of salt interception schemes would be the subject of negotiation and contractual agreements between these parties.

Contaminated Stormwater

Contaminated stormwater is defined in the current Policy as stormwater that is contaminated by a pollutant listed in Schedule 4 (Listed Pollutants), or any material that could be reasonably prevented from entering the pipes, gutters and other channels used to collect and convey stormwater. Under this definition stormwater is invariably considered to be contaminated. It is proposed that this definition be updated to reflect the proposed changes in the list of Scheduled Pollutants that are to be targeted under the proposed new Policy ie Class 1 and 2 pollutants listed in Schedules 1 and 2. The reasons for the proposed amendments to Scheduled Pollutants are discussed in Section 4 of this document. This would not significantly change the position that stormwater is invariably considered to be contaminated.

In regards to the City Of Onkaparinga's view that the proposed new definition of contaminated stormwater has very significant implications as it would mean that stormwater infrastructure such as wetlands may be regarded as wastewater lagoons and therefore subject to the associated management requirements, it is noted that there is no change proposed from the current Policy as the definition of wastewater includes contaminated stormwater. The new guidelines regarding wastewater lagoons that are discussed in Section 5 will reflect necessary measures to prevent

environmental harm. It is unlikely that geo-fabric liners would be a necessary requirement for public stormwater discharges.

There are existing obligations for landholders to prevent contaminated runoff to waterways that will continue under the proposed new Policy. Additionally, under Section 25 of the Act all parties are subject to a General Environmental Duty to take all reasonable and practical measures to prevent or minimise environmental harm. Further clarification regarding this matter in relation to runoff is provided in the existing Policy. Clause 11 (General Obligation to Avoid Discharge etc into Rivers) specifies that occupiers of land must take all reasonable and practicable measures to avoid the discharge or deposit of waste onto land in a place from which it is reasonably likely to enter any waters. As it is a part of the Act, the General Environmental Duty would continue to apply under the proposed new Policy and would be further clarified via the proposed new Clause 9 - General Measures to Prevent or Minimise Pollution of Waters. The proposed new Clause 9 is discussed in detail in Section 3 of this document, whilst the classification of animal faeces as a Scheduled Pollutant including issues raised by SA Water is discussed in Section 4.

Public Stormwater System

The *Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government 1998* is applied through Clauses 9(e) and 9(f) and Schedule 3 of the proposed new Policy and regulates infrastructure maintenance. The proposed Clause 8(3) specifies that such matters apply under the Policy.

Limiting the definition of public stormwater systems to those activities undertaken by a public authority reflects the fact that it does not control, or necessarily contribute to the stormwater that it manages via its stormwater system, whereas, privately managed stormwater infrastructure is used to manage stormwater inputs related to the activities of that private entity. Therefore, the public entity manages the pollution of other parties whereas the private entity is managing its own pollution and is therefore responsible for this.

Where non-engineered/informal systems are a part of a stormwater system that is managed by a public authority, it will be covered by the definition of a public stormwater system.

Stormwater

There is no change proposed to the definition of stormwater under the current Policy. This definition suits the purpose of its use under the Policy. The use of the terms ‘pipes, gutters and other channels’ in the definition of ‘contaminated stormwater’ is

intended to identify points where material could be reasonably prevented from entering stormwater collection and conveyance systems.

Stormwater, in combination with contaminated stormwater can be interpreted to mean that contaminated stormwater would be created if runoff occurs from land (into a watercourse), where the land contains a Class 1 and/or Class 2 Pollutant.

Other Matters

Providing greater clarity regarding the application of the Policy to land-based disposal of waste or pollutants that can subsequently result in contamination of water, defining public stormwater systems, and updating the definition of contaminated stormwater to ensure that it is reflective of the proposed revised list of pollutants to be targeted under the new Policy would encourage reduced disposal of pollutants and wastes. This would help contribute to key strategies of the Adelaide Coastal Water Quality Improvement Plan which are to achieve a 75% reduction in annual discharges of nitrogen and a 50% reduction in annual discharges of suspended sediment in order to prevent further losses of seagrasses.

A review of the *Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government 1998* is underway and will be incorporated into the revised policy once completed.

2.7 Conclusion and Recommendation

This analysis has highlighted deficiencies with Clause 4 – Application of Policy which discourages the potential use of saline water captured by salt interception schemes for aquaculture and also does not optimise environmental management of stormwater.

Reflecting potential economic benefits, the proposed exclusion of water within the pipes and closed tanks of salt interception schemes from the application of the Policy to help enable its use in aquaculture businesses has significant support from a range of stakeholders.

The proposed reforms regarding stormwater would encourage reduced discharge of pollutants and waste, primarily by raising awareness regarding the responsibilities of all members of the community without necessarily increasing environmental management costs. This would help achieve realisation of the Adelaide Coastal Water Quality Improvement Plan and South Australia's Strategic Plan target of maintaining the health and diversity of the state's marine environments, whilst also

reducing health risks from contact with stormwater. In this regard, it is noted that the proposed inclusion of a definition of public stormwater systems is also supported by stakeholders, whilst it has been demonstrated that concerns expressed by some Councils regarding the proposed revised definition of contaminated stormwater would not significantly change the position that stormwater is invariably considered to be contaminated.

Given these economic, environmental and social benefits, the proposed reforms regarding the application of the Policy are recommended.

3 REPLACEMENT OF MANDATORY REQUIREMENT TO COMPLY WITH WATER QUALITY CRITERIA AND EXEMPTION PROVISIONS WITH A GENERAL ENVIRONMENTAL DUTY, REVISED CRITERIA AND REMOVAL OF EXEMPTION PROVISIONS

3.1 Current Legislative Requirements

Environmental values for South Australia's various water bodies are specified in Schedule 1 of the current Policy. These values are consistent with the National Water Quality Management Strategy and include ecosystems, potable water, recreation & aesthetics, agriculture/aquaculture and industrial uses. The current Policy prescribes specific performance standards regarding pollution prevention and maintenance of key water characteristics that are intended to protect these environmental values, except in the case of water for industrial use. No standards apply in the case of water for industrial use as water quality requirements for industrial purposes varies so widely that it is not feasible to set overarching criteria. These performance standards must be complied with unless an exemption is approved by the EPA. The relevant legislative provisions are provided as follows.

Clause 13 Obligation not to contravene water quality criteria (Schedule 2)

(1) A person must not, by discharging or depositing a pollutant into any waters, cause any of the water quality criteria applicable (see Schedule 2) to those waters —

(a) to be exceeded, or if already exceeded (whether through natural causes, the discharge or deposit of a pollutant or a combination of both), further exceeded; or

(b) in the case of a minimum level specified in Schedule 2 in relation to a characteristic of water — to be decreased or, if already decreased (whether through natural causes, the discharge or deposit of a pollutant or a combination of both), further decreased.

Mandatory provision: Category B offence.

(2) In this clause—

exceeded or ***decreased*** means exceeded or decreased as measured by a method approved by the Authority.

(3) To avoid doubt, if zero constitutes a water quality criterion in Schedule 2 for a particular pollutant, the pollutant must not be detectable in the relevant waters when measured by a method approved by the Authority.

Schedule 2 – Water Quality Criteria of the Policy specifies concentration limits for 90 pollutants that are not to be exceeded in the state's water bodies. These concentration limits vary depending on the environmental value of a water body and do not necessarily apply in all water bodies for which performance standards apply. For example, the concentration limits for metals vary between aquatic ecosystems, potable water and water for agriculture/aquaculture, whilst concentration limits for pesticides only apply in the case of aquatic ecosystems and potable water. In the case of water characteristics of the state's water bodies, standards are set regarding levels of dissolved oxygen and pH (ie acidity/alkalinity). The standards regarding dissolved oxygen only applies in the case of aquatic ecosystems, whilst varying performance standards regarding pH apply in the case of fresh aquatic ecosystems, potable water and water for agriculture/aquaculture. It is also noted that if a water body has more than one environmental value, the tighter performance standards apply.

Failure to comply with Clause 13 is a category B offence under the Act and is subject to a maximum fine of $4,000 for a contravention, and a maximum fine of $30,000 for intentional or reckless contravention. However, pursuant to Section 37 of the Act and subject to the requirements of Clauses 14 and 15 of the current Policy, the EPA is able to grant parties exemptions from the requirements of Clause 13.

In the case of discharges to surface waters, an exemption can only be approved if a mixing zone (ie an area where waste is mixed with receiving waters) complies with a range of prescribed criteria including size, absence of significant risk to a range of alternative water uses and ecosystem services and also restrictions regarding where mixing zones are not permitted.

Significant restrictions also apply regarding exemptions for discharges to underground waters. In these cases attenuation zones can only be approved if they comply with a range of prescribed criteria including size, permeability of aquifers and restrictions regarding where such zones are not allowed.

Clauses 14 and 15 are presented in full as follows.

Clause 14 Exemption from water quality criteria in surface waters — mixing zones

(1) The Authority may only grant a person an exemption from clause 13 in respect of the discharge of waste into surface waters if the person satisfies the Authority that measures can be taken in accordance with subclause (2) to

establish an area in the waters where the waste is discharged and mixed with the waters (a ***mixing zone***).

(2) The following requirements apply in relation to a mixing zone:

(a) the establishment of the zone must not —

(i) pose a significant risk to aquaculture areas, potable water intakes or supplies or marine parks or other areas of water with a high conservation value; or

(ii) be inconsistent with a plan adopted under Part 7 of the *Water Resources Act 1997*;

(b) the zone must not be situated within waters that —

(i) are regularly used to a significant extent for primary contact recreation; or

(ii) have significant value as a spawning or nursery area for aquatic organisms;

(c) in the case of marine waters (other than estuarine waters), the zone must

(i) have a radius not exceeding 100 metres; and

(ii) not be within 200 metres of the mean low water mark of the coast at spring tides;

(d) in the case of other surface waters, the zone must have a radius not exceeding 20 metres;

(e) the zone's operation must —

(i) be sustainable; and

(ii) prevent or minimise the presence in or about the waters of objectionable matter or odours, or discolouration, as a result of the discharge; and

(iii) not prejudice the water quality objectives for the waters outside the zone.

(3) If the Authority grants a person an exemption referred to in subclause (1), the Authority must, in addition to any other conditions that may be imposed, impose conditions of the exemption requiring the person to take the measures referred to in this clause.

Clause 15 Exemption from water quality criteria in underground water — attenuation zones

(1) The Authority may only grant a person an exemption from clause 13 in respect of the discharge of waste into underground waters if the person satisfies the Authority that measures can be taken in accordance with subclause (2) to establish an area in the waters where the waste is discharged and the concentration of pollutants is reduced by physico-chemical and microbiological processes (an ***attenuation zone***).

(2) The following requirements apply in relation to an attenuation zone:

(a) the zone must not be situated wholly or partly within a water protection area within the meaning of Part 8 of the Act;

(b) the zone must not extend beyond the boundaries of the land on which the waste is generated except with the consent of the landowners affected;

(c) the aquifer must not have high permeability properties (eg. Karst rock or fractured rock aquifers);

(d) the zone's operation must—

(i) be sustainable; and

(ii) not prejudice the water quality objectives for the waters outside the zone.

(3) If the Authority grants a person an exemption referred to in subclause (1), the Authority must, in addition to any other conditions that may be imposed, impose conditions of the exemption requiring the person —

(a) to take the measures referred to in this clause; and

(b) to take action in accordance with a contingency plan approved by the Authority if pollution from within the attenuation zone is detected outside the zone.

Pursuant to Sections 38 and 39 of the Act, persons seeking an exemption are required to lodge an application with the EPA which must then also undertake prescribed notification processes so that interested, or potentially affected parties have the opportunity to make submissions regarding the matter. Pursuant to Sections 38, 39 and 40 of the Act, an exemption is also subject to the payment of

application fees, public notification fees, and authorisation fees. These fees are specified in Regulation 26 of the *Environment Protection Regulations 2009* (ie the Regulations) and are summarised as follows. All fees are in 2014/15 dollar values.

The fee for an exemption application is $812.70, plus an additional charge of $94.50 or $378 for public notification of the application depending on whether the notification is published together with other similar notices, or on its own. The application fee for the renewal of an exemption is $189.

Authorisation fees and annual authorisation fees for an exemption range from $189 - $47,250. Pursuant to Section 48 of the Act, an annual authorisation fee is only payable for an exemption granted or renewed for a term of 2 or more years. Under Regulation 26 of the Regulations, the level of the fee is determined by the EPA at its discretion having regard to the following matters.

(1) The nature of the pollution or potential pollution and the sensitivity of the receiving environment.

(2) The financial implications of the various measures that might be taken as those implications relate to the class of persons undertaking activities of the same or a similar kind.

(3) The current state of technical knowledge and likelihood of successful application of the various measures that might be taken.

(4) Any relevant environment protection policy;

(5) Whether the applicant will be bound by an environment improvement programme;

(6) The time of the day and the period for which the exemption will operate;

(7) The number of people affected by, or the extent of any other environmental impact of the activity to which the exemption will relate;

(8) Any relevant matter arising under the *Development Act 1993* or a Development Plan or development authorisation under that Act in relation to the location of the activity to which the exemption will relate;

(9) Any other matter considered relevant by the Authority.

Since early 2009, the EPA has used a hazard assessment matrix based on Regulation 26 to calculate fees for exemptions from Clause 13. Under this matrix,

highest weightings are applied to toxicity of pollutants, sensitivity of the affected environment and the extent (ie area) of environmental impact.

3.2 Rationale of Current Legislation

As indicated in Clause 7(2), objectives of the current Policy include protecting or enhancing the environmental values of South Australia's various water bodies as specified in Schedule 1 and ensuring that pollution from diffuse and point sources does not prejudice achievement of this objective. As indicated above, Schedule 2 specifies the water quality criteria that is considered necessary to protect the environmental values of South Australian waters.

Water quality criteria are usually set by national bodies via an exhaustive review of scientific literature and public consultation. Criteria have been established by national bodies for many water quality characteristics. The criteria in Schedule 2 were largely sourced from the following guidelines.

- Australian Guidelines for Fresh and Marine Water (Australian and New Zealand Environment and Conservation Council, 1992).

- Australian Drinking Water Guidelines (National Health and Medical Research Council and Agriculture and Resource Management Council of Australia and New Zealand, 1996).

- Australian Guidelines for Recreational Use of Waters (National Health and Medical Research Council, 1990).

In the case of aquatic ecosystems, the National Water Quality Management Strategy however, stresses that natural ecosystems are highly variable in their physical, biological and chemical characteristics and although these criteria are a useful starting point for the protection of environmental values, site specific information should also be used to set different criteria that could be higher or lower than national criteria.

Schedule 2 does not include all the criteria listed in these guidelines and also includes some criteria that are not listed in these guidelines. Key reasons for these differences include the following.

- Reflecting improving scientific understanding about the effects of chemicals in the environment and jurisdictional concerns, criteria for a significant number of

chemicals have been added to the national guidelines since commencement of the Policy.

- The current Policy includes criteria values for a number of pollutants that are not specifically included in the national guidelines that are reflective of concerns regarding local environmental issues. These include suspended solids, oil and grease, biochemical oxygen demand and total organic carbon. However, the guidelines do contain parameters that are similar to these criteria. For example, dissolved oxygen can reflect large biochemical oxygen demand, whilst turbidity can indicate high levels of suspended solids.

In order to ensure protection of the identified environmental values of South Australian waters, non – compliance with Clause 13 is an offence under the Act and is subject to the abovementioned financial penalties.

Apart from penalties for unauthorised contraventions of clause 13, associated environmental harm will also need to be remedied. This will result in the offending party being required to take action and pay additional costs. There are a number of mechanisms under the Act to ensure that the environmental harm is addressed. These are summarised as follows.

- Environment Improvement Programs (Section 54 of the Act) - The EPA may require holders of an authorisation (ie works approval, licence or an exemption) under the Act to develop and implement an environment improvement program (EIP) in accordance with its requirements. These requirements can include specification of action to be taken and required time frames.

- Environment Protection Orders (Section 93 of the Act) – The EPA and other administering agencies may issue an environment protection order (EPO) to secure compliance with the General Environmental Duty (section 25 of the Act), to give effect to an Environment Protection Policy (Policy), or to secure compliance with the mandatory provisions of a Policy. The requirements of an EPO can include restrictions regarding undertaking an activity, discontinuation of an activity, specification of action to be taken and required time frames.

- Clean-up Orders (Section 99 of the Act) – The EPA and other administering agencies may issue a clean-up order (CO) requiring a person to take specified action within a specified period to make good environmental damage resulting from a contravention of the Act.

Section 135 of the Act enables the EPA and other administering agencies to recover the costs of investigating a contravention, issue an order, or take action to ensure compliance with an order from the offending party. Charges in respect of action to investigate a contravention, or issue an order are set by regulation, whilst the Act indicates that the EPA and other administering agencies can impose reasonable charges on offending parties for taking action to ensure compliance with an order and in respect of costs incurred in taking samples, conducting tests, examinations or analyses.

Pursuant to Sections 94 and 101 of the Act, orders may also be registered on a property via the Land Titles Registration Office by the EPA and other administering agencies. This has the effect of making an order binding on current and future owners and occupiers of land. Registration also provides a mechanism under Sections 95 and 103 of the Act for the EPA and other administering agencies to recover costs of action it takes in the event of non-compliance with an order from the party to whom an order has been issued.

The following charges are specified in Sections 76, 77 and 80 of the Regulations for investigating a contravention, issuing an order and registering or cancelling orders in relation to land. All charges are in 2014/15 dollar values.

- Investigation of Contraventions - Action take to investigate contraventions involves a flat base charge and possible variable charges. In the case of action commenced during business hours, a flat base charge of $207.90 applies, whilst in the case of action commenced outside of business hours, a flat base charge of $396.90 applies. If the action exceeds 2 hours in duration, a charge of $75.60 applies for each subsequent hour, or part hour for action taken during business hours, and $151.20 for each subsequent hour or part hour for action taken outside of business hours.

- Issuing of an Order - A flat charge of $207.90 applies for action taken to issue an order.

- Registration or Cancellation of Registrations of Orders in Relation to Land – The fee for the first entry in registration of an order is $340.20, with an additional charge of $94.50 for each additional entry in registering an order. The fee for the first endorsement in cancelling an order is $245.70, with an additional charge of $18.90 for each subsequent endorsement in cancelling an order.

However, it is recognised that in some circumstances disposal of pollutants to a surface water body that contravenes Clause 13 may be the only option available, may represent a lower net environmental risk than other means of disposal, or may not cause harm to the receiving environment. In these circumstances it may be appropriate to grant an exemption to allow such a discharge but only within a certain area, ie a mixing zone. Such a zone is an area where the prescribed water quality criteria for receiving waters may not be met. However, if such a zone is permitted, the water quality criteria must be met outside the mixing zone. In the case of disposal to groundwater, it is recognised that the impact of certain groundwater pollutants can be diminished over time due to natural processes within aquifers. Chemical, physical and microbiological processes can occur to ameliorate the harm or potential harm caused by pollutants. Consequently, EPA approved attenuation zones can be used in a similar way that mixing zones apply to surface waters. Water quality criteria are not required to be met within defined attenuation zones but apply outside the attenuation zone.

There have been 17 exemptions from the requirements of Clause 13 issued up to February 2015, with the first being issued in 2005. Exemptions have been issued for varying lengths of time, ranging from 1 - 10 years. Total payments (ie including application fees, advertising fees and authorisation fees) up to February 2015 for these exemptions is about $285,000. Since commencement of the use of the above mentioned hazard assessment matrix, annual exemption authorisation fees have been about $50,000. Enabling the remediation of contaminated groundwater has been the main reason for the approval of these exemptions.

In addition to these measures, holders of authorisations under the Act may voluntarily enter into EIPs with the EPA, whilst pursuant to Section 59 of the Act, all parties whether or not being the holder of an authorisation, may voluntarily enter into an Environment Performance Agreement with the EPA. These agreements may contain terms the EPA considers appropriate for securing the objects of the Act, including binding a party other than the EPA to undertake specific programs, and binding the EPA to provide financial or other assistance to implement these programs.

3.3 Problems with Current Legislation

Problems with the current approach to the protection of the environmental values of South Australia's waters are summarised and discussed as follows.

- A rigid approach regarding compliance requirements that does not adequately account for variations in environmental risk.

- Complications regarding determination of whether or not discharges are compliant with Clause 13.

- A requirement for exemptions to enable environmental improvement measures to be implemented.

- Restrictive requirements regarding mixing zones for the environmental assimilation of pollutants that have prevented their use when they may have been the best course of action.

- Inadequate water quality criteria, particularly regarding nutrients

3.3.1 Rigid Compliance Requirements

The current approach taken by South Australia in seeking to protect the environmental values of its waters is highly rigid. It involves the use of a fixed set of water quality criteria regarding concentration limits for a range of pollutants and standards regarding dissolved oxygen and pH levels (ie acidity/alkalinity) in the state's water bodies that must be complied with regardless of possible variations to environmental risk of a discharge in different water bodies and possible variations to environmental risk of a given discharge in different locations of a water body.

In practice, these inflexible 'one size fits all' specifications have been very difficult to administer and achieve, in particular, identifying offending parties and sites in situations where there are multiple sources of pollutant discharge to a water body. The limitations of Clause 13 has been recognised by the EPA, particularly within the context of its compliance and enforcement policy,. Key features of this policy are summarised as follows.

- Environmental legislation provides the EPA with a variety of regulatory tools and the ability to exercise discretion to determine which tool is appropriate for particular circumstances.

- In determining an appropriate course of action, the EPA considers a variety of factors including the seriousness of a contravention, compliance history and the extent and speed of required remediation action.

- The compliance and enforcement approach adopted by the EPA is based on a set of key principles including proportionality and targeting. This means that

any measure taken is proportional to the risks posed to the environment and the seriousness of the offence, and that regulatory effort is directed towards those activities that pose the greatest risks and cause the greatest environmental damage.

Consequently, wherever possible, rather than adopting an enforcement by penalisation approach, the EPA has favoured working with industry on a cooperative basis to improve environmental performance. This has involved working with industry to identify and prioritise environmental risks associated with discharges and making significant use of EIPs as a mechanism for improving environmental performance. As indicated in section 3.2, EIPs required as a condition of authorisation, place a legal requirement on holders of an authorisation under the Act to undertake specified action in required time frames. However, in practice they are based on negotiations. This course of action also means that fees charged for issuing and registering orders are also avoided where possible.

South Australia is the only jurisdiction in Australia that uses mandatory compliance standards and offence provisions as applied under Clause 13 to implement its general water quality objectives. The general approach in other jurisdictions is that while water quality criteria are specified using national guidelines, they are not mandatory compliance standards and consequently, they do not mandate offences and associated penalties for parties who breach these criteria. Rather, the significance of water quality criteria in these jurisdictions is to inform decision making including regarding compliance and the development of strategies to protect and enhance water quality.

3.3.2 Complications Regarding Compliance Determination

Determination regarding whether or not discharges are compliant with Clause 13 is problematic for a number of reasons. Firstly, the Policy does not provide any specifications regarding where in waters determination regarding compliance with Clause 13 should be assessed. If the concentration of a pollutant in the discharge stream exceed the Schedule 2 criteria, the receiving waters immediately surrounding the discharge point have the strong potential to become non-compliant, which means that in effect such discharges are operating with an unapproved exemption for a mixing zone or attenuation zone. Additionally, the Policy does not provide any indication regarding which party is responsible for undertaking monitoring to determine compliance with Clause 13. This contrasts with the situation regarding licensees for whom monitoring can be enforced as a licence condition.

3.3.3 Exemptions

As indicated, enabling the remediation of contaminated groundwater has been the primary reason for the approval of exemptions from Clause 13. It is clearly appropriate for assessments to be made to ensure that measures such as remediation are undertaken using best practice techniques and that they will result in a net environmental benefit. However, in a situation where it is determined that such measures will be undertaken using best practice techniques and that they will result in a net environmental benefit, it appears inconsistent that an exemption should be required.

It is also noted that the maximum allowable size of mixing zones permissible under an exemption do not fully allow for possible variations to environmental risk of sighting these zones in different locations of a water body and variations to risk of zones in different water bodies. Consequently, the requirements concerning mixing zones have also caused difficulties insofar as they are very restrictive and often cannot be complied with where an exemption might in fact be the best course of action. This has resulted in greater use of EIPs as an alternative policy instrument.

3.3.4 Inadequate Water Quality Criteria Particularly Regarding Nutrients

As indicated, South Australia's Strategic Plan acknowledges that water is critical to the state's viability and consequently, includes two targets that are of relevance to the Policy. These are maintaining the health and diversity of South Australia's marine environment and ensuring that the state's water resources are managed within sustainable limits by 2018. The major discharge reduction targets for nitrogen and suspended solids in the Adelaide Coastal Water Quality Improvement Plan are intended to help protect the health and diversity of the Adelaide's coastal marine environment.

The need for more ambitious water quality criteria, particularly regarding nutrients is clearly indicated by the findings of recent water quality monitoring and assessment reports regarding South Australia's coastal waters and inland waters.

Coastal Waters

The coastal waters of South Australia are naturally typically low in nutrients such as nitrogen and are also low in turbidity. The plants and animals of these waters have evolved to thrive in these conditions. Seagrasses meadows dominate South

Australia's sheltered nearshore habitats, while rocky reefs are also a major feature of the state's coastline.

Seagrasses meadows are globally recognised as being highly valuable areas that perform a range of vital ecological roles including the following.

- Providing important spawning and nursery areas for fish and invertebrates
- Reducing coastal erosion by stabilising sand and attenuating wave action
- Nutrient assimilation and cycling
- Filtering out suspended solids in the water column
- Carbon storage

The rocky reefs and their macroalgae in South Australia's coastal waters create complex habitats and also perform similar ecological roles to seagrasses including the following.

- Providing important spawning and nursery areas for fish and invertebrates
- Food and habitat areas for fish and invertebrates
- Nutrient assimilation and cycling
- Carbon storage

Even small increases in concentrations of nutrients or sediments can have disproportionate negative effects on aquatic environments. Increased nutrient loads can result in algal growth (ie epiphytes) on seagrass leaves, resulting in the death of seagrasses by reducing access to light required for photosynthesis. Suspended sediments can increase turbidity of coastal waters which also damages seagrasses by reducing the availability of light.

Sediments smother rocky reef systems thereby preventing algal recruitment, resulting in a change from canopy macroalgal communities to turf algae dominated systems. Excess nutrients also play a significant role in damage to these reefs by causing a shift from macroalgae to less complex communities, thereby reducing the ecological function of reefs.

Key sources of nutrient discharges to the state's waters include wastewater treatment plants, septic tanks, aquaculture, stormwater, agricultural run-off, fish processing and other industry. Sediment loads are largely through stormwater, agricultural run-off and dredging.

South Australia's coastal waters are divided into 8 marine bioregions — Eucla, Murat, Eyre, Spencer Gulf, North Spencer Gulf, Gulf St Vincent, Coorong and Otway as illustrated in Map 1.

Map 1

South Australia's Marine Bioregions

Source: Environment Protection Authority South Australia 2013. State of the Environment South Australia

Environmental assessments of these bioregions indicate significant loss of seagrass. Given the high levels of nutrient inflow, the likelihood of further losses is real. Key findings from these studies are summarised as follows.

Eyre - Sea-cage aquaculture, stormwater run-off from Port Lincoln, the Billy Lights Point wastewater treatment plant and fish processing discharges all contribute to nutrients into the sheltered Boston and Louth bays. These nutrients are likely to be contributing to significant growth of epiphytes on the seagrass meadows of these bays and the loss of about 600 hectares of seagrasses in Boston Bay. The remaining seagrass meadows in these bays are in moderate to poor condition and if current conditions are prolonged further losses may occur.

Spencer Gulf - Throughout the gulf, seagrass meadows in close proximity of coastal towns are under stress from excess nutrients. This is particularly evident in coastal waters adjacent to Wallaroo, Port Hughes and Moonta Bay. While the seagrass meadows in these areas are still dense, if current conditions prevail, losses of seagrasses may occur. Sources of nutrient discharge in the Gulf include sea-cage and land based aquaculture, poor wastewater management including leakage from septic tanks, poor stormwater management and agricultural run-off.

Gulf St Vincent - Adelaide Metropolitan Coastline – More than 6000 hectares of seagrasses have been lost in the near shore waters and in several locations adjacent to wastewater discharges since 1950. Remaining seagrasses are fragmented leaving them vulnerable to further degradation. Before human impact, nitrogen loads in these waters would have been small, ie about 50 – 80 tonnes pa, compared with the loads of about 2,360 tonnes pa at the time of the Adelaide Coastal Waters Study (2007). Large-scale recovery of seagrass meadows cannot be expected unless there are dramatic and lasting reductions in nitrogen discharges.

Sediment contained in discharges have also contributed to increased turbidity in the near shore waters resulting in further damage to sea grasses by reducing the availability of light. The Adelaide Coastal Waters Study estimated the discharge load of suspended sediment via stormwater and wastewater treatment plants to Adelaide's coastal waters to be about 8,400 tonnes pa.

Large-scale recovery of seagrass meadows in this area cannot be expected unless there are dramatic and lasting reductions in discharges of nitrogen and sediment. Key recommendations of the study included a 75% reduction in nitrogen discharges and a 50% reduction in discharges of sediment.

Northern Gulf St Vincent – There are emerging signs of nutrient enrichment which might lead to future losses of seagrass. This is likely to be exacerbated by low currents and tidal exchange.

Yorke Peninsula – Nutrient discharges from coastal developments have resulted in large areas of dense seagrass meadows being under significant stress from epiphyte growth. If this stress continues significant loss of seagrass meadows may occur.

Kangaroo Island – Throughout the region there are heavy epiphyte loads on seagrasses, indicating that the area is under stress from excess nutrients. It has been estimated that over 2,500 hectares of seagrass has been damaged or lost in Western Cove due to nutrient enrichment which is likely to have been caused by agricultural run-off and exacerbated by the low water movement within the bay.

Coorong - The dense and extensive seagrass meadow of Lacepede Bay is vulnerable to the impacts of high nutrient water flowing from agricultural drains and coastal development which has resulted the nearshore seagrass regressing approximately 100 metres offshore in front of the township of Kingston.

Otway - The loss of about 80% of the seagrass meadow in Rivoli Bay (between Beachport and Southend) has been attributed to the impacts of drain discharge and erosion of sediments. This has necessitated major expenditure on coast protection measures.

Reefs adjacent to Adelaide have also been found to be significantly degraded due to the loss of canopy macroalgae largely as a result of the effects of nutrient and sediment discharge loads. Whilst little is known about the health of rocky reef systems in other areas of South Australia's coastal waters, there is significant concern about the condition of reefs that are in close proximity of sediment and nutrient discharges.

Work undertaken by the EPA has unequivocally demonstrated that the concentration limit for nitrogen specified in Schedule 2 – Water Quality Criteria of the Policy of 5 mg/L is far higher than what is required to protect the seagrass meadows of South Australia's coastal waters. This work indicates that nitrogen concentrations in areas where damage to seagrasses is occurring is in the order of 0.28 mg/L. and that an ambient nitrogen concentration of less than 0.15 mg/L is required to keep the state's seagrass meadows in good condition.

The substantial economic value of South Australia's seagrass meadows and the cost of degradation of this asset is highlighted by the findings of work undertaken during 2007 regarding Adelaide's Coastal Waters. The findings of this work are summarized as follows.

Beach Stability

The importance of seagrasses in creating and maintaining sandy seabeds and beaches is acknowledged and the loss of large areas of sea grass beds and associated littoral sand drift has necessitated Adelaide's ongoing harbour dredging and beach sands replenishment program at an annual cost of about $6 million. However, while recovery of the seagrass meadows would restore a substantial ecology that has been lost, it would be many centuries before seabed levels are

restored by this means. Consequently, while seagrass recovery would not reduce annual sand replenishment costs for many years, it would help prevent an escalation of current costs.

Fish Stocks

The Economic Value of Seagrasses for Commercial and Recreational Fishing in Adelaide's Coastal Waters was assessed for the EPA by Dr Lynne McArthur from the School of Mathematical and Geospatial Sciences, RMIT University, Melbourne in 2007.

This study used statistical techniques to estimate the value of seagrass habitats to fish production in Adelaide's coastal waters. Most of the information and data required for this assessment was provided by the South Australian Research and Development Institute's Aquatic Science Centre. Information and data used in the study included:

- International estimates of the contribution of various types of marine habitats to primary production.

- Comprehensive benthic habitat maps that provide detailed information about the distribution of seagrass beds in Adelaide's coastal waters.

- SARDI's 'GARFIS' database that provides comprehensive spatial and temporal commercial fish catch data in South Australia.

- International estimates of commercial by-catch.

- Estimates of recreational fish catch in Adelaide's coastal waters provided by the 'National Recreational and Indigenous Fishing Survey 2000/01' and anecdotal evidence regarding shore based recreational fishing.

Estimates of the contribution of marine habitats to fish production were applied to the seagrass mapping data and the data and evidence regarding commercial and recreational fishing to assess the importance of seagrasses in Adelaide's coastal waters to commercial and recreational fishing. This assessment found that the seagrasses in Adelaide's coastal waters are vital for fishing. Key findings are summarized as follows.

- The total value of commercial and recreational fish catch in Adelaide's coastal waters is about $190 million pa with seagrasses accounting for about 70% of this catch ie about $133 million pa.

- Each hectare of seagrasses accounts for about $1,536 pa of fish catch.

- As the Adelaide coastal waters (in particular the area from Glenelg to just north of Port Gawler which contains the second largest area of seagrass coverage in South Australia's coastal waters) result in the spawning of fish that are also caught outside of these waters, the importance of seagrasses in Adelaide's coastal waters for fishing is even greater than this analysis indicates.

Applying the value of $1,536 p/ha pa to the estimated 5,200 hectares of lost seagrasses in Adelaide's coastal waters up to 2003 indicates that the direct cost of seagrass loss in terms of fish catch is about $7.98 million pa. This decline in fish catch also has flow-on multiplier impacts including on businesses that provide goods and services to the commercial and recreational fishing sectors and process fish catch.

While research regarding temperate rocky reef systems is lacking in relevant and reliable estimates of their economic value, expert opinion indicates that the value of these systems for fisheries is also significant and likely to be comparable to seagrass meadows.

Carbon Sequestration

Seagrasses store carbon and therefore play a role in climatic balance. An assessment undertaken for the EPA based on available evidence indicates that seagrasses in Adelaide's coastal waters store about 2.5 tonnes of CO_2 per hectare pa. This makes them highly valuable carbon sinks.

Based on the estimate in the Stern Review (i.e. The Economics of Climate Change for the UK Government) of the social cost of carbon (at current atmospheric concentrations) of about $AUS 29 – 35 per tonne of CO_2 pa, carbon sequestration by the remaining seagrasses is valued at around $6 million - $7.5 million pa. Based on these values the loss of 5,200 hectares of seagrasses is also costing about $400,000 - $450,000 pa in terms of foregone carbon sequestration.

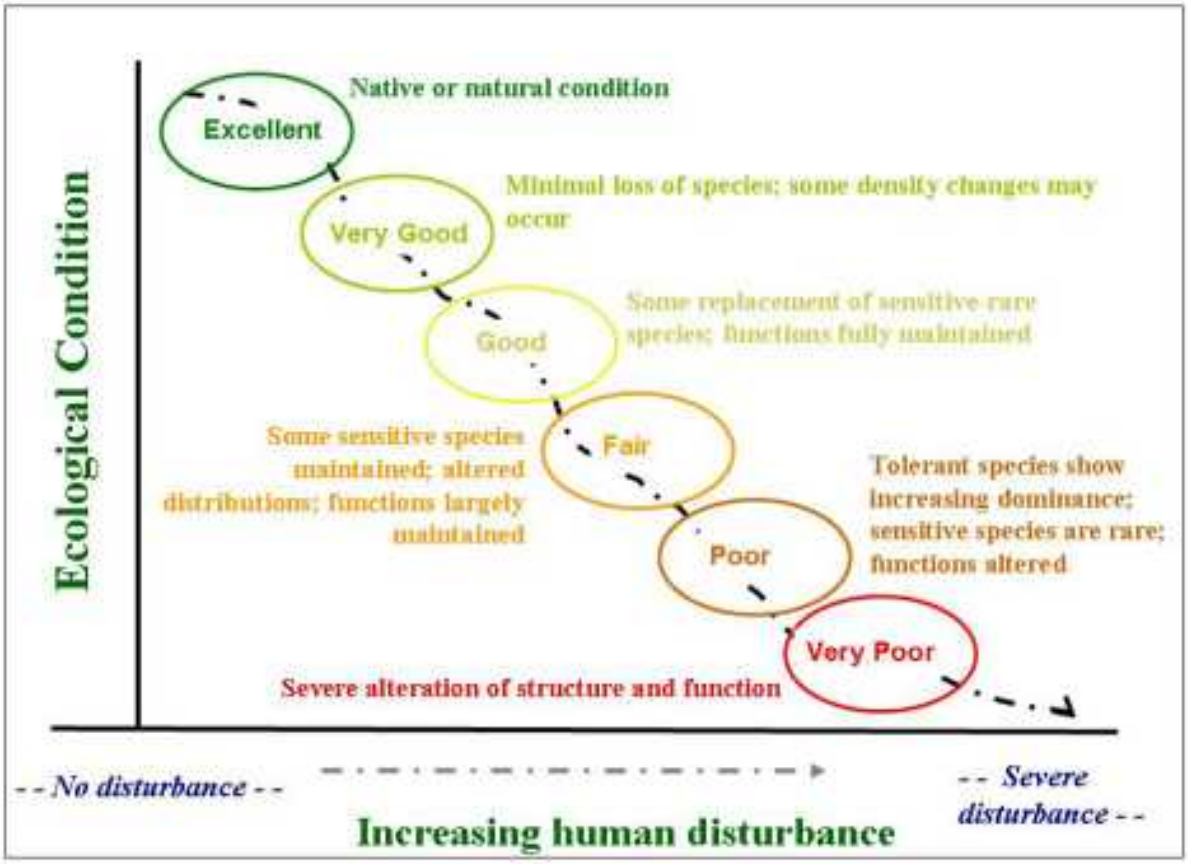
Inland Waters

An assessment of South Australia's 67 water management areas in 2012 by the Department of Environment, Water and Natural Resources found that only about half of these areas are being managed within sustainable limits. This is based on an assessment of water use, allocations and other water management issues (primarily provisions for environmental water and water quality issues, including salinity) and the current management arrangements for that resource.

The significance of water quality problems in South Australia is further highlighted by the findings of ongoing monitoring of the state's rivers, lakes and coastal waters by the EPA which is used to produce aquatic ecosystem condition reports. These reports rate aquatic ecosystems on a six-point scale, ranging from 'very poor' to 'excellent' as illustrated in Figure 1 below.

Figure 1

Ecological Condition versus Level of Human Disturbance



Source: Environment Protection Authority South Australia 2013. State of the Environment South Australia

These aquatic ecosystem reports indicate that the majority of the state's rivers and creeks lie in the rating spectrum between 'very poor' and 'fair'. They also indicate that very few are in a 'good' or 'very good' condition, and none are in 'excellent' condition. High concentrations of nutrients in creeks and rivers is a key reason for their degraded condition. The nutrient concentration limits specified in Schedule 2 of the current Policy are too high to be protective of these inland aquatic ecosystems.

The results of these reports are summarised in Table 1 below. The reports and more detailed information on the assessment process are available on the EPA website, www.epa.sa.gov.au.

Table 1

Summary of Condition of Aquatic Ecosystem Assessment Results by Natural Resource Management Region

Year assessed	**2008**				**2009**	**2010**		**2011**	**2012**	
NRM Region	**AMLR**	**KI**	**NY**	**MDB**	**SE**	**EP**	**SAMDB**	**AMLR**	**NY**	**SAAL**
Excellent	0	0	0	0	0	0	0	0	0	0
Very good	0	0	0	0	0	0	1	1	1	5
Good	5	0	0	2	2	0	5	10	3	29
Fair	16	3	5	7	24	11	23	27	5	18
Poor	13	3	2	4	40	15	14	24	2	2
Very poor	6	0	1	0	5	4	0	10	0	0
Total	40	6	8	13	71	30	43	72	11	54

AMLR = Adelaide and Mount Lofty Ranges; EP = Eyre Peninsula; KI = Kangaroo Island; NY = Northern and Yorke; MDB = South Australian Murray Darling Basin; SAAL = South Australia Arid Lands; SE = South East

Source: Environment Protection Authority South Australia 2013. State of the Environment South Australia

In its assessment of progress regarding the implementation of the Strategic Plan over the period 2003 - 2012, the South Australian Strategic Plan Audit Committee concluded that in the case of Target 75 - Sustainable Water Use, the assessment was 'steady or no movement'. This was because while there had been movement in the categorisation of some water management areas, the status of the majority of areas remains unchanged. The Audit Committee also considered it unlikely that this target would be achieved.

3.4 Options

There are two options for South Australia in relation to water quality compliance requirements and standards. Firstly, to retain current legislative requirements, or to adopt practices that are consistent with the approach to protecting the environmental values of water bodies that is taken in other jurisdictions. The implications of retaining the current approach are discussed in detail above, whilst proposed

reforms that are more consistent with the general approach in other jurisdictions are summarised and assessed as follows.

- Replace the mandatory requirements to comply with water quality criteria under Clause 13 (for which offence penalties apply), with a requirement to take all reasonable and practicable measures to prevent or minimise environmental harm from the discharge of pollutants in compliance with the General Environmental Duty specified in Section 25 of the Act. This is specified in Clause 9 of the proposed new Policy.

- In conjunction with the replacement of Clause 13, make South Australia's water quality criteria consistent with national standards and practice. This involves the replacement of Schedule 2 – Water Quality Criteria of the current Policy with a requirement to refer to the full range of water pollutant standards and characteristics listed in the national guidelines as indicated in the proposed new Clauses 7 and 9. It is noted that these guidelines also cover aquatic ecosystems, water used for primary industries, drinking water and recreational water (including aesthetics), but do not specify criteria for industrial water.

- In recognition of the fact that the proposed Clause 9 is based on compliance with the General Environmental Duty rather than mandatory compliance criteria, remove the provision for mandatory penalties for non-compliance.

- As a consequence of replacing the mandatory compliance provisions of Clause 13 with a requirement to take all reasonable and practicable measures to prevent or minimise environmental harm from the discharge of pollutants, remove requirements to seek exemptions from water quality criteria currently specified under Clauses 14 and 15.

Section 25(2) of the Act provides guidance regarding factors that need to be taken into account when determining measures that are consistent with the general environmental duty. These are environmental impacts, costs of taking action and knowledge about available measures and their likelihood of success. The proposed Clause 9, provides further guidance regarding compliance with the General Environmental Duty in the case of protection of South Australia's waters by requiring the following.

- Application of the waste management hierarchy. This hierarchy lists waste management options in descending order of priority starting with avoidance as

the preferred option followed by minimisation, reuse, recycling, treatment and disposal.

- In the case of waters with an environmental value of aquatic ecosystems and primary industries, avoid activating the trigger values for the waters. Proposed Clauses 3 and 7 indicate that these trigger values are specified in the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality' (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000).

- In the case of waters with an environmental value of recreation and aesthetics, have regard to the 'Guidelines for Managing Risks in Recreational Water' (National Health and Medical Research Council 2008).

- In the case of waters with an environmental value of drinking water have regard to the 'Australian Drinking Water Guidelines' (National Health and Medical Research Council 2011).

- Comply with Codes of Practice, Guidelines and Standards that are expressed as mandatory in relation to an activity, or have regard to Codes of Practice, Guidelines and Standards that are not expressed as mandatory in relation to an activity. These Codes of Practice, Guidelines and Standards are provided in Schedule 3 of the proposed new Policy.

In effect what this means is parties that discharge pollutants into water bodies either directly or indirectly, will need to consider the type and concentration of pollutants in their discharge, and compare this with the condition of receiving waters to determine if their discharge may result in the relevant water quality criteria of these waters being violated just as they are required to do under existing regulatory arrangements. If so, this indicates that the discharger needs to consider taking further action. The nature of this action will be determined by the level of environmental harm or potential harm, and whether the water quality criteria are trigger values or those that parties are required to have regard to.

Trigger values are defined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality as follows. Concentrations (or loads) of the key performance indicators measured for the ecosystem, below which there exists a low risk that adverse biological (ecological) effects will occur. They indicate a risk of impact if exceeded and should 'trigger' some action including further ecosystem specific investigations and implementation of management/remedial actions if necessary.

The Guidelines for Managing Risks in Recreational Water and the Australian Drinking Water Guidelines specify thresholds for pollutants and other water characteristics which, if exceeded, are likely to result in adverse effects on human health. These Guidelines provide advice regarding measures that can be implemented to prevent defined thresholds for pollutants and other water characteristics from being exceeded, and also regarding appropriate risk management measures in the event of defined thresholds being exceeded. They do not specify mandatory courses of action that must be undertaken to prevent thresholds for pollutants and water characteristics from being exceeded, or measures that must be implemented in the event of thresholds being exceeded. Consequently, the proposed Clause 9 requires that where relevant, parties 'have regard to' these Guidelines in order to demonstrate compliance with the General Environmental Duty. Similarly the Codes of Practice and other Guidelines that are cited in both the existing and proposed Policy detail non-mandatory (and mandatory) measures that can be undertaken to protect water quality. Consequently, the proposed Clause 9 also requires that where relevant, parties 'have regard to' these non-mandatory measures in order to demonstrate compliance with the General Environmental Duty.

Any decision not to implement non-mandatory environment protection measures that are provided in these Guidelines and Codes of Practice would need to be well considered in order to demonstrate compliance with the General Environmental Duty.

Key differences between Schedule 2 of the current Policy and the national guidelines are summarised as follows

Australian and New Zealand Guidelines for Fresh and Marine Water - There are about 130 additional chemicals listed in the Australian Guidelines for Fresh and Marine Water that are not listed in Schedule 2 of the current Policy. However, this is largely due to the fact that in the case of a number of chemicals, Schedule 2 sets concentration limits for generic types of chemicals, particularly pesticides and industrial organic chemicals such as polychlorinated biphenyls (PCBs), whilst the national guidelines have increasingly set trigger values for the various varieties of these chemicals. For example, there are over 50 different pesticides and about 15 different PCBs listed in the national guidelines, whilst Schedule 2 does not differentiate between these types of pesticides and PCBs and sets a single concentration limit for all pesticides and PCBs. This differentiation in the national guidelines largely reflects improving scientific understanding about the effects of chemicals in the environment. There are also about 60 industrial organic chemicals in the latest edition of these guidelines that are not included in Schedule 2.

In the case of water with aquatic ecosystem values there are about 40 occasions for which the trigger values are lower (ie more stringent) in the national guidelines than

the concentration limits for these pollutants specified in Schedule 2 of the current Policy. Key pollutants that are subject to significantly more rigorous national standards than apply in South Australia include metals, metalloids (eg arsenic and selenium) and nutrients ie nitrogen and phosphorus. However, there are also about 25 occasions where the trigger values in the national guidelines are higher (ie less stringent) than the concentration limits specified for these pollutants in Schedule 2 of the current Policy. Key pollutants that are subject to less stringent criteria under the national guidelines than currently apply in South Australia include pesticides and industrial organic chemicals. The stringent concentration limit of zero that was set for pesticides in Schedule 2 reflected uncertainty about the environmental impacts of these chemicals at the time the current Policy was developed, whilst there is now a better understanding regarding the toxicity of the various types of pesticides when they are discharged in the environment. Similarly, there is now also a better understanding regarding the toxicity of the various types of industrial organic chemicals in the environment that has enabled less stringent national trigger values to be set, whilst this has also enabled trigger values to be set for these chemicals on a less generic basis. However, the additional industrial organic chemicals in the latest edition of these guidelines that are not included in Schedule 2 largely relate to ecosystem values.

In the case of water used for primary industries (ie irrigation, livestock and aquaculture) there is little difference between the pollutant concentration limits specified in Schedule 2 of the current Policy and the trigger values for relevant pollutants in the national guidelines. The vast majority have the same value with only a small number differing.

Guidelines for Managing Risks in Recreational Water - Schedule 2 of the current Policy has a very limited focus on the recreational value of water with concentration limits being for only four pollutants ie turbidity, oil and grease, faecal coliforms and enterococci. In comparison the guidelines draw attention to the broad range of risks in recreational waters including pathogens such as bacteria, viruses and other parasites, chemical hazards and aesthetic matters in a way which guides risk management decision making regarding water quality, rather than requiring compliance with a large number of performance criteria.

Australian Drinking Water Guidelines - Schedule 2 of the current Policy sets concentration limits for over 50 pollutants drawn from the 1996 Australian Drinking Water Guidelines, notwithstanding the fact that these guidelines apply to water quality at the point of consumption which is normally after treatment. Under the proposed reforms, parties that discharge pollutants to water, either directly or indirectly, would be required to have regard to the full range of risks to drinking water including pathogens, chemicals and radiological contaminants in a way that encourages all parties including those that are not suppliers of potable water to conduct their activities in a way that reduces risks to drinking water quality.

These guidelines would provide environmental standards for application across South Australia However, where evidence indicates that water bodies require greater protection from discharges of pollutants, or is necessitated by the impacts of climatic conditions such as drought and other emergency situations such as disease affecting key fish species, pollutant discharge limits regarding both loads and concentration could be set via the proposed Clause 12 – Discharge Limits for Declared Activities of the new Policy. In this regard it is noted that the same provision for setting pollutant discharge limits also exists under the current Policy via Clause 16.

While failure to comply with the General Environmental Duty does not of itself constitute an offence under the Act, compliance may be enforced by issuing an environment protection order or a clean-up order, whilst an order may also be made by the Environment, Resources and Development Court under Part 11 of the Act (ie Civil Remedies and Penalties). Furthermore, failure to comply with the General Environmental Duty is taken to be a contravention of the Act for the purposes of Section 135 of the Act, and is therefore subject to the cost recovery charges specified in this section of the Act and Regulation 80, and also the property registration provisions that are summarised in Section 3.2. Alternatively, in the case of licensees, compliance with Clause 9 could also be achieved through licence management, including the use of licence conditions and implementing EIPs.

Section 25 – General Environmental Duty of the Act and the relevant proposed new Clauses of the Policy are provided as follows.

25—General environmental duty

(1) A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.

(2) In determining what measures are required to be taken under subsection (1), regard is to be had, amongst other things, to —

(a) the nature of the pollution or potential pollution and the sensitivity of the receiving environment; and

(b) the financial implications of the various measures that might be taken as those implications relate to the class of persons undertaking activities of the same or a similar kind; and

(c) the current state of technical knowledge and likelihood of successful application of the various measures that might be taken.

(3) In any proceedings (civil or criminal), where it is alleged that a person failed to comply with the duty under this section by polluting the environment, it will be a defence —

(a) if —

(i) maximum pollution levels were fixed for the particular pollutant and form of pollution concerned by mandatory provisions of an environment protection policy or conditions of an environmental authorisation held by the person, or both; and

(ii) it is proved that the person did not by so polluting the environment contravene the mandatory provisions or conditions; or

(b) if —

(i) an environment protection policy or conditions of an environmental authorisation provided that compliance with specified provisions of the policy or with specified conditions of the authorisation would satisfy the duty under this section in relation to the form of pollution concerned; and

(ii) it is proved that the person complied with the provisions or with such conditions of an environmental authorisation held by the person.

(4) Failure to comply with the duty under this section does not of itself constitute an offence, but —

(a) compliance with the duty may be enforced by the issuing of an environment protection order; and

(b) a clean-up order or clean-up authorisation may be issued, or an order may be made by the Environment, Resources and Development Court under Part 11, in respect of non-compliance with the duty; and

(c) failure to comply with the duty will be taken to be a contravention of this Act for the purposes of section 135.

Clause 9—General environmental duty (section 25 of Act)

The provisions that a person must comply with in taking all reasonable and practicable measures to prevent or minimise environmental harm resulting from undertaking an activity that pollutes or might pollute waters (in compliance with the general environmental duty) include, but are not limited to, the following:

(a) the person must apply the waste management hierarchy;

(b) in the case of waters with an environmental value of aquatic ecosystems or primary industries—the person must avoid activating a trigger value for the waters;

(c) in the case of waters with an environmental value of recreation and aesthetics—the person must have regard to the *Guidelines for Managing Risks in Recreational Water 2008* prepared by the National Health and Medical Research Council as in force from time to time;

(d) in the case of waters with an environmental value of drinking water for human consumption—the person must have regard to the *Australian Drinking Water Guidelines 2011* prepared by the National Health and Medical Research Council as in force from time to time;

(e) if the codes, standards or guidelines prescribed in Schedule 4 contemplate requirements that are expressed as mandatory in relation to the activity—the person must comply with those requirements;

(f) if the codes, standards or guidelines prescribed in Schedule 4 contemplate requirements that are not expressed as mandatory in relation to the activity—the person must have regard to those measures.

Clause 7—Activation of trigger values

For the purposes of this policy, a trigger value for waters is activated if.

(a) in the case of waters with an environmental value of aquatic ecosystems – a trigger value for an indicator specified in Chapter 3 of the Water Quality Guidelines -

(i) has been reached or exceeded for a chemical substance or a characteristic; or

(ii) in the case of a minimum level specified for a characteristic, has not been reached, in respect of the waters when assessed against Chapter 3 of the Water Quality Guidelines (and any other provisions of those guidelines that assist in the

interpretation and construction of Chapter 3) on the basis of a 95% level of protection of species; or

(b) in the case of waters with an environmental value of primary industries - irrigation and general water uses - a trigger value for an indicator specified in Chapter 4.2 of the Water Quality Guidelines -

(i) has been reached or exceeded for a chemical substance or a characteristic; or

(ii) in the case of a minimum level specified for a characteristic, has not been reached,

in respect of the waters when assessed against Chapter 4.2 of the Water Quality Guidelines (and any other provisions of those guidelines that assist in the interpretation and construction of Chapter 4.2), applying, if there are long term and short term trigger values for an indicator, the long term trigger value; or

(c) in the case of waters with an environmental value of primary industries - livestock drinking water - a trigger value for an indicator specified in Chapter 4.3 of the Water Quality Guidelines –

(i) has been reached or exceeded for a chemical substance or a characteristic; or

(ii) in the case of a minimum level specified for a characteristic, has not been reached,

in respect of the waters when assessed against Chapter 4.3 of the Water Quality Guidelines (and any other provisions of those guidelines that assist in the interpretation and construction of Chapter 4.3); or

(d) in the case of waters with an environmental value of primary industries - aquaculture and human consumption of aquatic foods - a guideline value for an indicator specified in Chapter 4.4 of the Water Quality Guidelines –

(i) has been reached or exceeded for a chemical substance or a characteristic; or

(ii) in the case of a minimum level specified for a characteristic, has not been reached, in respect of the waters when assessed against Chapter 4.4 of the Water Quality Guidelines (and any other provisions of those guidelines that assist in the interpretation and construction of Chapter 4.4).

Water Quality Guidelines means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 prepared by ANZECC and ARMCANZ, as in force at the commencement of this policy.

3.5 Analysis of Benefits and Costs

3.5.1 Compliance

There are a range of significant compliance benefits associated with the proposed reforms that are listed and discussed as follows.

- Clarification regarding existing legal responsibilities under the Act for all parties that discharge pollutants into the state's waters.

- Protecting the enforcement capacity of the Policy and the Act.

- Creating a regulatory structure that is more conducive to a cooperative approach to environmental protection.

- Removal of the requirement to obtain exemptions as a means of ensuring legal compliance with the Policy.

It is considered that the replacement of the mandatory requirements of Clause 13 with a general obligation to take all 'reasonable and practicable' measures to prevent or minimise environmental harm in compliance with the General Environmental Duty in Section 25 of the Act, as proposed under the new Clause 9 would not create uncertainty in terms of compliance. Rather, it would provide greater clarity for all parties regarding their existing responsibilities under the Act. The General Environmental Duty is a key provision that has operated since commencement of the Act and features in other legislation. Examples of other legislation that contains a similar duty include the *Mining Act 1971*, the *River Murray Act 2003*, the *Natural Resources Management Act 2004*, the *Adelaide Dolphin Sanctuary Act 2005*, the *Marine Parks Act 2007* and the *South Australian Public Health Act 2011*.

By highlighting the requirement for compliance with the General Environmental Duty, the proposed Clause 9 would alert all parties about their responsibility to have a reasonable understanding of the hazards of pollutants they discharge into water bodies and the environment into which they discharge. This would help address a current weaknesses of Clause 13 discussed in Section 3.3.2, which is that it does not clearly identify responsibility for determination of compliance.

As indicated above, Section 25(2) of the Act provides guidance regarding factors that need to be taken into consideration when determining measures that are consistent

with the General Environmental Duty, whilst the proposed Clause 9, provides further guidance regarding compliance with this duty in the case of protection of South Australia's waters. This includes reference to Codes of Practice and Guidelines listed in the Policy. Whilst they are currently listed in the Policy regarding particular activities (Part 4, Division 2) and also in relation to diffuse source pollution (Part 5), Clause 9 provides clarity regarding their operation and are listed in Schedule 3 of the proposed Policy.

Direction regarding what is reasonable and practicable is also provided via conditions of environmental authorisations under the Act. This can include concentration and load limits for discharges. As conditions of authorisations are mandatory requirements, compliance with these conditions, particularly regarding concentration and load limits is clear evidence of compliance with the General Environmental Duty of the Act. As exists with the current Policy, Clause 12 of the proposed new Policy also provides legal powers to set discharge limits for specified activities that discharge pollutants and waste either directly, or indirectly into the state's waters. This provision of the proposed Policy would therefore also be able to be used to provide certainty regarding compliance requirements with Clause 9.

It is intended that further clarification regarding what constitutes 'taking all reasonable and practicable measures to prevent or minimise environmental harm' would be provided by the EPA through the preparation of guidance documents regarding the use of each of the national water quality guidelines that would be required to be used under the proposed new Policy. The intent of these guidance documents are briefly discussed as follows.

Guidance regarding use of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality for the protection of waters with an environmental value of aquatic ecosystems and primary industries will focus on the process of conducting a 'water quality hazard assessment' of pollutants in discharge streams and subsequent decision making processes. It will assist with the identification of relevant pollutants in the discharge stream by reference to the appropriate tables in the guidelines, appropriate assessment of receiving waters and analysis of the findings. It will also assist with the decision making process if the discharge activates trigger values, indicating a potential for the environmental values of the receiving water body to be compromised. This would result in a risk assessment being undertaken to determine if the environmental values of the receiving environment are being, or would be compromised**,** and the preparation of an environmental management plan if necessary.

Environmental management planning would however, need to distinguish between situations where only one party is discharging pollutants or waste that is adversely affecting relevant environmental values, and where multiple parties are discharging pollutants or waste and consequently, environmental deterioration is the result of multiple discharges. In this situation, while all parties that are discharging relevant pollutants and waste would need to demonstrate that they are taking all reasonable and practicable measures to reduce their discharges in line with the General Environmental Duty, it would also highlight the potential need for overarching plans such as the Adelaide Coastal Water Quality Improvement Plan, and possibly also setting discharge limits to ensure that the assimilation capacity of the environment is not exceeded.

The guidance document regarding use of the Guidelines for Managing Risks in Recreational Water and the Australian Drinking Water Guidelines will focus on providing practical advice about what the requirement to "have regard" to these guidelines means, thereby building on advice already provided in these documents. It is recognised that the drinking water guidelines are intended to apply to water quality at the point of consumption, which is normally after treatment, whilst the recreational water guidelines are also primarily intended to apply to water quality at the point of use. However, unlike other states, all of South Australia's water catchment areas involve multiple land uses, including residential development, agriculture and other industry. This has significant implications for treatment costs of drinking water, whilst waterbodies can also have recreational values. It is therefore highly desirable that all parties who undertake activities in catchments be mindful of the implications of their actions on these important water values. Consequently, this guidance document will focus on the process of conducting a 'water quality hazard assessment' of pollutants in discharge streams and subsequent decision making processes within this context.

The results of ecosystem water quality monitoring that is undertaken by the EPA would also be available for use by parties to help in ensuring compliance with the requirements of the proposed Clause 9. However, this does not preclude the need for parties to undertake their own ecosystem monitoring. Additionally, as EPA monitoring is currently confined to an ecosystem perspective, parties that are subject to compliance requirements may also need to undertake monitoring from a health and primary industries perspective.

The proposed reforms would also remove concerns about the concentration of pollutants discharged into receiving waters exceeding proposed criteria values in areas immediately surrounding the discharge point prior to dilution, as discussed in Section 3.3.2. As indicated, the proposed Clause 9 does not contain mandatory

compliance standards, whilst the guidance documents will provide advice regarding appropriate sampling procedures.

Replacing Clause 13 with a General Environmental Duty would also not weaken the enforcement capacity of the Policy, or the Act itself. Mandatory penalties are only one of a range of ways of securing compliance and prosecution is not an end in itself. Requiring the holders of environmental authorisations under the Act to implement an EIP, or the issuing of an EPO or a CO requiring compliance with what is reasonable and practicable best practice can secure specified change.

It also noted that failure to comply with an order is an offence is in its own right, while discharges that cause actual or potential environmental harm, or an environmental nuisance may be prosecuted under Part 9 of the Act, for example Section 79 'Causing serious environmental harm' and Section 80 'Causing material environmental harm' which can be subject to substantial penalties. Furthermore, if the effect of a discharge is to place a licensee in breach of a condition of their licence, this may also lead to prosecution under the Act.

As indicated, in addition to these measures, holders of authorisations under the Act may voluntarily enter into EIPs with the EPA, whilst pursuant to Section 59 of the Act, all parties whether or not being the holder of an authorisation, may voluntarily enter into an Environment Performance Agreement with the EPA. These agreements may contain terms the EPA considers appropriate for securing the objects of the Act, including binding a party other than the EPA to undertake specific programs, and binding the EPA to provide financial or other assistance to implement these programs. Whilst these mechanisms are already available under the Act, the rigid compliance requirements of the current approach to protecting the environmental values of the state's waters have discouraged the use of these mechanisms to achieve environmental objectives. The proposed new approach to protecting the state's waters would be more conducive to using these mechanisms.

The way Clause 9 would be administered would however, ultimately be subject to some discretion on the part of the EPA. This reflects the need to consider a range of factors identified in Section 25 of the Act ie environmental impacts, costs of taking action and knowledge about available measures and their likelihood of success, and also the nature of the EPA's Compliance and Enforcement Policy. As discussed in Section 3.3.1, this Policy recognises that environmental legislation provides it with a variety of regulatory tools and the ability to exercise discretion to determine which tool is appropriate for particular circumstances and that in determining an appropriate course of action, the EPA considers a variety of factors including the seriousness of a contravention, compliance history and the extent and speed of required remediation action.

Removing the requirement to seek exemptions from water quality criteria would also reduce reliance on the exemption process under the Act. It is undesirable to operate an Environment Protection Policy that relies on exemptions, when compliance can be obtained through a duty tied to a program of continuous improvement implemented via EIPs, Environment Performance Agreements, or conditions of authorisations which ultimately can deliver better environmental outcomes.

3.5.2 Economic Impacts

There are a range of significant economic benefits associated with the proposed reforms that are listed and discussed as follows.

- Greater equity
- A more flexible risk-based approach to environmental protection and improvement
- Cost savings via the elimination of penalties and requirements to obtain exemptions.
- Improved resource management
- Reduced water treatment costs

The proposed new approach to the protection of the environmental values of South Australia's waters is more equitable than current regulatory arrangements. As indicated above, Clause 9 would alert all parties that discharge pollutants into water bodies about their responsibility to have a reasonable understanding of the hazards of these pollutants and the environment into which they discharge. This is a standard requirement for licensees and holders of other environmental authorisations (ie works approvals and exemptions) under the Act whose activities involve discharge into water bodies. While this may result in increased effort regarding water quality management by some parties, who currently do not comply with the General Environmental Duty under the Act, it would mean that all parties that discharge pollutants into water bodies would be subject to the same required standards as licensees and holders of other authorisations, if their activities pose environmental risks. As indicated, the results of water quality monitoring undertaken by the EPA are available for use to assist with this matter. In the case of licensees, improved environmental performance arising from these reforms may also result in reduced licence fees.

The proposed new approach to the protection of the environmental values of South Australia's waters is essentially risk-based. This means that prevention of potential or actual environmental harm from discharges would become the priority focus, with

trigger values and guidelines under Clause 9 being used to identify the need for risk assessment and improved environmental management where necessary, rather than setting rigid compliance requirements that do not adequately account for variations in environmental risk. This is consistent with the preferred approach the EPA has already adopted with industry where possible. As discussed in Section 3.3.1, this involves working with industry to identify and prioritise environmental risks associated with discharges and making significant use of EIPs as a mechanism for improving environmental performance.

Linking compliance requirements to observance of the General Environmental Duty would also allow industry to work with the EPA to achieve substantial improvements, over a realistic timeframe rather than being liable to immediate financial penalties for non-compliance with the current inflexible 'one size fits all' water quality criteria. As indicated above, available mechanisms for enabling industry and the EPA to work on a cooperative basis include voluntary EIPs and Environment Performance Agreements.

Removal of the provision for mandatory penalties for non-compliance would provide potential cost savings for industry. However, in the event of non-compliance with the proposed Clause 9, fees would still apply if this necessitates investigations by the EPA, the issuing of an EPO or a CO, and the registration of the order on a property via the Lands Title Registration Office and its subsequent cancellation.

Savings would also be realised via the elimination of the need to obtain exemptions. This would enable remediation measures to be implemented without having to apply for, and pay for an exemption under the Policy.

As indicated, South Australia's Strategic Plan recognises the critical importance of the state's water resources for all aspects of life and the state's economic development and consequently, contains targets regarding the protection of both inland and marine waters. The proposed new Clause 9, together with the replacement of Schedule 2 – Water Quality Criteria of the current Policy with a requirement to refer to the more comprehensive range of water pollutant criteria and water characteristics listed in national guidelines, would form the basis of an effective continuous improvement approach to reduce discharges into waters to the greatest extent achievable. This is expected to result in in reduced water treatment costs and improvements to water quality that will enhance the economic value of the state's waters for a range of industries including commercial and recreational fishing, aquaculture, agriculture and tourism. However, it is not possible to estimate these benefits as they would depend on the extent of water quality improvements that can be achieved, and also the businesses that take advantage of improved environmental conditions.

3.5.3 Environmental Impacts

As indicated in Section 3.3.4, there is significant evidence that the water quality criteria, particularly regarding nutrients of the current Policy are inadequate to help ensure effective protection of inland and marine waters as required under South Australia's Strategic Plan.

The more stringent water quality criteria for nutrients in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality in comparison with the concentration limits specified for these pollutants in Schedule 2 of the current Policy are more consistent with the objectives of the Adelaide Coastal Water Quality Improvement Plan and the need for reduced discharges of nutrients in many areas of South Australia's coastal waters. A requirement to pursue more stringent criteria regarding nutrients would reduce the loss of valuable seagrasses with associated benefits including protection of fish stocks, carbon sequestration and erosion control.

The proposed reforms would also result in greater focus on the discharge of metals, metalloids and organic industrial chemicals into water bodies. These pollutants are found in urban stormwater with sources including brakes and tyres of motor vehicles, roofs, stormwater from industrial sites and run-off from mine sites. A greater focus on these pollutants is consistent with the proposed improvements to the regulation of stormwater and wastewater lagoons discussed in Sections 2 and 5 of this document.

A requirement to have regard to the Australian Drinking Water Guidelines is expected to result in improved water quality in South Australia's water catchment areas which, as indicated, are subject to multiple land uses. This would complement catchment management initiatives such as the Mount Lofty Ranges Watershed Water Quality Improvement Plan that is currently being developed by the EPA in conjunction with a range of stakeholders. The need for this improvement plan is recognised in South Australia's water security plan 'Water for Good'.

As indicated, the proposed reforms would form the basis of an effective continuous improvement approach to reduce discharges into waters to the greatest extent achievable, which is expected to result in improvements to water quality in South Australia. This is consistent with South Australia's Strategic Plan. However, it is not possible to provide quantitative estimates regarding the extent to which this will improve water quality.

3.5.4 Family and Social Impacts

Explicit linking of the water quality criteria with the General Environmental Duty under Section 25 of the Act would help to further highlight the fact that all members of the community have a responsibility regarding the protection of water quality in South Australia.

Active pursuit of the more comprehensive water quality criteria specified in the national guidelines would provide a range of community benefits. This includes improved drinking water quality, reduced health risks, improved amenity associated with use of recreational waters including Adelaide's coastal waters and potential employment opportunities with businesses that take advantage of improved water quality.

3.6 Consultation

The proposed replacement of the mandatory requirement to comply with water quality criteria and exemption provisions with a General Environmental Duty, revised criteria and the removal of exemption provisions were subject to the consultation process discussed in Section 7. Key comments from stakeholders are summarised as follows, whilst the EPA's response is also provided.

GDF Suez Australian Energy (operator of Pelican Point Power Station) - The requirement to "have regard to" various codes and guidelines, is confusing as the new compliance mechanism deviates from the traditional requirement to not exceed a recognisable threshold. There is no transparency in the criteria to be used by the EPA to assess if a person did, in fact, "have regard to" the various codes and guidelines. Therefore the requirements of the new mechanism are unclear.

It is unclear how the new compliance mechanism in Clause 9 will operate where the Guidelines lack a trigger value, such as, for example, in marine water where the trigger values are "ID = Insufficient Data". This new compliance mechanism reduces certainty for any person who discharges into a marine environment, as they may be at risk of becoming non-compliant.

GDF Suez Pelican is concerned about how the EPA would apply the "Reasonability and Practicality" of Clause 9 of the Policy to its licence condition with respect to its cooling water discharges, specifically to:

- Cooling water discharges temperature limit
- Compliance at the mixing zone

- Cooling water chlorine discharge concentration limit

- Recognition for continuation of the mixing zone

The Pelican Point power station was designed with diffusers for discharges of its cooling water at the edge of the navigational channel, the Station will continue to retain a mixing zone for compliance with its cooling water temperature and chlorine discharges. How would the EPA treat the Station's licence conditions with respect to the mixing zone which had been based on the design and development approval of the facility?

The Pelican Point power station discharges cooling water through diffusers located at the edge of the Port River navigational channel which is subject to shipping and recreational navigational vessels. The channel is also subject to dredging. Under such conditions, whilst GDF SUEZ Pelican Point Power would comply with its environmental duty of care, it is concerned that the EPA may require it to undertake environmental assessments in the Port River and that the conditions within the channel are under constant changes. GDF SUEZ Pelican Point Power would require a level of assurance that the EPA would not use the concept of "Environmental Risk Assessment" to enforce on its licence conditions to carry out unnecessary subjective environmental studies.

GDF SUEZ Australian Energy is concerned that the level of certainty is significantly reduced under the proposed Policy as the trigger values, the environmental risk concept and the issue of reasonability and practicality are open to interpretations by the EPA from time to time. GDF SUEZ Australian Energy requires a set of transparent and clear trigger values for its cooling water mixing zone, temperature and residual chlorine discharges.

Private Generators: AGL Energy, Alinta Energy, Energy Australia, Energy Brix, GDF SUEZ Australian Energy, InterGen and NRG Gladstone - Whilst welcoming the greater flexibility under the proposed new Policy, Private Generators are concerned about the reduction in regulatory certainty arising from the proposed reforms. They consider that uncertainty exists regarding what are 'reasonable and practicable measures' whilst simultaneously needing to comply with more stringent trigger values, about how the general duty of care is defined in practice and what the term 'have regard to' various codes and guidelines means. Private Generators are also concerned about how the EPA will undertake an environmental risk assessment and consider that in the absence of transparent 'risk assessment' mechanisms, there is real potential for subjective outcomes based on interpretation by EPA officials at a given time.

They also consider that clarification is required regarding how the proposed Policy will affect current licences and allow for continuation of operations without causing significant cost impact.

Stormwater Industry Association - The application of water quality criteria specified in National Guidelines needs to be clearly explained in supporting documentation. The removal of exemption criteria is supported.

SA Water - Supports the proposed amendment to a general duty to meet water quality trigger values, the 'reasonable and practicable' test and the proposed removal of the exemption criteria. Support is however, dependent on what 'reasonable and practicable' actually means.

It also noted however, that it envisages that use of the 'reasonable and practicable' test and water quality triggers would result in greater onus on monitoring in receiving environments and use of other monitoring techniques, such as ecotoxicology in relation to discharges to determine safe levels to protect ecosystem health. Such testing is expensive and the cost impost to organisations and its customers should be noted.

SA Water also raised a number of other issues that it considers need to be clarified. These are summarised as follows.

- Given the ability of the EPA to impose licence conditions that are as stringent, or more stringent, than the Policy, whether the EPA is planning to move to applying stringent discharge licence conditions.

- Whether more stringent licence conditions would be applied 'end-of-pipe', or, in the receiving environment. On this matter, it advised that stringent trigger value licence conditions applied at 'end-of-pipe' would expose SA Water to significant costs and consequently, its customers to price increases in order to cover the costs of upgrading existing treatment plants or building new wastewater treatment plants to meet the criteria. It also argued that imposing stringent conditions could also result in significant energy and chemical use that may result in perverse environmental outcomes.

- How trigger values would be applied i.e. as per the intent by acting as triggers for further investigation, or as criteria to be achieved. For example, is a response 'triggered' if discharge quality is exceeded at the end of pipe, or if ambient water quality is exceeded at a predetermined location in the receiving waters (eg at the edge of an agreed mixing zone), and at a predetermined frequency (eg instantaneous, annual, median)?

- Responsibility for assessing receiving environments, especially where there are more than one source and non-point sources of discharge (eg stormwater).

Adelaide City Council - Supports the amendment to a General Environmental Duty to prevent or minimise pollution of waters under the waste management hierarchy.

SA Wine Industry Association - Considers that the amendment to a general duty is reasonable as is the removal of exemption criteria in clauses 14 and 15.

PIRSA Fisheries and Aquaculture – Sought clarification regarding the following matters.

- Whether the trigger values in the proposed new policy would effectively quantify what is defined as environmental harm and if not, how 'environmental harm' is defined.

- Whether trigger values would be amended to ensure they are regionally focussed as for example, states like NSW refer to the use of trigger values contained within the ANZECC guidelines as a 'guide' rather than a legislative.

- Whether an alleged breach of a trigger value would be based on a 'once off' alleged breach or a number of alleged breaches over a period of time.

OneSteel Manufacturing - Supports the amendment to a General Environmental Duty as it provides the EPA with the ability to be more flexible in applying the Policy.

Business SA – Notes that there is a movement away from mandatory requirements to a general duty that will require a person who discharges a pollutant into waters to take all reasonable and practicable measures to ensure that water quality criteria are met. It also notes that the proposed water quality criteria will reflect the tighter national guidelines and will adopt a trigger value and continual improvement approach. Business SA looks forward to the EPA working productively with business to ensure that water quality criteria are met and that reasonable and practical measures are taken to do so.

Joint Councils: District Council of Mount Barker, Barossa Council and City of Onkaparinga - The nature of the proposed new Policy is that it moves from a numeric compliance regime to a risk based regime. There is concern about the extent to which a risk based policy creates uncertainty regarding application of the Policy.

Section 45(3)(b)(C) of the Act enables the EPA to amend licence conditions during the term of a licence if there has been a new Environment Protection Policy introduced. Accordingly, if the proposed new Policy comes into effect, the EPA would be entitled to amend existing licences to ensure that the licences are consistent with the Policy.

Given that the proposed new Policy adopts a risk based approach, there is an inherent uncertainty about the extent to which the EPA would impose new licence conditions. The Councils are therefore concerned about the extent to which current EPA licences which form the basis of current plans by Council to manage wastewater, will be changed unilaterally by the EPA following the implementation of the proposed new Policy. Consequently, it is suggested that there be an express recognition that the proposed new Policy does not apply until the expiry of any EPA licence in force at the date of the commencement of the new Policy.

Environmental Defenders Office SA Inc. - Considers that moving to a general duty would provide greater flexibility to those impacted by the policy, it may also lead to inconsistency by the EPA in dealing with water pollution, particularly in the issue and enforcement of environment protection orders. It also suggested that Clause 9 be redrafted so that mandatory application of the waste management hierarchy is at (a) in the list of matters to be considered or applied.

Conservation Council of South Australia - Expressed extreme caution about the merits of replacing the mandatory compliance approach specified in Clause 13 of the existing Policy with the proposed new Clause 9 which is based on a General Environmental Duty and may be enforced via amendments to licence conditions and the issuing of Environment Protection Orders (EPOs).

It acknowledged that the proposed reforms could lead to tighter water quality criteria, particularly if EPOs or licence condition amendments are based on trigger values listed in National Water Quality Guidelines. However, it is concerned that these reforms also provide an opportunity for the EPA to weaken restrictions imposed under current mandatory water quality criteria where the EPA is subjected to industry pressure that it is unable to resist, or lacks the resources to monitor and enforce these provisions.

The Conservation Council considers that there is a risk that the EPA will find itself engaged in regular legal disputes concerning its attempts to enforce the inherently subjective concept of the General Environmental Duty via an EPO, or amendments to licence conditions. It also considers that there is also the increased possibility of civil enforcement proceedings being initiated by citizen groups against parties for failure to comply with the environmental duty of care which the EPA would also inevitably be drawn into.

It acknowledged that whilst the need for exemptions will be eliminated by the removal of the current mandatory water quality criteria, it expressed concern that the flexibility afforded by the proposed Clause 9 could lead to outcomes that are less stringent than is contemplated in the current provisions for mixing and attenuation zones.

As a safeguard against the lessening of water quality management standards arising from these reforms, the Conservation Council recommended that the revised Policy should include an extra clause requiring the EPA to advise in its annual report about all action taken under the proposed Clause 9 and to also indicate to what extent such action has resulted in an increase or lessening of restrictions previously imposed through mandatory water quality criteria.

It also recommended that a requirement should be included in the revised Policy to the effect that no action taken pursuant to Clause 9 via an EPO or amendment to licence conditions should result in an outcome in which limitations on discharges arising from the current provisions regarding mixing and attenuation zones are lessened in any way.

Department of Environment Water and Natural Resources - The Murray – Darling Basin Plan which has been implemented under the Commonwealth *Water Act 2007*, sets out water quality objectives and water quality targets for the Murray-Darling Basin that the State must have regard to when performing functions relating to the management of water flows. These objectives and targets also connect to Water Quality Management Plan requirements in water resource plans and water quality and salinity monitoring and reporting requirements. The Basin Plan includes specific water quality targets for irrigation water, recreational water, fresh water-dependent ecosystems and drinking water within the Murray-Darling Basin. Additionally water resource plans developed under the Basin Plan may contain additional water quality targets and values.

Consideration should be given to the inclusion of a subclause in the proposed Clause 9 that requires a person to have regard to the targets within the Basin Plan and state water resource plans when undertaking an activity within the Murray-Darling Basin in South Australia.

EPA Response

Clarification Regarding the Requirements of Proposed Clause 9

It is considered that the replacement of the mandatory requirements of Clause 13 with a general obligation to take all ‘reasonable and practicable’ measures to prevent or minimise environmental harm in compliance with the General Environmental Duty

in Section 25 of the Act as proposed under the new Clause 9 would not create uncertainty in terms of compliance. Rather, it would provide greater clarity for all parties regarding their existing responsibilities under the Act. The General Environmental Duty is a key provision that has operated since commencement of the Act and features in other legislation. Examples of other legislation that contains a similar duty include the *Mining Act 1971*, the *River Murray Act 2003*, the *Natural Resources Management Act 2004*, the *Adelaide Dolphin Sanctuary Act 2005*, the *Marine Parks Act 2007* and the *South Australian Public Health Act 2011*.

Section 25(2) of the Act provides guidance regarding factors that need to be taken into account when determining measures that are consistent with the General Environmental Duty. These are environmental impacts, costs of taking action and knowledge about available measures and their likelihood of success. These matters are specified as follows in Section 25(2) of the Act.

- The nature of the pollution or potential pollution and the sensitivity of the receiving environment; and

- The financial implications of the various measures that might be taken as those implications relate to the class of persons undertaking activities of the same or a similar kind; and

- The current state of technical knowledge and likelihood of successful application of the various measures that might be taken.

The proposed Clause 9 provides further guidance regarding compliance with the General Environmental Duty in the case of protection of South Australia's waters by requiring the following.

- Application of the waste management hierarchy. This hierarchy lists waste management options in descending order of priority starting with avoidance as the preferred option followed by minimisation, reuse, recycling, treatment and disposal.

- In the case of waters with an environmental value of aquatic ecosystems and primary industries, avoid activating the trigger values for the waters. Proposed Clauses 3 and 7 indicate that these trigger values are specified in the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality' (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000).

- In the case of waters with an environmental value of recreation and aesthetics, have regard to the 'Guidelines for Managing Risks in Recreational Water' (National Health and Medical Research Council 2008).

- In the case of waters with an environmental value of drinking water have regard to the 'Australian Drinking Water Guidelines' (National Health and Medical Research Council 2011).

- Comply with Codes of Practice, Guidelines and Standards that are expressed as mandatory in relation to an activity, or have regard to Codes of Practice, Guidelines and Standards that are not expressed as mandatory in relation to an activity.

In effect what this means is parties that discharge pollutants into water bodies either directly or indirectly, will need to consider the type and concentration of pollutants in their discharge, and compare this with the condition of receiving waters to determine if their discharge may result in the relevant water quality criteria of these waters being violated. If so, this indicates that the discharger needs to consider taking further action. The nature of this action will be determined by the level of environmental harm or potential harm, and whether the water quality criteria are trigger values or those that parties are required to have regard to.

Trigger values are defined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality as follows. Concentrations (or loads) of the key performance indicators measured for the ecosystem, below which there exists a low risk that adverse biological (ecological) effects will occur. They indicate a risk of impact if exceeded and should 'trigger' some action, either further ecosystem specific investigations or implementation of management/remedial actions.

The Guidelines for Managing Risks in Recreational Water and the Australian Drinking Water Guidelines specify thresholds for pollutants and other water characteristics which, if exceeded, are likely to result in adverse effects on human health. These Guidelines provide advice regarding measures that can be implemented to prevent defined thresholds for pollutants and other water characteristics from being exceeded, and also regarding appropriate risk management measures in the event of defined thresholds being exceeded. They do not specify mandatory courses of action that must be undertaken to prevent thresholds for pollutants and water characteristics from being exceeded, or measures that must be implemented in the event of thresholds being exceeded. Consequently, the proposed Clause 9 requires that where relevant, parties 'have regard to' these Guidelines in order to demonstrate compliance with the General Environmental Duty. Similarly, the Codes of Practice and other Guidelines that are cited in both the existing and proposed Policy detail non-mandatory measures that can be undertaken to protect water quality. Consequently, the proposed Clause 9

also requires that where relevant, parties 'have regard to' these non-mandatory measures in order to demonstrate compliance with the General Environmental Duty.

Any decision not to implement environment protection measures that are provided in these Guidelines and Codes of Practice would need to be well considered in order to demonstrate compliance with the General Environmental Duty.

Direction regarding what is reasonable and practicable is also provided via conditions of environmental authorisations under the Act. This can include concentration and load limits for discharges. As conditions of authorisations are mandatory requirements, compliance with these conditions, particularly regarding concentration and load limits is clear evidence of compliance with the General Environmental Duty of the Act. As exists with the current Policy, Clause 12 of the proposed new Policy also provides legal powers to set discharge limits for specified activities that discharge pollutants and waste either directly, or indirectly into the state's waters. This provision of the proposed Policy would therefore also be able to be used to provide certainty regarding compliance requirements.

It is intended that further clarification regarding what constitutes 'taking all reasonable and practicable measures to prevent or minimise environmental harm' would be provided by the EPA through the preparation of guidance documents regarding the use of each of the national water quality guidelines that would be required to be used under the proposed new Policy. The intent of these guidance documents are briefly discussed as follows.

Guidance regarding use of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality for the protection of waters with an environmental value of aquatic ecosystems and primary industries will focus on the process of conducting a 'water quality hazard assessment' of pollutants in discharge streams and subsequent decision making processes. It will assist with the identification of relevant pollutants in the discharge stream by reference to the appropriate tables in the guidelines, appropriate assessment of receiving waters and analysis of the findings. It will also assist with the decision making process if the discharge activates trigger values, indicating a potential for the environmental values of the receiving water body to be compromised. This would result in a risk assessment being undertaken to determine if the environmental values of the receiving environment are being, or would be compromised**,** and the preparation of an environmental management plan if necessary.

Environmental management planning would however, need to distinguish between situations where only one party is discharging pollutants or waste that is adversely affecting relevant environmental values, and where multiple parties are discharging

pollutants or waste and consequently, environmental deterioration is the result of multiple discharges. In this situation, while all parties that are discharging relevant pollutants and waste would need to demonstrate that they are taking all reasonable and practicable measures to reduce their discharges in line with the General Environmental Duty, it would also highlight the potential need for overarching plans such as the Adelaide Coastal Water Quality Improvement Plan, and possibly also setting discharge limits to ensure that the assimilation capacity of the environment is not exceeded.

The guidance document regarding use of the Guidelines for Managing Risks in Recreational Water and the Australian Drinking Water Guidelines will focus on providing practical advice about what the requirement to "have regard" to these guidelines means, thereby building on advice already provided in these documents. It is recognised that the drinking water guidelines are intended to apply to water quality at the point of consumption, which is normally after treatment, whilst the recreational water guidelines are also primarily intended to apply to water quality at the point of use. However, unlike other states, all of South Australia's water catchment areas involve multiple land uses, including residential development, agriculture and other industry. This has significant implications for treatment costs of drinking water, whilst waterbodies can also have recreational values. It is therefore highly desirable that all parties who undertake activities in catchments be mindful of the implications of their actions on these important water values. Consequently, this guidance document will focus on the process of conducting a 'water quality hazard assessment' of pollutants in discharge streams and subsequent decision making processes within this context.

The results of ecosystem water quality monitoring that is undertaken by the EPA would also be available for use by parties to help in ensuring compliance with the requirements of the proposed Clause 9. However, this does not preclude the need for parties to undertake their own ecosystem monitoring. Additionally, as EPA monitoring is currently confined to an ecosystem perspective, parties that are subject to compliance requirements may also need to undertake monitoring from a health and primary industries perspective.

In view of this, it is considered that the risk of regular legal disputes regarding enforcement of the General Environmental Duty via an EPO or amendments to licence conditions is minimal. Similarly, the possibility of increased civil enforcement proceedings being initiated by citizen groups against parties for failure to comply with the General Environmental Duty is also considered to be unlikely.

The requirements of the current Policy apply across the state as would the proposed new Policy. Any further requirements under the Murray – Darling Basin Plan, or

State Water Resource Plans under the Natural Resources Management Act 2004 can be no less stringent than the Policy. Compliance with Basin Plan requirements and State Water Resource Plan requirements are not able to be enforced under the provisions of the Act.

The consultation process resulted in an amendment to the proposed Clause 9 that would provide greater clarification regarding compliance requirements. The suggestion by the Environmental Defenders Office that application of the waste management hierarchy be mentioned first rather than fourth in the list of matters to be applied or considered under Clause 9 is supported by the EPA. This hierarchy lists waste management options in descending order of priority starting with avoidance as the preferred option followed by minimisation, reuse, recycling, treatment and disposal and is consistent with the preferred approaches to complying with the General Environmental Duty.

Impact of the Reforms on Licence Conditions for Existing Licensees

The matter of conditions of licences and other authorisations, including their relationship with Environment Protection Policies is specified in Part 6 of the Act. Section 45(3)(b)(ii)(C) of the Act indicates that the EPA may vary or impose conditions of a licence or other authorisations as a result of the making or amendment of an Environment Protection Policy. Consequently, it is intended that all authorisations under the Act that would be affected by the proposed new Policy would be reviewed prior to its commencement and transitional measures put in place where necessary. The EPA intendeds to consult directly with licensees and exemption holders that would be affected by any of the changes in the proposed new Policy.

Section 47(1)(e) requires that in determining conditions of a licence, or other authorisations, the EPA must have regard to any relevant Environment Protection Policy. This means that licence conditions can be no less strict than the provisions of an Environment Protection Policy, but may impose stronger requirements. Licensees are required to comply with all Environment Protection Policies in their entirety, in addition to conditions of licence.

Upgrades to existing wastewater treatment plants, or the construction of new wastewater treatment plants may result in conditions regarding discharge concentrations and loads being applied. In this regard, end of pipe discharge criteria may be a relevant licence condition. Any criteria for metropolitan Adelaide plants would be applied in order to achieve the requirements set out in the Adelaide Coastal Waters Quality Improvement Plan for nitrogen, ammonia and suspended solids.

Compliance Costs and Economic Impacts

The proposed new approach to the protection of the environmental values of South Australia's waters is more equitable than current regulatory arrangements. Clause 9 would require all parties that discharge pollutants into water bodies to have a better understanding of the hazards of these pollutants and the environment into which they discharge than they currently generally have. This is a standard requirement for licensees and holders of other environmental authorisations (ie works approvals and exemptions) under the Act whose activities involve discharge into water bodies. While this may result in increased effort regarding water quality management on the part of some parties, it would mean that all parties that discharge pollutants into water bodies would be subject to the same required standards as licensees and holders of other authorisations, if their activities pose significant environmental risks. The results of water quality monitoring undertaken by the EPA are available for use by parties to assist with this matter.

The proposed new approach to the protection of the environmental values of South Australia's waters is essentially risk-based. This means that prevention of potential or actual environmental harm from discharges would become the priority focus, with trigger values and guidelines under Clause 9 being used to identify the need for risk assessment and improved environmental management where necessary, rather than setting rigid compliance requirements that do not adequately account for variations in environmental risk. This is consistent with the preferred approach the EPA has already adopted with industry where possible and involves working with businesses to identify and prioritise environmental risks associated with discharges and making significant use of EIPs as a mechanism for improving environmental performance. Linking compliance requirements to observance of the General Environmental Duty would also allow industry to work with the EPA to achieve substantial improvements, over a realistic timeframe rather than being liable to immediate financial penalties for non-compliance with the current inflexible 'one size fits all' water quality criteria. Consequently, whilst the proposed revisions to the Policy would result in a requirement to refer to the more comprehensive range of water pollutant criteria and water characteristics listed in the national guidelines, it would also provide a flexible approach to achieving these objectives that takes into account both environmental and economic circumstances as required under the General Environmental Duty of the Act.

The proposed reforms would also provide economic benefits to South Australia. Savings would be realised via the elimination of the need to obtain exemptions under Clauses 14 and 15 of the current Policy. This would enable remediation measures to be implemented without having to apply for, and pay for an exemption under the Policy. South Australia's Strategic Plan also recognises the critical importance of the state's water resources for economic development and contains targets regarding the protection of both inland and marine waters. The proposed new Clause 9,

together with the replacement of Schedule 2 – Water Quality Criteria of the current Policy with a requirement to refer to the more comprehensive range of water pollutant criteria and water characteristics listed in national guidelines, would form the basis of an effective continuous improvement approach to reduce discharges into waters to the greatest extent achievable. This is expected to result in improvements to water quality that will enhance their economic value to the state and also result in reduced water treatment costs. However, it is not possible to estimate these benefits as they would depend on the extent of water quality improvements that can be achieved, and the businesses that take advantage of improved environmental conditions.

Administration and Enforcement of the Policy

Requirements for monitoring and ecotoxicology assessments will continue to be determined on a case by case basis, in a risk-based manner. This is consistent with the National Water Quality Management Strategy. Any improvements to environmental performance that would be required as a result of these proposed amendments to the Policy would be determined and negotiated based on the premise of continuous improvement and use of best available technology that is economically achievable, as is the case currently.

As indicated, rather than adopting an enforcement by penalisation approach, the EPA has favoured working with industry on a cooperative basis to improve environmental performance. This has involved working with industry to identify and prioritise environmental risks associated with discharges and making significant use of EIPs as a mechanism for improving environmental performance. Whilst EIPs place a legal requirement on holders of an authorisation under the Act to undertake specified action in required time frames, in practice they are based on negotiations. Working with industry on a cooperative basis to improve environmental performance would continue to be the EPA's preferred approach under the proposed reforms and consequently, EIPs will continue to be a key policy instrument in achieving compliance with the Policy.

As indicated, in addition to these measures, holders of authorisations under the Act may voluntarily enter into EIPs with the EPA, whilst pursuant to Section 59 of the Act, all parties whether or not being the holder of an authorisation, may voluntarily enter into an Environment Performance Agreement with the EPA. These agreements may contain terms the EPA considers appropriate for securing the objects of the Act, including binding a party other than the EPA to undertake specific programs, and binding the EPA to provide financial or other assistance to implement these programs. Whilst these mechanisms are already available under the Act, the rigid compliance requirements of the current approach to protecting the

environmental values of the state's waters have discouraged the use of these mechanisms to achieve environmental objectives. The proposed new approach to protecting the state's waters would be more conducive to using these mechanisms.

The National Guidelines proposed for use via Clause 9 would provide environmental standards for application across South Australia. However, where evidence indicates that water bodies require greater protection from discharges of pollutants, or is necessitated by the impacts of climatic conditions such as drought and other emergency situations such as disease affecting key fish species, pollutant discharge limits regarding both loads and concentration could be set via the proposed Clause 12 – Discharge Limits for Declared Activities of the new Policy. In this regard it is noted that the same provision for setting pollutant discharge limits also exists under the current Policy via Clause 16.

Whilst the replacement of Clause 13 of the existing Policy with the proposed Clause 9 would result in the elimination of the requirement that exemptions under the Act must comply with requirements specified in Clauses 14 or 15 of the current Policy, the use of mixing and attenuation zones will still be a requirement for many activities. This may occur through licence conditions or EPOs. However, the design requirements for these zones, would be able to be adapted to the physical attributes of the receiving environment. This would allow greater flexibility in the design and cost of such arrangements.

The way Clause 9 would be administered by the EPA would however, ultimately be subject to some discretion on the part of the EPA. This reflects the need to consider a range of factors identified in Section 25 of the Act ie environmental impacts, costs of taking action and knowledge about available measures and their likelihood of success, and also the nature of the EPA's Compliance and Enforcement Policy. As discussed in Section 3.3.1, this Policy recognises that environmental legislation provides it with a variety of regulatory tools and the ability to exercise discretion to determine which tool is appropriate for particular circumstances and that in determining an appropriate course of action, the EPA considers a variety of factors including the seriousness of a contravention, compliance history and the extent and speed of required remediation action.

Under Section 109 of the Act (ie the Public Register) the EPA is required to make available to the public a broad range of information including details of environmental authorisations, exemptions, EPOs and COs. This would ensure ongoing transparency regarding the way in which the EPA may administer these proposed revisions to the Policy.

3.7 Conclusion and Recommendation

This discussion has highlighted significant weaknesses with Clauses 13 – 15 of the current Policy. These include rigid compliance requirements that do not adequately account for variations in environmental risk and water quality criteria that are not consistent with the ambitious water quality objectives of South Australia's Strategic Plan.

Under the proposed reforms there would be a more equitable and flexible risk-based approach to striving for the achievement of more ambitious and comprehensive water quality criteria that is consistent with the EPA's compliance and enforcement policy and the Strategic Plan. Achievement of improved water quality offers significant economic, environmental and social benefits that would outweigh any costs associated with increased effort regarding water quality management arising from these reforms by some parties that is in any case consistent with their existing responsibilities under the Act,.

It is recognised that whilst most stakeholders that submitted comments regarding these reforms are supportive, concerns were expressed regarding their practical application and consequently, further clarification regarding this matter was sought. However, as the discussion in this chapter indicates, parties that would be subject to compliance requirements regarding the proposed new Clause 9 would be provided with significant direction and guidance regarding compliance requirements via the following.

- Section 25 of the Act
- The various provisions of Clause 9 and Schedule 3 of the proposed new Policy
- Conditions of environmental authorisations under the Act (ie licences, works approvals and exemptions)
- The setting of discharge limits if required
- Guidance documents that will be prepared by the EPA regarding the use of each of the national water quality guidelines that would be required to be used under the proposed new Policy

Consequently, the proposed reforms that would replace the existing Clauses 13 – 15 are recommended.

3.8 Implementation, Monitoring and Review

It is recognised that upon commencement of the proposed new Policy there may be existing exemptions from the requirements of Clause 13 that have been provided under Clauses 14 and 15 of the current Policy that would no longer be required. Pursuant to Section 116 of the Act – Waiver or Refund of Fees and Levies and Payment by Instalments, the EPA intends to seek Ministerial approval to refund a portion of payments for these exemptions equivalent to the portion of time that exemptions have been provided for that have not yet elapsed. For example, if an exemption was granted for a year and the proposed new Policy commences six months later, the holder of this exemption would be refunded 50% of the exemption fee they have paid.

Providing detailed advice to stakeholders regarding statutory direction and EPA guidance regarding compliance with the requirements of the proposed Clause 9 would be a key feature of the implementation plan for these reforms. All other aspects of implementation, monitoring and review of these proposed reforms are discussed in Section 8 of this document.

4 SCHEDULED POLLUTANTS

4.1 Current Legislative Requirements

Clause 17 of the current Policy bans the discharge of a range of pollutants listed in Schedule 4 into any waters, and also bans the discharge of most of these pollutants onto land when it is reasonably likely they will subsequently enter any waters. Clause 19 bans the discharge of all pollutants listed in Schedule 4 into bores, mine shafts, quarries, wells infiltration basins and other similar structures or a naturally occurring sinkhole as they provide mechanisms for contamination of underground waters.

There are 45 pollutant types listed in Schedule 4. Pollutants that cannot be discharged into any waters, but may be discharged to land if they are unlikely to subsequently enter any waters are listed as follows.

- Animal faeces
- Fertilisers
- Green waste (eg lawn clippings, leaves, prunings)
- Soil, clay, gravel or sand

It is also noted that the use of pesticides or herbicides manufactured for use in relation to waters that are used in concentrations not exceeding maximum concentrations specified by the manufacturer or by law, are excluded from the ban on discharges.

The relevant legislative provisions are provided as follows.

17—Obligation not to discharge or deposit listed pollutants into waters or onto certain land (Schedule 4)

(1) A person must not discharge or deposit a pollutant listed in Part 1 of Schedule 4—

(a) into any waters; or

(b) onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table).

Mandatory provision: Category B offence.

(2) Subclause (1) does not apply in relation to the lawful use of a pesticide or herbicide if the pesticide or herbicide is manufactured for use in relation to waters and is used at a concentration not exceeding a maximum concentration specified by the manufacturer or by law.

(3) A person must not discharge or deposit a pollutant listed in Part 2 of Schedule 4 into any waters.

Mandatory provision: Category B offence.

19—Obligation not to discharge listed pollutants or waste into bores, mine shafts etc (Schedule 4)

A person must not, after the first year of the operation of this policy, discharge or deposit a pollutant listed in Schedule 4 or any waste into a bore, mine shaft, quarry, well, infiltration basin or other similar structure or a naturally occurring sinkhole.

Mandatory provision: Category B offence.

4.2 Rationale of Current Legislation

In the case of activities that are licensed under the Act discharges of pollutants can be effectively controlled via licence conditions. The primary role of Clause 17 and 19 together with Schedule 4 is to enable effective control of pollution from unlicensed activities.

4.3 Problems with Current Legislation

Problems with the current approach to the management of Scheduled Pollutants are summarised and discussed as follows.

- Potential for confusion regarding compliance requirements
- List of Scheduled Pollutants
- Conflict with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005*

- Conflicting provisions within the current Policy

- Conflict between the current Policy and licensing of dredging and earthworks drainage under the Act

- Conflict with the objectives of the *Natural Resources Management Act 2004*, *River Murray Act 2002* and the Commonwealth *Water Act 2007*

4.3.1 Potential for Confusion Regarding Compliance Requirements

Compliance requirements under Clauses 17 and 19 and Schedule 4 – Listed Pollutants can be confusing to interpret. Clause 17 refers to Parts 1 and 2 of Schedule 4 in separate sub – clauses and applies separate controls regarding discharges to waters and discharges to land from where it may enter waters. Clause 19 refers to Schedule 4 pollutants and prohibits discharges of all listed pollutants to land features such as mine shafts, quarries and bores. This is on the unwritten basis that there is a high likelihood that these pollutants may subsequently enter waters. In essence this is the same as a discharge to land that may then enters waters.

4.3.2 List of Scheduled Pollutants

The pollutants listed in Schedule 4 were originally drawn from the Stormwater Pollution Control Codes Practice issued by the EPA. However, this list is not fully integrated with key aspects of regulation under the Act, in particular licensing and the *Environment Protection (Waste to Resources) Policy 2010*.

Wastes listed in Part B of Schedule 1 of the Act 'Prescribed Activities of Environmental Significance', are currently also listed in Part 1 of Schedule 4 of the Policy, and are therefore subject to discharge prohibitions under Clauses 17 and 19. However, all activities that produce waste listed in Part B of Schedule 1 of the Act are subject to licensing under Part A activity 3(4) of Schedule 1, unless specifically excluded from this requirement. Licensing provides a mechanism for ensuring effective environmental management of these wastes via the specification of licence conditions. Clause 10 of the *Environment Protection (Waste to Resources) Policy 2010* also provides another level of environmental protection regarding listed wastes, by specifying the only ways in which wastes can be disposed of. This includes licensed waste depots, authorised incineration, and in accordance with a licence under the Act, or as otherwise required or authorised by the EPA. In the case of wastes listed under Part B of Schedule 1 of the Act, there are also significant penalties for contravening Clause 10 of the Waste to Resources EPP, with penalties

of up to $250,000, or 2 years imprisonment applying. Consequently, there is no need for duplicative regulation under the Policy.

It is also noted that air conditioning and cooling system wastewater is listed in Part 1 of Schedule 4 – Listed Pollutants. As indicated above, pursuant to Clauses 17 and 19, this wastewater cannot be discharged into waters, onto land from which it is reasonably likely to enter any waters, or into bores, wells quarries etc as these cavities in land provide mechanisms for contamination of underground waters. Whilst the prohibition of the discharge of this waste directly into waters, or cavities in land is reasonable, the limited volumes of wastewater and low concentrations of pollutants in discharges from air conditioning and cooling systems are in most circumstances insufficient to enter waters following disposal to land.

4.3.3 Conflict with the Aquaculture Act 2001 and Aquaculture Regulations 2005

The current Policy conflicts with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* regarding two important matters. Firstly, Part 1 of Schedule 4 – Listed Pollutants, prohibits the discharge to water of chemicals designed for therapeutic use by humans or on animals into any waters. However, under Regulation 10 of the *Aquaculture Regulations 2005*, licensees (under the *Aquaculture Act 2001*) can use chemicals for therapeutic or prophylactic purposes if the chemicals are a registered veterinary chemical product under the *Agricultural and Veterinary Products (Control of Use) Act 2002*, or if approved by the Minister.

Secondly, Part 2 of Schedule 4 – Listed Pollutants, prohibits the discharge to water of animal faeces. However, in the case of aquaculture, the discharge of animal faeces to water is unavoidable and is regulated via licensing under the *Aquaculture Act 2001*. Under Section 59 of the *Aquaculture Act 2001*, all applications for aquaculture licences and variations to licence conditions are also referred to the EPA for approval. This provides a mechanism for the EPA to ensure that adequate environmental management of faecal discharge via the specification of appropriate licence conditions is implemented.

4.3.4 Conflicting Provisions within the Current Policy

Whilst Clause 17 indicates that pesticides or herbicides manufactured for use in relation to waters which are used in concentrations not exceeding maximum levels specified by manufacturers or by law, are excluded from the ban on discharges, this is not strictly the case. Schedule 2 – Water Quality Criteria of the Policy indicates that no pesticides are permitted in waters with ecosystem values, or waters that are used as a source of drinking water. Consequently, even pesticides that are used in

concentrations not exceeding maximum levels specified by manufacturers, or by law, cannot be discharged into these waters. However, as concentration limits for pesticides are not specified in waters with the following environmental values - recreation and aesthetics, agriculture, aquaculture and industrial, pesticides that are used in concentrations not exceeding maximum levels specified by manufacturers, or by law, can be discharged into these waters.

Sewage is a listed pollutant in Part 1 of Schedule 4 and consequently, the discharge of all sewage into any waters and also to land in situations where it is reasonably likely to enter any waters is prohibited under Clauses 17 and 19 of the current Policy. However, Clauses 32(2) and 34(2) allows waste from septic systems and sewage treatment systems to be discharged to waters, or onto land if it has been treated to ensure that the water quality objectives for waters that will receive this waste, or may receive the waste are not prejudiced.

Soil, clay, gravel and sand are listed pollutants in Part 2 of Schedule 4 and consequently, the discharge of these materials into any waters is prohibited under Clauses 17 and 19 of the current Policy. However, in the case of extractive industries, Clause 26(2) allows the discharge of stormwater that has been contaminated by extracted material on a premises subject to having "had as much material removed from it as is reasonably practicable before it is discharged into any waters".

4.3.5 Conflict between the Current Policy and Licensing of Dredging and Earthworks Drainage under the Act

As indicated, soil, clay, gravel and sand are listed pollutants in Part 2 of Schedule 4 and consequently, the discharge of these materials into any waters is prohibited under Clauses 17 and 19 of the current Policy. However, the discharge of these materials is an unavoidable consequence of dredging and earthworks drainage. Dredging and earthworks drainage are both listed as prescribed activities of environmental significance under Act and are therefore subject to licensing requirements. This enables the EPA to specify conditions of operation to ensure adequate environmental management of these activities.

4.3.6 Conflict with the Objectives of the Natural Resources Management Act 2004, River Murray Act 2002 and the Commonwealth Water Act 2007

In South Australia environmental watering is undertaken to promote achievement of objectives included in the *Natural Resources Management Act 2004 (*section 7), *River Murray Act 2003* (section 7)*, Water Act 2007 (Commonwealth)* (section 3) and

the Murray-Darling Basin Plan (chapter 5) which has been implemented under the *Water Act 2007.*

Environmental watering of wetlands and floodplains pursuant to either the *Natural Resources Management Act 2004* (Chapter 7 - Management and Protection of Water Resources), *River Murray Act 2003 (*Section 9 - Functions and Powers of Minister), *Murray-Darling Basin Act 2008* (Part 3) or Water Allocation Plans developed in accordance with *Natural Resources Management Act 2004* (Section 76) may contravene Clause 17(3) of the current Policy by discharging pollutants listed in Part 2 of Schedule 4 into waters. These pollutants are animal faeces, fertilisers, green waste and soil, clay, gravel or sand.

Consequently, Clause 17(3) of the current Policy conflicts with the objectives of the *Natural Resources Management Act 2004*, *River Murray Act 2003, Water Act 2007 (Commonwealth)* and the Basin Plan.

4.4 Options

There are two options with regard to management of Scheduled Pollutants. Firstly, to retain current legislative requirements, or to implement amendments that address the problems with current legislation discussed above. Proposed legislative reforms are summarised and assessed as follows.

- Rationalise specifications of compliance requirements regarding scheduled pollutants to ensure that they are more easily understood. This would be achieved by separating Schedule 4 – Listed Pollutants into two separate Schedules ie Part 1 of Schedule 4 becomes Schedule 1 – Class 1 pollutants, whilst Part 2 of Schedule 4 becomes Schedule 2 – Class 2 pollutants, and also by specifying compliance requirements for each of these schedules in separate clauses. Compliance requirements regarding Class 1 pollutants would be specified in the proposed new Clause 10, whilst compliance requirements regarding Class 2 pollutants would be specified in the proposed new Clause 11. The new Clauses 10 and 11 would replace existing Clauses 17 and 19.

- Revisions to the list of pollutants that are not permitted to be discharged to water either directly, or indirectly via land-based disposal. In recognition of licensing requirements under the Act and disposal restrictions under the *Environment Protection (Waste to Resources) Policy 2010*, remove wastes listed in Part B of Schedule 1 of the Act. Reclassify air conditioning and cooling system wastewater as a Class 2 pollutant in the proposed new Policy,

rather than remaining as a Class 1 pollutant (ie Part 1 pollutant in the existing Policy) to indicate that this waste can be disposed of to land, but not directly to waters or a cavity in land. Include the following pollutants as Class 1 pollutants.

- Biosolids and wastewater treatment sludge
- Domestic waste (being waste produced in the course of a domestic activity)
- Wastewater or liquid waste, with caveat in the proposed Clause 10 that it does not apply to discharges authorised by an environmental authorisation under the Act
- Hazardous Waste (including asbestos which is specifically listed in the the proposed new Schedule 2)
- Medical waste
- Quarantine waste (waste that is subject to quarantine under the *Quarantine Act 1908* of the Commonwealth)
- Radioactive waste (being waste, the management or disposal of which is regulated under the *Radiation Protection and Control Act 1982* or a law of the Commonwealth)

- Remove conflicting provisions regarding the use of pesticides and herbicides by the replacement of pesticide (including herbicides) concentration limits specified in Schedule 2 – Water Quality Criteria with the proposed Clauses 9 and 7 of the new Policy (discussed in detail in Section 3). In the case of pesticides and herbicides this would necessitate avoiding the activation of trigger values in the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', and having regard to the 'Australian Drinking Water Guidelines', while the 'Guidelines for Managing Risks in Recreational Water' may also apply. Under these Guidelines it is recognised that residual concentrations of pesticides and herbicides in water may occur as a result of their lawful use.

- Remove the conflict between the Policy and the *Aquaculture Act 2001* and *Aquaculture Regulations 2005*. This would be achieved by exempting the use of chemicals for therapeutic or prophylactic purposes by holders of aquaculture licences in accordance with the *Aquaculture Regulations 2005* from the proposed Clause 11, and also by exempting the discharge into

waters of faeces from aquatic organisms by the holder of an aquaculture licence in accordance with the licence from the proposed Clause 11.

- Remove conflicting provisions within the Policy by inserting in the proposed Clauses 10 and 11, a provision that allows the discharge of Class 1 and 2 pollutants when they are permitted under other provisions of the Policy.

- Remove the conflict between the Policy and the Act by inserting in Clauses 10 and 11 a provision that excludes licensed activities from the requirements of these clauses.

- Remove conflict with the objectives of the *Natural Resources Management Act 2004*, *River Murray Act 2003, Water Act 2007 (Commonwealth)* and the Murray-Darling Basin Plan by inserting a provision in the proposed Clause 10 allowing the incidental discharge of Class 2 pollutants when undertaking environmental watering in accordance with the *Natural Resources Management Act 2004*, *River Murray Act 2003*, *Murray-Darling Basin Act 2008*, and the *Water Act 2007* (Commonwealth).

The relevant proposed new clauses of the Policy and definitions of wastewater, liquid waste, cavity in land and well are provided as follows.

10—Class 1 pollutants

(1) A person must not discharge a class 1 pollutant into any waters or onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table).

Mandatory provision: Category B offence.

(2) Nothing in subclause (1) prevents.

(a) the lawful use of a pesticide or herbicide that has been manufactured for use in relation to waters provided it is used at a rate, concentration or level not exceeding a maximum rate, concentration or level specified by the manufacturer or by law; or

(b) the use by the holder of an aquaculture licence of a substance designed for therapeutic or prophylactic use for aquatic organisms in accordance with the *Aquaculture Regulations 2005*.

(3) Subclause (1) does not apply in relation to -

(a) the discharge of wastewater by the holder of an environmental authorisation in accordance with the authorisation; or

(b) the discharge of a class 1 pollutant to the extent that the pollutant may be lawfully discharged under a subsequent provision of this Division.

11—Class 2 pollutants

(1) A person must not discharge a class 2 pollutant into any waters or a cavity in land.

Mandatory provision: Category B offence.

(2) Subclause (1) does not apply in relation to.

(a) any prescribed activity of environmental significance carried on by the holder of an environmental authorisation in accordance with the authorisation; or

(b) the discharge into waters of faeces from aquatic organisms by the holder of an aquaculture licence acting in accordance with the licence; or

(c) the incidental discharge into waters of a class 2 pollutant in the course of environmental watering carried out under.

(i) the *Murray-Darling Basin Act 2008*; or

(ii) the *Natural Resources Management Act 2004*; or

(iii) the *River Murray Act 2003*; or

(iv) the *Water Act 2007* of the Commonwealth; or

(d) the discharge of a class 2 pollutant to the extent that the pollutant may be lawfully discharged under a subsequent provision of this Division.

environmental watering, in relation to waters, means the use of water to replenish or sustain the ecological values of ecosystems within the waters.

Wastewater is defined in the proposed new Policy as waste principally consisting of water and includes.

- Human wastewater
- Sewage
- Water containing food or beverage waste
- Wash down water or cooling water
- Irrigation runoff or stormwater
- Water containing any trade or industrial waste
- Any other water that has been used in any form of human activity
- A combination of any 1 or more of the above

Liquid waste is defined in the proposed new Policy as waste classified as liquid waste in accordance with the assessment process set out in the guideline 'Liquid Waste Classification Test', re-issued by the EPA in September 2003.

Cavity in land is defined in the proposed new Policy to include a bore, mine shaft, well, infiltration basin and other similar structure and a naturally occurring sinkhole.

4.5 Analysis of Benefits and Costs

4.5.1 Compliance

The proposed revisions would provide greater clarity regarding compliance requirements under the Policy and the Act. As indicated above, this would be achieved via the following amendments.

- Separating scheduled pollutants into two separate schedules and specifying compliance requirements for these schedules in separate clauses.
- Recognising compliance requirements regarding wastes listed in Part B of Schedule 1 of the Act via licensing and the Waste to Resources EPP and

consequently remove the wastes from the list of scheduled pollutants under the Policy.

- Specifying additional pollutants that are not permitted to be discharged to water either directly, or indirectly via land-based disposal.

- Reclassifying air conditioning and cooling system wastewater as a Class 2 pollutant.

- Removing conflicting provisions regarding the use of pesticides and herbicides by replacing the pesticide (including herbicide) concentration limits specified in Schedule 2 – Water Quality Criteria with the proposed Clauses 9 and 7 of the new Policy is consistent with key objectives of the proposed new Policy. These include greater enforcement of the General Environmental Duty under Section 25 of the Act, and adopting environmental standards that are consistent with the approach taken in other jurisdictions.

- Removing conflict with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* by deferring to provision in these statutes that allow the use of chemicals for therapeutic and prophylactic purposes and the discharge into waters of faeces from aquatic organisms in specific circumstances.

- Removing conflict within the Policy by clearly indicating in the proposed Clauses 10 and 11 that the discharge of certain scheduled pollutants does not contravene the Policy when permitted under other specific provisions of the Policy.

- Removing conflict between the Policy and the Act by inserting in Clauses 10 and 11 a provision that excludes licensed activities from the application of these clauses.

- Removing conflict between the Policy and the objectives of the *Natural Resources Management Act 2004*, *River Murray Act 2003, Water Act 2007 (Commonwealth)* and the Murray-Darling Basin Plan by inserting a provision in the proposed Clause 11 allowing the incidental discharge of Class 2 pollutants when undertaking environmental watering in accordance with the *Natural Resources Management Act 2004, River Murray Act 2003, Murray-Darling Basin Act 2008* and the *Water Act 2007 (Commonwealth)*.

Removing wastes listed in Part B of Schedule 1 of the Act from the list of pollutants subject to discharge prohibitions under the Policy recognises existing comprehensive regulatory arrangements regarding these pollutants. As discussed above, this includes licensing requirements and disposal restrictions that are underpinned by significant penalties for non-compliance. In view of these regulatory arrangements it is not considered necessary for these wastes to also be listed as pollutants subject to discharge prohibitions under the proposed new Policy.

Reclassifying air conditioning and cooling system wastewater as a Class 2 pollutant in the proposed new Policy rather than remaining as a Class 1 pollutant (ie Part 1 pollutant in the existing Policy) would clearly indicate that this waste can be disposed of to land, but not directly to waters or a cavity in land.

The inclusion of a range of additional pollutants as Schedule 1 Class 1 pollutants would provide greater clarity regarding existing compliance requirements under the Act and Policy. However, this would not result in increased compliance costs as disposal of these wastes is regulated via Clause 10 of the *Environment Protection (Waste to Resources) Policy 2010* which, as indicated, specifies the only ways in which wastes can be disposed of and sets penalties for non-compliance.

The proposed removal of the conflict with the *Aquaculture Regulations 2005* is acknowledged in the Memorandum of Administrative Agreement between the Australian Southern Bluefin Tuna Industry Association, PIRSA and the EPA, and is addressed in the associated internal PIRSA guidelines regarding the assessment of proposed uses of chemicals, (Ref: A891252, "*Internal Response Procedure – Request to treat stock*") which contains provisions for referral to the EPA.

The proposed reforms regarding the use of pesticides and herbicides would ensure that compliance requirements are in accordance with national standards and that the lawful use of these chemicals is consistent with the requirements of the General Environmental Duty under Section 25 of the Act. In effect, when parties use pesticides or herbicides in accordance with concentrations specified by the manufacturer or by law, they must also comply with the requirements of proposed Clauses 9 and 7.

The proposed removal of the conflict between the Policy and the *Natural Resources Management Act 2004, River Murray Act 2003*, the Commonwealth *Water Act 2007* and the Murray – Darling Basin Plan reflects the fact that environmental watering is permitted via a range of statutes to improve ecological conditions.

The removal of conflicting provisions within the Policy and integration of the Policy with a range of state and national statutes would provide greater regulatory certainty for industry.

4.5.2 Economic Impacts

Removing conflicting provisions within the Policy itself and also between the Policy and the Act as well as other statutes would result in savings for industry by reducing time spent inquiring about compliance requirements. This includes seeking assurances that acting in compliance with the Act or another statute would not result in being subject to penalisation for non-compliance with the Policy. It is not possible to quantify potential savings arising from these reforms.

The removal of wastes listed in Part B of Schedule 1 of the Act from the list of pollutants subject to disposal restrictions under Policy, would not result in reduced environmental compliance requirements regarding these wastes as they would still be subject to regulation via licensing under the Act and disposal requirements specified in the Waste to Resources EPP. As indicated, the inclusion of a range of additional pollutants as Schedule 1 Class 1 pollutants would provide greater clarity regarding existing compliance requirements under the Act and Policy, but would not result in increased compliance costs as disposal of these wastes is also regulated via the Waste to Resources EPP.

As indicated in Section 1, South Australia's Strategic Plan recognises the critical importance of the state's water resources for economic development and contains targets regarding the protection of both inland and marine waters. Greater clarity regarding comprehensive regulation of pollutants under the Act and associated Policies as a result of these reforms is expected to result in improvements to water quality that will enhance their economic value to the state and also result in reduced water treatment costs. However, it is not possible to estimate this value as it will depend on the extent of water quality improvements that can be achieved, and the businesses that take advantage of improved environmental conditions.

4.5.3 Environmental Impacts

Scheduled Pollutants

No significant adverse environmental impacts are anticipated from reclassifying air conditioning and cooling system wastewater as a Class 2 pollutant in the proposed new Policy, rather than remaining as a Class 1 pollutant (ie Part 1 pollutant in the existing Policy). This is because the limited volumes of wastewater and low

concentrations of pollutants in discharges from air conditioning and cooling systems are in most circumstances insufficient to enter waters following disposal to land.

The inclusion of broadly defined wastewater and liquid waste to the list of prohibited pollutants in Schedule 1 would ensure that discharges that may not be readily identifiable under other listed pollutant categories, or are not subject to licensing under the Act would be regulated via the Policy.

Greater clarity regarding comprehensive regulation of pollutants under the Act and associated Policies as a result of these reforms would help ensure more effective environmental management by increasing awareness regarding the range of pollutants that should not be discharged into waters because of their potential to cause adverse environmental impacts. A reduction in the discharge of pollutants would contribute to achievement of the targets in South Australia's Strategic Plan regarding both inland and marine waters.

Aquaculture

It is acknowledged that the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* provide mechanisms for ensuring environmental protection regarding the discharge of animal waste and the use of chemicals for therapeutic and prophylactic purposes. As indicated above, aquaculture is subject to licensing requirements under the *Aquaculture Act 2001* and the EPA plays a key role in this process, whilst the use of chemicals for therapeutic and prophylactic purposes is also regulated. Additionally, as indicated under current internal PIRSA guidelines regarding the assessment of proposed uses of chemicals, (ie Ref: A891252, "*Internal Response Procedure – Request to treat stock*") there are provisions for referral to the EPA. Referral is required if the product (a) has no precedent for use in aquatic systems, or (b) has not been approved by PIRSA and/or the EPA previously, or (c) does not fall within 'use' boundaries agreed to by PIRSA and the EPA during previous assessments. Referral to the EPA is not required however, if (a) emergency stock loss is likely to occur as determined by a veterinarian, or (b) if the chemical has previously been assessed and approved, and a current request is within agreed use parameters.

The potential need for any further EPA involvement regarding applications for approval to use chemicals for therapeutic or prophylactic purposes is reflected in the abovementioned Memorandum of Administrative Agreement which acknowledges that any remaining requirements for referrals to the EPA would be reflected in consequential amendments to Regulation 10 of the *Aquaculture Regulations 2005*.

Given these matters it is considered that the proposed amendments to the Policy to remove conflict with the *Aquaculture Act 2001* and *Aquaculture Regulations 2005* would not result in inadequate environmental protection regarding faecal discharges and the use of chemicals in the aquaculture industry.

Dredging and Earthworks Drainage

Removal of the conflict between the Policy and the Act by excluding licensed dredging and earthworks drainage from the proposed Clause 11 would not weaken required environmental protection associated with these activities. Licensing under the Act enables the EPA to set conditions of operation that are intended to provide adequate environmental protection. In the case of these activities, this includes a requirement to take all reasonable and practicable measures, including the development of appropriate management plans to minimise environmental impacts. These plans are assessed by the EPA using its 'Dredging and Earthworks Drainage Guideline'.

Environmental Watering

It is well understood that the use and return of flows for environmental water brings with it a level of risk regarding potential short - term water quality impacts. However, in undertaking environmental watering, steps are taken to assess such risks and implement mitigation strategies where required to ensure that water quality objectives and targets are not compromised.

The potential risks to water quality associated with environmental watering are managed through regulations and plans which include a range of conditions that must be considered when planning, undertaking and monitoring outcomes from environmental watering. Regulations and plans that apply to environmental watering include:

- General environmental duty under Section 25 of the Act.
- Section 8 of the *River Murray Act 2003*
- Water Allocation Plans developed in accordance with *Natural Resources Management Act 2004* (Section 76)
- Site Use Approvals issued under the *Natural Resources Management Act 2004* (Section 164A)

- Murray – Darling Basin Plan (Chapter 8- Environmental watering plan and Chapter 9- Water quality and salinity management plan)

- South Australia's River Murray Annual Operating Plan

Given the existing conditions and approvals in place to manage risks to water quality from environmental watering and the General Environmental Duty under Section 25 of the Act, it is considered that the EPA and the Department of Environment, Water and Natural Resources can effectively manage risks associated with discharging Class 2 pollutants to water bodies.

Accordingly it is considered that the proposed amendments to the Policy to remove conflict with the *Natural Resources Management Act 2004*, *River Murray Act 2003,* the Commonwealth *Water Act 2007* and the Murray – Darling Basin Plan would not result in inadequate environmental protection regarding discharges of animal faeces, fertilisers, green waste and soil, clay gravel or sand.

4.5.4 Family and Social Impacts

Greater clarity regarding existing comprehensive regulation of water pollutants would encourage reduced water pollution thereby providing a number of community benefits. These include improved drinking water quality, reduced health risks, improved amenity associated with use of recreational waters and potential employment opportunities with businesses that take advantage improved water quality.

4.6 Consultation

The proposed amendments to list of Scheduled Pollutants and associated regulation were subject to the consultation process discussed in Section 7 of this document. Key comments from stakeholders are summarised as follows, whilst the EPA's response is also provided.

City of West Torrens - Reclassifying air conditioning and cooling system wastewater as a Class 2 pollutant rather than remaining as a Class 1 pollutant (ie Part 1 pollutant in the existing Policy) is positive and will assist authorised officers in regulating/enforcing this form of discharge.

SA Water – Expressed concerns about the proposed classification of animal faeces as a Class 2 pollutant and strongly recommended that it be listed as a Class 1 pollutant for the following reasons.

- Closing Legal Uncertainty. Although there are provisions in the various natural resources/water quality related Acts that may be interpreted as allowing legal follow-up (e.g. prosecution) if livestock directly defecates into a water course (NRM Act 2004: 6(121); EP Act 1993: Section 25), it appears that policies under the Acts are not adding clarity to the enforcement potential.

- Difficulty to Prosecute. Pathogens derived from animal faeces in a drinking water supply catchment present a primary water quality risk for a water utility. Major pathways for animal faeces into watercourses are provided by either direct deposition into a watercourse or overland flow into a watercourse. The categorisation of faeces as a Class 2 pollutant addresses the direct deposition aspect, but not the overland flow component. Overland flow needs consideration for potential enticement (e.g, via prosecution) to improve practices. If animal faeces remain listed as a Class 2 pollutant, enticement for better land management will continue to be difficult. Prosecution as a Class 2 pollutant will be near impossible if livestock have access to watercourses, especially in drinking water supply catchments. It appears that offenders may need to be caught in the act of discharging faeces into the watercourse.

In regard to the proposed Clause 11, it also sought clarity regarding what is considered a 'cavity in land'. For example, would the evidence of the presence of a Class 2 pollutant in a drainage line be considered for prosecution?

Adelaide City Council - Supports air conditioning and cooling system wastewater being reclassified as a Class 2 pollutant rather than remaining as a Class 1 pollutant (ie Part 1 pollutant in the existing Policy).

AI Group – Raised issues on behalf of its members regarding bundwater and effluent. Its comments regarding these matters are provided below.

- Bundwater. The revised Policy proposes to treat bundwater as a Class 1 pollutant. It has been put to us that the inclusion of this term has potential for significant compliance cost implications for the manufacturing sector in South Australia.

  Our understanding of the EPA's view to date is that it has generally promoted either contractor waste management services for disposal, or a roof over bunded areas – a direction established in guidance terms only. We are advised (by our member) that other jurisdictions (for example Victoria) provide for arrangements to permit accumulated bund water from rainfall run-off to be discharged to land or surface waters provided an appropriate level of procedural control is in place to ensure pollution does not result.

The EPA has confirmed its intention to prohibit discharge from bunded areas (whether contaminated or not) – a position held since the 90's. This will result in the need for the owners of bunded areas to either adopt costly modifications to existing bunds (e.g. roofs, pipework systems, treatment systems), or pay substantial costs to have waste transport service providers remove bunded water as liquid waste (@ 0.20c – 0.30c per litre).

The reasoning appears to be that if untreated waters were not a pollutant threat, they would not need to be bunded in the first place – a somewhat circular argument. We do understand however, that it is not the EPA's intention that these provisions would apply to the stormwater captures off a large car-park area for example. That being the case, the revised Policy may benefit from some clarification in this regard so that those that are to be bound by the revised Policy can be sure of its bounds.

If it is the case (as the revised Policy asserts) that it is "to align with other States of Australia in accordance with COAG's *National Partnership Agreement to Deliver a Seamless National Economy"* we would have to seek the reasoning in this apparent difference with the Victorian regime. If the revised Policy truly adopts a risk-based approach to compliance with strict water quality criteria, then surely harmless rainwater that has collected because it has fallen within the confines of a bund should not fall foul of the revised Policy.

More generally though, we have concerns around terms such as 'bundwater' and other loosely coined pollutant terms because they increase uncertainty in respect of compliance. Further, their inclusion may not in fact drive the outcomes that the EPA assumes they will. What is apparent is that the practical interpretation of any loosely defined terms will be highly likely to drive higher compliance cost for South Australian industry relative to other States – possibly without delivering any real environmental protection benefits.

- Effluent (Clause 10 and Schedule 1). In regard to the proposed inclusion of effluent as a Class 1 pollutant, without a clear definition, this term could potentially be interpreted to include any unwanted liquid, for example, accumulated rainfall run-off. We understand, however, that the EPA intends to use the definition of "discharge from an industrial process" in assessing what is/is not effluent. Our preference would be to see that interpretation enshrined in the revised Policy.

PIRSA Fisheries and Aquaculture - Within the explanatory report regarding the proposed new Policy there is a reference to the EPA's desire 'to seek greater

involvement' in chemical use approvals issued under Regulation 10 of the *Aquaculture Regulations 2005*. Authorities issued under Regulation 10 involve emergency requests for the use of chemicals to avoid immanent loss of stock. PIRSA asks the EPA to elaborate regarding its desire to seek greater involvement regarding the issuing of chemical use approvals as any potential increase in red tape would be undesirable.

OneSteel Manufacturing – 'Effluent' is included in the list (ie Schedule 2 Class 1 pollutant) but is not defined in the Policy. This could lead to the unintended consequence where otherwise benign water if discharged, is in contravention of clause 9 of the policy.

Department of Environment Water and Natural Resources – Raised issues regarding environmental watering and wastewater discharges from aquaculture operations. Its comments regarding these matters are provided below.

- Environmental watering. Managed environmental watering of wetlands within the River Murray using structures, or other means is an activity that may pollute waters based on the current definitions in the draft Policy. Specifically, managed environmental watering is likely to discharge Class 2 pollutants (animal faeces, green waste and soil, clay gravel or sand) into waters. With the current definitions in the draft Policy, the undertaking of managed environmental watering could result in the person undertaking the managed environmental watering event, breaching Clause 11 of the draft Policy.

  As managed environmental watering will have significant environmental benefits and take account of all reasonable and practicable measures to prevent or minimise environmental harm, it is concerning that the undertaking of any managed environmental watering event would require an exemption to be issued under the policy.

  Consideration should be given to the inclusion of a provision in Clause 11 indicating that it does not apply to managed environmental watering events.

- Aquaculture. Does Clause 11(2)(b) mean that the EPA is not the relevant authority for an aquaculture business to discharge their wastewater into an aquifer?

Conservation Council of South Australia - There is a need to acknowledge that potable drinking water contains a variety of disinfection chemicals such as chlorine and ammonia that can have a significant impact on the environment. In 2010/11, SA

Water used 1662 tonnes of chlorine for water disinfection and wastewater disinfection and also 203 tonnes of bulk aqueous ammonia together with chlorine for drinking water disinfection. CCSA is concerned about the toxic impact of chlorinated water on freshwater biodiversity, which would be covered by the inclusion of potable water as a Class 1 pollutant. It is therefore suggested that potable water be added to the list of Class 1 pollutants.

EPA Response

Definitions

Rather than using the term 'effluent' and providing a definition of this term, it is proposed that the terms wastewater and liquid waste be used instead. Effluent may be a type of wastewater. However, if the meaning of effluent is defined to include 'liquid waste', it will not always fit within the ambit of the definition of wastewater as liquid waste may conceivably not contain any water. In view of this it is considered appropriate to not use the term 'effluent' in the Policy, and instead refer to 'wastewater' and 'liquid waste' separately.

Wastewater is defined in the proposed new Policy as water that has been used in any form of human activity and includes.

- Human wastewater
- Sewage
- Water containing food or beverage waste
- Wash down water or cooling water
- Irrigation runoff or stormwater
- Water containing any trade or industrial waste
- A combination of any 1 or more of the above

Liquid waste is defined in the proposed new Policy as waste classified as liquid waste in accordance with the assessment process set out in the guideline 'Liquid Waste Classification Test', re-issued by the EPA in September 2003.

Cavity in land is defined in Clause 3 of the proposed new EPP to "include a bore, mine shaft, well, infiltration basin and other similar structures and a naturally occurring sinkhole". Under this definition drainage lines would not be considered to be a cavity in land.

Animal Faeces

Animal faeces is currently listed in Part 2 of Schedule 4 – Listed Pollutants of the Policy. Under the proposed new Policy, animal faeces would be classified as a Class 2 pollutant. This is the equivalent of Part 2 of Schedule 4 – Listed Pollutants of the current Policy. Consequently, no change in categorisation of this pollutant is proposed. This means that while direct discharge of this waste to water, including via cavities in land would continue to be prohibited, land - based disposal would not be specifically prohibited even though there is a likelihood that some animal faeces will subsequently enter waters. This reflects the reality that livestock farming involves significant discharge of faecal waste in paddocks, some of which is likely to enter waters, particularly via drainage across paddocks, or seepage.

Even with compliance of the General Environmental Duty under Section 25 of the Act which can be enforced through the issuing of an environment protection order, it would be impossible to completely stop animal faecal waste from entering waters. Consequently, if this waste were to be listed as a Class 1 pollutant which would result the prohibition of any land - based discharges of faecal waste that is reasonably likely to enter any waters, farmers would need to apply for exemptions from Clause 9 of the proposed new Policy. Given the large number of livestock farmers across South Australia this would result in significant red tape for both industry and the EPA with no environmental benefit.

In recognition of the environmental risk posed by animal faecal waste, Natural Resource Management Boards across South Australia work with farmers to minimise faecal contamination of water via a range of measures including vegetation of waterways to reduce faecal run-off and fencing of waterways to prevent access by livestock.

Enforcement provisions are also available to address significant contamination issues. Section 61 of the *Water Industry Act 2012* empowers water industry entities such as SA Water to:

- enter properties to test water that will be supplied via water services under the *Water Industry Act 2012*;

- take action to avert, eliminate, or minimise any risks to such water; and

- where it has been adversely affected, or is reasonably likely to be adversely affected by any circumstance, empowers these entities to take action to address the matter.

Pursuant to Section 61 these entities can also recover costs from parties that necessitated action being taken to eliminate, or minimise any risks, and address situations where water has been adversely affected or may be adversely affected.

Section 87 of the Act also empowers the EPA to enter premises and remove samples for analysis. Sampling provides the basis for determining if preventative or remedial measures need to be implemented under the Act.

Bundwater

It has been the EPA's position since the late 1990's through stormwater codes of practice that all bunded areas must prevent access by rainwater, or have alternative treatment systems incorporated to deal with such water. Accumulation of rainwater within a bund can reduce its effectiveness in preventing the escape of contaminants that it is designed to contain. However, in response to issues raised bundwater will be removed from the list of Class 1 pollutants. It is considered that the other Class 1 pollutants would cover the majority of contaminants in bundwater that must be prevented from discharge and hence the EPA is satisfied that contaminated bundwater would still be sufficiently regulated even without bundwater being specifically listed as a prohibited pollutant.

Aquaculture

Since the release of the explanatory report regarding the proposed new Policy and consultation meetings were held, the issue of EPA involvement regarding the assessment of chemical use in the aquaculture industry has been resolved with PIRSA. As indicated above, there is a Memorandum of Administrative Agreement between the Australian Southern Bluefin Tuna Industry Association, PIRSA and the EPA, and associated internal PIRSA guidelines regarding the assessment of proposed uses of chemicals, (Ref: A891252, "*Internal Response Procedure – Request to treat stock*") which contains provisions for referral to the EPA.

The potential need for any further EPA involvement regarding applications for approval to use chemicals for therapeutic or prophylactic purposes is reflected in the Memorandum of Administrative Agreement which acknowledges that any remaining

requirements for referrals to the EPA would be reflected in consequential amendments to Regulation 10 of the *Aquaculture Regulations 2005*.

As indicated in Section 4.3.3, under Section 59 of the *Aquaculture Act 2001,* all applications for aquaculture licences are referred to the EPA for approval and this provides a mechanism for the EPA to ensure adequate environmental management of faecal discharge via the specification of appropriate licence conditions. Under the proposed Clause 11(2)(b), discharge into waters of faeces from aquatic organisms by the holder of an aquaculture licence that is in accordance with the licence (ie also including licence conditions) is excluded from the requirements of Clause 11. However, if the discharge contravened licence conditions, the requirements of Clause 11 would apply.

Environmental Watering

It is not the intention of this clause to prevent environmental watering from occurring and this unforeseen issue has only been identified through the consultation process. Consequently, the proposed Clause 11 has been amended to indicate that it does not apply to the incidental discharge into waters of a class 2 pollutant in the course of environmental watering carried out under the following statutes.

- *Murray-Darling Basin Act 2008*
- *Natural Resources Management Act 2004*
- *River Murray Act 2003*
- Commonwealth *Water Act 2007*

Potable Water

The EPA, SA Water and the Department of Health and Ageing have procedures in place to manage controlled releases of potable water for maintenance and emergency situations through the Incident Notification Protocol for unplanned discharges and the Best Practice Operating Procedure for planned discharges. Adding potable water as a Class 1 pollutant would not be practical. For example, in some areas of the State this would restrict irrigation of ovals and reserves and garden watering due to the presence of shallow aquifers and the porosity of confining soils.

Other Matters

The process of finalising the proposed new Policy resulted in some matters being identified following the completion of the consultation process. This included some conflicting provisions within the Policy and also regarding the Act. No additional consultation was undertaken regarding these matters as the proposed reforms that are discussed above provide practical clarification regarding application of the Policy and its relationship with other statutes, rather than resulting in reforms themselves.

4.7 Conclusion and Recommendation

The removal of conflicting provisions within the Policy and integration of the Policy with a range of state and national statutes would provide greater regulatory certainty for industry and result in savings for businesses by reducing time spent inquiring about compliance requirements.

The proposed reclassification of air conditioning and cooling system wastewater as a Class 2 pollutant is supported by Councils that commented regarding this matter, whilst adjustments to the proposed Policy have been made in recognition of issues raised by stakeholders regarding bundwater and environmental watering. No objections were expressed regarding the proposed clarification of existing comprehensive regulation of pollutants as a result of the proposed reforms. Consequently, as a result of the potential economic, environmental and social benefits, the proposed reforms regarding scheduled pollutants are recommended.

5 WASTEWATER STORAGE LAGOONS

5.1 Current Legislative Requirements

Clause 18 of the current Policy provides a series of directions regarding locations at which the construction of wastewater lagoons should be avoided, areas where specific wastes cannot be stored, and construction and operational requirements.

- Subclause 18(1) requires the EPA to take into account a list of areas where the construction of wastewater lagoons should be avoided when considering environmental authorisations (ie licences) under the Act and applications for development approval under the *Development Act 1993*.

- Subclause 18(2) in conjunction with Schedule 5 identifies specific areas where it is prohibited to store the following pollutants in a wastewater lagoon – oil or petroleum products, paint or paint products, sewage, timber preservatives and wastes listed in Part B of Schedule 1 of the Act.

- Subclause 18(3) lists a range of mandatory construction requirements regarding wastewater lagoons.

- Subclause 18(4) specifies maintenance requirements for lagoons.

- Subclause 18(5) sets a minimum level of spare storage capacity of a lagoon that must be retained in order to minimise risk of overflow.

These provisions are supplemented by an EPA Guideline 'Wastewater and Evaporation Lagoon Construction' that provides basic advice to parties proposing to construct lagoons about construction techniques to assist in meeting compliance obligations under the Act and the Policy.

Clause 18 in its entirety is provided below.

18—Wastewater storage lagoons

(1) In determining matters required to be determined by the Authority under Part 6 of the Act in relation to an environmental authorisation or an application for an environmental authorisation that involves the construction of a wastewater storage lagoon or an application for a development authorisation referred to the Authority under the *Development Act 1993* that involves the construction of a wastewater storage lagoon, the Authority must take into account the principle that the

construction of wastewater storage lagoons should be avoided in the following locations:

(a) within the flood plain known as the "1956 River Murray Flood Plain" or any flood plain that is subject to flooding that occurs, on average, more often than once in every 100 years;

(b) within a water protection area within the meaning of Part 8 of the Act;

(c) within 20 metres of a public road or road reserve;

(d) within 50 metres of a bank of a watercourse;

(e) within 200 metres of a residence built on land that is owned by some other person;

(f) within 500 metres of the high water mark;

(g) within an area where the base of the lagoon would be below any seasonal water table.

(2) A person must not store a pollutant listed in Schedule 5 in a wastewater storage lagoon located in—

(a) the flood plain known as the "1956 River Murray Flood Plain"; or

(b) a water protection area within the meaning of Part 8 of the Act.

Mandatory provision: Category B offence.

(3) A person who constructs a wastewater storage lagoon must comply with the following provisions:

(a) the lagoon must be constructed so that polluted water in the lagoon cannot intercept with any underlying seasonal water table;

(b) in the case of a lagoon that is to be used for storage of wastewater that contains a pollutant listed in Schedule 5, the lagoon must—

(i) be constructed of or lined with an impervious material; or

(ii) be equipped with leak collection facilities that collect all leakages and return them to the lagoon or dispose of them in some other lawful manner;

(c) in the case of a lagoon other than one to which paragraph (b) applies, the lagoon must be constructed of or lined with a barrier that minimises, as far as practicable, leakage from the lagoon;

(d) a sufficient number of monitoring bores must be installed and properly placed so that the presence of any leakage can be readily ascertained;

(e) the lagoon must be constructed so as not to be liable to inundation or damage from flood waters;

(f) if there is any potential for the wastewater in the lagoon being a risk to the health of any animals, sufficient barriers to access to the lagoon by those animals must be installed.

Mandatory provision: Category B offence.

(4) A person who discharges wastewater into a lagoon to which subclause (3) applies must ensure that the lagoon is maintained in a condition that ensures ongoing compliance with the provisions set out in that subclause.

Mandatory provision: Category B offence.

(5) A person who discharges wastewater into a wastewater storage lagoon must not allow the water in the lagoon to reach a level that is less than 600 millimetres from the level of the maximum carrying capacity of the lagoon.

Mandatory provision: Category B offence.

Wastewater storage lagoon means any dam, pond or lagoon constructed and used for the purpose of holding wastewater but does not include a sediment retention basin.

5.2 Rationale of Current Legislation

Wastewater lagoons are widely used around the world as a means of disposal and storage of liquid pollutants and waste from a broad range of activities including sewage treatment, agricultural industries, composting and landfills, as well as chemical, manufacturing and mining industries. However, significant environmental and health issues can arise as a result of leakage, overflow and inundation by flood waters, whilst lagoons can generate offensive odours.

Clause 18 provides a mechanism for regulating wastewater lagoons in order to minimise environmental risks arising from their use as a waste storage and disposal

facility. As indicated, this Clause covers a range of issues, including areas where construction of wastewater lagoons should be avoided, restrictions regarding the types of pollutants that can be stored in wastewater lagoons in certain areas, as well as measures to deal with leakage, inundation and overflow.

Leakage is a particularly difficult issue to manage. Even a properly designed and constructed lagoon with a one metre thick clay liner will leak to some degree. In recognition of this wastewater lagoons that have been constructed during recent years for the storage of liquid wastes from a range of activities that are licensed under the Act have generally had high density polyethylene lining (ie HDPE lining) installed as a condition of development approval set by the EPA. This is to ensure better protection of valuable resources such as groundwater from contamination as they are less prone to leakage and enable the incorporation of the leak detection systems in the design and construction of the lagoon. However, geomembrane/ geosynthetic liners, including HDPE are also not leak proof.

Geotest Pty Ltd, a local company that undertakes geomembrane inspection and post installation testing throughout Australia, has advised that there is a general industry acceptance that all liners leak. It advised that a 2 mm thick HDPE liner will on average have 3 faults per hectare and that the number of faults increase by a factor of 10 in HDPE lining that is 1.5 mm thick to 30 faults per hectare. This advice is supported by a range of international studies that have been conducted by companies that provide technical support information regarding geomembranes, engineering companies, and the US based Geosynthetic Institute.

5.3 Problems with Current Legislation

Problems with the current approach to the management of wastewater lagoons are summarised and discussed as follows.

- Definition

- Application of inconsistent directives to a limited number of wastewater lagoons.

- Mandatory inflexible provisions regarding construction and operation of lagoons that are not consistent with best practice and the operating design of some lagoons.

- Absence of reference to EPA Guidelines 'Wastewater and Evaporation Lagoon Construction'

5.3.1 Definition

As indicated above, a wastewater lagoon is currently defined as a 'wastewater storage lagoon' being a dam, pond or lagoon constructed and used for the purpose of holding wastewater, but does not include a sediment retention basin. This definition has generated debate regarding its application.

Inclusion of the term 'storage' has led to the argument that Clause 18 only applies in situations where pollutants and waste are stored in lagoons, and does not apply when pollutants and waste are treated and/or disposed of in lagoons. The term stored can be interpreted as meaning that discharging pollutants and waste into lagoons is a temporary measure prior to reuse or discharge elsewhere. The intent of Clause 18 is however, to apply to situations where pollutants and waste are either temporarily stored, treated, or disposed of in lagoons.

This definition has also led to the argument that Clause 18 does not apply to a number of liquid storage, treatment and disposal systems that may also contain contaminants which pose significant environmental risks. These include artificial wetlands used for the capture and treatment of contaminated water at industrial sites, leachate ponds and tailings dams. The term leachate refers to liquids that in passing through matter has dissolved or entrained environmentally harmful substances which may then enter the environment. In these situations collection systems can be used to divert contaminated liquid to storage/disposal ponds. Leachate ponds are used to contain leachate from composting works and waste landfills. Tailings, are the materials left over after the process of separating minerals from an ore body. The bulk of tailings is crushed and ground rock. However, it may also contain traces of other minerals and elements found in the ore such as arsenic, radioactive materials, mercury and cadmium, as well as hydrocarbons (ie oils and grease) from mining and processing equipment, and chemicals used in the extraction process. These chemicals include cyanide, sulfuric acid and lime.

As indicated above, under the current Policy sediment retention basins are excluded from the definition of wastewater lagoons. However, sediment retention basins are used as part of public stormwater management systems and as part of pollution control for extractive industries such as quarrying and also for infrastructure projects such as rail and road construction.

It is clear that artificial wetlands used for the capture and treatment of contaminated water at industrial sites, leachate ponds at composting works and waste landfills,

tailings dams and sediment retention basins are all wastewater lagoons that should be regulated via the Policy.

5.3.2 Application of Directive to a Limited Number of Wastewater Lagoons that is Inconsistent with a Risk – Based Approach to Assessments

As indicated above, Subclause 18(1) directs the EPA to take into account a list of areas where wastewater storage lagoons should not be built when considering an environmental authorisation, an application for an environmental authorisation that involves the construction of such a lagoon, or a development application under the *Development Act 1993* that involves the construction of a wastewater storage lagoon.

This directive is inconsistent with the approach used by the EPA when assessing other activities, in that they are subject to a more flexible risk-based assessment process rather than a set of prescriptive criteria. Furthermore, this Subclause only applies in the case of lagoons that are developments within the meaning of the *Development Act 1993*, or which require an authorisation under the Act. Some large agricultural wastewater lagoons for example, may not need an authorisation nor a development application, yet may present a far greater environmental risk than smaller lagoons included in a development, or associated with a licensed activity. Subclause 18(1) is therefore inconsistent and limited in its application, and consequently, does not necessarily deal with the issues of greatest environmental significance.

5.3.3 Mandatory Inflexible Provisions Regarding Construction and Operation of Lagoons that are not Consistent with Best Practice and the Operating Design of some Lagoons

Subclauses 18(2), (3), (4) and (5) also impose a set of rigid mandatory provisions regarding the construction and operation of wastewater lagoons that are not consistent with best practice, and are also based on an inflexible 'one size fits all' approach rather than a more flexible risk-based approach. Key weaknesses of these Subclauses include the following.

Subclause 18(2) in conjunction with Schedule 5 identifies specific areas of South Australia (ie the 1956 River Murray Flood Plain and Water Protection Areas proclaimed under the Act) where it is prohibited to store the following pollutants in a wastewater lagoon – oil or petroleum products, paint or paint products, sewage, timber preservatives and wastes listed in Part B of Schedule 1 of the Act. As indicated in Map 2 overleaf, South Australia's Water Protection Areas and the 1956

River Murray Flood Plain cover a significant area of the state. This Subclause has created a number of significant issues that are summarised as follows.

- Given the location of regional centres across the state, it is impractical to be so restrictive regarding the use of wastewater lagoons. For example, the South East Water Protection Area includes a number of important regional centres, most notably Mount Gambier. Precluding the use of wastewater lagoons for the storage of pollutants and waste such as sewage and timber preservatives in such areas is clearly impractical.

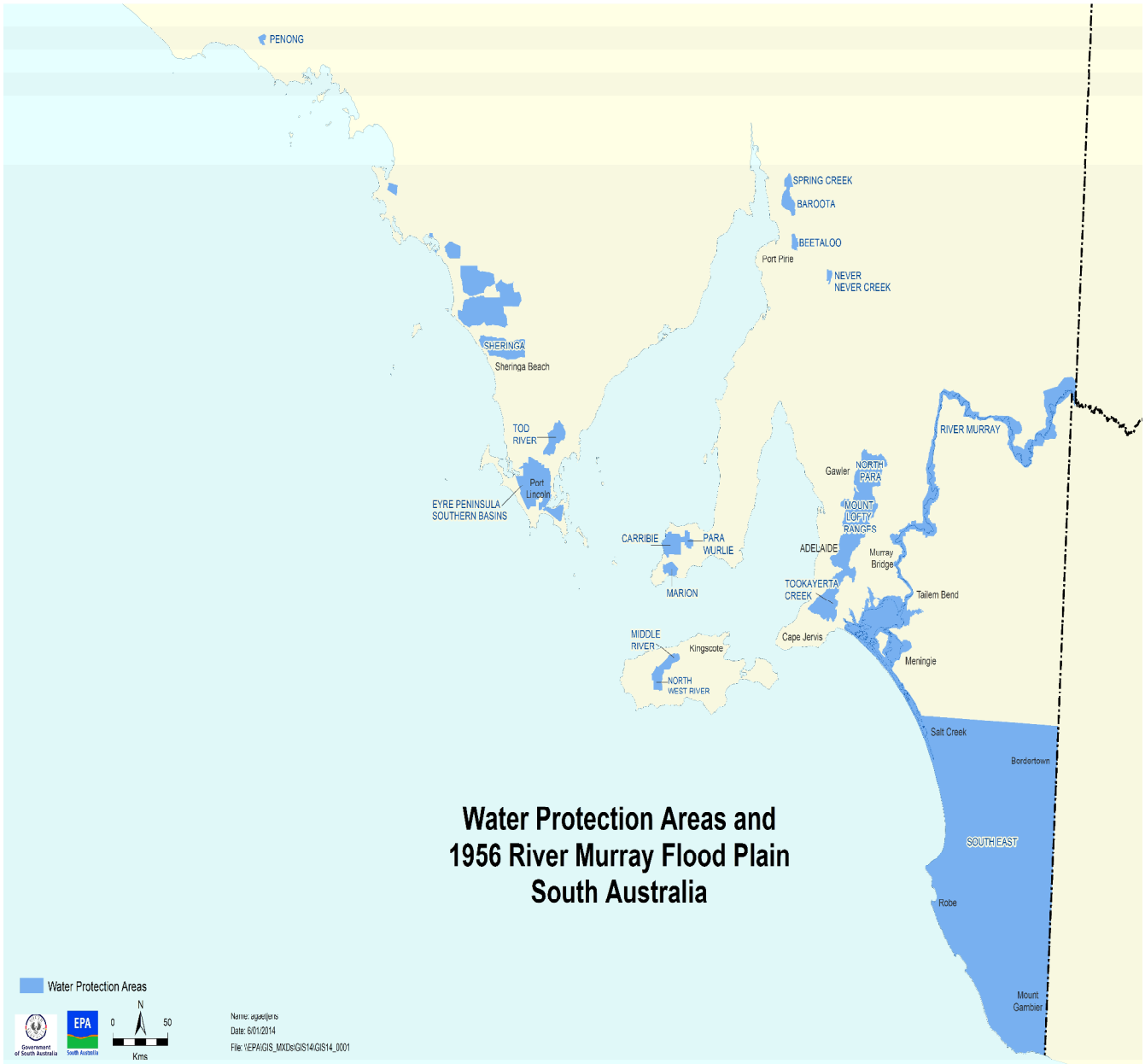
- There are also a broad range of other pollutants that could be harmful to the environment that are not prohibited from being discharged into wastewater lagoons in the River Murray Flood Plain and Water Protection Areas.

- The discharge of pollutants cited in Subclause 18(2) to wastewater lagoons in other areas of South Australia can also be harmful to the environment, but are not restricted.

Subclause 18(2) therefore imposes impractical and inconsistent restrictions regarding the use of wastewater lagoons.

Map 2

Water Protection Areas in South Australia & 1956 River Murray Flood Plain



Source: Environment Protection Authority

Subclause 18(3)(b) requires that lagoons used for storage of wastewater that contain pollutants listed in Schedule 5, must be constructed of, or lined with an impervious material; or be equipped with leak collection facilities that collect all leakages and return them to the lagoon, or dispose of them in some other lawful manner. As discussed above, Schedule 5 does not provide a fully comprehensive list of all pollutants that can pose a significant environmental risk when discharged into the environment. Additionally, as also discussed above, leakage is a particularly significant issue to manage as all types of lagoon liners leak. Given these matters high quality lining may also be required at lagoons where pollutants other than those listed in Schedule 5 are discharged, while the use of such lining together with leak collection facilities may be required to ensure adequate environmental protection.

Subclause 18(3)(d) requires the installation of bore holes to undertake leak detection via groundwater monitoring. However, there are other more accurate, timely, and cost-effective leak detection methods that are not mentioned in this Subclause, and therefore are not permitted to be used. These include leak detection systems installed during construction (normally involving geocomposite drainage layers under the top liner with any leakage draining to a sump that is accessible via a pipe to enable leak detection and pumping), electrical methods, and also calculations based on measurement of discharge volumes, extraction volumes and evaporation rates (ie the water balance method).

Subclause 18(3)(e) requires any risk to the health of animals presented by wastewater in lagoons being prevented by the installation of barriers. However, this Subclause does not address health and safety issues for humans. Apart from health risks associated with exposure to wastewater, lagoons lined with synthetic liners can be very slippery when wet and therefore present a risk of drowning.

Subclause 18(5) specifies that water in a lagoon must not reach a level that is less than 600 millimetres from the level of the maximum holding capacity of the lagoon (this is known as freeboard allowance). This is to minimise risk of overflow from lagoons arising from discharges of wastewater, normal rainfall events and wind-driven waves. However, this requirement does not recognise variations in rainfall, lagoon size and varying consequences of overflow depending on the location of a wastewater lagoon that are also reasonable considerations in determining appropriate levels of freeboard allowance. In addition, compliance with this requirement is not possible in all situations. In the case of wastewater lagoons that form part of a public stormwater management system, operators of these systems do not have control of loads from ‘up stream’ properties that discharge into these systems. Hence in this situation unanticipated overflows may occur, particularly

during storms. In the case of some wastewater lagoons some overflow is factored into the design and normal operations. Examples of this include lagoons used at wastewater treatment plants where overflow is allowed following effective waste treatment, and sediment retention basins where overflow is allowed following settlement of sediment.

These Subclauses also do not address a number of other significant issues regarding the construction and management of wastewater lagoons including odour, embankments, desludging and decommissioning.

5.3.4 Absence of Reference to EPA Guideline 'Wastewater and Evaporation Lagoon Construction

As indicated, Clause 18 is supplemented by an EPA Guideline 'Wastewater and Evaporation Lagoon Construction' that provides advice to parties proposing to construct lagoons about construction techniques to assist in meeting compliance obligations under the Act and the Policy. However, this guideline is not cited in the Policy thereby reducing potential awareness of its availability to assist in ensuring that developments of lagoons will comply with legal requirements.

5.4 Options

There are two options with regard to management of wastewater lagoons. Firstly, to retain current legislative requirements, or to implement amendments that address the problems with current legislation discussed above. Proposed legislative reforms are summarised and assessed as follows.

- Redefine waste storage lagoons by excluding the word 'storage' from the definition and including sediment retention basins, artificial wetlands, leachate ponds (containing leachate from composting or landfill works) and tailings dams in the definition.

- Remove the directive provided in Subclause 18(1) regarding areas of South Australia where proposed wastewater storage lagoons should not be built that, in any case, only apply to consideration of some wastewater lagoons ie those that are part of an authorisation or authorisation application under the Act, and those that are part of a development application under the *Development Act 1993*.

- Remove the rigid mandatory provisions regarding the construction and operation of wastewater lagoons specified in Subclauses 18(2), (3), (4) and (5).

- Introduce a new Clause 18 that specifies a requirement to prevent overflow from wastewater lagoons into any waters, or, onto land from which it is reasonably likely to enter any waters, except in the case of wastewater lagoons used for the purpose of a public stormwater system and in situations where some overflow is contemplated in the design and normal operation of a lagoon.

- Provide new detailed risk-based guidelines that would better enable operators of wastewater lagoons to comply with the requirements of the proposed new Clause 9 – General Measures to Prevent or Minimise Pollution of Waters, that is based on the General Environmental Duty in Section 25 of the Act. These Guidelines would also apply to the operation of wastewater lagoons that are exempt from the requirement to prevent overflows as part of normal operations and would be listed in Schedule 3 of the proposed new Policy.

The proposed new Clause 20 regarding wastewater lagoons is provided below, while details regarding the new Guidelines are also summarised.

20—Wastewater lagoons

(1) An operator of a wastewater lagoon must ensure that the contents of the lagoon do not overflow, or reach a level where it is reasonably likely that they will overflow, into any waters or onto land in a place from which they are reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table).

Mandatory provision: Category B offence.

(2) Subclause (1) does not apply.

(a) to a wastewater lagoon that is used for the purposes of a public stormwater system; or

(b) to the extent that a degree of overflow has been contemplated in the design and normal course of operation of the lagoon.

wastewater lagoon means.

(a) a sedimentation or detention basin; or

(b) an artificial wetland; or

(c) a leachate pond (containing leachate from composting or landfill works); or

(d) a tailings dam; or

(e) any other dam, pond or lagoon constructed and used for the purpose of holding wastewater;

Proposed New Guidelines - Wastewater Lagoon Construction

These Guidelines are intended to ensure consistency in the assessment of proposed wastewater lagoons and provide advice to operators of lagoons regarding construction and operation to assist in meeting their obligations under the Act and the Policy.

Under the Guidelines, the EPA will use a risk-based approach to determine construction and liner requirements for lagoons. The EPA has developed a Risk Assessment Matrix to be used in conjunction with a table of construction and lining categories. The matrix is based on groundwater considerations, wastewater characteristics, and the nature of lagoons. The table outlines category levels including the type of lining, Construction Quality Assurance (CQA) and leakage detection requirements based on assessment outcomes using the matrix.

While the EPA would prefer lagoons to be designed in accordance with the requirements suggested by this approach, a lower construction and lining category may also be approved if appropriate risk management measures are implemented. Alternative lining will also be considered provided that it would achieve a similar or better outcomes than that suggested by this approach.

Other features of the Guidelines and the advice it provides are summarised as follows.

Technical Documents - It outlines documents the EPA may require when assessing proposed developments of wastewater lagoons. These may include engineering design drawings, a Construction Quality Assurance Plan and a Construction Management Plan. The scope and detail of required specifications or reports will

depend on the nature and complexity of the project and the sensitivity of the proposed location for the construction of the lagoon. It is recommended that proponents discuss these requirements with the EPA prior to submitting a development application.

Siting – It provides a list of areas where construction of wastewater lagoons should be avoided, but will be allowed if appropriate risk management measures are undertaken with the approval of the EPA.

Separation Distances – EPA 'Guidelines for Separation Distances' provide recommended buffer distances to prevent odour and noise impacts on dwellings from lagoons at sewage treatment works, community wastewater management systems (CWMS), wineries and distilleries. This guideline also recommends separation distances for other industrial operations. However, as these recommendations do not generally address odour impacts from associated wastewater lagoons, the EPA will make an assessment on a case-by-case basis. In some cases, it may require the proponent to undertake odour measurements in accordance with the EPA Guideline, 'Odour Assessment using Odour Source Modelling'. For recycled water storage lagoons it is recommended that a separation of 100 metres is maintained, however, a site specific assessment should be undertaken to determine appropriate separation from sensitive receptors. Advice regarding the determination of suitable separation distances for piggery and feedlot effluent lagoons is provided via referral to a range of guidelines.

Groundwater – The major environmental concern about wastewater lagoons is potential leakage to groundwater. The type of aquifer, depth to groundwater and groundwater quality and usage be key determinants of construction and lining requirements.

Wastewater – A broad range of pollutants are stored in lagoons. A key factor in determining the appropriate type of lagoon lining is the 'reactivity' of wastewater. Acidic, alkaline, or saline wastewater can react with clay and compromise the integrity of clay liners. Chemical and manufacturing industries often involve hazardous substances that require the highest level of lagoon lining and construction.

Construction – Advice and guidance is provided regarding construction issues including the preparation of bases for liner construction and the installation and maintenance of alternative liners including in-situ clay, constructed clay lining, geosysnthetic clay liners, geomembranes (ie HDPE and PVC) and a combination of liners. Construction quality assurance requirements are also discussed.

Volume and Overflow – Lagoons must be designed and constructed to ensure that the contents of the lagoon do not overflow unless this has been contemplated in the approved design and normal operation. Lagoon capacity should be such that, in addition to the stored wastewater arising from an average year's net inflow and discharge, it can deal with rainfall runoff without overflowing. A minimum 600 millimetres freeboard is recommended to prevent overflow arising from normal rainfall events and wind-driven waves. However, as the consequences of overflow can vary depending on the location of a wastewater lagoon, risk assessments should be undertaken to determine the appropriate lagoon capacity, or freeboard allowance for a particular scenario. Any overflow should be treated as contaminated wastewater and captured on site. Overflow could be returned to the lagoon when capacity permits, or transported to an EPA licensed wastewater facility capable of accepting the liquid. The EPA 'Code of Practice for Wastewater Overflow Management' provides guidance to assist wastewater system operators to prevent the occurrence of overflows and to minimise the frequency and volume of such overflows.

Embankments – A range of issues are discussed including gradients, appropriate construction to prevent leakage beneath walls, control of erosion and preventing growth of vegetation to protect liners.

Leak Detection – It recognises that leak detection can be undertaken using a number of methods (refer to section 5.3.3).

Desludging - As part of ongoing maintenance, periodic desludging is required. The guidelines provide advice about lagoon design to enable this process, the desludging process itself and sludge disposal.

Security and Health and Safety – In addition to recommending that adequate fencing, bird deterrents and signage be installed around lagoons, it also recommends that proponents should consult with the Department of Health and Ageing and other relevant agencies regarding storage of substances that could pose health and safety risks. When lagoons are to be lined with synthetic liners consultation with Safework SA is recommended as it is necessary to ensure that safety provisions (eg access rope or stairs, inflatable safety gear) are available.

Decommissioning - Prior to decommissioning a lagoon, an Environmental Site Assessment (ESA) may be required to check the suitability of the site for any intended future use. Guidance on ESA is provided in the EPA's 'Guidelines for the Assessment and Remediation of Groundwater Contamination'.

5.5 Analysis of Benefits and Costs

5.5.1 Compliance

The proposed new definition of wastewater lagoons would clarify that the requirements of the Policy apply to the operators of a very broad range of liquid waste storage, treatment and disposal systems. It is noted however, that pursuant to Section 7(4) of the Act, the proposed new Clause 18 would not apply in the following situations.

- Wastes produced in the course of an activity not subject to licensing requirements under the Act that is authorised by a lease or licence under the *Mining Act 1971*, the *Petroleum and Geothermal Energy Act 2000* or the *Roxby Downs (Indenture Ratification) Act 1982* when produced and disposed of to land and contained within the area of the lease or licence.

- Wastes produced in the course of an activity not subject to licensing requirements under the Act that is authorised by a lease under the *Mining Act 1971* when disposed of to land and contained within the area of a miscellaneous purposes licence under the *Mining Act 1971* adjacent to the area of the lease.

The replacement of Clause 18 with a requirement to prevent overflows from wastewater lagoons (except in the case of lagoons that are part of public stormwater systems, or where some overflow is a part of the normal operation of a lagoon), and the proposed new Guidelines would provide a flexible risk – based approach to the siting, construction and operation of wastewater lagoons. This is consistent with the approach used by the EPA when assessing other activities.

Excluding wastewater lagoons that are part of public stormwater systems from the application of Clause 18 is consistent with the general exclusion of the ultimate discharge of stormwater from a public stormwater system into waters, or onto land which it is reasonably likely to enter any waters that is proposed under Clause 8 – Application of Policy. As discussed in Sections 2.2 and 5.3.3, operators of these systems do not have control of loads from ‘up stream’ properties that discharge into these systems. Hence in this situation unanticipated overflows may occur, particularly during storms. Excluding wastewater lagoons that are designed to allow some overflow as a part of normal operations from the application of Clause 18 also recognises the practicalities regarding the way these types of lagoons operate.

This exclusion would provide clarity to operators of these wastewater lagoons that their compliance requirements under the proposed Policy would be limited to adherence to the proposed new Clause 9 – General Measures to Prevent or Minimise Pollution of Waters, that is based on the General Environmental Duty in Section 25 of the Act. As indicated, this can be demonstrated by following the advice and guidance of the proposed new Guidelines for wastewater lagoons.

The proposed new Clause 18 and Guidelines would also provide operators of wastewater lagoons with greater flexibility in ensuring compliance and significantly more information about issues that need to be addressed in ensuring compliance with the Policy and the Act. Greater flexibility would be provided regarding locations at which wastewater lagoons can be built, types of pollutants stored at these lagoons, lining and leak detection using a risk-management framework. The new Guidelines would provide more information about issues discussed in the current Guidelines and also provide advice and guidance about additional issues not discussed in the current guideline including noise and odour control and protecting the health and safety of people.

5.5.2 Economic Impacts

Allowing greater flexibility regarding the locations at which wastewater lagoons can be built and the types of pollutants that can be stored in lagoons, subject to appropriate risk management would remove potential restrictions on economic development.

The proposed emphasis on a risk-based approach to the siting, construction and operation of wastewater lagoons would also result in costs for operators of lagoons being consistent with appropriate environmental management requirements. In some cases this may result in costs being lower than under existing regulatory arrangements, whilst in other cases it may result in costs being higher if necessitated by environmental issues.

5.5.3 Environmental Impacts

Clarification that the requirements of the Policy and hence also the General Environmental Duty under Section 25 of the Act apply to the operators of a broad range of liquid waste storage and disposal systems is expected to result in greater compliance with the Policy, thereby reducing the incidence of environmental damage due to leakage from wastewater lagoons. The proposed new guideline is also expected to result in improved environmental management of wastewater lagoons by

providing more extensive and detailed guidance regarding best practice construction and operation.

Improved environmental management of wastewater lagoons would help contribute to achieving South Australia's Strategic Plan target of ensuring that the state's water resources are managed within sustainable limits by 2018.

5.5.4 Family and Social Impacts

A range of community benefits are expected to be realised by the proposed reforms. These include the following.

- Enabling the use of wastewater lagoons in areas where they are required.

- Providing greater protection to properties adjacent to wastewater lagoons from contamination and odour issues as a result of improved environmental management of wastewater lagoons.

- Ensuring that the health and safety of people is accounted for in the design and operation of wastewater lagoons.

5.6 Consultation

The proposed amendments to the regulatory arrangements regarding wastewater lagoons were subject to the consultation process discussed in Section 7 of this document. Key comments from stakeholders are summarised as follows, whilst the EPA's response is also provided.

Stormwater Industry Association - Artificial wetlands which can capture stormwater that are not part of public stormwater system are included in the definition of a wastewater lagoon. This should be amended so that artificial stormwater wetlands are not included.

SA Water - The expansion of the definition of wastewater lagoons to include stormwater wetlands means that, other than those that are used for the purpose of a public stormwater system are not permitted to overflow. This is impractical.

Adelaide City Council – Expressed concern that stormwater quality improvement infrastructure such as wetlands, bioretention basins, sedimentation basins will be included as 'wastewater lagoons' given that road runoff could be defined as

wastewater (polluted stormwater) and 'artificial wetland' is defined as a wastewater lagoon.

PIRSA - The overflow of sedimentation ponds under the policy would include the potential overflow of land-based ponds as a result of flooding, what would be deemed reasonable and practicable measures to avoid being a land-based aquaculture farmer potentially penalised under clause 18?

OneSteel Manufacturing - It appears that the expansion of the definition of a wastewater lagoon could have the unintended consequence of deeming currently compliant activities that are operated in an environmentally responsible manner to be classed as contravening the proposed new Clause 18. Many wastewater treatment facilities are designed to overflow i.e. in a series of ponds, or pond to discharge. An addition to Clause 18 should be considered to include 'overflow in an uncontrolled manner' to allow for operation of facilities where such an overflow is intentional and part of normal operation. In addition, an exemption for the allowance for overflow to designated spillways that will not harm the environment in emergency situations should be considered.

Business SA - Business SA notes the broader definition of wastewater lagoons and that sedimentation and detention basins are now included.

Joint Councils: District Council of Mount Barker, Barossa Council and City of Onkaparinga – The Councils raised issues about the design of wastewater lagoons

Given that the design requirements for a wastewater lagoon are likely to be more onerous than the design requirements for recycled water, it is important that this consequence be borne in mind in terms of the operation of the proposed new Water Policy. There is an undue focus on groundwater protection associated with lining lagoons in the draft Guidelines. If the recycled wastewater is not a waste, the risks associated with its infiltration diminish and therefore the need for a liner diminishes.

The EPA should also consider possible unintended consequences for animals of a requirement to install liners in lagoons. In an episode of RSPCA Animal Rescue on 26 March 2013 (Channel 7), two kangaroos were trapped in a state of total exhaustion in a water storage pond. The animals were unable to escape due to the slippery combination of the polymer lining, their mud encrusted bodies and the hopping gait, which prevents ascent of slippery slopes such as on plastic lined lagoons. It is also understood that this story is not restricted to kangaroos and other macropods but also applies to a wide range of marsupial animals. The TV program made it very clear that these animals are not equipped to escape from polymer lined wetlands, dams, or other similar water storage facilities, and so implementing a

requirement to install polymer liners should be referred to the National Parks and Wildlife, RSPCA or other relevant bodies.

EPA Response

Definition

Contaminated stormwater is considered to be wastewater under the Policy. Consequently, all artificial wetlands (ie a type of wastewater lagoon) that are constructed to manage this water must therefore comply with the proposed Policy, including the guideline for wastewater lagoons. However, as indicated, wastewater lagoons that are part of public stormwater systems are excluded from the application of Clause 18 which prohibits overflows into any waters or onto land in a place from which it is reasonably likely to enter any waters. As discussed, operators of these systems do not have control of loads from 'up stream' properties that discharge into these systems.

Inundation and Overflow

It is acknowledged that some wastewater lagoons are designed to allow a degree of overflow as part of their normal operations. Consequently, the proposed Clause 18 which prohibits the overflow of wastewater lagoons has been amended to ensure that it does not apply in these situations.

Lining

The proposed Guidelines do not place undue emphasis on lining of wastewater lagoons to protect groundwater. Leakage from wastewater lagoons is a significant environmental issue. Under the Guidelines, the EPA will use a risk-based approach to determine construction and liner requirements for lagoons. Clay lining, geomembranes, or a combination of the two are options to consider. Recycled wastewater, unless treated through reverse osmosis, is generally high in nutrients and hence can adversely affect groundwater and surface waters. The proposed Guidelines provide directions regarding lining requirements for recycled water storage.

While the EPA would prefer lagoons to be designed in accordance with the requirements suggested by the risk-based assessment approach provided in the Guidelines, a lower construction and lining category may also be approved if appropriate risk management measures are implemented. Alternative lining will also

be considered provided that it would achieve similar or better outcomes than that suggested by this approach.

The issue of animal safety is recognised in the Subclause 18(3)(f) of the current Policy. It requires sufficient barriers to be installed to prevent access to wastewater lagoons if they are a risk to the health of any animals.

However, as indicated above not all wastewater lagoons are subject to assessment via the development application assessment process under the *Development Act 1993* or via licensing requirements under the Act. Given these matters it is therefore not possible for the EPA to ensure that appropriate barriers are installed in all situations where access to wastewater lagoons may endanger wildlife. A referral of proposed wastewater lagoons that are considered under these Acts to the National Parks and Wildlife Service, or other animal welfare agencies would therefore not be effective in ensuring more widespread use of safety barriers around wastewater lagoons.

It is considered however, that the proposed new definition of wastewater lagoons which would clarify that the requirements of the Policy apply to the operators of a very broad range of liquid waste storage and disposal systems and this would result in greater awareness of compliance requirements regarding health and safety issues for both animals and humans. This would be supplemented by significant efforts to promote awareness of the proposed new Policy via an implementation plan that has been developed. This plan is discussed in Section 8 of this document.

5.7 Conclusion and Recommendation

This analysis has highlighted significant problems regarding the regulation of wastewater lagoons under the current Policy. These include a lack of clarity regarding the range of liquid waste storage, treatment and disposal systems that are subject to compliance requirements under the Policy, as well as the application of inconsistent directives to a limited number of wastewater lagoons and mandatory inflexible provisions regarding the construction and operation of lagoons that are not consistent with the EPA's compliance and enforcement policy which stresses a flexible risk-based approach to environmental regulation.

The proposed reforms would clarify the broad range of liquid waste storage, treatment and disposal systems that are considered to be wastewater lagoons and therefore subject to compliance requirements under the Policy, and also provide a flexible risk-based approach regarding construction requirements, locations at which wastewater lagoons can be built and the types of pollutants that can be stored in

lagoons. The proposed reforms would therefore remove potential restrictions on economic development and also provide operators of lagoons with significantly more guidance and advice to enable compliance with the requirements of the Act and Policy as well as ensuring the health and safety of people. Consequently, in view of these benefits, the proposed reforms regarding the management of wastewater lagoons via the Policy are recommended.

6 ANTIFOULANTS

6.1 Current Legislative Requirements

Antifoulants are chemicals designed to prevent the growth of aquatic organisms on submerged objects such as hulls of boats and potentially nets used in aquaculture. This application provides lower resistance through the water for ships and also prevents the translocation of aquatic species that could be invasive to new locations. In the case of aquaculture it can reduce the frequency of net cleaning. Antifoulants work in a number of ways, but the most commonly used antifoulants slowly leach a toxic concentration of chemicals into the water adjacent the surface, thereby preventing the attachment of aquatic organisms. The current Policy regulates the use of these chemicals in the following ways.

- Limiting the allowable release rate of tributyltin (TBT) from antifoulants that are used in South Australian waters.

- Restricting the use of anti-foulants containing TBT to vessels that are greater than 25 metres in size unless the hull is made of aluminium

- Specifying sites at which cleaning of hulls that have been coated with anti-foulants can be cleaned.

- Management of antifoulant residues.

Clause 22 – Antifoulants in its entirety is provided below.

22—Antifoulants

(1) In this clause— ***antifoulant*** means any chemical substance designed for application to water submerged surfaces to inhibit the growth of plants, animals or other organisms on those surfaces.

(2) If a person uses an antifoulant, the code titled *Code of Practice for Antifouling and Inwater Hull Cleaning and Maintenance 1997* prepared by ANZECC applies.

(3) The Authority or another administering agency may issue an environment protection order to a person who uses an antifoulant to give effect to the code referred to in subclause (2).

(4) A person must, in using an antifoulant, or removing an antifoulant from any surface, comply with the following provisions:

(a) the only antifoulant containing tributyltin that may be used is one where the release rate of tributyltin from the antifoulant is less than 5 micrograms per square centimetre per day (as determined in accordance with a method approved by the Authority);

(b) an antifoulant containing tributyltin must not be used on a vessel that is less than 25 metres in length unless the hull of the vessel is made of aluminium;

(c) the cleaning of the hull of a vessel or the surface of any structure that has been coated with an antifoulant, or of any equipment contaminated with antifoulant, may only be carried out—

(i) in dry dock; or

(ii) above the high water mark of any waters; or

(iii) below the high water mark of any waters while the tide is out to such an extent that there is no tidal water coming into contact with the vessel, structure or equipment;

(d) antifoulant residues—

(i) must not enter any waters; and

(ii) must not come into contact with any land that is below the high water mark of any waters; and

(iii) must be collected and disposed of at a waste depot that is authorized under the Act to receive such waste.

Mandatory provision: Category B offence.

6.2 Rationale of Current Legislation

TBT was first developed in the 1950's and soon became the most popular antifoulant worldwide due to its highly effective long lasting coating. However, TBT has been found to be one of the most toxic chemicals produced by humans, with impacts seen on marine organisms at extremely low levels. These impacts and risks are briefly summarised as follows.

- TBT is highly attracted to fats and tends to be stored in these tissues. It is accumulated in oysters, mussels, crustaceans, molluscs, fish and algae. In 2003/04, the EPA translocated oysters to investigate the prevalence of TBT in South Australian marine waters due to shipping and ship maintenance facilities. TBT was found at all sites tested, including the relatively lightly used Coffin Bay.

- TBT has been found to cause the local extinction of sensitive organisms in regions adjacent to contaminated sediments and along open ocean shipping routes.

- TBT is a known endocrine disrupter. The endocrine system refers to the collection of glands of an organism that secrete hormones directly into the circulatory system to be carried to organs within the body. It has been shown to cause imposex (the development of male characteristics in females) in snails, oysters and mussels, leading to reproductive failure and local extinction. Imposex in marine snails has been recorded in the Port River. It can also affect the endocrine glands of mammals, upsetting the hormone levels in the pituitary, gonad and thyroid glands.

- In the case of mammals, large doses of TBT has also been found to damage the reproductive and central nervous systems, bone structure and gastrointestinal tract, whilst a study has also found that TBT can damage the immune system.

Investigations led by the Australian Government have found widespread TBT contamination in Australian Ports and harbours including in South Australia. It has been measured in three locations in South Australia ie Port River, Port Lincoln and Coffin Bay with levels likely to be causing an environmental impact in the Port River and possibly also Port Lincoln.

However, at the time the current Policy was being developed a complete ban on the use of antifoulants containing TBT was considered impractical due to its usefulness in controlling the risk posed by invasive marine species, and the lack of suitable alternatives for the shipping industry. Consequently, limited use of TBT was permitted under the current Policy. This approach was consistent with other states and other countries. The explanatory report regarding the current Policy indicated however, that should a total ban on TBT come into effect, the Policy would be amended accordingly.

6.3 Problems with Current Legislation

Problems with the current approach to the management of antifoulants are summarised and discussed as follows.

- Inconsistent with an International Convention and National Legislation
- Lack of integration with the Aquaculture Regulations 2005

6.3.1 Inconsistent with an International Convention and National Legislation

The use of TBT was banned under the 2001 'International Convention on the Control of Harmful Anti-fouling Systems on Ships'. Australia was not a signatory to this convention at the time of its commencement. In 2003, the Australian Pesticides and Veterinary Medicines Authority banned the importation and sale of antifoulants containing TBT. However, this did not prevent ongoing use of existing stocks of these antifoulants for boat maintenance. Australia became a signatory to this Convention in January 2008 as suitable less toxic alternatives to TBT became available, and a ban on the use of TBT was subsequently implemented through the *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006*, which came into force in September 2008.

6.3.2 Lack of integration with the Aquaculture Regulations 2005

The current Policy is not integrated with the *Aquaculture Regulations 2005* regarding the use of antifoulants. Under Regulation 10 of the *Aquaculture Regulations 2005*, licensees (under the *Aquaculture Act 2001*) can use antifoulants if they are registered under the *Agricultural and Veterinary Products (Control of Use) Act 2002*, or if approved by the Minister. However, as indicated above, this does not include antifoulants containing TBT.

6.3.3 Reference to Outdated Code of Practice

As indicated above Clause 22 requires users of antifoulants to refer to the 1997 'Code of Practice for Antifouling and Inwater Hull Cleaning and Maintenance' that was prepared by the Australian and New Zealand Environment and Conservation Council. However, this code of practice has been replaced by the 2013 'Antifouling and In-water Cleaning Guidelines' that were jointly developed by the Australian Government in conjunction with the New Zealand Ministry for Primary Industries and industry stakeholders in both Australia and New Zealand.

6.4 Options

Given the international and national ban on the use of antifoulants containing TBT, there is no alternative but to also reflect this ban in the Policy. Proposed legislative reforms are summarised and assessed as follows.

- A complete ban on the use of antifoulants containing TBT.
- Illegal use of antifoulants containing TBT to be classified as a Category A offence.
- Replacing the requirement to use the 1997 'Code of Practice for Antifouling and In-water Hull Cleaning and Maintenance' with the 2013 'Antifouling and In-water Cleaning Guidelines' published by the Australian Government Department of Agriculture, Fisheries and Forestry and the Department Sustainability, Environment, Water, Population and Communities.
- The insertion of a Subclause to ensure that the use of an antifoulant in accordance with the *Aquaculture Regulations 2005* is not prevented by the Policy.

The proposed new Clause regarding controls over the use of antifoulants is provided below.

13—Antifoulants

(1) A person must not use an antifoulant that contains tributyltin.

Mandatory provision: Category A offence.

(2) A person must, in using an antifoulant, or removing an antifoulant from any surface, comply with the following provisions:

(a) the cleaning of the hull of a vessel or the surface of any structure that has been coated with an antifoulant, or of any equipment contaminated with antifoulant, may only be carried out.

(i) in dry dock; or

(ii) above the high water mark of any waters; or

(iii) below the high water mark of any waters while the tide is out to such an extent that there is no tidal water coming into contact with the vessel, structure or equipment;

(b) antifoulant residues.

(i) must not enter any waters; and

(ii) must not come into contact with any land that is below the high water mark of any waters; and

(iii) must be collected and disposed of at a waste depot that is authorised under the Act to receive such waste.

Mandatory provision: Category B offence.

(3) Nothing in subclause (2) prevents the use by the holder of an aquaculture licence of an antifoulant in accordance with the *Aquaculture Regulations 2005*.

Under the proposed new Policy, the 2013 'Antifouling and In-water Cleaning Guidelines' would be listed in Schedule 3 – Codes, Standards and Guidelines, and enforced via the Proposed new Clause 9 – General Measures to Prevent or Minimise Pollution of Waters. As indicated in Section 3, Clause 9 contains provisions that requires referral to the mandatory and non-mandatory requirements of relevant Codes, Standards and Guidelines.

6.5 Analysis of Benefits and Costs

6.5.1 Compliance

A complete ban on the use of antifoulants containing TBT under the proposed new Policy would not result in additional compliance requirements for South Australia's marine industry as it would simply make state legislation consistent with national laws that already apply in this state.

This amendment to the Policy would however, enhance enforcement of the ban on TBT by allowing the EPA, and other administering agencies and delegates under the Act to also take action on this matter, in addition to the Australian Maritime Safety Authority.

Reflecting the seriousness of the complete ban on the use of TBT, proposed penalties for contravening this provision and for intentionally or recklessly

contravening this provision would be increased. The penalty for non-compliance with current restrictions on the use of TBT range from a maximum fine of $4,000 for a contravention, to a maximum fine of $30,000 for intentional or reckless contravention. Under the reforms, the penalty for non-compliance with a complete ban on the use of TBT would be a maximum fine of $60,000 for an individual and a maximum fine of $150,000 for a corporate body. In the case of intentional or reckless contravention of the ban, penalties would be a maximum fine of $120,000 and/or up to 2 years imprisonment for an individual and a fine of up to $250,000 for a corporate body.

As indicated, the 2013 'Antifouling and In-water Cleaning Guidelines' that would replace the 1997 'Code of Practice for Antifouling and In-water Hull Cleaning and Maintenance' in the Policy were developed in conjunction with industry stakeholders.

The insertion of a Subclause to ensure that the use of an antifoulant in accordance with the *Aquaculture Regulations 2005* is not prevented by the Policy would ensure integration of state regulatory arrangements.

6.5.2 Economic Impacts

A complete ban on the use of antifoulants containing TBT under the proposed new Policy would not result in additional costs for South Australia's marine industry as it would simply make state legislation consistent with national laws that have applied in this state since 2008.

Integration with the *Aquaculture Regulations 2005* may result in savings for industry by reducing time spent inquiring about compliance requirements.

6.5.3 Environmental Impacts

The proposed reforms would reinforce the existing national ban on the use of TBT and may provide further deterrence to illegal use of this highly toxic chemical. This would help contribute to achieving South Australia's Strategic Plan target of maintaining the health and diversity of the state's marine environment.

6.5.4 Family and Social Impacts

Enhanced enforcement of the ban on TBT would further reduce the risk of exposure to this chemical by members of the community thereby reducing health risks.

6.6 Consultation

The proposed amendments to the regulation of antifoulants were subject to the same extensive consultation process as discussed in Section 7 of this document. Key comments from stakeholders are summarised as follows, whilst the EPA's response is also provided.

Adelaide City Council As a manager of recreational water bodies supporting the use of a wide range of watercraft, Council supports the proposed Clause 12 – Antifoulants in particular, the prohibition of TBT as a category A offence.

AI Group – Raised issues on behalf of its members regarding the proposed complete ban on the use of antifoulants containing TBT. The proposed revised Policy seems to assume that the mere presence of TBT, will inevitably result in pollution and justifies a complete prohibition. Other jurisdictions that have regulatory requirements concerning TBT seem to have qualified circumstances of its use or prohibition. In other States there is the provision for strict controls that arguably protect the environment, but not in a way that limits the capacity of the State to accommodate unique situations where application of this material is the only practicable option. The proposal appears to fly in the face of the risk-based approach to compliance.

PIRSA – Sought clarification regarding whether the proposed change is consistent with national biofouling guidelines.

Business SA

Business SA notes that TBT is now totally prohibited.

EPA Response

The use of TBT has been banned internationally by the 2001 'International Convention on the Control of Harmful Anti-fouling Systems on Ships', of which Australia became a signatory in January 2008. The Federal Government implemented its obligations under this convention through the *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006*. This Act came into force in September 2008. Consequently the use of antifoulants containing TBT is illegal in Australia. This amendment would make state legislation consistent with national legislation.

6.7 Conclusion and Recommendation

The environmental harm caused by TBT is recognised both internationally and nationally. This is reflected by an international convention banning its use that has been implemented under Australian law since the current Policy came into force. Reinforcing the national ban on the use of TBT via the Policy may also provide further deterrence to illegal use of this highly toxic chemical and contribute to achieving South Australia's Strategic Plan target of maintaining the health and diversity of the state's marine environments without imposing additional costs on industry and the community. Enhanced enforcement of the ban on TBT would also further reduce the risk of exposure to this chemical by members of the community thereby reducing health risks.

The current Policy also does not take account of controls regarding the use of antifoulants under the Aquaculture Regulations 2005, whilst national guidelines regarding the use of antifoulants have also been recently updated. Proposed amendments to the Policy to take account of these matters are also necessary.

Given the absence of any economic costs and the potential environmental and health benefits, the proposed reforms regarding the use of antifoulants are recommended.

7 CONSULTATION

Consultation regarding these reforms was undertaken in accordance with the requirements of Sections 28 – 32 of the Act. Key requirements of these sections of the Act include the following.

- The preparation of a report explaining the purpose and effect of the Draft Environment Protection Policy, which includes a summary of relevant background issues and the analysis and reasoning applied in formulating the policy.

- Referral of the Draft Environment Protection Policy and explanatory report to prescribed bodies for the purposes of Section 28 and any other public body that may be affected by the Draft Policy. Prescribed bodies are listed in regulation 9 of the Regulations as follows.

  - AI Group (SA Branch)
  - Australian Conservation Foundation Inc
  - Australian Institute of Environmental Health
  - Beverage Industry Environment Council (BIEC)
  - Conservation Council of South Australia Incorporated
  - Environmental Defenders Office (SA) Incorporated
  - Environment Business Australia
  - Local Government Association of South Australia Incorporated
  - National Environmental Law Association Limited (SA Branch)
  - Royal Australian Chemical Institute Inc.
  - South Australian Chamber of Mines and Energy Incorporated
  - South Australian Employers' Chamber of Commerce and Industry Incorporated (trading as Business SA)
  - South Australian Farmers' Federation Incorporated

- South Australian Fire and Emergency Services Commission (established under Part 2 Division 1 of the *Fire and Emergency Services Act 2005*)
- The Nature Conservation Society of South Australia Incorporated
- United Trades and Labour Council (trading as SA Unions)
- Waste Management Association of Australia Incorporated

- Providing public notification via the South Australian Government Gazette and in a newspaper circulating in the State about the Draft Environment Protection Policy, holding at least one public meeting and inviting submissions.
- Responding to submissions.

The consultation process involved the distribution of a Discussion Paper regarding the review of the current Water Quality EPP and envisaged changes, followed by drafting of proposed new Water Quality EPP and Explanatory Report which was also released for consultation.

A series of public consultation meetings were also held to provide information regarding the proposed reforms to members of the general public, relevant key stakeholders and relevant Government Agencies. The meetings that were held are listed as follows.

- Adelaide – 13 and 19 February 2013
- Berri – 27 February 2013
- Mount Gambier – 4 March 2013
- Port Pirie – 12 March 2013
- Port Lincoln – 18 March 2013

These meetings were attended by about 50 people representing a range of organisations, whilst some attended as private citizens. Stakeholders that attended these meetings included the following

Members of the South Australian Parliament

Mr Tim Whetstone, Member for Chaffey

Mr Geoff Brock, Member for Frome

Mr Don Pegler, Member for Mount Gambier

Local Government

Mid-Murray Council

City of Salisbury

Mitcham Council

District Council of Mt Barker

District Council of Grant

City of Mt Gambier

Wattle Range Council

Wakefield Regional Council

Local Government Association of South Australia

Private Businesses and Industry Organisations

Nyrstar

Kimberley Clark Australia

GDF Suez (operators of the Pelican Point Power Station)

Tony's Tuna

Whiteheads Timber

Van Shaiks Biogro

Osmose

Terramin

SA Wine Industry Association

Central Irrigation Trust

OTEC

EP Analysis

SAM

Government Agencies

Stormwater Management Authority

Department of Environment, Water and Natural Resources (DEWNR)

Law Firms and Consulting Businesses

Thomsons Lawyers

Finlaysons

Coffey Environments

Environmental Organisations

Environmental Defenders Officers

Conservation Council of South Australia

Along with the public meetings, separate consultation meetings were held with the following agencies:

- Department for Manufacturing, Innovation, Trade Resources and Energy (DMITRE)
- South Australian Chamber of Mines and Energy Incorporated
- AWA
- Business SA
- AI Group
- Conservation Council of South Australia
- Environmental Defenders Office
- Ngarrindjeri Regional Authority and Ngarrindjeri Heritage Committee
- Mannum Aboriginal Community Association
- Department of Environment Water and Natural Resources (DEWNR)
- SA Water
- Department of Primary Industries and Regions (PIRSA)

A total of 23 written submissions were received in response to the consultation program. Organisations that made written submissions are listed in Table 2 as follows.

Issues raised by stakeholders and the EPA's response are discussed in Sections 2 – 6 of this document.

Table 2

Organisations that made written Submissions regarding proposed revisions of the Water Quality EPP

1	Adelaide City Council
2	AI Group
3	Business SA
4	City of Onkaparinga
5	Conservation Council of South Australia
6	Environmental Defenders Office (SA) Inc.
7	GDF SUEZ Pelican Point Power Station
8	District Council of Mt Barker, City of Onkaparinga and Barossa Council Joint
9	PIRSA
10	Private Generators (AGL Energy, Alinta Energy, Energy Australia, Energy Brix, GDF SUEZ Australian Energy, InterGen and NRG Gladstone)
11	SA Water
12	SA Wine Industry Association
13	Stormwater Industry Association
14	DEWNR – 2 submissions
15	Boating Industry Association of SA
16	City of West Torrens
17	DMITRE
18	OneSteel
19	Penrice
20	Ngarrindjeri Regional Authority (Berg Lawyers)
21	PIRSA - 2 submissions

8 IMPLEMENTATION, MONITORING AND REVIEW

As discussed in Section 2, the proposed new Policy provides transitional arrangements for existing holders of environmental authorisations (ie a licence) to undertake prescribed activities of environmental significance under the Act. This would ensure that where the authorisation is undertaken lawfully, but contravenes any provision of the proposed new Policy, that provision would not apply in relation to the licensed activity until two years after commencement of the new Policy. This would provide regulatory certainty for licensees in the event that a provision of the new Policy conflicts with the conditions of a licence by providing them with two years to comply with the requirements of the proposed Policy.

As indicated in Section 3, it is also recognised that upon commencement of the proposed new Policy there may be existing exemptions from the requirements of Clauses 13 that have been provided under Clauses 14 and 15 of the current Policy that would no longer be required. Pursuant to Section 116 of the Act – Waiver or Refund of Fees and Levies and Payment by Instalments, the EPA intends to seek Ministerial approval to refund a portion of payments for these exemptions equivalent to the portion of time that exemptions have been provided for that have not yet elapsed. For example, if an exemption was granted for a year and the proposed new Policy commences six months later, the holder of this exemption would be refunded 50% of the exemption fee they have paid.

In addition, the EPA has developed a detailed implementation plan for the proposed new Policy. There are seven components to the plan.

1 Preparation, public consultation and final release of support documentation to aid interpretation of national water quality guidelines.

2 Update EPA Guidelines, Codes of Practice etc that refer to the Policy.

3 Coordinating updates to licences and exemptions

4 An internal EPA training program

5 An external stakeholder engagement program

6 Evaluation of implementation

7 Establish and maintain a base of internal EPA knowledge/understanding with realistic applications. Focus on the HUB community pages.

Details regarding each of these components are provided in Table 3.

Table 3

Details of Implementation Plan for proposed New Water Quality EPP

Task	Task breakdown
1. Coordination of updates to licences and exemptions (engagement with and feedback from licensees as required)	1.1 Licences Process the 42 licences with EPP 2003 based conditions.
	1.2 Exemptions. Account for fee invoice dates/updates/transition process. 9 exemptions refer to Clause 13 of current WQEPP that need to be removed. Exemption conditions transferred to licences if applicable. Be aware of media implications and take action as required. Several exemptions that refer to Clause 17 of current WQEPP transfer to Clause 9 of new WQEPP.
2. EPA information sheets to aid interpretation of National Water Quality Guidelines	Develop a framework for deciding "appropriate" environmental values (as per NWQG) for particular water bodies. Prepare as an EPA information sheet. Start to populate the environmental values of the state's waters based on this framework. Relates to Clause 4 of new WQEPP. Include this in the internal training and external engagement.
3. EPA information sheets to aid interpretation of NWQG	New WQEPP and National Water Quality Guidelines; explaining how users should apply NWQG risk-based assessment as a general environmental duty. Ensure consistency with the general environmental duty principles that are applied elsewhere in EPA regulations. Relates to Clause 8 of new WQEPP. Prepare as an EPA information sheet. Include this in the internal training and external engagement.
4. Guidelines, Codes of Practice etc that need to be updated/completed	4.1 Wastewater lagoon guideline
	4.2 Biosolids guideline
	4.3 Accept or reject changes to guidelines/Codes of Practice.
	4.3.1 Pesticide guideline

Task	Task breakdown
	4.3.2 Stormwater guidelines - consolidate and repackage. Specific attention to the stormwater guideline for Mt Gambier.
	4.3.3 Review the changes to guidelines, Codes of Practice
	4.4 Prepare for publication via web
5. Internal EPA training	5.1 Branch presentations which includes a feedback process that identifies branch needs.
	5.2 Gather branch feedback from presentations
	5.3 Design a branch training program based on different branch needs..
	5.4 Branch-level training sessions, tailored to branch needs, using case studies. Include a feedback process to gauge staff understanding
	5.5 Staff understanding is evaluated
	5.6 HUB page to back up the internal training including clause by clause explanations; FAQ; case studies
	5.7 Induction package (for new staff)
6. External engagement	6.1 Confirm external stakeholder list
	6.2 Group stakeholders in terms of those that (1) will be significantly impacted (2) will not be significantly impacted
	6.3 Group stakeholders in terms of those that (1) the EPA directly regulates (2) are regulated by others on behalf of the EPA
	6.4 Design the key messages
	6.5 Identify appropriate communication tools for separate stakeholder groups and tailor the key messages appropriately
	6.6 Broad stakeholder communications products (emails, newsletters, social media, general Government Dept. communications channels)
	6.7 Key stakeholder presentations (licensees, environment groups, industry groups, key Government Dept. representatives). Build in feedback process that will inform the evaluation and media messages.
	6.8 Gather feedback
	6.9 Feedback processed
	6.10 Media messages delivered (including EPA website)

Task	Task breakdown
7. Internal EPA knowledge	Expand the HUB page for on-going, consistent and accurate application of the EPP: • clause by clause explanations • FAQs • case studies
8. Evaluation of implementation	8.1 SMART[1] evaluation design – relating back to deliverables including during and post implementation.
	8.2 Evaluation during implementation
	8.3 Evaluation post implementation

All parties that participated in the consultation process will be advised of the reforms. Table 4 lists parties that are to be informed about the Policy. It also briefly summarises the key interest that these parties have in the reforms and the methods of communication that would be used to engage with them.

Table 4

Parties to be informed of New Water Quality Policy

Name	Interest	Method to inform/engage
Minister	Improved environmental regulation	Through the CE office as required
Chief Exec	Improved environmental regulation	Weekly Exec Reports; Exec briefings as requested
EPA Compliance Branch	Improved environmental regulation	Through the Project Reference Group representative
EPA Water Quality Branch	Lead responsibility on advice regarding water quality	Monthly WQ Branch meetings. Project Reference Group (WQ Branch Manager is included)
EPA Investigations	Improved environmental regulation	Through the Project Reference Group representative
EPA Site Contamination. Branch	Improved management and regulation of site contamination.	Through the Project Reference Group representative and the Project Team

[1] Specific; Measurable; Achievable; Relevant; Time bound

	Streamlining how environmental values for waters will be established (Clause 4 of new WQEPP). This will clarify the application of Section 5B of the EP Act.	
EPA Environment Assessment Branch	Improved environmental planning. Aquaculture	Through the Project Reference Group representative
SA Water	Improved, more cooperative environmental regulation. Specifically wastewater lagoons.	Through the external engagement program and Communications Plan
Business SA	Improved, more cooperative environmental regulation	Through the external engagement program and Communications Plan
Conservation Council of SA/Environmental Defenders Office	Improved environmental regulation. Concern that industries will be effectively regulated	Through the external engagement program and Communications Plan
Local Government (principally through the Local Government Association although potentially also through particular Councils)	Improving the EPA guidance on stormwater management and clarifying how the EPP will be used to influence stormwater pollution reduction. Wastewater lagoons	Through the external engagement program and Communications Plan
Dept of Environment, Water & Natural Resources/Natural Resource Management Boards	Some NRM Boards point to criteria in the current WQEPP 2003 as a resource condition target. Clause 8 may have implications for those Boards.	Through the external engagement program and Communications Plan.
Department for Manufacturing, Innovation, Trade, Resources and Energy	Mine closure issues	Through the external engagement program and Communications Plan. Liaison through the Mine Closure Working Group (ST)

Public submissions	Various	Through the formal responses to public submissions
Houseboat Association	Blackwater, concentrated blackwater, greywater (cl 17 and interpretations clause)	Through the external engagement program and Communications Plan
Stormwater Industry Asociation	Improving the EPA guidance on stormwater management and clarifying how the new WQEPP will be used to influence stormwater pollution reduction	Through the external engagement program and Communications Plan

Following implementation, there would be ongoing monitoring and review of the proposed new Policy based on the EPA's interactions with parties that are affected by the new regulatory arrangements.

ATTACHMENT 1

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