



Submission to Trade Waste Review

February 2006

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1. Introduction/Background

1.1. Australian Industry Group

The Australian Industry Group (Ai Group) is Australia's leading industry organisation representing 10,000 employers nationally and 4,000 in Victoria. Membership is drawn primarily from the manufacturing, construction and related services sectors, including:

- Food, Wine, Beverages
- Printing and Paper, Containers, Packaging
- Textiles, dye works, wool scouring and tanneries
- Health/Medical Technology, Pharmaceuticals, Bio-technology
- Chemicals, Rubber and Plastics, Paint
- Industrial Laundries
- Construction/Infrastructure, Heavy Engineering, Building Supplies and Glass
- Transport, Automotive, Aviation, Rail, General Engineering
- Labour Hire
- Environment, Energy, Waste Disposal
- Utilities
- Timber, Furniture and Furnishings
- Defence
- Information Technology, Telecommunications, Call Centres

This submission has been developed in close consultation with members of Ai Group's Victorian Environment Working Group which has been active for nearly 30 years. Membership of the Working Group includes companies that are recipients of various awards that recognise achievements water conservation, innovation in trade waste management, production of equipment for stormwater management, water re-use and "third pipe" systems for recycling.

1.2. Support for sustainable water management practices

Ai Group recognises the critical importance of water as an essential service for the community, as an input for production of essential market goods and for environmental flows in streams. Ai Group, through this submission, aims to help achieve sustainable outcomes for both Victorian industry and the environment.

This submission builds on previous submissions on related issues including the Government's "Securing Our Water Future" (Green Paper, December 2003 and the subsequent White Paper in June 2004), and to Essential Services Review about the "Economic Regulation of Victoria's Water Sector" in February 2004 and November 2004 and more recently in consultations for DSE's Central Region Sustainable Water Strategy.

Ai Group acknowledges the Victorian Government's comprehensive response to prevailing drought conditions and development of strategies for conservation, recycling of water and avoidance of additional construction of dams. We

acknowledge there has been impressive whole-of-community embracement of water conservation, participation in water restrictions and changes to water consumption behaviour. Investment in new equipment, more efficient appliances, third pipe systems to estates, water tanks and proposals for stormwater recycling are evidence of this. There has been confirmation of the retention of water catchments and water businesses in public ownership. Also there has been recognition of potential for public-private partnerships to deliver innovative solutions to infrastructure needs.

The manufacturing sector is the nation's largest employer and a fundamental part of Victoria's economy and includes a wide range of water-intensive sectors. Water management and trade waste management are therefore intrinsic items for industry and a sustainable future for our water sector. It is important to recognise, that as a general rule, every \$1 generated from the manufacturing sector flows through to an additional \$1.25 expenditure in the rest of the economy.

1.3. Competitive pressures on manufacturers in Victoria

Ai Group's recent report "Annual Manufacturing Forecasts – 2006" (February 2006) highlights that Australian Industry is forecast to experience further testing conditions in 2006, as it continues to adjust to the changing pace of global competition and more moderate growth in domestic demand. Companies are expected to shift the focus of their business strategies away from market growth to cost cutting. Cost reduction is expected to be most intense in sectors such as transport equipment; basic metals; wood products & furniture, textiles and clothing & footwear sectors.

It is essential that the Victorian Government understands the economic drivers that industry faces in order to uphold business competitiveness as well as achieve environmental outcomes such as reduced trade waste impacts.

Implementation of changes to the trade waste system and their associated cost impacts on industry, have the potential to have a major adverse impact on the competitiveness of manufacturing in Victoria. It is essential that the competitiveness and viability of industry sectors is not undermined.

The Review must recognise the potential flaw in the view that costs of removing contaminants can be recovered from the source/generator. If the cost of removal makes sectors uncompetitive, then the flow-on costs of job losses may mean that society has to share the cost.

Many industrial processes use water to provide essential goods and services to the community and to other service providers including the water industry. This may include production of essential food items through to chemicals for treatment of potable water in reservoirs.

Water usage by industry is relatively well managed when compared to other sectors. Industrial water customers pay for both the metered quantity of water entering a factory as well as for the discharge of the residual water to the sewer for treatment as tradewaste.

The Review must also recognise the relevant contribution by industry to salt discharges and ensure that a disproportionate burden is placed on industry in addressing this issue.

Recommendation:

The impact on industry of amendments to the trade waste system must be carefully modelled for their impacts on industry and their flow-on effects to the economy as a whole.

There needs to be a considerable transition period towards revised discharge targets and parameters. Responses to the challenges of sustainable trade waste management will occur at an individual site level in collaboration with water businesses rather than through a regulatory pathway.

2. Limitations of the Review process

Although Ai Group is completely supportive of the development of a sustainable trade waste framework, we recognize that the Review process has some major limitations including:

- Lack of integration with the Central Region Sustainable Water Strategy;
- The fact that the review of trade waste management is being conducted after the ESC Review completed its Price Determination (ie price imperatives may be inconsistent with review objectives such as water reuse); and
- Difficulties associated with having to consider the trade waste volumes and water recycling targets in the context of emerging projects, ie the Gippsland Water Factory and Eastern Water Recycling Proposal which, currently only in a feasibility study phase (for potential supply of 115 gigalitres per annum of treated effluent to industrial water users in the Latrobe Valley).

Recommendation:

The Trade Waste Review and the related Future Directions Statement must integrate with the Central Region Sustainable Water Strategy and other current DSE resource management initiatives.

2.1. Inadequate measurement and definition of problem

Manufacturers are apprehensive about the numerous trade waste management activities that are underway in the absence of a comprehensive scientific analysis or strategic approach.

There are far-reaching targets for water re-use, salt reduction and water efficiency improvements that have been directed at industry. These targets have been developed in the absence of a state-wide framework for management of trade waste in Victoria that recognises industry's requirements and competing responsibilities.

While it is commendable that the Government has undertaken a review of the trade waste framework, it is unfortunate that this was not initiated prior to the ESC's price determination.

Similarly the targets for industry for reductions in water use, salt removal and utilisation of recycled water have not been supported by scientific analyses that justify these programs. Convincing data about quantities of water, origins, contents and their destinations have not been produced so far. Little information is provided about sewerage effluent from domestic sources in relation to dissolved solids, metals and other contaminants. Similarly, little information has been provided about the amount of water leakage from the system and the amount of salt ingress to the sewer networks.

Consequently there is immediate concern in industry that environmental programs that target industry may not deliver the desired results or are in fact not justifiable. For example, there is concern in industry that salt reduction programs to deliver below-600 parts per million of salt in discharges from the Western Treatment Plant will not deliver suitable water for market gardeners at Werribee. There is no evaluation to confirm the potential cost-effectiveness of the strategy compared to alternatives or combinations of strategies. This issue is dealt with further below.

There is significant concern that the targets are too ambitious and may contribute to closure of industrial plants because of escalating and prohibitive compliance costs.

Feedback from member companies has been emphatic that the discussion on page 10 of the Issues Paper about “the phasing out of products that generate trade waste” is entirely inappropriate and is definitely not a feature of a sustainable Trade Waste system. Triple bottom line analysis of this scenario would surely indicate that the negative costs to society would not be acceptable.

The companies point out that the production of discharges is an inevitable feature of many processes including the manufacture of essential chemicals, foods and items. Processes in a range of industry sectors accumulate and/or return salts from input waters to the discharge system and do not have an adverse environmental impact.

Recommendation:

Integrate information and statistics about the trade waste regime into DSE’s other water strategy investigations.

Develop a comprehensive and scientific strategy for trade waste management based on a complete picture of effluent quantities, constituent substances, destinations and characteristics of the relevant sectors. Clearly there is a gap in information about the relative contributions of domestic and commercial sectors to trade waste streams. It is critical that the Review recognises the inadequacy of current information.

3. Clarification of roles in trade waste policy framework in Victoria

It is disappointing that the ESC was required to deliver a price and service nexus before the roles and responsibilities of agencies had been evaluated. Agencies in water and trade waste management include the following: EPA Victoria; Department of Sustainability and Environment; Sustainability Victoria, Department of Human Services; various catchment management authorities; Melbourne Water and a

number of metropolitan and regional water businesses; Trade Waste Acceptance Advisory Committee; WorkCover Authority; Critical Pollutant Management Group, WorkSafe, The Victorian Water Trust, Trade Waste Acceptance Advisory Committee, Critical Pollutant Management Group, Energy and Water Ombudsman, Sustainability Victoria and the Essential Services Commission.

3.1. Multiple agencies and variations in approaches

Currently there is no mechanism to coordinate or manage the comprehensive demands of the various government departments, agencies and authorities that impact on trade waste management.

Although a company's principal arrangement for trade waste management is with its local water authority, a number of other agencies can have an economic and/ or environmental impact that may not be open to scrutiny. This could include the following scenarios:

- Variation by EPA of the licence conditions at a sewerage treatment plant that alters the trade waste acceptance parameters by the water authority;
- Subsequent adjustments to management objectives by Melbourne Water;
- Changes by Department of Human Services or the WorkCover Authority Victoria in infrastructure management issues at sewerage treatment plants;
- Variations to targets for water recycling and re-use by the Department of Sustainability and Environment;
- Policy changes by the local Catchment Management Authority;
- Delays and difficulties in resolution of decisions about variations to Trade Waste Agreements and
- Changes by the local water authority.

Recommendations:

Metropolitan water retailers must be able to negotiate and finalise Trade Waste Agreements with their industry clients without subsequent review by another regulator or agency.

3.2. Independent body to develop trade waste acceptance standards

The Review must be widened to consider the role of the Trade Waste Acceptance Advisory Committee (TWAAC) which provides independent technical advice about acceptance parameters to Melbourne Water, City West Water, South East Water and Yarra Valley Water. Although the Committee does not appear to have a formal statutory role in the trade waste pricing process, it has proved to be a significant stakeholder in the area of trade waste management for many years. The Committee has recognised the importance of consultation with end-use customers of trade waste service providers and has signalled the need for closer liaison with industry about reviews to trade waste parameters in the future. TWAAC's role is closely linked to the Critical Pollutant Management Group (CPMG) – it is important that there is an ongoing liaison between industry end users, and both TWAAC and CPMG.

Ai Group believes that the TWAAC group should have a state-wide reference role to ensure consistency of approach across all service areas, and to provide independent advice as required. In recent years, TWAAC was very important to industry in achieving more scientifically based regulations. However, eventually, with the Water Companies delaying reports, the system became unacceptably slow.

Recent consultations with industry confirmed the need for an independent body (TWAAC group or equivalent) to determine trade waste acceptance criteria on a state-wide basis. The existing TWAAC mechanism confirmed that the current TWAAC process is slow and ineffective in managing specific determinations (for un-listed contaminants) or variation requests.

It is vital that a new Independent body is set up. EPA's technical advisory committee, known as the Prescribed Industrial Waste Advisory Committee (PIWAC) provides a suitable model. The Committee advises about prescribed waste and has been well accepted by industry. Trade waste needs a similar technical advisory committee.

Recommendation:

The Review should ensure that the Trade Waste Acceptance Advisory Committee (or equivalent) should provide independent advice on acceptance parameters to the water businesses on a state-wide basis.

The TWAAC's (or equivalent) role should be consolidated and extended to have a state-wide function.

3.3. A single, independent authority to scrutinise and resolve conflicts

There is a need to allocate responsibility for independent oversight, scrutiny and resolution of conflicts to a suitable authority. It is inevitable that conflicts will arise concerning the intersection of prices, acceptance parameters and relative priorities. It is unfortunate this mechanism was not established prior to the Review's determination.

Trade waste customers need to have objective information ranging from suitable threshold levels in their acceptance parameters through to OH&S-related parameters that in turn can impact on their trade waste agreement.

The situation has arisen frequently in the context of trade waste agreements in regional areas where the local water business sets the acceptance parameter and is also the regulator and enforcer of by-law arrangements.

Currently there is no mechanism to provide oversight, state-wide consistency and an appeals mechanism.

Recommendation:

Arrange for the independent review of trade waste pricing and resolution of disputes that may arise over individual charges or combinations of charges at a site. Currently there is considerable variation and inconsistency across the State.

Provide a mechanism to appeal trade waste decisions to an independent authority (in relation to prices, acceptance parameters and priorities).

3.4. Management of Trade Waste Agreements in metropolitan areas

The current, two-tiered approach to management of trade waste agreements in the Melbourne metropolitan service area (whereby Melbourne Water has final approval) can lead to inefficiencies and needs consideration in the Review.

Recent consultations with trade waste service customers in metropolitan Melbourne showed that current arrangements were frequently not effective for handling of applications for variations to Trade Waste Agreements, permission to discharge above normal limits in upset/non-typical process situations etc – the process often leaves issues unresolved and is very dissatisfying.

At present, for companies in the metropolitan area, Melbourne Water has final approval over arrangements. This means the industry client cannot discuss or negotiate directly with the approval authority (and can leave the water retailer in a powerless situation in between).

Trade waste service customers would like to be able to negotiate directly with their respective water retailer with greater certainty, on the basis that the retailer can manage its own agreement compliance with Melbourne Water.

Recommendations:

There should be a mechanism to appeal trade waste decisions to an independent authority (in relation to prices, acceptance parameters and priorities).

The Review must clarify the roles of regulators, government departments, agencies and water businesses in setting prices and trade waste acceptance parameters.

Negotiations about Trade Waste Agreements (and variations from 'normal' conditions) must be between the industry client and their respective water retailer only. The current situation in the metropolitan service area where Melbourne Water has final approval is not effective for management of applications for variations since the industry client has no ability to negotiate with it.

3.5. Consistency across the State

Trade waste customers in industry commonly have sites in a number of service areas across the State. Because of regional differences, the Review needs to recognise the need for overall scrutiny of prices as well as acceptance parameters, and environmental targets. It is important that there be consistency in approaches, scientific information, structure of trade waste agreements and priorities.

The Review needs to recognize that pricing of the trade waste component on a water bill is calculated according to a complex and technical framework that varies across

the State. It is a combination of numerous items such as volume/quantity, mass of dissolved compounds in the effluent, flow rates and environmental acceptance thresholds. The thresholds are listed in discharge agreements with a corresponding schedule of fees and may include temperature, colour, corrosiveness, oxygen demand etc. The individual parameters and fees can vary considerably according to location and the infrastructure of the service providers.

The discharge parameters are in turn determined by environmental licence conditions applied to the water business/service provider by the Environment Protection Authority (EPA). We believe the licence and limit-setting process for the treatment facilities and outfalls should be developed through a Regulatory Impact Assessment (RIS) process to ensure that the environment is protected against damage and that the assimilative capacity of the environment is also used effectively. We believe the EPA's more recent approach that emphasizes cleaner production among industry end-customers is a positive move.

Companies with multiple-site operations have to ensure that compliance responsibilities are responded to at each location. Current arrangements make this difficult. Local consultation and collaboration is needed to provide necessary regional variations.

Recommendation:

Maintain region-specific water authorities to facilitate a whole of catchment management approach specific to the clients, sewer networks, treatment plants and ultimate receiving environments. It is unlikely the net environmental benefit from common discharge limits for the state would be positive.

4. Priority objectives

4.1. Reduce water use

The main objective of the current Trade Waste Review must be to reduce water use. This is more important than reusing treated trade waste water.

There are a number of ways for Government to assist industry to further reduce water use. These are addressed below.

4.2. Prioritisation of targets – need for hierarchy of actions

The Review needs to recognize that many water-intensive businesses are also significant generators of solid waste, and are energy-intensive. Consequently the management of these issues needs to be undertaken on a holistic basis to avoid environmental conflicts in achieving regulatory objectives (ie increasing greenhouse emissions to achieve lower discharges to trade waste). It is important that the inter-relationship between these issues is acknowledged in order to achieve sustainable outcomes.

Consequently it is important that a hierarchy of actions be developed in order to provide guidance about priorities, investment decisions and regulatory response to regulators and trade waste customers alike.

EPA Victoria currently provides a hierarchy for guidance in relation to Prescribed Industrial Waste Management. The existing hierarchy is as follows, where Containment is the least preferred option: Avoidance; Reuse; Recycling; Recovery of energy; Repository storage; Treatment; and, Containment.

However there is no equivalent hierarchy for trade waste or related actions, to show which is more preferable.

Urgent guidance is needed to show the relative positions of water conservation, reduction of salinity, re-use of water, protection of infrastructure assets, and protection of workplace conditions for sewerage system personnel.

Trade waste customers also need guidance about the processes and technologies that can be utilised to meet the priorities. For instance:

- Is it more acceptable to produce “salt” discharges containing magnesium or sodium salts?
- Should carbon dioxide be bubbled through the discharge instead of the addition of acid?
- Is control of temperature more important than acidity status?

There should be a scale of relative importance for the above items.

Recommendation:

Develop guidelines to assist manufacturing sites in the preferred use of chemical water treatment technologies to minimise environmental and discharge pricing impacts in relation to pH correction and other parameters.

4.3. Review of Waste Hierarchy

The Review needs to consider the interpretation and implementation of the Waste Hierarchy (page 41, Table 10) in terms of the ‘optimal approach’ that maximises community well being promoted by the Australian Productivity Commission’s “Waste Generation and Resource Efficiency” Issues Paper (December 2005). The Commission points out that when the waste hierarchy is applied in strict order, on the basis of technical feasibility (the Productivity Commission’s Issues Paper refers to Victoria’s Towards a Zero Waste Strategy as an example of this) it is inconsistent with a more desirable, net-benefits approach. The Commission indicates that costs and benefits should be considered in determining how a waste is managed.

Consistent with the above argument by the APC, we believe a more detailed hierarchy that provides guidance and direction with regards to trade waste is required.

In a revised hierarchy, we believe the water and contaminants would appear separately to reflect that they can be tackled independently as well as together (eg. Reduction in use of potable water should appear at the top, with reduction in

contaminants coming further down, along with specific avoidance items such as sodium). The hierarchy could read as follows:

- Reduce potable/fresh water consumption
- Reduce trade waste volume where possible
- Avoid contaminants in trade waste where possible
- Reduce contaminants in trade waste where possible
- Reduce sodium (through substitution with magnesium etc.)
- Reduce other salts
- Reduce heavy metals

By using this hierarchy, projects with conflicting objectives can be assessed using a net-benefits / greater good (for example, a water reduction project that increases salt concentration may still be a worthy project).

Recommendation:

Adopt the Australian Productivity Commission's view that implementation of the Waste Hierarchy should be on the basis of cost and benefits rather than technical feasibility alone.

Establish a hierarchy for trade waste actions and strategies so that priorities and linked economic values may be attributed in tariffs and acceptance parameters. This way projects with conflicting objectives can be assessed for the greater good according to the hierarchy. For example, a water reduction project that increases salt concentration remains a worthy project.

4.4. Western Treatment Plant

Currently, the Western Treatment Plant (WTP) is treating and utilising industrial effluent well. There could be increased beneficial and sustainable irrigation of the Werribee Farm.

WTP is currently a saltwater outfall, and works well for salt-intensive industry, sited in the west metropolitan for that very purpose. Industry with high salt discharge has been able to operate without detrimental environmental or social impact until now. However the Issues Paper signals an intention to shift management objectives, and suddenly these same salty discharges are viewed as bad and Industry is expected to change their practices to suit the new objectives. This is unfair and unrealistic. It is reasonable to expect that some plants can reduce their salt load to carrying degrees, and some may even go close to eliminating, but it may be impossible for others to make a noticeable change due to the nature of their processes, etc.

High TDS industries have been encouraged to locate in Western suburbs because of the capability of Western Treatment Plant to utilise high TDS effluent. It is not economic for industry to reduce TDS to levels required by market gardeners. Even with the resultant industry closures TDS levels will still be too high for market gardeners.

Before imposing requirements on industry to reduce TDS, sewer infiltration must be addressed. (See Table 6, page 20 of the discussion paper). The TDS measure which encompasses 'Salinity' is a confusing measure because it is influenced by a wide range of parameters including some which are beneficial to the treatment process. For instance, the measure is influenced by the presence of salts including dissolved chloride, sulphate, phosphate, carbonate, bicarbonate, sodium, calcium, magnesium, potassium, nitrogen and not just sodium chloride. Many salts are beneficial and are added to soils as fertilisers. Problem salts need to be identified; often the main problem is sodium. In the USA, Israel, Egypt, Tunisia and India, saline waters have been successfully used for irrigation for many years with good knowledge of the water components, the crop requirements and the soils irrigated.

Total dissolved salts in irrigation water causes high osmotic pressure which results in reduced water availability and can retard plant growth of crops which are not salt tolerant. In addition, high concentrations of sodium ions in irrigation water can adversely affect soil structure by causing dispersion of clay. The presence of calcium and magnesium ions in effluent ameliorates this effect by stabilising the soils. The sodium hazard of water is expressed as its Sodium Adsorption Ratio (SAR).

Industry has been discharging high loadings of salt to the WTP for many years. The grass irrigation system can obviously tolerate high levels of salt and saline ground water goes to the bay. An environmental argument can be put that it is more ecologically sustainable to discharge saline rather than fresh water to the bay.

Industry is not the only source of salt – more than half comes from commercial and domestic sources and from infiltration from groundwater sources. If industrial trade waste discharge was to suddenly cease altogether it is doubtful that the treated effluent at WTP would attain the desired salt levels without further treatment. It would appear that the salt load at WTP would still be too high and it must therefore be acknowledged that Industry is not the solely responsible for prevention of effluent re-use. Equal efforts must be made elsewhere to reduce salt inputs. Even then, it is doubtful that we can realistically expect to achieve re-use without salt removal treatment.

It is important that problem salts are identified to assist in the discussion about 'salt' or TDS reduction. Clearly some salts are actually beneficial to soils, while others, such as sodium, may prevent beneficial re-use. The Review's recommendations should be very specific about the actual requirements for re-use of the water. Is there a specific quality target we are striving for? Can we achieve this through partial reduction and substitution? Hence, reduction objectives, and subsequent price 'incentives' should be specific to the harmful materials that are preventing re-use, not just all TDS.

It would seem that a net-benefit approach would favour the use of a separate collection and treatment system for a small number of very high salt producers in the Laverton/Altona area. This system would collect separately and pump to the nearby City West Water Treatment Plant at Altona for saline discharge to the Bay, thereby avoiding the WTP.

Recommendation:

The Government consider a separate collection and treatment system for a small number of very high salt producing sites currently located in the Laverton/Altona area. Collection of their high-salt discharges should be collected separately and pumped to the nearby City West Water Treatment Plant with bay discharge in order to reduce the salt load to the Western Treatment Plant at Werribee. This offers environmental and practical advantages.

The licence and limit-setting process for the sewage treatment facilities and outfalls should be developed through a Regulatory Impact Assessment (RIS) process to ensure that the environment is protected against damage and that the assimilative capacity of the environment is also used effectively. Decisions should be exposed to VCEC (Victorian Competition and Efficiency Committee) scrutiny to ensure transparency. Industry believes the EPA's more recent approach that emphasizes cleaner production among industry end-customers is a positive move.

4.5. Conflict between water conservation and contravention of discharge agreements

Conflicts have emerged for companies between conservation of water and acceptance parameters in their Trade Waste Agreement.

Variations to industrial processes that have been implemented over time to improve water conservation have sometimes resulted in higher concentrations within discharge parameters. Contravention Notices and substantial penalties are the result, along with additional re-sampling and analysis fees that are needed to normalise the Agreement

There is a need to balance the charges for volume and concentration loads in Agreements and fee schedules. It is also important to recognise that variations to the Agreements at individual sites are inevitable.

The conflicts that exist in trade waste management activities need to be acknowledged so that suitable pricing can be established and 'paying twice' is prevented.

We have seen that imperatives to conserve water and reduce impacts of saline discharges create a conflict, at least in the short term. Measures such as financial incentives, and indefinite deferment of penalties if companies allocate capital expenditure to reducing effluent loads, should be considered by the relevant water authorities.

Recommendations:

The charges for volume and concentration loads in Trade Waste Agreements and fee schedules must be balanced.

The Review should analyse trade waste tariffs where constituent parameters may overlap into other charges to prevent "double payment" scenarios.

4.5.1. pH Discharge Limits

Trade Waste Agreements sometimes include conflicting actions or outcomes with competing environmental objectives which need to be considered in the Review. For example a requirement for a more stringent pH band for discharges may result in a greater salt load to the sewer system in order to achieve the acceptance requirements. There are a number of scenarios where variations to a single parameter will cause changes to a number of other parameters and associated charges.

To comply with the current pH discharge limits, large amounts of acid and alkali are being added to trade waste effluents before discharge and this is significantly increasing TDS, mostly as sodium salts, in the sewers.

Industry may be able to reduce some salt discharge if more information was made available and if some regulations were changed. The main problem in a sewer is acidity, with release of hazardous hydrogen sulphide and degradation of the sewer. Alkalinity protects the sewer from degradation. Many effluents are alkaline, and tannery effluents are often highly alkaline. In America, the industry has successfully lobbied against any upper pH limit on the effluent discharge. This protects the sewer, reduces salt discharge and reduces costs.

Recommendation:

Water businesses must explore alternative strategies for management of pH within industrial processes in order to reduce the production of residual salts from neutralisation actions (see also 5.3).

4.6. Acknowledge previous investment and actions by end-customer

Allowance should be made for an end user's prior investment and achievements in water conservation, water re-use, reduction in discharges, stormwater re-use, salinity reduction etc.

Many trade waste customers have major concerns that their previous investments and performance record is not acknowledged in their future trade waste pricing schedule.

Many companies believe their production facilities are already operating at near optimum conditions in terms of water efficiency and fear that they will be penalised if unable to respond through the Review's price determination. Some companies would like to see the introduction of production-related figure that includes recent consumption data at the site, along with water consumption per unit of production. Perhaps this could be achieved through acknowledgement and adjustment in the risk profile calculation in the respective Trade Waste Agreement.

Recommendations:

The Review should implement a trade waste pricing structure that recognises/rewards a high volume customer's ability to meet best practice water

efficiency rates with their existing technology (to acknowledge prior achievements, performance and investment in water saving and improvements to discharge parameters).

A credit mechanism needs to be established to acknowledge and reward achievements in water conservation in industry and other sectors.

4.7. Introduction of load-based tariffs

Increasing prices will encourage reduction in water usage to some degree especially for large water users where the total costs are already high. However this can only go so far until technological or practical limitations are reached. At this point, higher prices for water or TDS charges merely become a penalty for those who have already done all they can to minimize their impact.

Voluntary reductions in water usage at industry sites have already caused technical problems and dilemmas for industry in relation to tradewaste management.

Lower water consumption can mean higher concentrations in the effluent stream (not in total mass per day) and industry is already starting to breach discharge limits in tradewaste agreements. This can result in higher charges and contravention fees even though the improvements were undertaken on a voluntary basis. Feedback at recent industry workshops confirmed this occurs frequently.

The introduction of a suitable trading mechanism that recognizes water conservation /reduction in potable water use could facilitate the rate of change and participation through market mechanisms rather than regulatory intervention.

Recommendation:

Introduce load-based tariffs for trade waste discharge instead of concentration-based regulations.

Provide a suitable trading mechanism to recognise and provide a market-based mechanism for water conservation.

4.8. Incentive for water businesses to encourage cleaner production

The Review should ensure that incentives are available for water businesses to involve end-users in cleaner production activities to reduce impacts of trade waste discharges.

Trade waste tariffs should not be a barrier to the introduction of cleaner production projects because they reduce income to water businesses.

Similarly the costs of cleaner production implementation should not be a regulatory pass-through and risk for trade waste customers to manage alone.

Revenue to water businesses that is forgone due to cleaner production should be provided from suitable government funding arrangements because the wider community is the beneficiary of changes achieved.

Recommendation:

The Review should ensure that incentives are available for water businesses to involve end-users in cleaner production activities to reduce impacts of trade waste discharges.

4.9. 'Recommended Maximum Price' to encourage conservation initiatives

Some trade waste customers believe Trade Waste charges should be promoted as "recommended maximum prices" and that provisions be made to encourage water authorities to negotiate individual supply arrangements that fit within pricing guidelines (in order to promote incentives to encourage outcomes that may benefit the environment and improve performance).

Feedback to Ai Group from electricity end-users in industry confirms the importance of this issue. Customers have confirmed that electricity distribution network tariffs were rarely ever negotiated between customers and the distributor/network service provider (even though there was an expectation by the ESC that this would occur in a competitive market environment). In practice this meant that power distributors' income was higher than anticipated. It also meant that arrangements to accommodate variations at sites, including cleaner production implications were not available.

The Review should ensure that the regulated trade waste tariffs are not used as a mechanism to prevent innovation in order to preserve an income stream to the particular agency concerned.

The Review should ensure there is a process to handle applications for tariff variations and that these are resolved within a suitable time period.

Loss of revenue to water business through water conservation initiatives at its customer sites should be recognised through suitable adjustments by the ESC to revenue calculations and corresponding dividends from a suitable source (ie. Sustainability Fund, Environmental Contribution fund or other financial instrument. Perhaps this could be added to the performance indicators used by ESC in the regular evaluation of the competition-by-comparison of Victoria's water businesses.

Recommendation:

The Review should ensure that tariffs are Recommended Maximum Prices and that water businesses are expected to negotiate prices and charges that deliver the best environmental outcomes within a pricing framework.

Provide a process to handle applications for tariff variations and to resolve within a suitable time period

4.10. Recycled water

A key objective of the current Review, although secondary to the objective of reducing water usage, must be to ensure that the price of recycled water for industry is attractive ie. cheaper than potable water to encourage conversion of equipment to utilise recycled water and also to recognise the increased risk to the user.

Also the Review should ensure that the full cost recovery of recycled water is shared across the entire customer base (ie. the whole community benefits when there is substitution of potable water).

The Review also needs to recognise that on-site costs to modify piping and equipment to receive alternative water supply may also be substantial. In addition it could also involve duplication of the supply system to ensure the site can switch back to potable water if problems arise. Some financial assistance may be required from water authorities or the Government to assist with implementation and innovative approaches such as funding by the respective water authority of necessary new infrastructure through on-invoice offsets of savings from the use of recycled water would be welcomed by industry. For example, the company is charged for water at the old rate until the cost of the infrastructure is paid off and thus does not incur increased costs to use recycled water, but has the savings applied to pay off the investment.

Recommendation:

Ensure there are re-use opportunities for treated effluent, whether from centralised water industry treatment plants, or appropriate quality water direct from industry.

4.11. Community education – wider awareness of environmental impacts

The Review needs to acknowledge that non-industrial sources are major contributors of effluent to sewer systems and consequent environmental problems. For example the discharge of mercury-based material from dentist facilities should be managed through Trade Waste Agreements (and currently are not). This needs to be reflected in the pricing structures and related Government policies across the State. We fear that the salt reduction and water conservation targets expected from industry alone will not achieve the desired outcomes.

It is clear that residential and commercial inputs are also significant generators of salts, oils, fats, metals, ammonia and volume of effluent. Consequently the Government via water authorities should initiate awareness campaigns to promote greater awareness in the community.

Domestic effluent from dishwashers and washing machines produce elevated levels of alkali and salt-based residues (high TDS), high Sodium Absorption Ratios (SAR) and high temperature discharges (above 60C degrees) that would not be permitted within a trade waste agreement for a business. Water authorities should provide guidance to the community about favouring the use of low-salt/liquid detergents, non-copper based toilet cleaners as well as safe disposal of oils, paints, solvents and

unwanted medicines, avoiding the disposal of organic matter to drains and favouring unbleached, non-perfumed and non-printed toilet papers.

Messages should be placed on websites and bills to customers.

Also there is a need to ensure there are re-use opportunities for treated effluent, whether from centralised water industry treatment plants, or appropriate quality water direct from industry.

Recommendation:

Recognise that non-industrial sources are major contributors of salts, oils, fats, metals, ammonia to the effluent treatment system.

Provide guidance to the wider community about reducing impacts on the effluent treatment system.

Ensure that significant discharge sources of metals (ie mercury/amalgam from dentist surgeries and salts (cooling towers) are managed via Trade Waste Agreements.

4.12. Unanticipated impacts of higher charges

If water prices go up, then the cost of manufactured items and services will be passed on to consumers unless there are financial instruments that neutralise the price increase for example, by making it financially feasible for companies to invest in technologies that result in cost savings associated with water efficiency measures.

The ripple effect of increased prices needs to be understood. For example one of the unintended consequences of higher charges to customers using commercial launderers may be increased usage of single-use, disposable operating theatre coverings and uniforms that would be destined to Prescribed Industrial Waste landfill disposal facilities after use.

In most instances, higher costs would need to be internalised.

Recommendation:

The Review must recognise the potential flaw in the view that costs of removing contaminants can be recovered from the source/generator. If the cost of removal makes sectors uncompetitive, then the flow-on costs of job losses may mean that society has to share the cost.

Financial instruments that support water efficiency measures should be considered.

4.13. Partnering approach with industry rather than prescriptive

Feedback from some companies in industry has emphasized that a prescriptive, compliance driven approach to trade waste management by some agencies and water businesses could undermine the viability of some water-intensive sectors of

industry. Ironically targets for reductions in use of potable water might be achieved because of the unintended closure of manufacturing plants with corresponding job losses.

The Review must ensure that a consultative approach to trade waste management is encouraged and developed. It is imperative that end-users are engaged and consulted and any decisions made in relation to water pricing or licence variations are made in full knowledge of the consequences of such decisions.

We believe there are a number of approaches that should be considered: An Environmental Code of Practice for Manufacturers that includes provisions for reducing impacts of trade waste discharges (an item that Ai Group is currently preparing); Discounts on trade waste costs to fund technological upgrades at sites; and, Consideration by the Federal Government of the embedded environmental damage in low cost imported products

Recommendations:

Implement a framework with a genuine triple bottom line approach to sustainability which connects with emerging water management strategies in Victoria.

Use a collaborative approach with industry to achieve sustainable outcomes rather than a prescriptive path. Outcomes of cleaner production projects provide evidence of the benefits of this approach. Ai Group favours the use of a Sustainability Covenant or Code of Practice with water-intensive manufacturers to achieve reductions in trade waste impacts (Ai Group is in the process of developing these mechanisms).

Expand EPA's scope of regulation to include triple bottom line (TBL) assessments. Currently there is no TBL regulator. This will assist in determination of 'Beneficial re-uses' of water.

5. Need to differentiate TDS charges based on constituent salts

Companies point out that there are two separate and important issues to consider in relation to TDS charges: The need for discrimination between organic and inorganic salts; and also the need for discrimination between different inorganic salts.

5.1. Differentiate between the various Inorganic Salts

It makes sense that if a particular type of inorganic salt causes greater environmental impact than another type of inorganic salt (for instance sodium compared to calcium), then if the "user pays" principle is followed for determining the charging structure, a discharger of sodium salts should pay more than the discharger of primarily calcium salts. The current use of TDS penalises the discharger of the more benign salt and does not encourage the transition away from detrimental salts.

The companies emphasise that the means of measurement of TDS should be dependent on the environmental impact causing TDS to be a parameter of concern. TDS is currently measured on a historical basis, as the total quantity of dissolved solids in the waste water without any differentiation between different types of salts. They point out that the measure was developed for fresh water supplies where organic content is minimal and TDS is a relevant measure of the amount of “salts” present – and that this is not the case for many waste water discharges.

Recommendations:

The Review should ensure that tariffs differentiate between organic and inorganic salt components in the effluent stream. For instance, some specific salts (eg. Sodium) have greater impact than others, so price should reflect this. The organic component should not be included in the TDS charge as it is already measured in the BOD calculation ie. Double charging. The charge should be further broken down to reflect the various components of concern eg. Sodium Absorption Ratio.

The water industry needs to recognise that the reduction of TDS by industrial water users may be a complex and expensive process because salt is inherent in existing processes. Ai Group’s recent trade waste roundtable highlighted that financial support would be critical to achieve this outcome.

5.2. Recognise the benefit of Organic Salts

The potential beneficial impact of organic salts in discharges needs to be considered in the Review (this item is most critical to food and beverage-based industries). Organic compounds from these industries are by their nature primarily biodegradable and no longer exist in the treated water exiting a waste water treatment plant, and the cost of treating these organics has already been paid for through the Biological Oxygen Demand (BOD) charge applied at the time of discharge to sewer.

So for example at a brewing plant the TDS component of the effluent could typically consist of 65% organic, 15% sodium and 20% other inorganics.

These organic compounds do not therefore have an environmental impact beyond the waste water treatment plant and their presence should not be considered as relevant when considering water reuse limitations. Consider the example of sugar (sucrose) dissolved in water. The TDS test will measure the presence of the sugar but after biological treatment in waste water treatment plant, no sugar will remain in the treated water.

As a result the only way to correctly determine the inorganic salt content of waste waters is to measure the “non-volatile total dissolved solids” or Fixed Dissolved Solids”, a test that requires that the sample be heated to high temperature to drive off the organic fraction and only leave the inorganic salts to be measured.

Companies electing to do so should be able to have their Trade Waste Agreements and testing parameters redefined as Fixed Dissolved Solids or sodium content rather than TDS. And also charging structures for Fixed Dissolved Solids or sodium should be the same as for TDS for the purposes of managing the recyclability of reclaimed water.

They argue that the organic-salt components of their trade waste effluents are not a contribution to the post-wastewater treatment plant effluent (recyclable water) and that therefore they should not pay for this. The organic salts are not detrimental to the treatment process.

Recommendation:

Review the measurement of TDS as the measure of salt load, and consider the separate measurement of organic and inorganic load.

The Review should then provide the option for companies to include Fixed Dissolved Solids or sodium content (rather than TDS) in their trade waste agreement. Also charging structures for Fixed Dissolved Solids or sodium should be the same as for TDS for the purposes of managing the recyclability of reclaimed water. The charge should reflect the various components of concern eg sodium absorption ratio.

5.3. Area agreements

The Review should encourage water businesses to adopt area-based agreements with trade waste dischargers where the combined effluent streams have a complementary outcome (in preference to individual treatment).

For instance a water business might recognise that the alkaline discharge from one factory will neutralise the acidic discharge from a nearby factory feeding to a common sewer trunk. This “waste exchange” would be preferable to individual companies adding buffer substances that result in salts that in turn need to be removed to enable water recycling.

A number of scenarios exist for area agreements for discharge arrangements. The Review should ensure that tariff arrangements which can accommodate these innovative arrangements to achieve beneficial outcomes are implemented. It is important that the tariff structures do not inhibit these cooperative approaches.

Area arrangements could be developed under a Sustainability Covenant entered into by water businesses along with participating companies on a voluntary basis, as opposed to a prescriptive approach to trade waste management.

Recommendation:

Mechanisms such as Area Agreements need to be promoted to enable the management of complementary trade waste discharges instead of individual treatment responses.

5.4. Industry consultation

Ai Group acknowledges the proactive approach that the Review has adopted to consultation on this issue including discussions at Ai Group’s Sustainable Trade Waste Roundtables during 2004 and 2005 and various discussions with Ai Group’s Environment Working Group in recent years.

Ai Group emphasises the importance of ongoing consultation with industry to ensure input from the various water-intensive manufacturing sectors.

Ai Group is keen to assist the Review to ensure there is effective and practical consultation with industry on an ongoing basis.

Recommendation:

Establish effective end-customer engagement in the on-going management framework for Victoria through an Industry Reference Group that can provide feedback from metropolitan and regional customers in industry.

5.5. Desalination

While the Issues Paper (page 50) considers the use of desalination for water treatment, it is essential that the Review recognises the potential costs, related greenhouse emissions and residual waste issues associated with the technology.

It is important that the Review considers the cost implications for end-users in relation to equipment that is installed at treatment plants or at industrial sites, and in terms of the overall environmental outcomes.

Answers to the following questions are needed before the options can be implemented:

- What will be done with the concentrated salt stream that is generated from the process?
- What is the greenhouse intensity of the energy source to drive the desalination process?
- Will the process accept low-flow high-salt discharge from a customer's reverse osmosis plant?
- Which is the greater good, a reduction in water consumption or improved effluent quality for recycling? (ie. The treatment system will deliver an effluent stream where the total salt mass load is lower than the previous high-volume effluent stream, but the overall concentration will be higher)
- Centralised facilities or on-site treatment? (see following)

There may be opportunities for matching the desalination facilities with "green energy" production in order to offset greenhouse gas emissions.

Recommendation:

Use triple bottom line analysis to evaluate the benefits of using desalination options in terms of the various potential impacts and costs.

Mitigate energy-intensity of desalination with green energy offsets.

5.6. Centralised treatment compared to on-site treatment

The Review needs to recognise and differentiate the circumstances where centralised water treatment (for example, for salt removal) may be more appropriate and cost-effective than individual, on-site facilities. Industry is keen to see an analysis of costs and net benefits as none has been published for discussion so far.

Feedback from member companies indicates that centralised facilities are usually more efficient and more cost-effective. Companies point out that they would prefer that water businesses handle this issue because they are better equipped to manage associated risks, have advantages with accessing capital for investment and purchase of equipment and suitable personnel for ongoing maintenance etc.

In addition the Review needs to recognise that there may be quantities of better quality (for re-use) at certain nodal points in the network. At those places, located nearby to less sensitive, high volume industrial users of recycled water (as compared to Werribee market gardeners producing sensitive food crops). We note that the Review's Issues Paper tends to focus on end-of-pipe sewer mining options at the Waste Water Treatment Plants, and ignores the potential for more suitable options, requiring less treatment for re-use prior to arrival at the Treatment Plants.

Recommendation:

Utilise centralised treatment facilities in order to achieve economies of scale.

5.7. Cleaner production programs – feasibility of program targets

Industry is supportive of cleaner production activities as a way to lower impacts on sewerage treatment facilities. However it is important that the Review and other agencies recognise the following:

The Review must acknowledge that some industrial processes are not adaptable to cleaner production principles – for instance pre-boiler treatment processes result in the concentration of salty residues from tap water.

Consistent with this point are the existing industrial liquid waste treatment facilities that provide an essential service to industry, the water authorities and Victoria's environment. These facilities typically receive high TDS liquid wastes that also contain hazardous contaminants. The waste treaters have to manage the comprehensive and sometimes competing demands of multiple agencies. It would be desirable and effective to work with one single agency responsible for trade waste (eg TWAAC with an extended role).

Some factory sites have already made substantial adjustments to processes and equipment and have achieved best practice within current available technology. The following items need consideration:

- What will be the destination of salty residual materials?
- Will these need to go to the proposed Long Term Containment Facility?
- Salt reduction in industrial processes may be energy intensive – What are the

opportunities for co-generation and other energy options to minimise greenhouse emissions? Is there a financial instrument that can underpin associated costs?

Industry agrees with the cleaner production approach, but needs support to improve operations (both financial and assistance with technology transfer).

Recommendations:

Recognise that some industrial processes are not adaptable to cleaner production processes.

Continue and extend cleaner production initiatives.

Provide resources and technical assistance for technology transfer and implementation of changes at industrial facilities.