Sydney Water's submission for the mid-term review of its Operating Licence

April 2002

About the Submission

Sydney Water Corporation ("Sydney Water") makes this submission for consideration at the mid-term review of its Operating Licence being conducted by the Independent Pricing and Regulatory Tribunal. The submission is designed to assist public understanding about matters raised in the Tribunal's Issues Paper, as well as to generate comment on other issues relevant to Sydney Water's Operating Licence.

Further information

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Executive Summary

Sydney Water believes that the Operating Licence is fulfilling its objectives and does not require amendment before the end-term review of the Operating Licence, which commences in January 2004. Sydney Water's submission addresses the specific issues identified for the mid-term review, along with more general considerations regarding the effectiveness of the Operating Licence and the whole-of-system management of Sydney's water supply.

The Operating Licence is an evolving document that reflects the community's expectations. It captures these expectations by mandating minimum service levels, particularly for drinking water quality, and by ensuring that the water supply is managed cost effectively, to adequately supply the existing and future needs of Sydney. The Operating Licence for Sydney Water now clearly incorporates the outcomes of the Sydney Water (McClellan) Inquiry and the changing role of the Tribunal as the economic regulator of the NSW urban water industry.

A key outcome of the mid-term review will be the further consideration and debate surrounding the role of demand management in securing the future of Sydney's water supply. This issue is a high priority for the Government, in line with its commitment to indefinitely defer the requirement to augment Sydney's water supply and the Healthy Rivers Commission's Georges River-Botany Bay Inquiry, which made key findings about the future management of Sydney's water supply. The Government is to establish a Chief Executive's Taskforce to coordinate its response on the issues raised through these reviews.

The mid-term review will provide a key input to the Government's considerations. As such, Sydney Water's submission summarises its performance to date in meeting the water conservation targets set in its Operating Licence and outlines the issues that underpin the further actions required to meet those targets. The Tribunal will also engage consultants

to assess Sydney Water's demand management program and to assess further actions for meeting the targets. The Tribunal's workshop for the mid-term review will provide a useful opportunity for Sydney Water and its stakeholders to discuss the findings of this research.

The mid-term review of the Sydney Catchment Authority's Operating Licence is being conducted with the Sydney Water review. This review will consider key issues regarding the regulation of Sydney's bulk water supply. Sydney Water's submission incorporates comments on the current regulatory arrangements and strongly argues that options for demand management reform must be considered within the context of the options and constraints facing the drought security and supply options for Sydney's water supply.

Sydney Water's recommendations

In light of the above considerations, Sydney Water does not support a water conservation target for 2014/15 being set through the mid-term review. Rather the Tribunal's findings should be provided as an input to the Government's implementation of the Healthy Rivers Commission report. The setting of a further water conservation target can be undertaken at the end-term review of the Operating Licence in 2004, at which time clearer information will be available on Sydney Water's demand management performance and the options for regulating Sydney's water supply.

In relation to the other matters identified for the mid-term review, Sydney Water makes the following recommendations:

- The aesthetic water quality guideline values of the *Australian Drinking Water Guidelines* (ADWG - 1996) should not be set as standards in the Operating Licence. However, if aesthetic water quality is to be included, then it should specifically exclude disinfectant residuals (chlorine and monochloramine) and only reference those values

determined by NSW Health, as required under clause 6.2.1 of the Operating Licence.

- The requirement for the Annual Drinking Water Quality Improvement Plan should be removed from the Operating Licence, but retained under Sydney Water's Memorandum of Understanding with NSW Health. If the Plan is to remain in the Operating Licence, then NSW Health's annual audit of the Plan (along with the other requirements of Part 6 of the Operating Licence) should constitute the annual operational audit undertaken by the Tribunal.

- The current guidelines for other grades of water, as set out in section 2.5 of this submission, should be referenced in the Operating Licence at the end-term review. Minimum standards should not be set for other grades of water, with any further specification of compliance to focus on the system management/quality assurance requirements of the relevant guidelines.

This submission also makes comments on future reform of the Operating Licence in relation to environmental management and reporting and the Customer Councils. In particular, the submission highlights the need for further reform to Sydney Water's environmental management and reporting requirements to streamline public reporting on environmental performance and ensure that Sydney Water's relevant actions focus on environmental improvement rather than licence compliance.

Sydney Water looks forward to working with its stakeholders on these matters through the mid-term review and over the next two years in the lead up to the end-term review.

1 Evolution of Sydney Water's Operating Licence

1.1 Introduction

The Independent Pricing and Regulatory Tribunal ("Tribunal") is considering the Operating Licences of both Sydney Water and the Sydney Catchment Authority (SCA), in a joint mid-term review of the regulation of Sydney's water supply[1], which is jointly managed by Sydney Water and the SCA.

The first part of this submission provides the historical and contemporary context of the Operating Licence and its role within Sydney Water's regulatory framework. Part Two specifically addresses the matters identified by the Tribunal for the mid-term review, as contained in the terms of reference for the mid-term review approved by Sydney Water's Minister, The Hon. Kim Yeadon. The terms of reference for Sydney Water contain matters that are to be considered in the mid-term review, as well as more general matters concerning the effectiveness of the Operating Licence. In combination, these specific and general considerations enable the mid-term review to have a broad reach.

In Part Three, Sydney Water raises broad issues for discussion and input from stakeholders, both for consideration now and in the longer-term in the lead up to the end-term review of Sydney Water's Operating Licence, scheduled to commence on 1 January 2004.

[1] References to Sydney's water supply in this submission include the water delivery systems of the Blue Mountains and the Illawarra, as well as the Sydney metropolitan area.

At the time of writing this submission, the Minister is considering the Tribunal's review of Hunter Water's Operating Licence, which is to be renewed by July 2002. This submission, however, makes reference to the report by Halcrow Management Sciences Ltd ("Halcrow"): *Review of System Performance Standards in Hunter Water Corporation's Operating Licence*. The Tribunal's Issues Paper separately notes that a report from the 2001 Operational Audit of Sydney Water is likely to be available on the Tribunal's website in April 2002. This submission draws on draft audit findings where they are able to shed light on the matters being discussed.

The submission draws on the achievements and experiences of Sydney Water relevant to the matters under consideration. Based on this experience, Sydney Water makes a range of suggestions for improvements both to the Operating Licence and to the broader regulatory framework.

1.2 Evolution of Sydney Water's Operating Licence

Sydney Water operates in a complex regulatory environment, with multiple regulators responsible for different aspects of its functions. As a simple outline, the following regulators of Sydney Water's operations have a primary interest in the outcomes achieved by Sydney Water. They act to regulate Sydney Water's activities over and above normal business regulations, such as under occupational health and safety legislation. This is in addition to the regulation of Government trading enterprises in New South Wales (NSW).

- **Independent Pricing and Regulatory Tribunal (IPART)** – responsible for setting Operating Licence conditions, making price determinations and assessing Sydney Water's performance against the Operating Licence;

- **NSW Health** – primarily responsible for setting drinking water quality standards, ensuring robust systems are maintained and ensuring public health is protected;

- **NSW Environment Protection Authority (EPA)** – Sydney Water's main environmental regulator, responsible for regulating Sydney Water's impact on the environment, through the Environment Protection Licences under the *Protection of the Environment Operations Act 1997* (POEO Act);

- **Department of Land and Water Conservation (DLWC)** – responsible for ensuring the sustainable management, use and restoration of land, groundwater, coastal areas, rivers and vegetation. The regulation of the drinking water supply now primarily focuses on the SCA, though the Department also licenses Sydney Water's activities at North Richmond Water Filtration Plant (WFP), Manly Dam and Botany Wetlands (note: Sydney Water only extracts water from the Hawkesbury River at the North Richmond WFP and not at Manly Dam nor Botany wetlands);

- **NSW Treasury** – responsible for Sydney Water's financial performance, as the agent for Sydney Water's shareholders; and

- **planningNSW** – responsible for environmental planning and assessment in NSW, assesses Sydney Water's proposed capital works developments, and works in conjunction with Sydney Water on the implementation of the Government's plans for broader urban development.

1.3 Sydney Water's first Operating Licence 1995-1999

The first Operating Licence was introduced in 1995 as part of the process of reform that changed Sydney Water from a statutory authority, the Water Board, to a State-Owned Corporation that is 100% owned by the NSW Government. The purpose of these reforms was to enable Sydney Water to focus on service delivery, based on clear commercial, public health and environmental objectives and to remove any conflict in having Sydney Water also responsible for regulating its own systems. The Parliament envisaged the role of the Operating Licence as setting basic operating standards that define the minimum level of service that customers could expect, so that customer needs would become a more prominent driver of Sydney Water's performance.

Sydney Water drafted its first Operating Licence with significant input from stakeholders. It included the same core standards set in Hunter Water's Operating Licence in 1992, namely compliance with the *Australian Drinking Water Guidelines* (ADWG – 1996), and with system performance standards for water pressure, water continuity and sewage overflow. These remain the basic protections provided for under the Operating Licence.

However, unlike the Hunter Water Operating Licence, which set a water reliability standard, Sydney Water's first Operating Licence included water conservation targets, which set the per capita reductions in water drawn from all storages that Sydney Water had to achieve up to 2010/11. These targets reflected stakeholder expectations that Sydney Water manage the water supply to accommodate population growth and the development of a future environmental flow regime for the Hawkesbury Nepean River without the need for supply augmentation, such as the construction of another major dam. The first Operating Licence also required Sydney Water to

report on its achievements in meeting the objectives set in its Environment Plan and Demand Management Strategy, reflecting community expectations that the corporatisation process would not jeopardise environmental improvement and conservation of Sydney's water resources.

In 1998, the Sydney Water (McClellan) Inquiry found that Sydney Water's Operating Licence was an inadequate regulatory instrument, that also needed to recognise both the establishment of the SCA to manage and protect Sydney's drinking water catchments, and NSW Health as the sole regulator of drinking water quality.

In 1999, the Tribunal was asked by the Government to review Sydney Water's Operating Licence in light of the findings of the Sydney Water (McClellan) Inquiry. Key issues identified included the following:

- many of the requirements of the Operating Licence were not sufficiently specific, with Sydney Water only required to report on progress in implementing objectives rather than to meet deadlines;
- the Operating Licence did not adequately cover the public health regulation of Sydney Water, making it difficult for the Licence Regulator to fully assess Sydney Water's performance on an annual basis; and
- Sydney Water's memoranda of understanding with its key regulators had an unclear role in the Operating Licence context.

1.4 Sydney Water's current Operating Licence 2000-2005

At the time of establishing the new Operating Licence for Sydney Water, the Tribunal also developed the SCA's Operating Licence. That review established appropriate arrangements for managing and protecting the

catchments, in line with the requirements of the *Sydney Water Catchment Management Act 1998* and the *Sydney Water Act 1994.*

The overall regulatory framework established by the Tribunal, through the 2000-2005 operating licences of the SCA and Sydney Water, aimed to improve drinking water quality through greater protection of the catchments and to articulate responsibility across the new separated management of the drinking water supply. One of the difficulties in setting these arrangements was determining what accountabilities to place on the SCA as the bulk water supplier of Sydney Water.

The planning and delivery of bulk water is central to effective management of a drinking water supply. However, it is the quality and reliability of water, as provided to customers that determines customer satisfaction with these services. Sydney Water has the sole interface with customers. This has posed challenges for the Tribunal in ensuring that regulation of the water system is focused on outputs and performance, that it is meaningful and transparent to customers, and that the measures introduced are within the control of the regulated agency. The whole-of-system regulation of Sydney's water supply is discussed further in Part Two and Part Three of this submission.

Other important improvements made to Sydney Water's Operating Licence when it was reviewed in 1999 are outlined in Appendix A.

1.5 Review of the system performance standards and Customer Contract

The Tribunal incorporated provisions in Sydney Water's current Operating Licence to review Sydney Water's system performance standards and Customer Contract within twelve months of the commencement of the

Licence. These reviews, which canvassed all stakeholders, occurred throughout 2001. Summaries of the main outcomes for the system performance standards and Customer Contract follow.

System performance standards review

The review of Sydney Water's system performance standards resulted in the retention of standards for water pressure, water continuity and sewage overflows, confirming these as core requirements of the Operating Licence.

The review confirmed that, in the first instance, performance standards should be set to reflect historical levels of system performance, with increases in targets only undertaken on the basis of customers' desire for increased service levels (willingness to pay). Performance indicators were introduced to provide the Tribunal with data on Sydney Water's performance around those areas where standards are set. The Tribunal also recommended that Sydney Water and the SCA work together to develop appropriate measures of water reliability (i.e., the security of supply in a drought event) for further consideration at the end-term review of Sydney Water's Operating Licence.

The standards review raised interesting questions about the appropriateness of setting standards in other areas, such as stormwater flooding, customer service, environmental investment and asset management. As with water reliability, Sydney Water will work with key stakeholders on these areas in the lead up to the end-term review in 2004.

Customer Contract review

The Tribunal's review of the Customer Contract in 2001 confirmed that the Customer Contract is the regulatory instrument through which the

operating standards and other obligations contained in the Operating Licence are translated into undertakings to individual customers.

In addition to making these undertakings more transparent, Sydney Water's Customer Contract now:

- sets out Sydney Water's practices and procedure on debt and disconnection;
- makes explicit the options for redress available to customers and provides rebates where minimum service levels are not met;
- clarifies the rights of customers with complaints about the delivery of Sydney Water's services;
- includes new provisions for customers who experience financial hardship or have special needs; and
- more clearly defines ownership and responsibility for maintaining water and sewerage assets.

1.6 Changes to key legislation affecting the Operating Licence

IPART Amendment Act 2000

In November 2000, the Tribunal officially became the Licence Regulator for the New South Wales urban water sector. This brought together the Tribunal's price determination powers with the role of both recommending and auditing the terms of the Operating Licence. In doing so, the Tribunal has retained and enhanced its role for ensuring that stakeholders' views guide the evaluation of Sydney Water's operating requirements.

One of the key benefits of closer alignment of pricing and licensing regulation is that it better enables stakeholders to understand the trade-offs inherent in the cost of possible different levels of service provided by Sydney Water. Realising these benefits will depend on how the Tribunal's powers as price and licence regulator can work together and how it wants to use these powers to effectively regulate the urban water industry.

At the time of writing this submission, the Tribunal's review of Hunter Water's Operating Licence was not finalised. However, the Hunter Water Operating Licence review has provided the Tribunal with an opportunity to consider further aligning its price and licence powers.

The Tribunal commissioned Halcrow to report on Hunter Water's system performance standards, as part of the review of their Operating Licence. Some of the recommendations from the Halcrow report, if adopted by the Tribunal, have important ramifications for Sydney Water's regulatory framework. A brief analysis of that report is set out at Appendix B.

Protection of the Environment Operations Act 1997

In July 1999, the *Protection of the Environment Operations Act 1997* (POEO Act) was introduced, giving the EPA powers to licence and regulate all pollution from scheduled activities and premises, including Sydney Water's sewage treatment systems. Prior to the POEO Act, only discharges from Sydney Water's sewage treatment plants (STPs) were licensed under the *Clean Waters Act 1970*.

The EPA has issued 31 environment protection licences to Sydney Water. Twenty-seven (27) of these licences regulate discharges from Sydney Water's sewage treatment systems, two license the Cascade and North Richmond water filtration plants and two license the application of herbicide spraying at Botany Wetlands and Rouse Hill.

Each licence has two main sections:

- the licence conditions, which set down the type and amount of pollution discharges permitted from the system and describe how the system will be managed and monitored at identified points, and how information will be reported to the EPA; and
- the pollution reduction programs (PRPs), which set down pollution reduction targets (PRTs) for each system and a program of specified works and activities designed to improve environmental performance.

The 27 new sewage treatment system licences have greatly enhanced the understanding of Sydney Water and the EPA about the performance of the sewerage systems from both an environmental and customer service perspective. The licence requirements have resulted in Sydney Water developing sewerage trunk drainage computer models to produce detailed localised sewerage catchment asset management plans. These plans will allow Sydney Water and the EPA to prioritise sewerage system enhancements into the future and assist in compliance reporting against the licence requirements. One of the immediate benefits of these reporting requirements is that Sydney Water now posts details of all dry and wet weather overflows reaching waterways on its website. This provides customers with information in a timely manner, which they can use in determining the location and timing of their aquatic recreational activities.

Sydney Water has also developed and independently verified its Sewerage Reticulation Operations and Maintenance Manual, which outlines the current and future improvements to the operational management of Sydney Water's sewerage systems. The independent audit (undertaken by the East Bay Municipal Utilities District Team – an EPA approved expert from San Francisco, USA) confirmed that full implementation of this Plan

will result in continuous improvement in sewerage system environmental performance.

Between July 2000 and December 2001, Sydney Water has delivered the following PRPs in accordance with the sewage treatment system licences:

- finalisation of 23 planning reports for the sewage treatment systems;
- rehabilitation of 39 sewerage reticulation sub-catchments; and
- upgrading of 35 sewage pumping stations to meet a 'no dry weather overflow' criterion.

A further 23 sewerage reticulation sub-catchments will be rehabilitated and another 60 sewage pumping stations will be upgraded by 30 June 2002.

The requirements to meet environmental standards will constitute approximately 50% of Sydney Water's capital works program over the next three years. The Strategic Liaison Group, convened under the Memorandum of Understanding (MOU) with EPA, has agreed that the EPA will consult with Sydney Water on its five-year capital works program, to help ensure that it reflects the Government's environmental objectives. This will help ensure that the full cost of delivering an acceptable level of environmental performance is reflected in Sydney Water's pricing strategy and through the price path set by the Tribunal for Sydney Water's services.

Water Management Act 2000

The *Water Management Act 2000* commenced on 1 January 2001. It introduced a scheme for the management, allocation and use of water resources in NSW.

The *Water Management Act 2000* provides for the establishment of water management committees to prepare water management plans. It also

creates obligations to hold an access licence to take water and hold an approval to use water, to construct and use water management works and to conduct controlled activities or interfere with aquifers.

The most significant impact for Sydney Water will be under the licensing and approval provisions, which are anticipated to commence in late 2002. The SCA has been issued with a water management licence, which authorises the amount of water available for drinking water purposes and how it can be taken for these purposes.

The Government has established the Hawkesbury Nepean River Management Forum (Forum) to make recommendations to the Ministers for Land and Water Conservation and the Environment on the application of environmental flows downstream of the SCA's dams.

The Chief Executive Officers' (CEOs') Taskforce, which is to consider the broader issues surrounding Sydney's long-term water needs, will participate in determining the environmental flow requirements. Once set, these requirements will be reflected in the SCA's water management licence. This issue is discussed further in Section 3.2 of this submission.

Membership of the Forum and CEOs' Taskforce will allow Sydney Water to participate in setting the extraction and use conditions for Sydney's water supply, as required by the *Water Management Act 2000*.

Together, the *Water Management Act 2000* and POEO Act provide comprehensive environmental legislation backed by licensing regimes that involve scrutiny of performance, penalties for non-compliance (even loss of licence) and appeal mechanisms.

The Operating Licence should not duplicate or cut across the environmental licensing regimes now in place or being developed. Ideally, the Tribunal should call on the EPA and DLWC to report on Sydney

Water's performance against its environmental requirements, rather than replicating or auditing these requirements as part of the annual audit of the Operating Licence.

2 Specific Matters under Review

2.1 Introduction

Part Two of this submission responds to the specific matters contained in the Minister's terms of reference for the Sydney Water mid-term review and the Tribunal's Issues Paper.

2.2 Meeting Operating Licence objectives

The terms of reference for this review require the Tribunal to review whether the licence is fulfilling its objectives.

The objective of the Operating Licence is to allow Sydney Water to lawfully provide water, sewerage and stormwater services to the Sydney metropolitan area.

Sydney Water serves a population of some four million people. It provides water and wastewater services to about 1.6 million properties (less for sewerage services). This includes providing 50,000 commercial and 26,000 industrial properties with these services. Sydney Water's stormwater services are provided to some one million people or 430,000 properties.

The services provided under the Operating Licence are large reticulated services. For its water services, Sydney is supplied by 20,500 kilometres of watermains, 267 service reservoirs and 143 pumping stations, through 10 water filtration plants. For its sewerage services, Sydney is supplied by 28 sewerage systems, 10 draining to coastal STPs and 18 to inland sewage treatment plants. In total, there are 30 STPs, 656 pumping and

ejection stations and 22,400 kilometres of sewers. For its stormwater services, Sydney Water manages 490 kilometres of stormwater drainage channels.

Together, this represents a $14 billion investment by the community in these services. This investment has been made over many years, in response to the changing needs and requirements of Sydney, resulting in a large and heterogenous asset base. The Operating Licence provides key regulatory drivers to ensure that Sydney Water maximises the community's investment in these assets in line with the statutory objectives that define Sydney Water's operations, which are to protect public health, protect the environment and be a successful business. These objectives are equal and must be balanced in Sydney Water's activities and decision making.

In practical terms, these drivers require Sydney Water to:

- ensure cost effectiveness in providing services, including improved valuation of our social and environmental costs and benefits;
- improve service standards in a growing city without using up resources that cannot be reused; and
- improve environmental performance and public health while keeping water services at an affordable level.

A brief assessment of Sydney Water's performance in meeting the objectives of the Licence since January 2000 is provided in Appendix C.

The Operating Licence ensures that Sydney Water's primary objective into the future, including beyond the term of the current licence, is to deliver high quality services at an affordable price to the community. The Operating Licence also acknowledges Sydney Water's stewardship role in preserving the value of the community's investment in the current infrastructure services and maximising returns. The two key

considerations on this matter are whether Sydney Water's customers want to pay for increased levels of quality and reliability of service, and the extent to which Sydney Water can achieve greater efficiencies in its operations.

However, it is important to recognise that the Operating Licence underpins a conventional approach to providing infrastructure services, which has developed over the last 100 years. This approach assumes an ability to extract the required quantity of water and an ability to treat and discharge water to the environment through reticulated systems. It does not sufficiently cater for other forms of service provision that fall outside of the conventional approach to reticulated services.

Based on Sydney Water's forecasts over the next five to ten years, the community's understanding of the water cycle will significantly advance, resulting in an increasing move towards sustainable development. There will be higher expectations for ecological sustainability in service provision, with strategies that could radically decrease water consumption. Population growth and urban expansion will impact on the environment in and around Sydney, placing pressure on the waterways and catchment areas that feed the water supply storages on which Sydney relies. Sydney's population will continue to grow strongly, reaching five million by 2021 - 700,000 more people than are currently served. Within this, there is forecast to build 500,000 new homes. Customers will demand improved services and environmental outcomes, with these demands increasingly being location-specific. Technology will also change, creating new opportunities for water conservation, desalination and reuse.

Sydney Water is committed to being a leader in the development and implementation of innovative, sustainable urban water management approaches. It will be responsible for providing a mix of centralised and decentralised services, depending on local needs. It will have to consider

future opportunities and options when making decisions about major capital investment and it will require demand management programs and partnerships that are capable of achieving significant reductions in per capita water use and increased efficiency of water use.

Such a commitment requires a shift in the provision of services from the independent delivery of water, wastewater and stormwater services, to the integrated delivery of total water service solutions. Sydney Water has commenced the process of integrating its water, wastewater and stormwater services in a way that holistically manages systems for freshwater diversions, environmental flows, wastewater flows and urban stormwater, for example in the BHP reuse scheme in Wollongong and the George's River wastewater strategy.

This will pose significant challenges for the Operating Licence as the tool for regulating Sydney Water's monopoly position in providing essential services. It will open up new areas of regulation and require innovative regulatory tools and partnerships with customers to implement solutions.

The view held by Sydney Water is that the form of the Operating Licence is appropriate and should remain unchanged for the balance of the Licence period. However, there are important considerations regarding reform for the Tribunal, stakeholders and Sydney Water to work through in the lead up to the end-term review.

2.3 Compliance with aesthetic drinking water guidelines

The terms of reference for the mid-term review require the Tribunal to report on the independent study commissioned by Sydney Water on the costs and benefits of complying with the aesthetic guideline values of the NHMRC/Agricultural and Resource Management Council of Australia and

New Zealand (ARMCANZ) *Australian Drinking Water Guidelines* (ADWG – 1996).

In June 2001, Sydney Water commissioned an independent study and reported its findings to the Tribunal before 31 January 2002. The major findings from the study are discussed below, along with Sydney Water's suggestions on an appropriate response to the findings. Copies of Sydney Water's report to the Tribunal and the independent study are on Sydney Water's website at www.sydneywater.com.au.

Aesthetic water quality mainly relates to the taste, appearance, odour and feel characteristics that define 'good water' in the minds of customers. The ADWG provide average numerical values for each of these characteristics that would generally constitute good water for most people, with the intention that these numerical values are used for broad direction only. The subjective nature of people's perceptions about aesthetics means that meeting the guideline values does not necessarily guarantee customer satisfaction or, adversely, that not meeting them would necessarily result in customer dissatisfaction.

The independent study found that all of Sydney Water's 14 water delivery systems consistently meet the guideline values for all but two of the 33 aesthetic characteristics that are routinely monitored. The two characteristics not routinely met are chlorine and monochloramine, depending on the type of secondary disinfection system used in each delivery system. Chlorine and monochloramine are used to disinfect the supply of Sydney Water's drinking water systems.

In accordance with the ADWG, NSW Health and Sydney Water place highest priority on protecting public health before consideration of aesthetic water quality. Health guidelines call for a minimum level of primary disinfectant, for a suitable contact time, to satisfactorily disinfect water and

also to provide an adequate disinfection level throughout the extensive distribution system to guard against re-contamination.

Sydney Water has supported the adoption of selected health-related guideline values as standards in the Operating Licence. Protecting public health is one of Sydney Water's three statutory objectives. In relation to aesthetic water quality, Sydney Water recommends that careful consideration must be given before decisions are made to make guidelines into mandatory standards.

Sydney Water is committed to providing water that is both safe to consume and aesthetically pleasing to its customers. There are an extensive range of assets, programs, people and procedures in place to ensure this outcome. Sydney Water strongly supports and implements the system management principles as set out in the ADWG and required by clause 6.2.2 of the Operating Licence. These principles are being strengthened by the NHMRC in the development of a national framework for managing drinking water quality. Sydney Water has been a supportive player in a pilot program for the national framework.

By following this approach, supplemented by an extensive drinking water quality planning process and International Standards Organisation (ISO) certified quality assurance systems, Sydney Water has achieved outstanding health and aesthetic performance. The annual water quality monitoring program shows that excellent microbiological, chemical, inorganic, and other physical characteristic performance (including turbidity and colour) has been achieved on a reliable, continuous basis (Sydney Water already reports all of its aesthetic water quality monitoring results to NSW Health). Current performance for aesthetic water quality has been achieved without the imposition of mandatory standards for aesthetic water quality characteristics. The only aesthetic parameters identified as not meeting the recommended guideline values are two disinfectant residuals

that Sydney Water has deliberately sought to keep at certain levels to protect public health.

The mid-term review contemplates that ADWG values for aesthetic water quality may be inserted into the Operating Licence as standards of compliance. In the opinion of Sydney Water, embedding aesthetic water quality standards in the Operating Licence has the risk of removing possible focus on holistic systems management, coordinated risk assessment and abatement, effective monitoring, auditing and reporting, and regulatory models that enable flexibility and local variation to meet customer needs. Also, specifically in relation to disinfection, it has the risk of compromising public health outcomes. Sydney Water proposes that systems management is a far more suitable means to ensure good water quality than is the imposition of minimum standards in the Operating Licence.

If the Tribunal decides to include aesthetic water quality in the Operating Licence, they should specifically exclude disinfectant residuals (chlorine and monochloramine) and only reference those values agreed to by NSW Health, as is required by clause 6.2.1 of the Operating Licence.

2.4 Annual Drinking Water Quality Improvement Plan

The terms of reference for the mid-term review require the Tribunal to assess the continued effectiveness of the Annual Drinking Water Quality Improvement Plan ("Improvement Plan") and whether there is a continued need for the plan each year.

Sydney Water welcomes the opportunity to comment on the Improvement Plan in light of its experience in developing and implementing this plan over the period of the current Operating Licence.

Sydney Water's Improvement Plan is approved and assessed in consultation with NSW Health. The Improvement Plan sets out a program of works to address the improvements in drinking water quality systems and operations identified through Sydney Water's monitoring and inspections regime.

The Operating Licence duplicates NSW Health's requirement for an Improvement Plan, as articulated in the MOU, by requiring Sydney Water to produce four drinking water quality planning documents, which are the:

- Five-Year Drinking Water Quality Management Plan (Five-Year Plan);
- Annual Drinking Water Quality Improvement Plan
- Drinking Water Incident Management Plan; and
- Annual Drinking Water Quality Monitoring Plan.

The Improvement Plan goes beyond the Five-Year Plan to look at improvements identified through ongoing monitoring, operations, investigations and customer interaction activities. The Five-Year Plan is set as a long-term planning tool and as such is not sufficiently flexible to accommodate improvements identified through the ongoing activities, other than in a generic way. The Improvement Plan incorporates both the requirements of the Five-Year Plan (on a yearly basis) and improvement activities determined by an evaluation of performance in the previous year.

Sydney Water agrees that the Improvement Plan continues to be both effective and needed, as part of Sydney's broader drinking water quality planning routine. However, duplicating the requirement for the Improvement Plan in the Operating Licence unnecessarily creates an anomaly of it being audited by NSW Health as the primary regulator of drinking water quality, as well as by the Tribunal as Licence Regulator. As such, for the sake of efficiency and to reduce the costs of the regulatory

process, the Improvement Plan should be removed as a requirement of the Operating Licence.

Removing the Improvement Plan from the Operating Licence would not reduce the public's confidence in any way, because it is embedded as a requirement in the MOU with NSW Health. NSW Health monitors and reviews Sydney Water's performance on an ongoing basis through real-time incident reporting, monthly reviews of performance and annual review of performance reports, improvement plans, incident management plans and longer-term strategies. In addition, NSW Health commissions an annual audit of Sydney Water's overall performance, which they use as the basis for input to Sydney Water's Operating Licence audit process.

Further discussion on the role of MOUs, including Sydney Water's view on how to effectively streamline the duplication of Operating Licence requirements, is contained in Section 3.3 of this submission.

If the Drinking Water Quality Improvement Plan is to be retained in the Operating Licence, NSW Health's annual audit should form the basis of the Tribunal's annual audit of Part 6 of the Operating Licence. The requirement should be that the Tribunal's auditors ask NSW Health to report on whether Sydney Water has met its requirements, rather than duplicating this process.

2.5 Other grades of water

The terms of reference for the mid-term review require the Tribunal to identify minimum standards and guidelines to regulate the supply of other grades of water (that is, recycled water).

Sydney Water's Operating Licence requires that it supply recycled water according to the relevant guidelines and requirements prescribed by the

EPA, NSW Health, DLWC, the Department of Agriculture, other relevant agencies and the NSW Recycled Water Coordination Committee (RWCC).

Sydney Water currently complies with the following guidelines for different uses of recycled water:

- NSW EPA guidelines for *The Utilisation of Treated Effluent by Irrigation* - covers recycled water supplied for urban irrigation. Sydney Water currently supplies irrigation water to a council park, the Warwick Farm Race Course, five golf courses, agricultural irrigation at the University of Western Sydney and at a farm in Picton. The monitoring of water quality for these schemes is conducted at the STP that supplies the water, which includes the Picton, Penrith and Richmond STPs.
- NSW RWCC's *NSW Guidelines for Urban and Residential Use of Reclaimed Water* - covers recycled water supplied by Sydney Water in the Rouse Hill Development Area. Monitoring is carried out at both the Rouse Hill STP and in the sewage reticulation system.
- National Water Quality Management Strategy (NWQMS) *Guidelines for Sewerage Systems - Reclaimed Water* and specific requirements of NSW Health - covers use of recycled water in industrial and other applications. Sydney Water currently supplies industrial water to BHP in Wollongong for slag quenching, under written agreement between Sydney Water and BHP.

Residential schemes

The residential scheme at Rouse Hill in Sydney's western suburbs supplies recycled water to a large number of customers under the conditions outlined in clause 6.7.1 of the Operating Licence, which require Sydney

Water to comply with the NSW RWCC's *NSW Guidelines for Urban and Residential Use of Reclaimed Water*. Continuity and pressure specifications under the scheme are the same as for drinking water. The Rouse Hill recycled water price is regulated by the Tribunal.

Trade practices legislation and the Common Law address the safety of consumer products such as recycled water. Under Part VA of the *Trade Practices Act 1974*, strict liability is imposed on manufacturers of goods for personal injury or damage caused to personal goods or domestic property caused by defective goods. Goods are defined as defective if their safety is not such as persons are entitled to expect. This is a higher standard than the requirement for reasonable care under the law of negligence. It is an obligatory standard, based not on the reasonableness of Sydney Water's conduct but on the expectations of consumers (i.e., users of recycled water). It is not possible to discard or contract out of this liability and it is no defence to show that reasonable care has been exercised. Also, generally, compliance with regulatory requirements such as minimum standards is no defence to a product liability claim for the reason that regulatory standards generally represent a minimum and there is nothing stopping a manufacturer from producing goods to a higher standard. Further, under the law of negligence, regulatory approval does not automatically equate with a reasonable standard of care.

As a result, Sydney Water's duty of care to supply recycled water to customers in the Rouse Hill area should primarily depend on providing a recycled water product of a quality that is safe for consumers.

The RWCC set the *NSW Guidelines for Urban and Residential Use of Reclaimed Water*. The RWCC was an advisory group, which included Sydney Water, NSW Health and the EPA. The group operated for 11 years with an original charter to develop the Guidelines and to promote effluent reuse. The RWCC has now been disbanded, which creates

uncertainty about how and when the Guidelines will be updated. However, it is unlikely that the RWCC's Guidelines will need to be updated before the end-term review in 2004 when these arrangements can be reviewed for their ongoing effectiveness.

NSW Health and the EPA have been involved in determining the regulatory arrangements for Rouse Hill. At present, the EPA does not singularly regulate recycled water under the POEO Act. However, Rouse Hill sewage treatment system is licensed, which prescribes the maximum concentration of pollutants that may be lawfully contained in the recycled water supplies at Rouse Hill. The Minister for Health is also empowered under section 9 of the *Public Health Act 1991* to direct a public authority to rectify any adverse consequences caused by the action of a public authority (such as Sydney Water) provided the Minister considers public health to be endangered. NSW Health currently receives Sydney Water's water quality monitoring data for Rouse Hill and requires Sydney Water to ensure that its recycled water scheme has adequate warnings and recommendations regarding use. As a result, Sydney Water has carried out an extensive public education campaign and cross-connection audit of all properties in the area, prior to the scheme being introduced. Rouse Hill has also been integrated into Sydney Water's Drinking Water Quality Management System, which has achieved ISO 9002 accreditation.

The Operating Licence auditors for the 2000/01 operational audit took the key criteria from the RWCC Guidelines and assessed Sydney Water's water quality data at Rouse Hill to determine compliance with clause 6.6 of the Operating Licence. The auditors also assessed Sydney Water's compliance with the RWCC Guideline requirements for appropriate system management, control and monitoring.

Sydney Water supports referencing RWCC Guidelines in the Operating Licence, though it notes that these Guidelines will need to be kept up to

date. This is not anticipated to be required in the medium-term. Also, as discussed elsewhere in this submission, water quality regulation should increasingly focus on the independent audit of quality assurance systems to ensure that water quality is managed to protect public health rather than having to identify and set minimum standards as water quality issues change. Taking this approach will allow Sydney Water to set stretch targets and continuously improve its provision of recycled water services.

Sydney Water proposes that the Operating Licence reference the RWCC Guidelines and that minimum standards should not be set as licence conditions.

Industrial and irrigation schemes

Generally, industrial and irrigation customers negotiate individual supply agreements with Sydney Water that include product specifications for continuity, pressure, quality and price.

For irrigation schemes, recycled water quality parameters meet at least the minimum specified in the EPA Guidelines (*The Utilisation of Treated Effluent by Irrigation*). Environmental and/or public health risks can vary between schemes depending on the location of the site, proximity to the local community, the type of irrigation proposed and the environmental sensitivity of the area. Irrigation schemes are generally not regulated under an EPA licence unless specifically required under the POEO Act. However, the EPA Guidelines do require the establishment of an Environmental Monitoring Plan for the irrigation site.

For industrial schemes, product quality specifications meet at least the minimum specified in the NWQMS Guidelines (*Guidelines for Sewerage Systems - Reclaimed Water*) for a particular industrial use. However, because the quality requirements for individual industrial applications can

be very site specific, supply requirements are negotiated with the customer and endorsement is sought for the proposal from appropriate regulatory authorities such as NSW Health and Workcover.

Similar to residential schemes, the regulatory responsibility for irrigation and industrial schemes is unclear.

The further development of the recycled water market requires Sydney Water to meet the specific requirements of individual customers while managing potential public health, environmental and product liability risks to acceptable levels. The imposition of a uniform standard would limit Sydney Water's ability to do this and adversely impact on its ability to actively pursue options for the reuse of sewage effluent, as required under section 27 of the *Sydney Water Act 1994* and clause 8.3.1 of the Operating Licence.

As with the residential use of recycled water, the auditors for the 2000/01 operational audit assessed Sydney Water's compliance with key criteria in the EPA Guidelines for irrigation use. Sydney Water would support the referencing of the appropriate guidelines for irrigation and industrial use in the Operating Licence. If standards were to be set, they should require compliance with the quality assurance requirements of these guidelines.

Ideally, Sydney Water's preference is for the development and adoption of national water quality/best practice management guidelines for all common uses of recycled water. However, requirements for some specific end-uses of recycled water may still need to be negotiated with customers, and then regulatory authorities, on a case-by-case basis.

2.6 Appropriateness of water conservation target level for 2014/15

The terms of reference for the mid-term review require the Tribunal to consider the appropriateness of determining a water conservation target level for 2014/15.

Origin of the targets

Sydney's Operating Licence sets challenging targets to reduce the per capita quantity of water drawn from all sources by 28% over the period June 1991 to June 2005, rising to a 35% reduction by June 2011. The Operating Licence also specifies requirements for the implementation and reporting on the Demand Management Strategy, the reduction of effluent discharges and support for the National Water Conservation Rating and Labelling Scheme.

Water conservation targets for 2000/01 and 2010/11 were set in the first Operating Licence (1995-1999) as part of the corporatisation process of Sydney Water. Peak environmental, consumer and welfare groups negotiated with Sydney Water for the inclusion of the targets, predominantly to ensure that Sydney Water would reduce demand such that the construction of another major dam would not be required.

The review of Sydney Water's Operating Licence in 1999 was used as an opportunity to extend Sydney Water's commitments by including a target for 2004/5 and by requiring consideration of a 2014/15 target at the mid-term review in 2002. This underpins a strong view amongst key stakeholder groups that per capita water conservation targets are the best way of ensuring that Sydney Water allocates sufficient resources to implement demand management programs. There is a view that Sydney

Water has a commercial incentive to sell more water and that demand management, being a relatively new and difficult program area to implement, will not be appropriately prioritised in Sydney Water's planning requirements unless it is regulated. Stakeholders are concerned that despite its best intentions, policies may change in Sydney Water and necessary water conservation will drop away unless ongoing targets are set.

Sydney Water's Demand Management Program

In 1990/91, Sydney Water introduced quarterly meter reading for residential customers and commenced a process of reforms towards 'user pays' pricing, with the objective of providing stronger financial incentives to most customers for reduced water usage. Sydney Water published and implemented its first Demand Management Strategy in October 1995, which involved additional pricing reforms, education and promotion of the AAA rating and labelling scheme. Significant reductions in demand were realised between 1991 and 1997 - equivalent to 16% of the way towards the 25% reduction target set in Sydney Water's first Operating Licence. The reasons for these reductions included: the downturn in industrial water use due to a shift in Sydney's economic base away from heavy industry; the mandatory water restrictions that applied from 1994 to 1996; increasing conservation awareness in the community; and the 'user pays' pricing initiatives of Sydney Water's demand management program.

In 1999, with per capita demand resuming a rising trend, Sydney Water revised its Demand Management Strategy, using the principles of integrated resource planning. The new Strategy aims to achieve the water conservation targets at the least cost to the community. More than 40 water efficiency, leakage reduction, water recycling and other alternative supply options were ranked against various criteria to achieve the targets. The criteria included cost to the community as the primary ranking, with

implementation timeframe, equity impacts and certainty of the predicted savings as additional ranking factors. From this analysis, a program of twelve demand management activities have been implemented, as described in Table 1.

The other options identified remain part of Sydney Water's Demand Management Strategy and relate mainly to alternative initiatives to reduce outdoor water use. These options are being considered for implementation as information from the current program is collected and analysed to identify those strategies that are most effective.

The following table describes water savings under the Demand Management Program in terms of litres per capita per day of water saved (lcd). This refers to the total water released into the delivery system divided by the estimated population supplied by Sydney Water.

The Operating Licence sets per capita targets of 364 lcd for June 2005 and 329 lcd for June 2011. Reporting in lcd provides a useful means of assessing overall progress against these targets.

Table 1: Sydney Water's Demand Management Program

Program Type and Component	Description
Water Efficiency	
Pricing Reform	The Program included increases in prices of water in real terms, i.e., adjusted for the cost of living increases. The savings from price increases for water were estimated at 2 lcd in 2000 rising to 2.6 lcd in 2005. These savings were based on an estimated demand elasticity of –0.2 for single residential dwellings. For this elasticity, a 10% increase in price would result in a 2% decline in use. In October 2000, the Tribunal approved Sydney Water's new price path, which did not take forward the above proposal. Under the current price path to 2003, water prices will fall in real terms and as such no reductions in water use have been gained from pricing reform.
"Smart showerhead" rebate program	The Smart Showerhead program was run by the Sustainable Energy Development Authority (SEDA) as a joint program with Sydney Water and the energy authorities. Under the program, households received vouchers that provided a $10 discount on the purchase of an approved AAA-rated showerhead from a participating retail outlet. This initiative assumed water savings of 25 kL/year per household. Approved sales under the program totalled 8,907 showerheads. The program is estimated to have achieved a saving of 0.1 lcd compared to the strategy estimate of 0.2 lcd. One of the reasons for the low take-up of the program by customers was the voucher-based refund system. Participating retailers were not prepared to provide a point-of-sale discount and the voucher system proved a less than satisfactory substitute in that it required customers to return the voucher for refund rather than obtaining a discount when they bought the showerhead.
Residential audit and retrofit	The retrofit program offered householders in targeted local government areas the opportunity to have a trained plumber visit their house to provide a water efficiency 'tune up'. This included installation of a new AAA rated showerhead and tap flow regulators, a cistern displacement device or flush arrester for single flush cisterns, repair of simple leaks in toilets or taps and advice regarding other water efficiency improvements. The 'tune up' (worth $130 in total) costed participants $22, though it was provided free to

Program Type and Component	Description
	pensioners/health cardholders. The program assumed that 170,000 households (including 50,000 low-income) would participate and the estimated average saving per property would be 27 kL/year, based on the results from similar programs in northern NSW adjusted for market conditions in Sydney. As at 31 December 2001, over 1.3 million households had received the retrofit offer across all municipalities. Approximately 150,000 households have participated, which represents an average participation rate of 12%, though participation has varied in different parts of Sydney. Also, program evaluation has confirmed that average savings of 20 kL/year (rather than 27) have been achieved. Many of the households enthusiastic to participate in the program were probably already relatively conservation aware. The lower than projected savings also appear to be due to usage by the showers replaced being lower than projected, households with more than one shower not replacing all showers, lower take-up of showers as part of the total retrofit package and the relatively high proportion of participants (40%) from low income and low water using households. One of the positive aspects of the program was the high levels of customer awareness about water conservation generated by the program. This has been confirmed by recent customer research that high levels of customer recall of the Every Drop Counts message. Sydney Water's experience has been that a demand management program is most effective when there is direct involvement with customers, for example, by providing a product that gives an opportunity for customers to act on a water conservation message.
Outdoor Water Use Conditions	The program proposed to introduce permanent low-level restrictions for outdoor use during 2000/01 to provide a projected savings of 1.2 lcd by 2004/05. The restrictions were to apply to the hosing of pathways and garden watering times and were to be accompanied by a substantial communication strategy. The water authorities in Brisbane and Perth have successfully implemented programs and secured demand reductions with limited watering hours and rotation of garden watering days between customers based on areas and property street numbers. Sydney Water's customer research has indicated customers' willingness to participate in such water conservation

Program Type and Component	Description
	measures. Sydney Water regulations were amended in 2000 to allow the Minister to impose water restrictions in the public interest. Previously, mandatory water restrictions could only be applied under drought conditions when total storage levels fell below levels necessary to maintain projected unconstrained demand. Water usage conditions have not been introduced as proposed under the original program. Usage conditions are likely to be most effective as part of a more comprehensive strategy for outdoor water usage and further research and pilot studies are planned to develop an integrated package of outdoor measures. A potential outcome of this proposal is demand hardening, where water restrictions take-up the available reductions to reduce demand during drought. Sydney Water has been developing its Drought Response Plan in conjunction with the SCA and the implementation of water use conditions needs to be considered as part of this process.
Outdoor Programs Voucher Mailout	A pilot outdoor program was run in the summer of 1999/2000 in five high water-use suburbs in Sydney's north. The pilot involved the distribution of a reply-paid mail-out to residents to register interest in the provision of an educational garden guide and discount offers on several products to save water outdoors. A similar education concept was employed for the main program although significant marketing enhancements were employed to improve participation. A redesigned and enhanced garden guide was developed and 23 business partners agreed to provide discounts on a much wider range of products and services to assist customers to reduce water use outdoors. The primary purpose of the program was to generate awareness and educate the public about more efficient water use. Estimated participation of 80,000 households over 2-year program. Assumes savings of around 8 kl/year per participating household. The program ran until 30 June 2001. Actual savings have not been analysed. Additional demand generated by the Olympics and dry weather over the program period is likely to have outweighed the widely dispersed and low level savings directly attributable to this program. The community interest and awareness generated by the program, however, have been clear benefits.

Program Type and Component	Description
Showerhead and washing machine performance standards	The water efficiency of major appliances and fittings varies greatly and large savings are potentially achievable by the introduction of minimum performance standards for these products. These standards could be applied through a range of mechanisms including mandatory standards, local development controls, plumbing or building codes and point of sale controls. The products initially identified for the development of minimum standards were showerheads and washing machines, which account respectively for an estimated 23% and 16% of average residential consumption. The program projected savings of 2.6 lcd by 2004/05 for standards on showerheads, growing to 12.1 lcd by 2010/11 with standards also placed on washing machines. No savings have yet been achieved from this initiative as negotiations through the Water Services Association of Australia continue with State and Commonwealth regulators on setting appropriate minimum standards for showerheads. The current focus is on having water efficiency requirements written into the plumbing regulations. Considerable progress has already been achieved with the drafting of a 12 litre/minute standard for showerheads under the regulations. The water efficiency ratings already developed for the National Water Conservation Rating and Labelling Scheme have encouraged a lift in product performance standards and will provide the technical basis for mandatory performance standards.
Every Drop Counts Business program	The Every Drop Counts Business program targeted customers in the industrial, commercial and government sectors, which use about 30% of all water drawn from storages. Initially, the program involved Sydney Water providing free water audits to selected business customers to identify water conservation initiatives, on the basis that they implement projects that met agreed investment criteria. Savings of 3.1 lcd were estimated from the implementation of this program. However, limited success was achieved from the free audit model with few businesses committing to implementing the findings even when the potential gains were clear. The program has now been completely revised with a strong emphasis on gaining senior management commitment through a water management diagnostic, the development of an improvement plan and the provision of a range of services that can help companies to overcome barriers to improving their water management performance. Sydney Water will also consider investing in water efficiency projects at an agreed commercial rate of return, generated from the water and energy operating cost savings from the project.

Program Type and Component	Description
	There are now over 70 companies involved in the Every Drop Counts Business program, with 50 participants having signed memoranda of understanding about implementation requirements.
Hospitality audits program	The hospitality sector was also targeted in the original Program, in advance of the 2000 Olympics, which was estimated to increase the demand for water in the year 2001 by approximately 2,700 ML/a, equivalent to about 1.8 lcd. A water efficiency program similar to business program was implemented in partnership with the hospitality industry to reduce demand in the tourism sector by an amount equivalent to the impact of the Olympic-induced tourism. To assist with implementation and simplify program management, the hospitality sector program has been merged with the Every Drop Counts Business Program Water. Usage patterns in the hospitality sector are closely related to customer numbers and once a particular business type has been audited these findings can often be used with similar businesses. The information gained from the audits has been used to develop 'Water Conservation – Best Practice Guidelines for Hotels', which are now being actively marketed in the hospitality sector.
Leakage Reduction	
Active leakage control	The major contribution in water savings under the program was projected to come from a sustained reduction in the leakage in the water distribution system. The program estimated potential savings from leakage reduction of 28.8 ML/day (7.2 lcd) by 2004/5 or 28% of total demand management program savings. With no previous experience in Sydney Water with an active leakage program, limited information was available on which to base the program. Initial work on the program involved minimum night flow and water system analysis, program planning, management of leakage detection activities by contractors, programming and management of leak repair, analysis of results, and reporting. In 2000, a pilot program was carried out in the Vaucluse delivery zone in Eastern Sydney. The extensive data collection phase and the pilot program resulted in delays before implementation of the major program in 2001. However, the progress of the leakage program has been very encouraging and resulted in significantly higher leakage reduction per kilometre of main at lower cost than originally estimated. While the initial estimates were for savings of 28 ML from the program, Sydney Water is now targeting 50 ML, which is equivalent to an

Program Type and Component	Description
	extra 5 lcd.
Water Recycling[1]	
Wollongong industrial recycling	The program identified a proposal to supply 20 ML/day of highly treated water from Wollongong STP to BHP at Port Kembla, resulting in a 20 ML/day reduction in demand on the Avon Reservoir. This proposal has now been formalised with the scheme to commence in early 2004, resulting in a 5 lcd reduction.
Kurnell industrial recycling	The program also identified a recycling scheme of up to 14 ML/day from Cronulla STP to a cogeneration plant at Kurnell. The plant would supply steam and electricity to the Caltex oil refinery. By replacing the existing water demand for steam production at Caltex, the scheme would result in a 3.1 ML/day reduction. In May 1998, Sydney Water signed two 20-year recycled water agreements with Sithe Energies Australia for this scheme. Design of the Cronulla STP was upgraded to accommodate such a large supply of recycled water. Sithe have since advised that they will not proceed with the project. However, Caltex have indicated that they are considering building a smaller cogeneration plant to improve efficiency at the refinery. Should this happen, Sydney Water will proceed with part of the original scheme, resulting in the 3.1 ML/day reduction. Discussions have also recently been initiated with a developer regarding a proposal similar to the Sithe project.

KEY: lcd litre(s) per capita per day
KL kilolitre(s)
ML megalitre(s)
ML/a megalitre(s) per annum
1 Sydney Water's recycled water programs are discussed further in Section 2.5 of the submission

The implementation of the overall Demand Management Strategy and individual programs is based on a 'plan, do, check, act' cycle. In August 2001, Sydney Water evaluated its programs for the 2001 Water Conservation and Recycling Implementation Report, which outlines Sydney Water's progress against its targets. This report is now on Sydney Water's

website at www.sydneywater.com.au to assist stakeholders in considering these issues for the mid-term review.

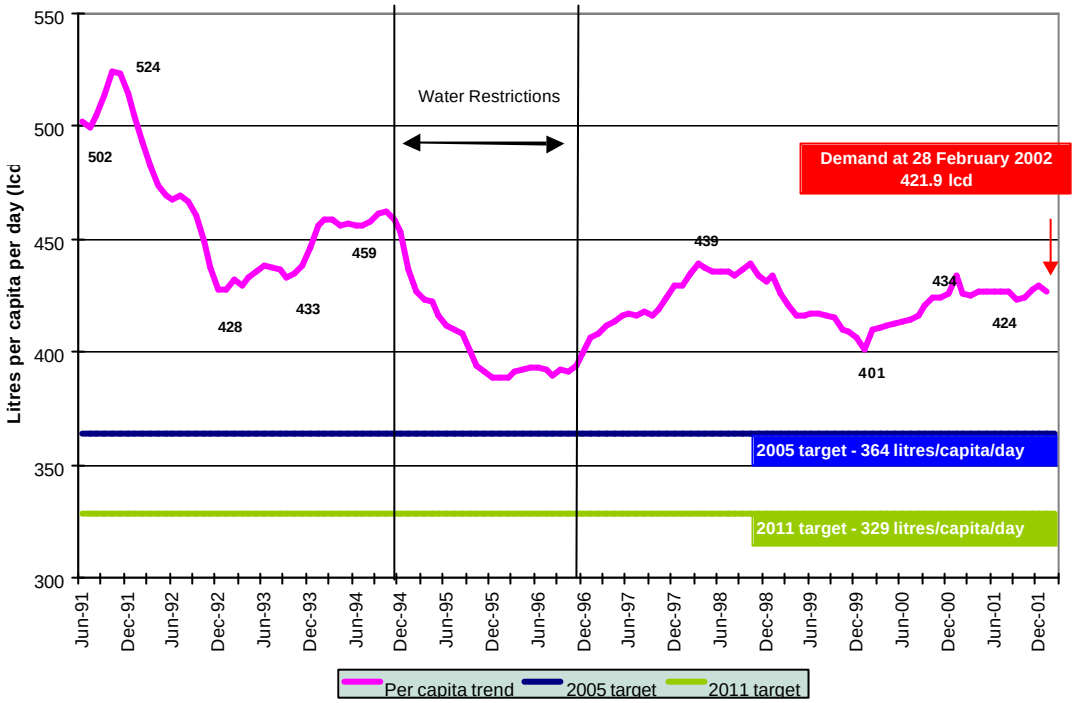
Overall program savings were estimated at 7 lcd. While there has been variation in the levels of savings generated from different programs, these savings are close to the original forecasts, though demand has increased significantly since those forecasts were made. Analysis of the key programs delivered to date has confirmed:

- higher than projected savings from the leakage detection and repair program of 17 million litres per day - equivalent to about four litres per person per day;
- analysis of a further 40,000 residential retrofit participant's consumption data has confirmed an average saving per household of 20,000 litres per year - equivalent to about two litres per person per day. Based on these results, it is estimated that the total program savings will be about nine million litres per day or 2.5 litres per person per day; and
- the business program has identified five million litres per day savings and companies have either implemented or committed to implement over three million litres per day of this amount or about one litre per person per day. The complete redesign of this program is indicating a likely increase in achievement from this program.

Despite this success, total water demand has continued to rise over the last two years for the reasons outlined below. **Figure 1** indicates that if this trend continues Sydney Water may need to consider extending its demand management programs if the 2005 and 2011 Operating Licence targets are to be met.

As at 28 February 2001, demand for water was at 422 lcd – 17% percent of the way towards its 2011 target of 329 lcd.

Figure 1: Water usage (in litres per capita per day) – June 1991 to December 2001.



Sydney Water's Demand Management Model

Sydney Water uses a demand analysis and forecasting model to project future demand. This model adopts an end-use analysis approach, which focuses on understanding the trends that influence future water demands and how customer water use is changing over time.

Prior to the development of the end-use model in 1998, Sydney Water's demand forecasting had tended to rely on extrapolating trends from

historical demand. These historically based demand forecasts tended to over estimate future water use. Water usage in the supply area has undergone significant changes and per capita demand has fallen significantly over the last 10 years in response to a wide range of factors relating to market segment and end-use by customers. These factors include the introduction of water efficient appliances and recycling technologies, dramatic changes in housing mix, type and occupancy ratios, the shift from manufacturing to service industries in the business sector, increased levels of tourism, pricing reform, etc. End-use modelling allows Sydney Water to include a wide range of factors in the tracking and forecasting of demand. It also enables better comparison of different types of demand reduction with alternative supply options, i.e., water supplied from an alternative source. Most importantly, it focuses on Sydney Water's market and the individual water service needs of its customers, rather than viewing relatively aggregated customer demand simply from a supply perspective.

The end-use model was reviewed and updated in August 2001. Assumptions and data were modified to incorporate the latest results from ongoing analysis of the programs implemented and other Australian and international data.

Over the last year, techniques have been developed to better understand business sub-sector demand in more detail. Similar techniques are now being applied to residential demand. Analysis will be enhanced by additional customer research where appropriate. This is leading to the development of more tightly targeted programs for specific customer sub-segments.

Why isn't more progress been made in conserving Sydney's water?

The major constraints impacting on progress to meet the water conservation targets include:

- *Population* – Sydney's population may be higher than the current projections provided by planningNSW based on the 1996 Australian Bureau of Statistics (ABS) Census. More accurate population figures based on the 2001 Census should be available later in 2002. The water conservation targets set in the Operating Licence are based on the estimated water consumption of each person in Sydney. An additional 10,000 people assumed to be using Sydney's water would equate to a 1 lcd saving against the water conservation targets;
- *Weather* – during and since the 2000 Olympics, Sydney has experienced extended weather patterns, warmer and drier than average. Rainfall has tended to be concentrated over short periods, separated by extended dry spells. Demand from October to December 2001 was the highest in the last 10 years, again due to well below average rainfall, above average temperature, and the bush fires in December 2001. These conditions drove water demand upwards in Sydney, particularly for outdoor water use;
- *Demographic changes* – changes in the housing mix with very rapid growth in luxury medium and high-density housing in Sydney have contributed to higher than expected average demand for this sector. Until the mid-90s, new house connections exceeded flats and unit connections. However, by 2000/01, 70% of all new dwelling connections were for flats and units. In 2000/01, new residential connections increased by over 43,000 which was 54% above the rate of the previous year;

- *Economic factors* – well above average economic growth over the past two years, with strong customer spending and construction activity in the lead up to 2000 Olympics, contributed to strong per capita demand. Post-Olympics demand has also been strong with the first-home owners grant retaining the strong growth in the residential construction sector; and
- *Demand forecasts assumptions* – the average total per person demand assumed in the 1999 Strategy was based on 1996/97 demands, which was the most current annual information at that time. While the key climate variables for 1996/97 were close to average, dam storage levels remained low and water restrictions were not lifted until October 1996. With hindsight, it seems clear that demand levels took many months to 'recover' from the period of restrictions and the 1996/97 demand level were abnormally low. In contrast to the projections for a decline in total demand from 1996/97 levels, actual demand continued to increase well into 1998 before stabilising.

The way forward

Sydney Water is committed to meeting the water conservation targets set in the Operating Licence and does not recommend that they be amended or removed at this point in time. It must be remembered that Sydney's demand management program is unprecedented in the scale of savings being targeted and the broad range of measures being developed and implemented. No other Australian water authority has attempted a similar program and there is no international evidence of comparable demand management programs in the water industry. With limited information on which to build the demand reduction measures, Sydney Water has opted to proceed with the major programs after testing key assumptions through pilot phases and analysis of the early results. Apart from the Every Drop

Counts retrofit program, the delivery of other key programs has only started to gain significant momentum through 2001.

Nonetheless, meeting the 2005 target will be extremely challenging and will most likely require additional strategies and resources to improve demand management performance. Sydney Water is currently evaluating its programs based on water reduction potential, cost to Sydney Water and the community, timeframe required to implement and equity across the customer base. In relation to the 2005 target, the focus may need to shift to:

- expanding leakage reduction and business programs;
- refining the residential program to target high water users;
- adding new programs targeting residential outdoor demand;
- retrofitting of Department of Housing properties;
- providing incentives to increase sales of water efficient appliances; and
- exploring alternative pricing structures.

This will be subject to further consideration by the Sydney Water Board of Directors.

Over the medium-term, there is significant opportunity to reduce customer water demands in new growth or infill development areas. Initially, this will include developing industry partnerships to have minimum levels of water efficiency standard in new development. In the longer-term, alternative water service delivery options are being progressed including increased recycling of effluent, grey water and stormwater and use of alternative sources such as rainwater for greenfield and infill development. Sydney Water is working with local councils and planningNSW to secure the

inclusion of water efficiency requirements in development approvals and local environment plans. Also, minimum water efficiency standards for water using appliances and fittings (showerheads, taps, toilets, washing machines and dishwashers) are being developed, though national coordination of this process takes time.

The demand management program will continue to be revised to incorporate savings realised in growth areas as well as projects such as the Georges River pipeline. This is a significant part of Sydney Water's wastewater strategy and will provide a source of recycled water to industries from Liverpool to Malabar. Initiatives like these have high potential to off-set the need for additional demand management programs post-2005.

Sydney Water will also continue to look for opportunities to off-set costs of the demand management program. Options include targeting high cost water or wastewater servicing areas, partnerships with other utilities, retailers and suppliers, and other government agencies, use of regulatory mechanisms and grant opportunities.

However, it must be understood that demand management is about significantly changing the water use behaviour of four million people, which will take time and is a longer-term proposition. While the 2011 targets are even more stringent, a ten-year time frame to influence customer water use is a more realistic social marketing challenge.

As such, Sydney Water welcomes the consultancy engaged by the Tribunal for the mid-term review to evaluate the effectiveness of its Demand Management Program and identify alternative strategies for reaching the demand management targets. This is a valuable opportunity to assess the validity of Sydney Water's actions since 1995 and the role that other agencies, such as the SCA, can play in demand management, or by targeting government agencies that are high water users such as the

Department of Housing, NSW Health and the Commonwealth defence industry.

Sydney Water may lodge a supplementary submission on the findings of this consultancy and/or will seek to make a presentation on future opportunities for demand management at the workshop to be held by the Tribunal for the mid-term review.

Is a 2014/15 water conservation target required?

The key issue for stakeholders in considering whether a 2014/15 target is appropriate is to revisit what the water conservation targets are seeking to achieve and what is in Sydney Water's reasonable control in order to meet these compliance targets. Setting these requirements in the Operating Licence as stretch targets, in order to avoid the requirement for a new dam, draws into question how the target levels were set. Setting such levels must consider the other water sources that might be available to off-set demands on the SCA's storages and how the targets are measured - noting the range of influences on water use, such as climate and population growth. The question is – are these appropriate as compliance targets in the Operating Licence?

As outlined above, Sydney Water's most successful demand management program to date has been leakage reduction, which is the only program that is completely under Sydney Water's control. In particular, it is not dependent on the acceptance of customers to adopt new behaviour or technologies. This fact highlights the significant challenge associated with any community-wide social change program – it takes time to achieve results, as outlined by the following example.

Sydney Water's Every Drop Counts program applies well-proven social marketing principles, including:

- use of well researched communication strategies to motivate target customers to participate; and
- suitable design of water conservation products and services that provide the opportunity, capacity and time for customers to change their water use behaviour.

The Every Drop Counts residential retrofit has been the first significant example of this, achieving a take-up rate of one in every eight households. This was a very positive outcome, considering that it was a "one size fits all" product. Sydney Water has recently offered the retrofit again in several areas of Sydney that received the offer early in the rollout. Interestingly, similar adoption rates have been achieved, possibly based on positive word-of-mouth promotion from friends who took up the original offer.

This indicates that there is potentially still significant opportunity and willingness in the community to adopt new behaviours, provided the pain is acceptable or even beneficial. The key question is - how quickly can this change occur? Sydney Water is optimistic that behaviour change will accelerate as awareness of the Every Drop Counts message continues to be delivered through education and programs targeting home, business, government and schools. Cross linking of programs is proving to be very effective at raising awareness, e.g., selling AAA showerheads to employees of participating companies in the Every Drop Counts Business program.

Sydney Water's experience to date indicates that the achievement of sustained behavioural change in the long-term is not just dependent on rolling out large-scale education campaigns. It will be far more effective if programs are targeted, to meet the needs of customers and engage the support of key industry, supplier and regulatory stakeholders to achieve a transformation in the specific target market.

The problem with setting water conservation targets is that they set arbitrary deadlines and attract severe penalties and consequences if Sydney Water does not comply with its Operating Licence. Progress towards meeting the targets overshadows the real objective, which is the implementation of innovative and successful demand management programs.

This does not reflect a view that demand management targets for Sydney Water should not apply. The relevant questions are what form those targets should take, how and where should they be set and what are they trying to achieve?

Section 3.2 of this submission discusses this issue within the context of how Sydney's water supply is currently regulated and the options for ensuring that water conservation objectives are met. This analysis demonstrates that the current considerations surrounding the long-term management of Sydney's water supply, mean that the Tribunal should not set a target for 2014/15 at this stage. These considerations include the Tribunal's review of Sydney Water's prices commencing in October 2002, at which time Sydney Water's revenues over 2000-2002, and expenditure against the Demand Management Program, will be assessed. It also includes the establishment of a CEOs' Taskforce to consider integrated water management in Sydney, with a specific emphasis on demand management options.

The findings of the mid-term review on demand management should be used as an input to the Tribunal's price setting process and the CEOs' Taskforce deliberations, with further consideration given to the requirement for a 2014/15 target at the end-term review of the Operating Licence.

The above analysis of Sydney Water's progress in developing and implementing its demand management program suggest that the Tribunal should first evaluate Sydney Water's performance against the 2004/5

target at the end-term review before setting a new target for 2014/15. This will enable the Tribunal and stakeholders to further assess the costs of implementing further demand management programs against the other areas of government expenditure, such as investing in desalination technology.

3 General Matters for Review

3.1 Introduction

Sydney Water recognises the need for transparency of regulatory arrangements and performance, and also accepts the community's demands for openness. A major challenge in setting Sydney Water's regulatory framework is to maintain an environment where trust and credibility are maintained while streamlining and improving arrangements.

The mid-term review offers an opportunity for Sydney Water to discuss key issues such as the appropriate regulation of demand and supply management. Such discussion should initiate structured debate with stakeholders on issues for the end-term review, such as the alignment of the price and licence process and sustainable natural resource management. Sydney Water' review of its WaterPlan 21 strategy will form a major part of how Sydney Water positions for the end-term review in 2004.

Consideration of the security of Sydney's water supply is a key issue for Sydney Water. The NSW Government will establish a Chief Executive Officer's Taskforce to consider the broad issues surrounding Sydney's long-term water supply, including the role of demand management in securing long-term supply. The outcomes of the mid-term review, particularly those relating to water conservation and demand management, will be a key input to the CEOs' Taskforce process.

3.2 Regulating the water supply balance

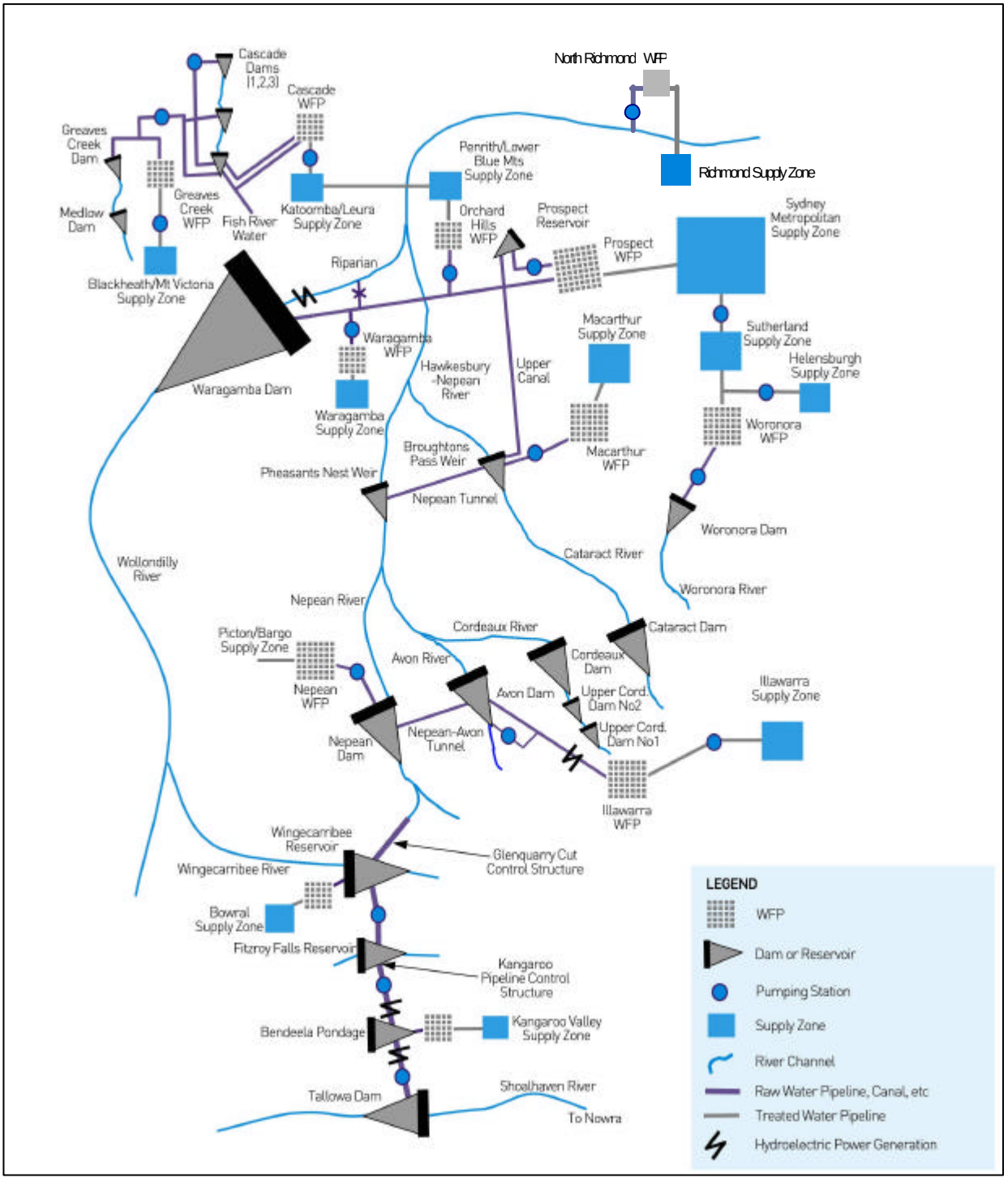
Management of Sydney's water supply system is separated between Sydney Water and the SCA. It is a shared responsibility. Sydney Water is responsible for demand-side measures – demand forecasting and demand management in order to meet the water conservation targets contained in the Operating Licence. The SCA is responsible for supply side measures – ensuring the adequacy of the bulk water supply by meeting the system performance criteria in their Operating Licence and forecasting inflows.

While this appears a simple distribution of responsibility, it has produced challenges for the arrangements that govern the regulation of Sydney's water supply. Many of the issues are complex and there is a need to ensure the seamless operation of the system.

Sydney Water has a significant interest in knowing that there is sufficient water available to meet demand in the long-term. This includes during times of drought. Similarly, the SCA has a significant interest in demand. That is, the SCA needs to know how much water Sydney Water is going to ask for so that they can effectively operate the catchment infrastructure (dams, pumps and pipes) and plan for storing and delivering the amount of bulk water that Sydney Water will require into the future.

A diagram of Sydney's water supply is provided in **Figure 2**.

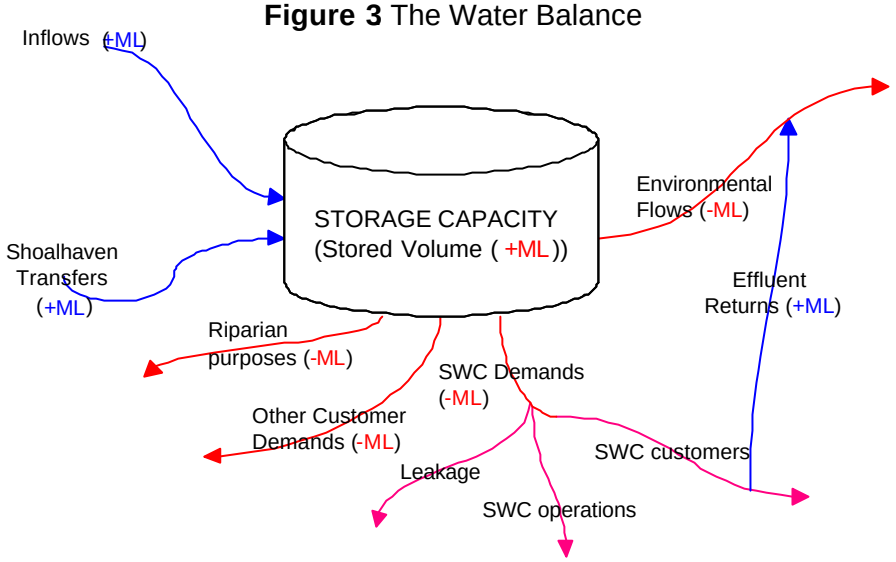
Figure 2: Sydney's Water Supply



The water balance

There are limitations to the amount of water that the SCA can supply to Sydney Water. These limitations are due to the physical capacity of the storages, the needs of other users, and the need to plan against the possibility of drought. The competing pressures on the amount of water physically available in the water supply system are illustrated in **Figure 3**.

Figure 3 The Water Balance



ML megalitre, which is 1 million litres of water or roughly equivalent to a 25 metre swimming pool.

Figure 3 illustrates the inputs to Sydney's water supply system (inflows from the Hawkesbury Nepean River and Shoalhaven transfers) and the outputs (Sydney Water demands, other customer demands, and releases for riparian purposes and environmental flows). Effluent returns are characterised as an addition to the river that may diminish the level of environmental flows required. An alteration to any one of these components will have consequences for the other components. It must be

noted that this diagram does not clearly identify the more intangible constraint of the need to maintain supply during times of drought.

Inflows

Weather conditions will affect the amount of water that is stored in the dams, as weather conditions will determine the amount of water that flows into the dams (inflows). Inflows are calculated on a monthly time step using records of dam water levels, rainfall, evaporation and releases. The inclusion of data from the 1995-98 drought into the inflows database suggested that the likelihood of significant drought events was greater than previously assumed.

A reduction in the level of inflows will lead to drought. Drought is a climatic phenomenon that can be defined as 'a period of time when the water stored in the reservoirs, and anticipated or forecasted inflows, are considered to be insufficient to meet current and/or future unrestricted demand'.

The nature of Australia's climate and the location of the dams in drier inland areas rather than in the wetter coastal region means that drought will be a significant factor in effectively managing the water supply in the long-term. Regulation of the water supply system must give sufficient consideration to the possibility of droughts occurring.

Shoalhaven transfers

Shoalhaven transfers also represent an addition to the water in the storages. They represent the amount of water that can be transferred from the Shoalhaven River to augment Sydney's water supply. The Shoalhaven system was constructed in the 1970s to provide an additional source of water for Sydney during times of drought.

There are considerable costs associated with transfers from the Shoalhaven, as a significant amount of energy is required to pump the water up the Fitzroy Falls. This has substantial cost implications for the SCA. There are also concerns that transferring water from one river system to another (interbasin transfers) will have negative environmental impacts on river health. However, preventing transfers from the Shoalhaven system would have significant implications for drought management as the current calculations relating to drought management and available water are all predicated on the availability of Shoalhaven transfers.

Other users of water

While Sydney Water demands 99% of the water that the SCA has in its storages, the SCA does have other customers such as Wingecarribee and Shoalhaven Councils. Users along the river (riparian users) require water released from the storages so that they can extract it from the downstream river system. The SCA's water management licence presently requires minimum releases from the storages for riparian purposes.

In considering the management of the water supply, the needs of these users must also be considered.

Environmental flows

Under the new *Water Management Act 2000* the river is also accorded the status of a user of water. Environmental flows are releases of water from the storages so that there is a flow of water in the river that mimics natural seasonal flows and restores and maintains the ecology of the river. Environmental flows are currently being determined by the Hawkesbury Nepean River Management Forum and the amount of the flow could have

significant implications for the amount of water that is available for Sydney's water supply.

Effluent returns

Returning treated effluent to the waterways will augment the amount of flow currently in the river. This may reduce the quantum of environmental flow releases required. However, returning effluent to waterways limits the options for Sydney Water to reduce its demand from the storages by using recycled water.

Sydney Water's demand

Sydney Water's demand for water is a significant part of the water balance. It comprises demand from customers, leakage from the system, and water used for operational matters such as mains flushing.

Sydney Water's performance in reducing demand is addressed in Section 2.6 of this submission.

Storage capacity

In examining the water balance it is necessary to understand the constraints on the system. The physical capacity of the SCA's dams is a limiting factor. This is a particularly important consideration as the Government has determined that Welcome Reef Dam will be indefinitely deferred. Welcome Reef Dam had previously been proposed as an additional source of water and it would have added to the total capacity of the system. While there are other options to increase the amount of water available, such as reducing Sydney Water's direct demand through recycling, these may represent trade offs rather than significant net increases.

Existing regulation of the water balance

The challenge for Government and regulators is threefold. They must ensure that there is adequate regulation to provide for effective management of demand, supply, and security of supply during drought. The existing model provides for regulation of demand through water conservation targets and regulation of supply and supply security through the SCA's system performance criteria. Theoretically these regulations will ensure that Sydney Water does not demand more water than the SCA can supply.

The Halcrow review of Hunter Water's system performance standards was critical of the approach taken regarding the imposition of Sydney Water's water conservation targets with no accompanying economic rationale. Halcrow identified a danger in focusing on demand management regulation alone, as it may take a serious drought to demonstrate that security is unacceptable. With the long lead times necessary to realise an alternative source of supply, this may create serious difficulties for the water supply system. Halcrow's comment highlights the necessity of ensuring coordinated regulation of demand, supply and supply security across Sydney Water and the SCA.

Halcrow advocates adopting the least cost water balance management model. This model is perceived as being superior to specific targets or plans as it focuses on an integrated approach that seeks an optimum overall economic solution. An understanding of the water balance and the cost effectiveness of alternative policy options is required.

This approach would require an obligation to be placed in the Operating Licence for a least cost plan for water supply and demand management. Halcrow suggests that the following elements would need to be incorporated into such a plan:

- Constraints including those imposed by other agencies (eg through water management licences);
- Operational strategy to maximise yield of existing resources in normal conditions;
- Drought management strategy;
- Water conservation and reuse strategy;
- Water balance analysis;
- Demand forecasts; and
- Costs of water, demand and supply side options.

Customer views would be sought on the plan and the Tribunal would consider the plan at the time of the price path determination. Targets would be set for leakage, demand management and reuse, and security of supply when price was determined. The plan would be for 10 years with calculations based on a 20-year horizon.

The Tribunal has provided Hunter Water's draft Operating Licence to the Minister for approval by July 2002. Preliminary advice is that the draft Licence will include a requirement that Hunter Water develop a draft integrated water management plan by September 2002, with a final plan to be produced by July 2003. The plan will require the assessment of Hunter Water's options for demand, supply and drought security on a least cost economic planning basis. Hunter Water's draft plan will use its current water reliability standard (that restrictions will only apply once every ten years) as the starting point for this planning exercise. The plan will be drafted in consultation with the public and must include social and environmental considerations in its planning assumptions. Hunter Water will also have a demand management target set in its Operating Licence to reflect water savings in its residential sector.

Sydney Water has publicly supported the Tribunal's initiative in developing a more balanced approach to regulating the water balance. The proposed arrangements for Hunter Water, which is yet to be approved by the Minister, are ambitious and should be supported by stakeholders.

Sydney's water supply is more difficult to regulate, due to the pressures on the river system and wider range of stakeholder interests in how it is managed. The proposed requirement for Hunter Water to develop a plan will help to road test how this concept might be applied in Sydney, which might be further considered at the end-term review in 2004.

Implications of Government decisions in relation to water resource management

The report of the Healthy Rivers Commission (HRC) into the Georges River Botany Bay system acted as a catalyst to focus the Government's attention on urban water management issues and there are significant implications for the regulation of demand management arising out of the Government's decision. The Georges River report builds on earlier HRC reports into the catchments that supply Sydney Water and emphasises some of the actions arising out of those reports.

The Government has proposed the establishment of a CEOs' Taskforce to give effect to the integrated management of key elements of the urban water cycle (water supply, sewerage and stormwater). The CEOs' Taskforce will include Sydney Water and the SCA and is to report to the Environment Committee of Cabinet. The stated objective for managing Sydney's water supply has been stated as follows:

Key elements of the water cycle in the metropolitan area, including water supply, stormwater and sewage, are to be managed in an integrated way. Environmental flow releases from all storages on the Woronora,

Hawkesbury Nepean and Shoalhaven Rivers are to be designed to optimise river health benefits across the catchments. At the same time, complementary water demand management measures are to be strengthened to maintain the adequacy and security of water supplies to the metropolitan area and other users.

This objective is to underpin the Government's commitment to indefinitely defer construction of the Welcome Reef dam.

The CEOs' Taskforce will equally look at the appropriate institutional and regulatory arrangements for the demand and supply balance.

The Taskforce is to oversee the early determination of environmental flows in the Hawkesbury Nepean. This is a task presently being undertaken by the Hawkesbury Nepean River Management Forum with technical assistance being provided by the Expert Panel. The Taskforce is also to investigate demand management in relation to pricing, cost benefit analyses of options, and the appropriateness of the existing demand management targets. This brief is similar to the matters that the Tribunal will be considering in its role as Sydney Water's price and licence regulator.

Sydney Water recognises the imperative of Government in determining the strategic policy aspects of natural resource management. The Government's policies are based on their assessment of community and environmental values. A clear example of this is the decision of the Government to indefinitely defer the construction of Welcome Reef Dam and the inclusion of the environment as user of water.

Once Government has established the broader policy framework, the Tribunal must work within those constraints when determining price and service levels to ensure that the available water is managed effectively. The Tribunal is the appropriate regulator for the price and service aspects

of the long-term management of the water supply. This is about what customers are prepared to pay for security of supply (the cost of augmentation) compared to the level of service (frequency and duration of restrictions) they are prepared to accept.

It is important to understand the broader context within which the regulation of price and service are to be determined by the Tribunal and the interdependencies between the different aspects of the water balance. There will be implications for price and service regulation arising from broader policy decisions. Similarly, determinations regarding price and service will impact on the feasibility of the broader policy framework. There is a need for full awareness of the competing pressures on Sydney's water supply system and the implications of changing specific aspects.

Matters for future consideration

The current Government focus on the urban water cycle and the need for integrated water management is unlikely to significantly alter the policy framework in the immediate future or require significant alterations to the Operating Licence during the mid-term review. However, the longer-term policy implications of the Government's investigations and the various processes examining different aspects of the water balance may require more substantial changes to regulation of the management of the water supply at the end of term review of the Operating Licence.

The Minister's recommendations for the review of Sydney Water's System Performance Standards requires Sydney Water to work with the SCA to develop a water reliability standard in the lead up to the end of term review. Additionally, the SCA has suggested that there be a comprehensive investigation into the appropriate requirements for stored water reserves. Sydney Water supports this approach, particularly given the

recommendations that Halcrow has made in relation to its review of Hunter Water's system performance standards.

3.3 Memoranda of understanding with regulators

The memoranda of understanding (MOUs) were introduced when Sydney Water was corporatised in 1995. Key stakeholders recommended them at that time, particularly to address the absence of effective licensing regimes for environmental regulation. As a result, the MOUs were set as requirements in the *Sydney Water Act 1994*. This has now been replicated in the *Sydney Water Catchment Management Act 1998*.

The Sydney Water (McClellan) Inquiry in 1998 found that Sydney Water's MOUs were inadequate as regulatory instruments – particularly for NSW Health, which did not have clear powers to support its role during the contamination events. McClellan recommended that the MOUs should contain targets, timeframes and review provisions and the Licence Regulator should audit their contents. This was to enable the Licence Regulator to comprehensively assess Sydney Water's annual performance and report this to Parliament and the public. The Tribunal accepted and took forward these recommendations in reviewing Sydney Water and the SCA's Operating Licences.

Sydney Water's Operating Licence specifies that the Licence Regulator may report on implementation of the MOUs. The SCA has a stronger requirement where the Licence Regulator must report on the SCA's performance against its MOU obligations. The Licence Regulator can also report on the results of investigations undertaken by the EPA, NSW Health and DLWC if they relate to matters specified for the audit, but cannot replicate those investigations. While limited, this requirement fits into the Tribunal's position that in protecting customers from monopoly abuses, it

must have some oversight of Sydney Water's performance under other regulations.

The operational audits for Sydney Water and the SCA have highlighted the tension with the Tribunal undertaking the role of super regulator. One example is the Tribunal's draft findings for the 2000/01 audit that Sydney Water has not renewed its MOUs with the EPA and DLWC. However, both regulators are the bodies responsible for renewing the MOUs (not Sydney Water) and both expressed the view that they did not want to renew the MOUs until the water management legislation was finalised (DLWC) and the environment protection licences were in place (EPA). More strongly, NSW Health has concerns about the duplication of water quality regulation, including that:

- the Tribunal ignores and duplicates NSW Health's annual audit of Sydney Water's compliance with its monitoring and reporting requirements under the MOU;
- the Tribunal's assessment of the MOU doesn't focus on whether the relationship is cooperative – rather it assesses whether all monitoring and reporting requirements have been undertaken, which may result in a difference in compliance reporting; and
- the Operating Licence replicates many drinking water quality requirements in the MOU, which means that if the Operating Licence changes, the MOU will also have to change, which involves a public consultation process specified by the *Sydney Water Act 1994*.

The SCA has expressed concerns about the Tribunal findings relating to its MOU with the EPA.

Sydney Water's MOUs with the EPA and DLWC are currently being reviewed. At present, they do not contain targets and time lines, in

recognition of the detailed licensing regimes operating or to be introduced under the POEO Act and the *Water Management Act 2000*. As such, Sydney Water supports these MOUs being cooperative agreements that outline the forums through which it discusses regulatory and strategic issues with its key regulators.

Sydney Water supports the current detailed monitoring, reporting and planning requirements that are set out in the MOU with NSW Health. However, these requirements duplicate the requirements under Part 6 of the Operating Licence. The terms of Part 6 should be reduced to a requirement that Sydney Water comply with the Australian Drinking Water Guidelines, as currently specified under clause 6.2 of the Operating Licence, with NSW Health to report annually to the Tribunal on Sydney Water's annual performance against the monitoring, reporting and planning requirements of the MOU with NSW Health.

If the monitoring, reporting and planning requirements of Part 6 of the Operating Licence are to be retained, the Tribunal should accept the annual independent audit of the MOU that is conducted by NSW Health as the annual operational audit of Part 6 of the Operating Licence.

3.4 Environmental management reporting

Sydney Water recognises that public reporting on the social, environmental and economic impacts of its activities is central to demonstrating how it implements its principal objectives, which are to protect public health, protect the environment and be a successful business. At present, Sydney Water's reporting requirements are set out in the *Sydney Water Act 1994*, the Operating Licence and the *Annual Reports (Statutory Bodies) Act 1984*.

A key achievement for Sydney Water has been the development of a suite of Ecologically Sustainable Development (ESD) indicators, as required by the Operating Licence. Annual reporting against these indicators is to demonstrate the degree to which Sydney Water's activities comply with the principles of ESD. In September 2001, Sydney Water produced its first ESD report - the *2001 Towards Sustainability Report*, which is available on Sydney Water's website. This report has moved Sydney Water towards 'triple bottom line' reporting and has benchmarked well against the recognised international guidelines for this type of reporting. However, there is ongoing criticism about Sydney Water's reporting, with the auditor for the 2000/01 operational audit finding that Sydney Water had not complied with its licence requirements in producing the *2001 Towards Sustainability Report*.

This finding underpins the need to review the current reporting requirements under the *Sydney Water Act 1994,* Operating Licence and annual reports legislation to facilitate the production of transparent triple bottom line reporting of Sydney Water's activities. Sydney Water seeks to work with the Tribunal and stakeholders on this in the lead up to the end-term review in 2004.

Sydney Water has also developed an Environment Management System (EMS) in line with the ISO's 14001 Standard. One of the requirements of the EMS is that Sydney Water develop an Environment Plan to list strategies for improvement in environmental performance. One of the limitations of the current requirement of the Operating Licence is that it requires a five-year Environment Plan, which sets targets and timetables for compliance over the five-year period. This has the effect of locking in five-year time lines and also reducing the incentive to set stretch targets, which would increase the risk of non-compliance with the Operating Licence.

Sydney Water believes that the targets and time lines of the Environment Plan should be updated on an annual basis, in line with the requirements of the EMS, and that the targets should be stretch targets that encourage Sydney Water to improve its environmental performance.

Sydney Water wishes to raise this issue at the end-term review in 2004 when it has three end-of-year reports on the Environment Plan and its EMS has been operational for the same number of years. In particular, Sydney Water notes the proposed requirement under Hunter Water's draft Operating Licence that it report on progress against its Environment Plan rather than report on compliance against its Environment Plan. This enables Hunter Water to use its Environment Plan as a more effective management tool in improving its environmental performance. This approach would better serve Sydney Water to improve environmental performance through an internal, functional EMS. The development of Sydney Water's EMS should underpin stakeholder consideration of applying the same requirements under its Operating Licence.

3.5 Customer Councils

The role and effectiveness of the Customer Councils is to be reviewed at the end-term review in 2004. One of the key issues to emerge since the Licence was introduced is the reliance the Tribunal places on key stakeholder groups for feedback on how Sydney Water should be regulated. Sydney Water does not see this as inappropriate. However, it believes that there needs to be more direct communication with customers about their preferences and willingness to pay for services, given the large impact that higher standards have on the cost of providing water, wastewater and stormwater services.

Sydney Water, through the Water Services Association of Australia, has been participating in a study to develop a methodology for determining customer preferences for system performance standards and has undertaken market research on standards issues through its Customer Research Unit. Sydney Water wishes to raise with the Tribunal the need for more consideration being given to this area in the mid-term review.

Sydney Water believes that Customer Councils play an important role in this area and should continue as a requirement of the Operating Licence. Customer Councils are emerging in Sydney Water's operations as an important means of gaining 'without prejudice' feedback on the broad views of the community. As a result, more ideas are being reworked and refined in consultation with the Customer Councils before commencing general public consultation.

Sydney Water will work with its Customer Councils in the lead up to the end-term review on the appropriateness of their structure and functions going into the future. This will include how they can effectively contribute to the Tribunal's functions as the Licence Review Body for Sydney Water's Operating Licence. For example, the Customer Councils may form part of a broad advisory process used by the Tribunal to gauge community views and expectations, separate from the normal process of stakeholder feedback. Sydney Water notes that the Tribunal is yet to establish the Utilities Licensing Auditing Advisory Committee that is required under Schedule 3A of the *IPART Act 1992*.

Appendix A Outcomes of the 1999 Review of Sydney Water's Operating Licence

Below are some additional findings from the 1999 review of Sydney Water's Operating Licence:

- clear reporting and auditing requirements were set for implementation of Sydney Water's Demand Management Strategy, as well as for progress in meeting energy consumption targets, Trade Waste Policy and Management Plan, and the National Conservation Rating and Labelling Scheme;
- the Operating Licence required Sydney Water to administer internal and external dispute resolution schemes to meet national standards. It should be noted that Sydney Water's obligations regarding complaints handling and dispute resolution now also extend to renters and other users of Sydney Water's services, as well as its customers (i.e., property owners);
- Sydney Water (also the SCA) had to develop Ecologically Sustainable Development (ESD) Indicators, in addition to the environmental indicators required under its enabling legislation, and report annually to the Licence Regulator on performance against the ESD indicators; and
- specification for the constitution of Sydney Water's Customer Councils, along with detailed membership procedures.

Appendix B Review of Hunter Water's System Performance Standards

Halcrow recommended that the regulation of demand and supply be taken out of Hunter Water's Operating Licence and regulated through the Tribunal's price setting process. They also recommended that an obligation be included in the Operating Licence requiring Hunter Water to prepare a 'least economic cost' plan, which would address the options for managing supply, demand and security of supply on an equal basis, taking into account social and environmental objectives. The planning process would provide the means to produce targets for demand management and security of supply that would be set and regulated through Hunter Water's price path. According to Halcrow, the shift of regulation to the price determination process would remove the high penalties for non-compliance with licence requirements and allow the Tribunal to use financial incentives to regulate demand and supply. Such a move would bring about the creation of incentive-based regulation.

Halcrow approached the review from the perspective that a water authority must have requirements with respect to the key operating parameters of water quality, service interruption and price levels to enable regulators to ensure that customers receive appropriate service and to drive the business as a surrogate for competition. Additionally, that standards enable the "regulatory contract" to be clearly struck between the operator and its customers.

The report recognised that a weakness in the existing regime was that changes to performance standards could not occur without varying the Licence. Additionally, when standards were reviewed they could only be reviewed from a cost neutral perspective, as funding for higher standards was not available due to timing differences with price reviews. They

produced two options for system performance standards for the Hunter Water Operating Licence with their preferred model being Option A.

Option A was based on the creation of an incentive framework by developing a better relationship between business drivers and price decisions. It involved a regulatory structure with three tiers: core standards, service commitments and performance indicators. Core standards focus on the primary customer impact of water and sewerage services and would be set for water interruptions, water pressure and sewage overflows. Targets for the performance of core standards would be contained in the Operating Licence.

Supporting the core standards would be a suite of service commitments that are costed, defined and determined as part of the price review process. Targets for these service commitments would be set through an examination of the costs and benefits and be outlined along with price levels as part of the price determination. Performance indicators would be used to explain and complement the core standards and service commitments. These should not drive the business but inform performance reporting. Under Halcrow's Option A, enforcement of any breaches would be through either financial remedy, directions by the Tribunal or the elevation of a service commitment to a core standard through Licence amendment.

Option B comprised the more traditional approach of Australian regulators and more closely reflected the regime developed after the review of Sydney Water's system performance standards in early 2001. The main component of Option B was a two tiered system of performance standards and indicators, broadly equivalent to the system in place for Sydney Water. System performance standards would be for consumption and leakage, imposition of restrictions, water discontinuities, water pressure, planned

and unplanned interruptions, sewage overflows and repeat overflow events.

A range of indicators including drainage service performance and customer services would support the system performance standards. As is the case for Sydney Water, performance in accordance with the system performance standards would be mandatory and the indicators used to provide additional information on Hunter Water's performance with a view to set standards for these areas in the future.

By way of comment on Halcrow's report, Sydney Water acknowledges that Option A represents a considerable departure from the standard command and control type Licence regulation under which the New South Wales urban water industry currently operates. It allows for a better balance of control, risk and incentive in a regulatory environment with true financial risks and rewards based on performance. Option A contemplates a regime that provides incentives to the operator to outperform while maintaining severe penalties for under performance that would more closely replicate the conditions confronted by businesses in a competitive market.

Therefore, Sydney Water supports the adoption of an incentive based regulatory regime for the New South Wales urban water industry, based upon Halcrow's recommendations. However, the nature and timing of adoption of incentive regulation by Sydney Water would depend on the support of the Tribunal and all stakeholders, following a comprehensive analysis of the implications of such a change.

Appendix C Meeting Operating Licence Objectives

The mid-term review requires the Tribunal to assess whether in providing the services provided under the Operating Licence, Sydney Water has also met the objectives and other requirements imposed by the *Sydney Water Act 1994*. Sydney Water's *Towards Sustainability Report 2001*, which is available on Sydney Water's website, provides an overview of Sydney Water's performance in providing its services in line with its statutory objectives. Key indicators of progress include the following:

- **Protect public health** - Sydney's drinking water is tested at each stage in the supply chain – before and after treatment in water filtration plants and at the customers' tap. NSW Health requires Sydney Water to meet the health-related aspects of the 1996 Australian Drinking Water Guidelines for each of its 14 water delivery systems. Under these Guidelines, 95% of water quality sample results must meet the guidelines. Overall, around 41,840 separate water quality tests were conducted for health-related characteristics during 2000/01 (which is the period of assessment of the mid-term review). Of these, 99.80% were below the relevant guideline value;
- **Protect the environment** - Over the last six years, Sydney Water has made significant progress in achieving the goals of WaterPlan 21, which sets out Sydney Water's main strategies for providing ecologically sustainable services. Highlights have included reducing water use by 18% from 1991 levels, decreased nutrients discharges to the Hawkesbury Nepean River, treatment improvements at Cronulla and Warriewood STPs, major overflows to Sydney Harbour significantly reduced, repairs made to 260 kilometres of sewerage pipes, sewerage services to Picton and the

lower Blue Mountains and catchment-based improvements to the stormwater systems; and

- **Be a successful business** - Sydney is a growing city, with new housing, commercial and industrial developments being constantly undertaken. In 2000/01, all new developments paid a developer charge to fund the cost of infrastructure necessary to provide water and wastewater services. $15.2 million in revenue was also raised from tradewaste charges. Also, Sydney Water's shareholder value added has improved significantly, with operating costs per property (adjusted for inflation) falling from $384.50 in 1999/2000 to $374.50 in 2000/01. All financial targets set in Sydney Water's Statement of Corporate Intent are also being met.

In terms of the other requirements imposed under the *Sydney Water Act 1994*, Sydney Water reports on its effluent reuse target, environmental indicators, and pollution reduction targets in its *Towards Sustainability Report 2001* and Environmental Indicators Compliance Report 2001. The Ministry of Energy and Utilities has reviewed the *Sydney Water Act 1994* as required by section 112, Sydney Water has memoranda of understanding with its key regulators, as required by section 35 and produces quarterly consumer confidence reports, as required by section 101 of the Act.

The mid-term review also requires the Tribunal to assess whether in providing services, Sydney Water has complied with the quality and performance standards set out in the Operating Licence, recognised the rights of customers and consumers (i.e., people who use Sydney Water's services but are not property owners), been subject to annual operational audit of compliance against the Operating Licence, and established a dispute resolution scheme.

The annual operational audit for 2000/01 has made the following findings about Sydney Water's performance on these issues:

- Sydney Water achieved full compliance for its supplies of drinking water to customers. The auditors found that water quality is generally of an excellent standard, and complies with the health-related requirements of the Australian Drinking Water Guidelines and the aesthetic-related requirements of NSW Health;
- Sydney Water achieved full compliance with the three system performance standards for water continuity, water pressure and sewage overflows over the 18-month audit period. The auditors found that Sydney Water has well-structured and documented systems for monitoring and reporting the standards, and has had consistent programs in place over a number of years to ensure that the standards are met;
- Sydney Water has recognised the rights of customers and consumers through the review of the Customer Contract, which has strengthened customer protection provisions, increased customer rebates and redress, provided information on assistance available during financial hardship and provided details on payment options. Consumers are now included in Sydney Water's dispute resolution scheme and Sydney Water has issued a Code of Practice on Debt and Disconnection;
- Sydney has been subject to one operational audit under the Operating Licence for the 18-month period of 1 January 2000 to 30 June 2001. Further comments on whether the audit role is fulfilling the objectives of the Licence are provided below; and
- Sydney Water has established an internal dispute resolution scheme in line with the Australian standard, though more work is required for reporting to the Tribunal against the requirements of

the Operating Licence. Sydney Water achieved full compliance relating to its participation in the Energy and Water Ombudsman NSW Scheme, which is Sydney Water's external dispute resolution body.