

MELBOURNE WATER

Social Report 2002/03



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WHO WE ARE

Melbourne Water is owned by the Victorian Government. Our operating area extends from Melbourne's water supply catchments high up in the Yarra Ranges, to the Mornington Peninsula and Western Port, north to Yan Yean and west to Werribee.

We are a significant business, managing \$7.1 billion of natural and built assets. Our annual operating revenue of more than \$510 million is earned from water supply, sewage treatment and drainage rates. This is to fund our operations and capital program, to pay off debt, and to return dividends and equivalent taxes to the Government.

We plan to invest more than \$145 million a year over the next three years on our infrastructure including reservoirs,

sewage treatment plants, pumping stations, sewers and drains to help ensure we meet our objectives. We are committed to decision-making based on economic, social and environmental considerations.

An independent Board of Directors is responsible for the governance of Melbourne Water. The responsible Minister is the Minister for Environment and Water.

Our people have diverse skills and expertise, and range from environmental scientists to engineers and research and technology specialists, and we place a high priority on building strong partnerships and relationships in the government, industry and community sectors.

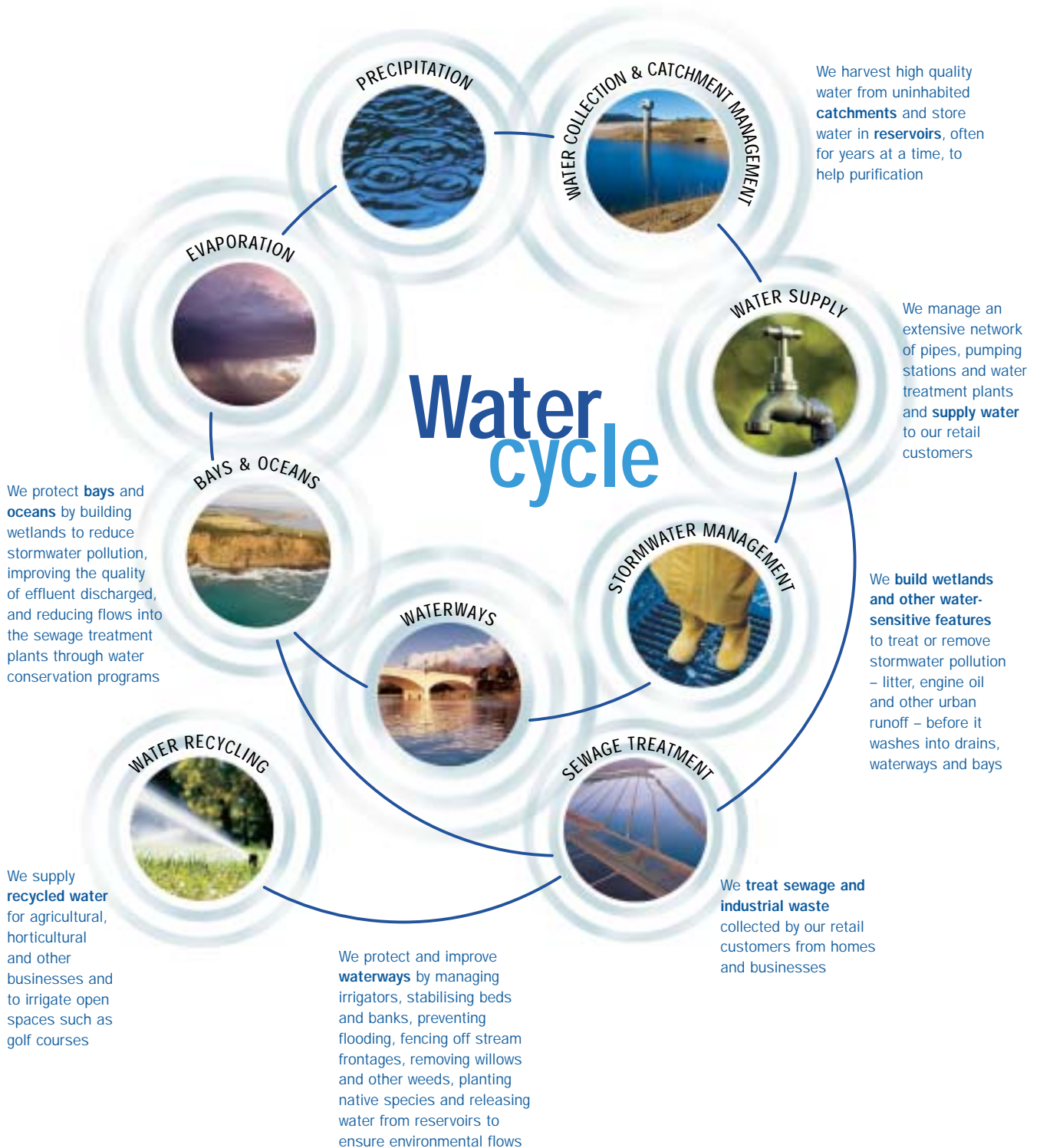


WHAT WE DO

We manage Melbourne's water resources in a way that aims to ensure that future generations enjoy one of the best urban environments in the world. This involves a major role in the total water cycle.

Our Vision

At Melbourne Water, we understand that engaging our stakeholders is the key to achieving our vision of *"Making Melbourne the world's most water-sensitive city"*.



Who we work with

EPA Victoria, the Department of Human Services and the Essential Services Commission regulate the environmental, public health and economic aspects of our business. We work across several arms of the State Government, including the Department of Sustainability and Environment, and the Department of Treasury and Finance.

Our main customers are the retail water companies – City West Water, South East Water and Yarra Valley Water. We also provide services to other water authorities, local councils, land developers, businesses that divert river water, and recycled water users.

Industry partners include AGL Ltd, which generates electricity from biogas to help power the Western Treatment Plant at Werribee, research organisations such as the CSIRO and Co-operative Research Centres, engineering consultants, and contractors who carry out tasks ranging from inspecting and maintaining assets to catchment surveillance and litter removal.

We work closely with a wide range of community stakeholders including "Friends of", Landcare, resident and environment groups, advisory bodies, rural landowners, and the education sector.

Our values

We have developed values that guide our decision-making and enable the organisation to operate in a professional manner, and in the best interests of our customers, employees, shareholder, suppliers and stakeholders.

We are people who:

- recognise we achieve more by working with others
- feel privileged to be custodians of our water resources
- behave with integrity
- attain excellence through creativity and innovation
- celebrate our achievements and learn from our experiences.

Why we produced this report

Melbourne Water's *Social Report* outlines how we have performed in meeting some of our key responsibilities in 2002/03.

It explains how we worked to delivered high quality drinking water to Melburnians, meet the needs of our customers, gain from community input into our planning and programs, carry out our safety and risk management programs and continue to invest in developing our people.

We have a goal of ensuring that the community is well educated and informed on water issues. This publication, together with our *Annual Report 2002/03* and *Water Resources and Environment Report 2002/03*, are important steps towards achieving this goal.

Our *Annual Report 2002/03* is available on request by e-mailing inquiry@melbournewater.com.au or ringing 131 722 (within Victoria) or (03) 9235 7100 (from elsewhere in Australia). This report and the *Water Resources and Environment Report 2002/03* are available on CD or on our website www.melbournewater.com.au

We have provided a feedback form at the back of this report, and we welcome your comments.

Performance snapshot

Melbourne Water's priority has been to work with our retail water customers to manage drought. In the driest period on record, we implemented a recovery plan for our water storages and continued to work to update drought response plans.

A major study of catchments in southern Australia found that Melbourne's protected catchments provide the same or better water quality as that from an unprotected catchment with a water filtration plant.

Our environmental, public health and drinking water quality management systems again met or exceeded international standards.

We supplied our customers with 483,000 million litres of drinking water that enabled the retail water companies to meet consistently high levels of service.

Our drinking water experts were invited to present to the world's first water supply and risk management conference held in Berlin on Melbourne's unique water quality management system.

Melbourne Water worked with the development industry and councils to review 150 drainage schemes and incorporate drainage schemes into development corridor areas.

As stream flows continued to fall, we were required to introduce restrictions and bans on diverters pumping water from rivers. Communication with diverters was a priority, and we organised meetings and distributed regular updates.

Water recycling increased by about 80 per cent, recycling more than 11 per cent of treated effluent. Initiatives were developed to service our water recycling customers, and attract new customers. Recycled water from our sewage treatment plants was made available for drought-affected farmers and councils to trial, and a new water recycling website and handbook were developed.



The aftermath of a fire that destroyed 40 hectares of bushland surrounding Frankston Reservoir in January 2003.

Working with the community

We continue to seek community input into the way we plan and implement our operations. This enables us to draw on the widest possible range of experience and knowledge and helps to ensure that our operations are better understood and accepted by the community – even if it means short-term inconvenience. We consulted with and received advice from about 120 committees, organisations and boards.

We failed to provide adequate information to the community before removing mature elms and other trees along the Yarra River at Pridmore Park, Hawthorn. We subsequently organised four meetings for residents and other groups to reach agreement on rehabilitation.

Melbourne Water continued to increase community understanding and awareness of drought, and research found that 97 per cent of people surveyed were able to estimate the level of Melbourne's water storages.

Our website was upgraded to provide easy access to clear information. Some 362,684 visits were recorded, an increase of 21 per cent on the previous year.

Education continued to be a high priority, and we launched the \$2.5 million Melbourne Water Discovery Centre at Werribee. It is home to interactive education exhibits developed to increase community knowledge of our sewerage and water supply systems.

We invested \$1.4 million on a range of industry and community education programs, including training workshops to accredit plumbers and gardeners in sustainable water practice. There are now 350 plumbers with Green Plumber accreditation in Melbourne.

Risk management

Security was a key focus and we worked to further improve controls and monitoring of our sites.

In a year in which Canberra and north-east Victoria experienced severe bushfires, we worked with government departments and the Country Fire Authority to ensure we were prepared. The most serious fire was in bushland around the Frankston Reservoir. An independent review of fire suppression arrangements in our water supply catchments was undertaken.

We have now completed providing flood information in all planning schemes under our responsibility. This involved 31 planning scheme amendments and the notification of about 105,000 affected landowners and occupiers.



Melbourne Water's Dale Browne (left) with guests at a GreenGardeners community night in Melton.

Managing safety

We failed to achieve our target of zero lost-time injuries. Six of our people and three contractors sustained lost

time injuries, and we are continuing to work on initiatives to ensure a safety culture.

An audit by Lloyd's Register Quality Assurance found that our safety management system continues to comply with Safety MAP. The Eastern Treatment Plant became our second facility to be licensed to operate under major hazard facilities regulations.

Our people

We recruited 14 engineering, science and finance graduates to join our graduate program during the year. These people are now part of our Speakers' Group and deliver presentations to the community on a range of Melbourne Water issues.

We continued supporting the Apprenticeships Victoria scheme in the water operations area to help with succession planning and to bring younger people into the organisation. Six people have now been appointed to permanent positions at Melbourne Water.

Measuring our performance

Key performance indicator	2002/03 Plan	2002/03 Actual
Reliable supply of water (compliance with system pressure requirements)	99.5%	99.7%
Aesthetically pleasing water (number of breaches of compliance with water colour and turbidity requirements)	0	1
Safe drinking water (percentage of water samples at wholesale/retail interface with no <i>E.coli</i> present)	98%	100%
Stakeholder satisfaction (percentage score from annual survey)	70%	76%
Community knowledge and understanding (percentage of community with an understanding of priority water resource issues)	65%	67.5%
Lost time injuries (number of injuries resulting in the loss of one or more full working day/shift)		
- employees	0	6
- major contractors	0	3
Reduction in flood-prone properties (cumulative number of properties no longer at risk of 1-in-100-year flood)	320	125
Level of knowledge and understanding of the organisation's business objectives by our people (determined by survey)	90%	61%
Staff turnover (Melbourne Water people ceasing employment/total staff)	5 – 10%	7%

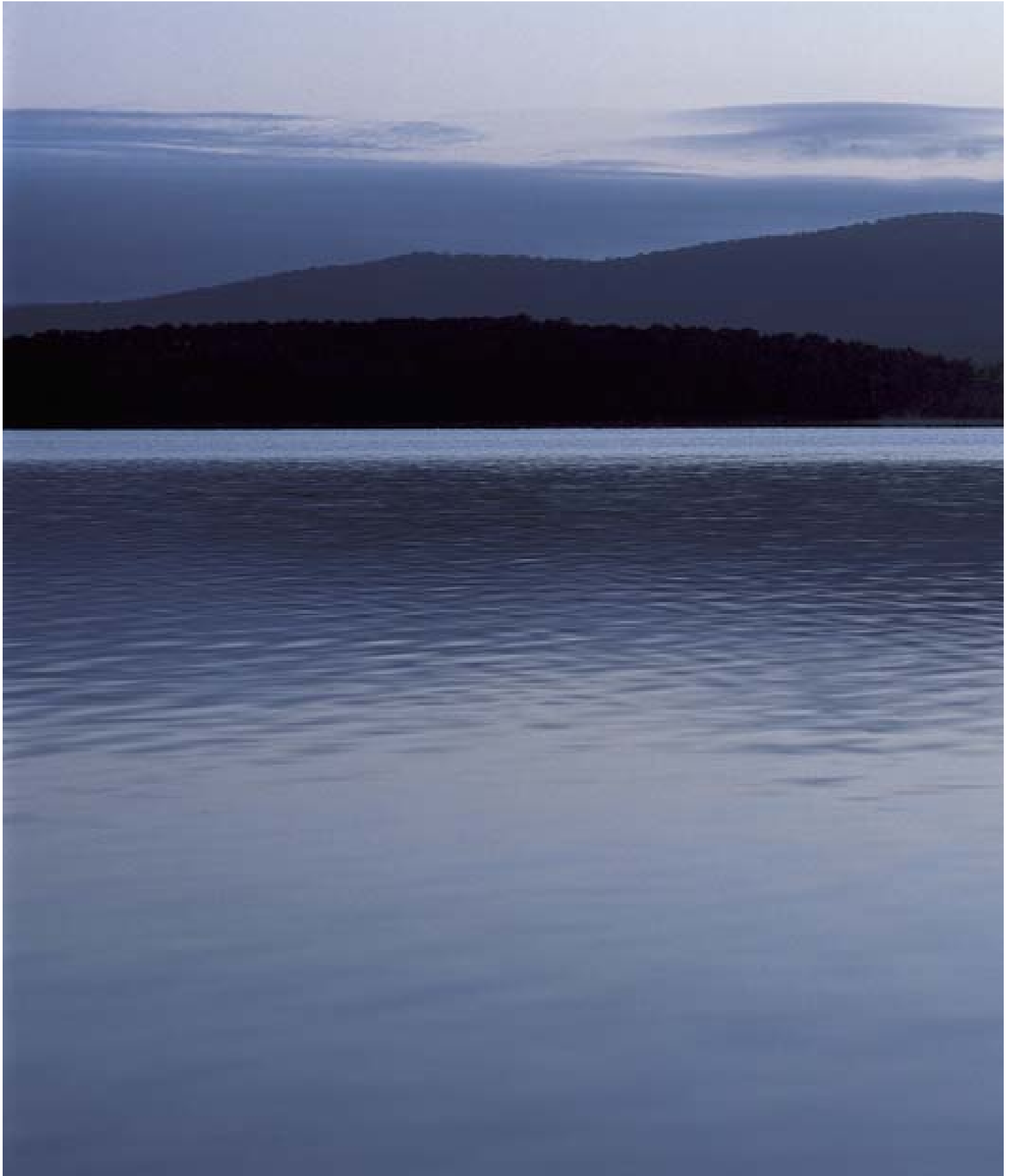
OUR PRECIOUS WATER

Providing safe, high quality drinking water

<p>Achievements</p>	<ul style="list-style-type: none"> ✓ A major study of catchments in southern Australia found that Melbourne's protected catchments provide the same or better water quality as that from an unprotected catchment with a water filtration plant. ✓ Our environmental, public health and drinking water quality management systems again met or exceeded international standards. ✓ We provided our customers with 483,000 million litres of drinking water that enabled the retail water companies to meet consistently high levels of service. ✓ Our drinking water experts were invited to present to the world's first water supply and risk management conference held in Berlin on Melbourne's unique water quality management system. ✓ Completed a strategy with City West Water and Yarra Valley Water to manage the risk of algal blooms in Yan Yean and Greenvale reservoirs.
<p>Disappointments</p>	<ul style="list-style-type: none"> ✗ Unchlorinated water entered the system after a power failure at the Silvan treatment plant. However, timely action avoided any impact on customers. ✗ Dirty water complaints were received when we were required to lower water levels at Silvan Reservoir to carry out works on a water main. ✗ Further delays associated with obtaining permits for reservoir covering and replacement at Dromana, Frankston and Mornington, key projects in our \$70 million Mornington Peninsula Water Supply Improvement Strategy.
<p>Key Challenges</p>	<ul style="list-style-type: none"> > Managing algal blooms in reservoirs, particularly in times of drought and low storage levels, to minimise the impacts on our customers. > Maintaining the community's enthusiasm for water conservation even during periods of high rainfall.

Goals:

- We continue to conserve Melbourne's high quality, affordable drinking water for present and future generations without the need for further dams



OUR PRECIOUS WATER

Our water is safe and pleasant to drink, and undergoes minimal treatment. A range of risk management systems provides barriers to contamination.

Melburnians place a high value on our drinking water, which has a reputation for being among the most pleasant and safe in the world.

Melbourne is one of the few cities in the world that draws most of its water from protected forested catchments. Our catchments in the Yarra Ranges are closed to the public and provide highly regarded drinking water that undergoes minimal treatment by chlorine or ultra-violet irradiation to assure its microbiological quality.

About 10 per cent of Melbourne's water is drawn from Sugarloaf Reservoir, which is mainly filled by pumping from the Yarra River. Yan Yean Reservoir in the Plenty River valley, Melbourne's oldest and shallowest water storage, supplies about five per cent of the city's water. Water from these reservoirs requires full filtration and disinfection.

We manage nine major reservoirs, with a total capacity of 1,773,000 million litres; 59 service reservoirs; some 1000 kilometres of distribution mains; more than 200 kilometres of aqueducts and tunnels; 18 pumping stations; five filtration plants; and 42 disinfection plants.

We supplied 479,188 million litres of water to the retail water companies, City West Water, Yarra Valley Water and South East Water. These companies delivered water to Melbourne homes, businesses and other consumers through their reticulation networks. We also supplied 3812 million litres of water to Western Water.

The water we supply must be safe, pleasant to drink and meet the requirements of:

- National Health and Medical Research Council drinking water guidelines
- Victorian Government Health (Quality of Drinking Water) Regulations 2002
- *Health (Fluoridation) Act 1973*
- *Food Act 1984*.

Water quality summary 2002/03

Measure	Target	Target met
Disinfection plant reliability	Primary and secondary plants meet combined reliability of 96%	Yes
Testing of water supplied to the retail water companies	<i>E.coli</i> : 99 per cent of samples contain less than 1 organism per 100 millilitres	Yes
Testing of water supplied to the retail water companies (1)	Total coliforms: 95 per cent of samples contain less than one organism per 100 millilitres	Yes
Testing of water supplied to the retail water companies (2)	Total coliforms: 90 per cent of samples contain no more than 10 organisms per 100 millilitres	Yes
Trihalomethanes	95 per cent of samples contain no more than 150 micrograms per litre	Yes
Fluoride	Short-term average dosage between 0.7-1.2 micrograms per litre; average dosage over one year does not exceed 1 microgram per litre	Yes

Note: Water supplied to the retail water companies is tested at entry points⁽¹⁾ immediately downstream of Melbourne Water's primary disinfection plants and at monitoring points⁽²⁾ at storages or water mains within the wholesale transfer system. The monitoring points are identified in our supply agreements with the retail water companies.

Managing our drinking water system

Melbourne Water treats and supplies drinking water using a risk management system that assures its quality and safety. Our approach is to ensure clean, healthy water is captured at its source rather than relying on water treatment to ensure standards are met.

A key part of our quality management system is the use of Hazard Analysis and Critical Control Point (HACCP), which focuses on quality management from the catchment to the tap, rather than end-point testing.

Our quality and safety management systems are formally certified and audited by Lloyd's Register Quality Assurance. Lloyd's visited Melbourne Water for a surveillance audit in July 2002 and for a re-certification audit in February 2003. These audits covered both drinking water and environmental management systems.

Revised Australian Drinking Water Guidelines, administered by the National Health and Medical Research Council (NHMRC), are due for publication in late 2003. These will include a Framework for the Management of Drinking Water Quality, incorporating the principles of HACCP. The framework will place emphasis on risk management to ensure drinking water quality.

The NHMRC has removed the use of total coliforms as a measure of faecal contamination from new draft guidelines, leaving *E.coli* as the primary compliance indicator. The revised guidelines are consistent with our approach.

The Department of Human Services has informed Victorian water authorities that drinking water is now considered a food. Our obligations to supply water for human consumption are described in the new *Safe Drinking Water Act 2003*, which amends the *Food Act 1984*. Water suppliers may incur penalties of up to \$200,000 for supplying sub-standard water when the Act comes into effect from 1 July 2004.

A non-toxic algae, *Synedra*, was found in Dromana, Greenvale and Mornington reservoirs during the year. The non-toxic algae pose no health risk. Melbourne Water treated the blooms by isolating the reservoirs and dosing with the approved algacide, copper sulphate. Consumers remained unaffected.

Low levels of blue-green algae were detected in Yan Yean Reservoir in December 2002. Melbourne Water responded by implementing agreed contingency plans that would isolate the reservoir from the water supply system when necessary. The reservoir was ultimately taken off line and remained out of service until August 2003.

The most effective method of preventing algal growth and improving water quality is to cover smaller service reservoirs. Melbourne Water has council planning approval to cover Dromana Reservoir with a fixed roof and, subject to council approval, steel tanks will replace Mornington and Frankston reservoirs.

Melbourne Water operates 42 water disinfection plants. These plants substantially contribute to assuring the safety of Melbourne's drinking water, and are protected from power failures by back-up generators.

A small number of treatment plants experienced malfunctions or equipment failures. The most significant of these was on 30 January 2003 at the Silvan treatment plant when the loss of mains power triggered the emergency generator, which in turn failed after several hours of operation.

The failure resulted in the discharge of a large volume of unchlorinated water to the distribution system. However, a quick response meant that no unchlorinated water reached consumers and an assessment by the Department of Human Services found no public health risk as a result of the loss of power.

Researching drinking water

Melbourne Water spent \$538,000 on drinking water research this year, with some 12 water quality research projects still in progress.

Measuring our performance – drinking water

Detailed tables of water quality testing appear on page 43 of this report.

WORKING WITH OUR CUSTOMERS AND THE COMMUNITY

Achievements	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ 	<p>We provided our customers with 483,000 million litres of drinking water that enabled the retail water companies to meet consistently high levels of service.</p> <p>Completed a \$600,000 project to help all metropolitan councils manage the impacts of stormwater.</p> <p>Improved service delivery to councils through providing a single Melbourne Water contact for all metropolitan councils.</p> <p>Recycled water standpipes were set up at the Eastern and Western treatment plants for authorised users, including councils.</p> <p>Helped Victorian farmers affected by the drought by harvesting more than 500 bales of hay from Melbourne Water land in a joint initiative with the Victorian Farmers Federation.</p>
Disappointments	<ul style="list-style-type: none"> ✗ ✗ 	<p>The rapid decrease in some river flows due to the drought meant that we were not able to provide a lot of warning to diverters before introducing bans on taking water from waterways.</p> <p>Failed to engage the community early in waterway improvement projects.</p>
Key Challenges	<ul style="list-style-type: none"> > > > 	<p>Managing the water supply system if dry conditions continue and water restrictions are tightened.</p> <p>Providing as much notice as possible to diverters on the possibility of restrictions if river flows remain very low, and spreading our resources to ensure diverters comply with restrictions.</p> <p>Continuing to educate existing and potential water recyclers about the most suitable applications for recycled water.</p>

Goals:

- Provide excellent service
- Melbourne Water's objective is to have all our customers rate our services as good or very good
- We are committed to providing a high level of customer service and to implementing a service-oriented culture in the organisation. Our main customers are the metropolitan retail water companies and neighbouring water authorities, the development industry, local councils, river diverters and water recyclers



Retail water companies

The metropolitan retail water companies – City West Water, South East Water and Yarra Valley Water – are responsible for taking water from our system and providing it to end-users. They also transport sewage and trade waste from households and industry to our system for treatment. They have operating licences with the Essential Services Commission.

Over the past seven years of drought, the Melbourne water industry has worked closely together to review and clarify drought response protocols. Melbourne Water provides regular information to retail water companies on the water supply catchments, storage levels, rainfall and streamflow into the harvesting reservoirs. This information is used, together with data from the Bureau of Meteorology, to prepare and update drought response plans.



Melbourne Water's John Woodland (left) is part of the Melbourne water industry drought response group.

This year, we focussed on developing a recovery plan to manage the storages should below-average rainfall and streamflows continue.

A recycled water infrastructure plan for Melbourne is being developed. The working group, brought together by the Department of Sustainability and Environment, is examining options to increase water recycling beyond 2010.

We are also working with the retail water companies to audit trade waste being treated at the Eastern Treatment Plant. The retailers have documented their trade waste audit procedures and outlined initiatives taken with industry to minimise trade waste and improve its quality.

Melbourne Water is working with South East Water and Yarra Valley Water to investigate ways to reduce inflows to the Eastern Treatment Plant. This will help reduce the discharge to the marine environment.

Melbourne Water and South East Water worked on an investigation to determine if there are any changes in the quality of treated effluent along the 56 kilometres of the pipeline between the Eastern Treatment Plant and the Boags Rocks discharge point. Three South East Water treatment plants discharge effluent into the pipeline.

Melbourne Water, City West Water and South East Water began an investigation to address substantial growth from the expanding Docklands Precinct. Flows from Docklands Precinct and the Melbourne CBD are taken by the Melbourne Main Sewer, which is close to reaching its capacity in peak flow periods.

City West Water

We supplied City West Water with 121,100 million litres of water this year and treated 89,300 million litres of sewage and trade waste that City West Water collected and transported to our sewerage system.

Key initiatives to improve security of supply to City West Water customers were:

Development of a strategy to manage the impact of algal blooms at Greenvale Reservoir and Yan Yean Reservoir. The strategy, developed with City West Water and Yarra Valley Water, involves a \$14 million augmentation of the Winneke Water Treatment Plant, including construction of a \$2 million pump station at Plenty to increase capacity and reliability. Works are expected to be completed by April 2005.

Finalisation of the design of a \$4 million upgrade of the pump station opposite Greenvale Reservoir to cater for population growth in the western suburbs serviced by City West Water, and the Craigieburn area serviced by Yarra Valley Water. Works are expected to be completed by February 2004.

Completion of works in September 2002 to upgrade capacity of the Somerton Pump Station and install a back-up generator. This will cater for population growth and ensure that security of supply is maintained during power failures.

South East Water

We supplied South East Water with 170,000 million litres of water and treated 100,110 million litres of sewage and trade waste collected by South East Water and transported to our sewerage system.

Key initiatives to improve service to South East Water customers were:

An action plan to manage elevated levels of coliforms detected in parts of South East Water's water supply system. The coliforms did not pose a health risk to customers but had the potential to impact on South East Water's licence requirements. Water quality monitoring was increased and operational changes implemented, including increasing inflows to Cardinia Reservoir in response to the possibility that the increased coliforms were due to lower than average storage levels.

The beginning of the upgrade of the M41 Punt Road water main, which supplies South East Water and Yarra Valley Water customers in inner-southern and eastern suburbs. Originally laid in the 1890s, the main needs to be replaced to maintain water pressure and water supply during times of peak demand. The \$6.9 million project involves extensive consultation to minimise community disturbance. Works are expected to be completed by December 2003.

Yarra Valley Water

We supplied Yarra Valley Water with 187,990 million litres of water and treated 89,257 million litres of sewage and trade waste that Yarra Valley Water collected and transported to our sewerage system.

Key customer service initiatives were:

Preliminary site investigations and feasibility design works on the Northern Diversion Sewer. The project, designed to overcome capacity problems that can lead to wet weather overflows from Yarra Valley Water's sewerage system into Merri Creek, will divert flows from the northern suburbs to Melbourne Water's North Western Sewer. Melbourne Water will allocate \$61 million to this project, which is due to be completed by 2008/09.



Silvan Reservoir will benefit from increased monitoring in order to reduce algal blooms.

The commencement of two projects to understand the source and movement of sediment through reservoirs, pipes and tanks. The CSIRO is examining the flow of water through water storage tanks, and another study is investigating the flow of water through Silvan Reservoir. The results of these studies will be used to develop a strategy with Yarra Valley Water to manage sediment entering the water system.

A review of water quality and algae at Silvan Reservoir and Winneke Water Treatment Plant that will lead to increased monitoring to help identify conditions that may contribute to algal blooms.

Western Water

We supplied Western Water with 3812 million litres of water as part of an existing agreement to supplement supply to Western Water customers in Sunbury from the Melbourne system. This agreement was extended for three years until March 2006.

In addition, a 15-kilometre pipeline is to be built by Western Water to supplement supply to Western Water customers in Melton and Bacchus Marsh from the Melbourne system. The pipeline is due to be commissioned by April 2004.

Acting quickly to repair damage

About 2am on Good Friday (18 April 2003), damage to an air valve in the Silvan-Preston water main created a 60-metre column of water, and emergency services were called in to manage the incident.

Some 25 million litres of water were lost in the burst, which caused flooding in several houses nearby. One house was severely affected and the residents given alternative accommodation.

Melbourne Water, in close consultation with Yarra Valley Water, shut down a six-kilometre section of the main and provided an alternative supply to customers. The damaged valve was repaired and the main restored by midnight that day.

No customer complaints were received about water pressure or quality. Nearby residents were provided with information by doorknocking and delivery of a community bulletin.

Councils

Melbourne Water assists councils to meet the demands of population growth by facilitating environmentally sustainable development.

We provide information and tools to help councils and land developers meet best practice objectives for stormwater management and flood protection, and are helping planners incorporate water-sensitive urban design into long-term planning schemes.

Melbourne Water worked closely with councils and the development industry to ensure a clear and consistent approach to the planning and provision of stormwater infrastructure to service urban growth.

We invested more than \$600,000 and provided technical assistance to help councils develop and implement stormwater management plans. All 32 councils now have stormwater management plans with initiatives to improve planning, regulation, enforcement, operations, infrastructure and education.

We reviewed almost 150 drainage schemes to ensure that proposals meet current standards for flood protection and stormwater quality, and that developer contribution rates are reasonable and transparent and reflect the cost of drainage works.

We worked on six projects that are converting existing development corridor areas into drainage schemes to achieve best practice flood protection and stormwater quality treatment standards.

Melbourne Water and industry representatives on the Drainage Scheme Review Group – consisting of the Urban Development Institute of Australia, Housing Industry Association, Municipal Association of Victoria and the Association of Land Development Engineers – developed draft principles to guide Melbourne Water and councils in the preparation of drainage schemes. The set of principles is scheduled to be completed by the end of 2003.



Melbourne Water is working with industry representatives to improve stormwater quality from building sites.

As the referral authority for subdivision proposals in Melbourne, and for planning and building permit applications for developments on land liable to flooding, we received 13,396 enquiries.

All 32 councils now have an initial point of contact with Melbourne Water through a council co-ordinator. The project, piloted in 2001/02 with Port Phillip, Maribyrnong and Darebin, was extended this year to enhance our relationships and partnerships with councils and improve customer service.

A particular success has been our work with the City of Port Phillip on a schedule of exemptions to the Special Building Overlay. This will lead to some buildings and works being exempt from requiring a planning permit, reduce time spent processing planning applications, and improve the timeframe for approving buildings and works.

Online information

Melbourne Water is now providing free access via our website to our land development manual for developers, their consultants and others on policies, processes and design requirements.

(See www.melbournewater.com.au/ldm)

Work also began during the year to develop a water-sensitive urban design technical manual, which is funded by the State Government's Victorian Stormwater Action Program and is due to be completed by April 2004.

A water-sensitive urban design website was launched during the year. (See www.melbournewater.com.au/wsud)

Sustainable water use plans

Melbourne Water is investing \$300,000 in helping councils to develop sustainable water use plans to meet the Victorian Government's water conservation target. Councils can apply for grants of \$10,000 each. The program is being run with the Municipal Association of Victoria and councils will develop plans in consultation with external stakeholders, the community and the retail water companies.

The program builds on a pilot sustainable water management plan developed last year by the City of Melbourne with assistance from Melbourne Water and the International Council for Local Environment Initiatives. This plan targets efficiency improvements, alternative supplies to replace drinking water, and improved stormwater management. It includes construction, landscaping and conservation works and education programs, and aims to reduce water consumption in the municipality by 12 per cent by 2020.

Working together for the future

Melbourne Water conducts presentations, tours and workshops for councils and other stakeholders to increase understanding of best practice stormwater treatment and water-sensitive urban design techniques. Our Managing Director makes presentations about our priorities and projects to half the metropolitan councils each year.

This year we worked with the Association of Bayside Municipalities and its member councils around Port Phillip Bay to introduce planning scheme provisions to make water-sensitive urban design mandatory for new developments.

The councils are examining ways to introduce performance objectives for stormwater quality for all new developments. Key initiatives could include wetlands to purify stormwater before it enters waterways and bays, as well as rainwater tanks to capture stormwater for toilet flushing and garden watering.



Catchment the focus of canal initiative

Elwood Canal

The Bayside, Glen Eira and Port Phillip councils have joined forces in a project that aims to reduce stormwater pollution and protect Elster Creek and Port Phillip Bay.

The councils are studying the 4000-hectare catchment of Elster Creek, which becomes Elwood Canal as it nears the bay.

The impact of education and awareness programs and regulation and enforcement will be assessed, together with the feasibility of constructing stormwater treatment initiatives such as litter traps in the catchment.

Melbourne Water is responsible for the creek and canal, and has investigated various options to stop litter entering the bay, such as weirs and booms. These would have raised the water levels, increasing the risk of flooding.

Melbourne Water's Chris Chesterfield said a narrow focus on constructing treatment systems on the end of drains would not meet community expectations for sustainable stormwater management.

The project is being financed by a grant from the State Government's Victorian Stormwater Action Program.

River diverters

Melbourne Water is responsible for managing the amount of water taken from waterways in the Yarra, Stony, Kororoit, Laverton, Skeleton and lower Maribyrnong catchments. We issue licences to customers, known as diverters, which enable them to take water for their homes, farms, market gardens, vineyards and other businesses.

We work with diverters to develop plans that balance the needs of all stream users and the environment. These plans provide diverters with a better understanding of their security of water supply, which in turn helps them plan for the future and provides them with greater certainty during drought.

At 30 June, we managed 1305 river diverters. A key part of our role is to provide assistance and advice on water efficient and environmentally sustainable water use practices (such as winterfill dams), and to ensure that diverters understand our statutory responsibilities to ensure environmental flows and protect the health of waterways.

Purpose	Licences	Million litres
Domestic and stock	351	1083
Domestic, stock and irrigation	76	322
Irrigation	623	14,425
Off-stream dam filling	107	3594
On-stream dam filling	131	1632
Commercial	3	92
Commercial bottling	2	57
Fish farm	2	5876
Industrial	5	9162
Power generation	5	5
TOTAL	1305	36,248

Balancing the needs of the environment and diverters

Melbourne Water introduced restrictions and bans in the Yarra and Maribyrnong catchments as the drought continued and several waterways reached minimum flow levels or stopped flowing altogether.

Extremely low flows led to Melbourne Water introducing bans on businesses licensed to divert water in the Diamond Creek, Plenty River, Watts River, Hoddles Creek, Stringybark Creek, Wandin Yallock Creek, Pauls Creek, Steels Creek and Dixons Creek catchments. Many of these bans remained in place at 30 June.

In the Maribyrnong catchment, bans were introduced on diverters in January 2003 as a result of extremely low river flows and depletion of Melbourne Water's share of water in Rosslynne Reservoir. The ban was eased in April 2003, when a 15 per cent allocation was introduced. The following month, diverters were permitted to take their 15 per cent allocation.

Across the Yarra catchment, Level 1 restrictions were introduced in November 2002. These were upgraded to Level 2 in December 2002 and Level 3 in January 2003. Restrictions were eased to Level 2 in May 2003.

Exemptions included water required for private vegetable gardens, essential domestic and stock use, and emergency fire protection.

Melbourne Water worked to keep diverters updated on catchment conditions. Drought updates were mailed to all diverters, peak bodies and other stakeholders, and meetings held with grower associations and key industry groups.

Improvements in web-based services included updated streamflow information and access to new application forms for drought assistance. Other initiatives included improved monitoring of waterways and increased resources to manage diverters.

More efficient use of a precious resource

As part of a Victorian Government strategy to improve the management of farm dams, Melbourne Water was given a licensing role as part of our waterway management responsibilities. Our role was to ensure farm dams used for commercial purposes were registered before the 30 June 2003 deadline. We received more than 700 applications after placing advertisements in local newspapers and letterboxing more than 50,000 rural households.

We employed a river diverter and farm dams policy specialist to develop policies and guidelines relating to compliance arrangements, dispute resolution procedures, and drought management plans as part of our initiatives to improve communication procedures with our customers. An enforcement policy is also being developed to ensure we can successfully prosecute people who illegally construct dams or divert water from waterways.

Subject to conditions and Melbourne Water approval, diverters can trade their water rights temporarily or permanently. This year, 21 diverters traded some 280 million litres of water, 3 per cent more than last year. We expect increased trading as diverters become more aware of the value of their water allocations.

All of our 47 Maribyrnong diverters are metered. Installation of meters in the Yarra catchment is continuing and at 30 June, some 30 per cent of about 700 major Yarra diverters were metered. Metering will provide for greater flexibility and help us in the sustainable management of our water resources.

Our aim is to meter all diverters who use more than five million litres of water a year. We installed 92 meters and our target is to have 40 per cent of major licensed Yarra diverters metered by 30 June 2004.



Feeling the pinch

Sam Violi

Strawberry Farmer, Watts River, Coldstream

In late January, diverters were banned from drawing water from the Watts River in Healesville when it was reduced to pools of water trickling over rocks.

Sam Violi, a strawberry grower who usually pumps water from the river, said that further diversions from the Yarra tributary could damage its sustainability.

"If water is not flowing down the stream, growers understand that we can't continue to drain the resource," he said. "The river system can't be allowed to die."

He said people in the city were relatively unaffected by water restrictions, but the bans introduced on diverters had the potential to jeopardise the livelihood of strawberry growers. Some varieties could be planted only in mid-summer.

Mr Violi, who is President of the Victorian Strawberry Growers' Association, said he had been forced to bury three crops – up to 60,000 strawberry plants – at his Coldstream property.

Melbourne Water developed a Memorandum of Understanding with Southern Rural Water to clarify roles and responsibilities in managing water diversion and waterway works. Southern Rural Water has 4100 diverter customers in southern Victoria and is also the licensing authority for groundwater.

Helping out farmers

More than 500 bales of hay were harvested from Melbourne Water land and sent to drought-affected areas in Victoria's north and north-west. The initiative was a result of a meeting between Melbourne Water and the Victorian Farmers Federation. The amount of hay was enough to feed 1500 cattle for one month. Needy farmers entered a ballot for the supply of hay that was offered at a heavily reduced price to cover labour and transport costs.

Water recyclers

Melbourne Water's Eastern Treatment Plant has been selling recycled water to customers south-east of Melbourne since the 1970s. This year, some 32 customers bought 1895 million litres of recycled water for irrigation of golf courses and open spaces, and for use in agriculture and horticulture.

Our first customers west of Melbourne – the Werribee Park Golf Club and the National Equestrian Centre at Werribee – began using recycled water in March 2003. These customers used 84 million litres of recycled water piped from our Western Treatment Plant. This pipeline is designed to accommodate the future requirements of other potential customers in the Werribee Tourist Precinct, including Parks Victoria (which runs the historic Werribee Mansion) and Victoria's Open Range Zoo.

As part of our increased service commitment to recycled water customers, we established a dedicated water recycling website, www.melbournewater.com.au/recycling, and published a water recycling handbook as one of several initiatives to attract new customers.



Olive trees at Crea Olive Trees, Mornington, watered with recycled water from the Eastern Treatment Plant.

The handbook was advertised in farming publications and the availability of recycled water on the Mornington Peninsula was advertised in local newspapers. Expression of Interest forms for prospective water recyclers were published on our website.

As a drought relief initiative, recycled water was made available from our Eastern and Western Treatment Plants for suitable agricultural, horticultural and irrigation uses.

The initiative, developed in conjunction with EPA Victoria, was designed to enable Victorian farmers, councils and other users to trial recycled water, become more familiar with its use, and apply for long-term permits from EPA Victoria.

Recycled water standpipes were set up at the two treatment plants for authorised users, including councils. Several councils are using the recycled water to maintain sports ovals and median strips.

Open day for farmers

More than 100 farmers visited the Western Treatment Plant in February to learn about water recycling initiatives in the region. The open day updated farmers on projects that could have a substantial impact on local land use.

Victorian Government and Melbourne Water representatives presented information on the proposed recycled water pipeline to irrigate previously under-utilised land north-west of the treatment plant in the Balliang District, which has low rainfall and high evaporation. The pipeline would provide farmers with a reliable and consistent water supply, and create opportunities for new land uses and markets.

The open day included a tour of Werribee Agriculture, which manages Victoria's largest cattle herd on land at the treatment plant irrigated with recycled water.

Advisory committee

We established a Recycled Water Advisory Committee, which develops and reviews policies and procedures. The committee consists of Melbourne Water and user group representatives and helps us understand customer needs.

Among the issues raised by recycled water customers were fluctuations in water quality and litter. The 12 largest customers' backwash filters are inspected and cleaned monthly to monitor recycled water quality and improve customer service.

INCREASING COMMUNITY KNOWLEDGE

Achievements	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓ 	<ul style="list-style-type: none"> Opened the \$2.5 million Water Discovery Centre at the Western Treatment Plant in Werribee to showcase water issues and increase community knowledge of water resources. The Melbourne Water website was further improved and received more than 360,000 visits during the year. Won international awards for our innovative and interactive Western Treatment Plant Explorer and Raincheck 3000 exhibits that improve community understanding of our sewerage and water supply systems. Invested \$1.4 million on a range of industry and community education programs, including training workshops to accredit plumbers and gardeners in sustainable water practice. More than 350 plumbers in Melbourne are now accredited under the <i>GreenPlumbers</i> caring for our waterway program. Launched the <i>GreenGardeners</i> caring for our waterways training program to improve water conservation and stormwater management techniques in gardens around Melbourne. The program is part of our partnerships with local government, industry groups, schools and the community to drive sustainable water use. Melbourne Water continued striving to increase community understanding and awareness of drought, and research found that 97 per cent of people surveyed were able to estimate the level of Melbourne's water storages.
Disappointments	<ul style="list-style-type: none"> ✗ 	<ul style="list-style-type: none"> Failed to communicate adequately the extent of a tree-removal program at Pridmore Park, Hawthorn.
Key Challenges	<ul style="list-style-type: none"> > > > > 	<ul style="list-style-type: none"> Finalising with the community an Environment Improvement Plan for Eastern Treatment Plant by the end of 2003. Finalising a future use plan for the Devilbend Reservoir site by the end of 2003. Upgrading evaluation of our community consultation processes to ensure we engage the community effectively in the planning of capital works and other programs. Continuing to broaden community understanding of water issues and improve information supplied to the community.

Goals:

- The community is well educated and informed on water issues

Please save water now.

www.melbournewater.com.au



Involving the community

We continued to seek community input into the ways in which we plan and implement our operations. This enables us to draw on the widest possible range of experience and knowledge and helps to ensure that our operations are better understood and accepted by the community – even if they cause short-term inconvenience.

Before undertaking significant capital works, we provide information to the community and, where possible, obtain their input into planning. Where disruption is unavoidable, we ensure that the community and councils have information about the project and access to Melbourne Water people and contractors.

While the community's response was positive and supportive for many projects this year, in other cases insufficient or late information led to community dissatisfaction.

We acknowledge that we need to do more in this important area and we are continuing to revise our procedures and ensure that as many of our people as possible receive community consultation training.

Key projects

Some 180 community submissions were received in response to the July 2002 release of a draft master plan that proposed the creation of an environment and recreation park on two-thirds of the 1057-hectare site of the decommissioned Devilbend Reservoir.

Melbourne Water has considered the content of these submissions and feedback from the Devilbend Reference Group, the Mornington Peninsula Shire Council and Parks Victoria. Additional community consultation will be undertaken before the release of a master plan in late 2003.

We consulted with the local community and stakeholders about activities relating to the Eastern Treatment Plant through the Community Liaison Committee.

The committee is involved in preparing an Environment Improvement Plan, which will be presented to the community for comment by late 2003.

The committee developed a newsletter, which was distributed to stakeholder groups and the community in June. The newsletter updated readers on the proposed upgrade of the Eastern Treatment Plant and water recycling initiatives.

We also published advertisements in Mornington Peninsula newspapers about the Eastern Treatment Plant ammonia reduction and green energy projects.

Melbourne Water, in conjunction with the Western Treatment Plant Community Liaison Committee and EPA Victoria, has completed a review of the plant's initial Environment Improvement Plan, published in September 2000.

The review identified discharges to air, water, land and groundwater, land disposal, effluent and biosolids reuse, trade waste, conservation values, and land and agriculture management as the key environmental issues associated with the plant's operation.



The Eastern Treatment Plant Community Liaison Committee has been involved in developing an Environment Improvement Plan for the plant.

The revised plan demonstrates how the current \$124 million upgrade of the plant will protect and enhance the local environment, and how we will meet future EPA Victoria requirements and community expectations. The plan will be reviewed every three years.

Melbourne Water works with councils, community groups and private landowners to improve and maintain waterways. These works include removing non-indigenous trees and shrubs, weed control and revegetating banks with indigenous trees and shrubs.

About 850,000 trees, shrubs and grasses were planted to improve the long-term health of waterways across metropolitan Melbourne during this year.

After we removed mature elms and other trees along the Yarra River at Pridmore Park, Hawthorn, in late 2002, there was community anger about a lack of adequate information and consultation. We responded by organising four meetings with local residents and stakeholder groups to ensure their input into planning the rehabilitation and revegetation of the riverbank. These meetings led to a consensus approach being adopted.



Melbourne Water conducts a public meeting to discuss rehabilitation works at Pridmore Park in Hawthorn.

Subsequent tree removal programs have aimed for earlier and more comprehensive information being provided to nearby residents and community groups, and efforts to improve consultation in this area will continue in 2003/04.

Community consultation has been a feature of the earliest stages of the Northern Diversion Sewer project, a major tunnelling project that will connect Yarra Valley Water's sewerage system near the Merri Creek at Coburg to Melbourne Water's North Western Sewer in Essendon.

Melbourne Water began informing the community and carrying out technical investigations in late 2002 to help develop a concept design and final route for the new sewer by mid-2004. Workshops with key stakeholders to discuss the possible route and any impacts were held in May 2003. Construction is expected to take place between 2006 and 2008.

The \$70 million Mornington Peninsula water supply upgrade continued.

Melbourne Water's plan to replace the Frankston Reservoir with a storage tank was revised to take into account community concerns with the original location of the tank. The revised tank location has been made known to neighbours, the council and the wider community. A planning permit application will be lodged in August 2003.

A community liaison committee has had input into the design of the cover for the Dromana Reservoir. Construction of the cover and lining will take place in 2003/04.

Final preparations have been made to inform the local community of the proposed location of the storage tank to replace Mornington Reservoir. A community information session will be held in July 2003 before a planning permit application is lodged.

The Patterson Lakes Advisory Committee provides Melbourne Water with advice on special rates and services provided to residents in the area. The committee, which includes council and community representatives, is involved in a range of issues including recreational use of waterways, maintaining private beaches, aquatic weeds and water quality in waterways, and managing moorings and boats.

This year, the committee produced six community newsletters and an information directory for residents including mooring and boating regulations, access issues and contact numbers.

The committee was also involved in developing a strategy for progressively replacing existing timber jetties, and recommended a three per cent increase in the special rates to cover the costs of improving the level of services provided by Melbourne Water.

Melbourne Water auctioned the last of our 38 lots at Christmas Hills in June 2003. We worked successfully with the Nillumbik Shire Council, the local community and agencies to arrive at an agreed restructuring of the land.



Putting consultation to the test

M41 Punt Road Water Main Replacement

When Melbourne Water decided to replace a water main running under Punt Road, one of the city's main thoroughfares, it was clear that community consultation would be a key part of the project.

The new, larger main will run along an alternative route under Yarra Park, close to the MCG and the Richmond Cricket Ground.

The route was determined with a range of groups including sporting bodies, Friends of the Elms, the East Melbourne Residents' Association and Melbourne City Council.

Timing of the \$6.9 million project was planned in conjunction with Tennis Australia, the Australian Cricket Board, the Australian Football League, Melbourne Storm and the MCG to minimise disruption to traffic and car parking during sporting events.

We also consulted closely with emergency services, Transurban, local hospitals, and City West Water (which supplies water to the MCG). A pathway and times for truck movements was developed with residents.

The 1800-metre main will run under Gosch's Paddock, one of Melbourne's earliest tips, so early contact was made with Heritage Victoria. And while construction is occurring in Yarra Park, the Department of Aboriginal Affairs will be working with us to ensure that two scar trees are protected.

One of the more testing sections will be when contractors tunnel a 150-metre section through rock and clay across 10 railway lines near the MCG, without delaying trains.

INCREASING COMMUNITY KNOWLEDGE

This process resulted in community support for the local structure plan with legally binding agreements covering land use and development, revegetation requirements, sewage treatment and controls over domestic animals. These initiatives followed a decision in 1999 that 278 hectares set aside as buffer land for a proposed reservoir were no longer required.

Protecting our waterways together

The people of Melbourne place a high value on our waterways and bays, which provide habitat for native species and recreational amenities for people.

Melbourne Water is committed to supporting and working with councils, environment groups and community members who work, often in their own time, to protect and enhance the environment, especially through revegetation and weed control along waterways.

This year, we provided a range of community, Landcare and "Friends of" volunteer groups with almost \$100,000 to support their activities, \$60,000 more than last year. We received 51 grant applications and funded 42 projects.

Major project grants

Community group	Project
Friends of Edithvale Seaford Wetlands	Restoration and improvements
Neerim and District Landcare Group	Fully equipped revegetation trailer
Friends of Damper Creek	Restoration and revegetation of Bellbird Corner
Friends of Back Creek	Quinton Road rehabilitation after willow control works
Friends of Scotchmans Creek and Valley Reserve	Fairway Reserve revegetation
Friends of the Helmeted Honeyeater	Ergonomic nursery benches
Narre Warren South Friends of River Gum Creek Reserve	Oakgrove Community Environment and Conservation Project
Friends of Scotchmans Creek and Valley Reserve Inc	Regent Street Reserve rehabilitation (stage 3)
Merriang and District Landcare Group Inc	Establishment of indigenous nursery (stage 2)
Friends of Moonee Ponds Creek	Revegetation of lower reaches
Friends of Diamond Creek	Falkiner Street wetland
Friends of Lower Kororoit Creek	Kororoit Creek corridor – embankment planting
First Friends of the Dandenong Creek	Community tool trailer

Strathewen Landcare Group	Weed control and revegetation along the upper Arthurs Creek
Upper Yarra River Reserves Committee of Management	Rehabilitation of reserve west of Brisbane Hill bridge

Minor project grants

Community group	Project
Southern Dandenongs Community Nursery	Revegetation of Monbulk Creek retarding basin
South Alphington and Fairfield Civic Association	Alphington wetlands riverbank revegetation
Friends of Moonee Ponds Creek	Revegetation works
Friends of Merri Creek	Rushall Reserve creek bank revegetation
Cardinia Environment Coalition	Bunyip catchment biolinks revegetation project (stage 1)
Oakgrove Community Centre	Tools and toolshed
Warringal Conservation Society	Warringal wetland restoration project
Mernda Riverland Management Group	Native plant and weed identification books
Campbells Croft Abbey Walk Advisory Committee	Indigenous garden bed next to wetland (stage 1)
First Friends of Dandenong Creek	Maintenance of water quality signs

Newsletter grants

Community group
Friends of the Island
Poowong and District Landcare Group
North Warrandyte Osborne Peninsula Landcare
Campbells Croft Abbey Walk Advisory Committee
Macclesfield Landcare Group
Friends of Edithvale Seaford Wetlands
Friends of Hoddles Creek
First Friends of the Dandenong Creek
Friends of Back Creek
Mt Toolebewong Landcare Group
Healesville Environment Watch
Strathewen Landcare Group
Cardinia Environment Coalition
Greater Dandenong Environment Group
Friends of Scotchmans Creek and Valley Reserve
Friends of Lower Kororoit Creek
Mordialloc Beaumaris Conservation League

Waterwatch

Waterwatch is an environmental education program, which helps schools and community groups use water-monitoring equipment and biological monitoring methods to assess the water quality of their local waterways. Melbourne Water is the regional co-ordinator of the program in the Port Phillip and Western Port region. We contributed some \$70,000.

This year, the program continued to grow, with more than 9300 people in 295 groups monitoring 566 sites. Primary and secondary schools, tertiary institutions, Landcare and "Friends" groups, and local businesses were among those involved.

Revitalising waterways

Melbourne Water is helping landholders revitalise waterways on their properties damaged by livestock and loss of natural vegetation through the Stream Frontage Management Program. We fund weed removal, planting of indigenous species along banks, and fencing to exclude stock. Property owners, Landcare groups and volunteer groups undertake the work.

This year, some 348 properties benefited from the \$900,000 program. A total of 122,680 trees, shrubs, grasses and sedges were planted, and more than 78 kilometres of fencing erected.



School students take part in the Melbourne Waterwatch program in the Carlton Gardens.

Twelve councils received funding for 27 separate waterway sites in the fourth round of the Corridors of Green program. The program provided \$193,500 for streamside vegetation works along 22 waterways, with almost 64,000 plants established. United Energy supported the project in its operating area in the south-eastern suburbs, funding another two projects to the value of \$40,000 in which 10,000 plants were established.

Frog Census

The presence of frogs is a strong indicator of the health of Melbourne waterways. The Melbourne Water Frog Census, a partnership with the Amphibian Research Centre and community volunteers, was launched in December 2001.

In the Spring 2002 census, 70 people attended free training sessions and then participated in recording frog calls at 174 sites.

Volunteers found the rare Growling Grass Frog in five locations, including two new sites in Nar Nar Goon. The Peron's Tree Frog was found for the first time in Belgrave and Pearcedale. This is significant because the Peron's Tree Frog has generally been found in Melbourne's northern suburbs.

Other key findings were two new recordings of the Eastern Dwarf Tree Frog in Blackburn South and Thornbury. The Eastern Dwarf Tree Frog is common to coastal New South Wales and Queensland, and is believed to travel south in fruit boxes.

Another census was conducted in Autumn 2003, with 40 participants. Tapes were being analysed at the end of the year.



Science teachers learn to call frogs at La Trobe University at a conference supported by our education program.

Platypus studies

Similarly to frogs, the presence of platypus is an important indicator of waterway health. Melbourne Water undertakes waterway improvement programs designed to provide habitat for platypus. We then work closely with the Australian Platypus Conservancy to detect and monitor platypus populations.

This year, the Melbourne Water Urban Platypus Program conducted annual trapping studies that found evidence of expanding platypus populations in the Yarra River at Heidelberg, Diamond Creek upstream of Eltham, Mullum Mullum Creek on the outskirts of Donvale, and Olinda Creek just outside Lilydale.

Consultative committees

This year, Melbourne Water consulted with, and received advice from the following committees, organisations and boards:

Land development

Association of Land Development Engineers Liaison Committee and Northern, Western, Southern Region Council committees

Urban Development Institute of Australia Liaison Committee

Development Industry – Water Industry Liaison Committee

Growth Area Technical Committee for Casey/Cardinia

Growth Area Technical Committee for Wyndham

Commonwealth Games Village Environmental Design Review Group

Commonwealth Games Village – Royal Park Wetlands Technical Review Group

Commonwealth Games Village – Royal Park Wetlands Advisory Committee

Sustainability for the Built Environment Reference Group

Sustainability and the Building Code Reference Group

Melbourne Water/VicRoads Liaison Committee

Special rating arrangements

Yallock Drainage and River Improvement Rates Advisory Committee

Koo Wee Rup and Longwarry Drainage and Flood Mitigation Advisory Committee

Patterson Lakes Advisory Committee

Diversions/flow management

Victorian Streamflow Management Plans Working Group

Gippsland Regional Monitoring Partnership Working Group

Gippsland Research, Development and Co-ordination Committee

Thomson/Macalister Environmental Flow Working Group

Hoddles Creek Streamflow Management Plan Working Group

Diamond Creek Streamflow Management Plan Working Group

Plenty River Streamflow Management Plan Working Group

Deep Creek Streamflow Management Plan Working Group

Wandin Yallock Groundwater Supply Protection Area Management Plan Working Group

Koo Wee Rup Groundwater Supply Protection Area Management Plan Working Group

Improving Water Markets Steering Committee

South Central Local Steering Group

King Parrot Creek Streamflow Management Plan Working Group

Flowerdale Area Improvement Program Water Working Party

Gippsland Research Co-ordination Group

Environmental Working Group – Yarra Bulk Entitlements Process

Environmental Working Group – Tarago Bulk Entitlements Process

Metropolitan Drought Response Plan Co-ordination Team

Metropolitan Drought Response Plan Monitoring Sub-committee

Metropolitan Drought Response Plan Communications Sub-committee

Metropolitan Drought Response Plan Operations Sub-committee

Waterway management

Port Phillip and Western Port Regional River Health Strategy Steering Committee

Port Phillip and Western Port Regional River Health Strategy Working group

Kananook Creek Association

Merri Creek Management Committee

Moonee Ponds Creek Coordination Committee

Moonee Ponds Creek – Cleanup Project

Bunyip Main Drain Project Coordinating Committee

“Friends of” groups (various)

Wetlands/water quality management

Carrum Lowlands Wetlands Community Forum

Ruffey Lake Park Advisory Committee

Lillydale Lake Landcare Consultative Committee

State/national policy/advisory committees or boards

Trade Waste Acceptance Advisory Committee

Farm Dams Project Steering Group

Shire of Yarra Ranges Municipal Emergency Management Planning Committee

Municipal Emergency Management Planning Committee

City of Maribyrnong Municipal Emergency Management Committee

Western Port Portfolio Coordinating Group

Index of Stream Condition Steering Committee

State Fishway Implementation Committee

State Flood Policy Committee

Victorian Flood Warning Consultative Committee (Metropolitan Bureau)

Flood Liaison Committee

Victorian Stormwater Advisory Committee

Victorian Stormwater Action Program Working Group

Victorian Stormwater Action Program Technical Group

Board of Water Services Association of Australia (WSAA)

Water Services Association of Australia (WSAA) Water Health Environment & Sustainability Reference Group/Committee

Water Services Association of Australia (WSAA) Regulation Assets & Performance Reference Group/Committee

National Codes Reference Group

Water Efficient Appliance Group
Regulatory Control of Water Meters
Painting Contractors Certification Program Technical Committee
Australian Water Association
International Water Association
Victorian Water Industry Association
Water Environment Federation
Co-operative Research Centre for Water Quality and Treatment
Co-operative Research Centre for Catchment Hydrology
Co-operative Research Centre for Freshwater Ecology

Catchment and land protection

State Water Quality Monitoring and Assessment Committee
Waterways and Drainage Advisory Committee
Tarago Integrated Catchment Management Plan Committee
Yarra Region Agribusiness Forum
Yarra Valley Environmental Best Practice Working Group
State Waterway Managers Forum
Waterway Rehabilitation Working Group
Floodplain Managers Network
Neerim District Landcare Group
Board of Port Phillip and Western Port Catchment Management Authority
Port Phillip and Western Port Regional Catchment Strategy Steering Committee
Dandenong Catchment Committee
Maribyrnong Catchment Committee
Yarra Catchment Committee
Western Port Catchment Committee
Werribee Catchment Implementation Committee
Galada Tamboore Working Group
Monbulk Creek Retarding Basin/Birdland Reserve Working Group
Yarra Valley & Dandenong Ranges Environmental Weed Working Group
Knox Regional Pest Plant & Animal Management Group

Regional issue committees

Eastern Treatment Plant Community Liaison Committee
Western Treatment Plant Community Liaison Committee
Western Treatment Plant Wildlife Consultative Committee
Western Treatment Plant Spits Forum
Devilbend Reference Group
Northern Suburbs Sewerage Strategy Consultation Committee
Eastern Freeway Extension Community Activity Group
Geelong Freeway Extension Liaison Group

Yarra Glen Bypass Environmental Effects Consultative Committee

Monash Freeway – Hallam Bypass Project

Waterwatch

Melbourne Waterwatch Co-ordinators' Committee
Melbourne Waterwatch Boonerwung Region Steering Committee
Melbourne Waterwatch Werribee Catchment Steering Committee

Professional organisations

Stormwater Industry Association (Victorian Committee)

Emergency response and fire prevention

Region 13 Fire Prevention Committee
Regions 12 and 14 Fire Prevention Committees
Region 4 Division 3 Emergency Response Committee.
Shire of Yarra Ranges Fire Prevention Committee
Cardinia Shire Fire Prevention Committee
City of Whittlesea Fire Prevention Committee
Shire of Yarra Ranges Municipal Emergency Response Management Committee
Shire of Nillumbik Fire Prevention Committee
Victorian State Emergency Service/Melbourne Water/Municipal Association Victoria Emergency Issues Committee
Bureau of Meteorology/Victorian State Emergency Service, Melbourne Water Steering Group

Recycled water

Recycled Water Advisory Committee

Increasing water conservation and drought awareness

Melbourne Water is working with the Victorian Government to develop and communicate key water conservation messages. Our community awareness campaigns included billboards on Punt Road, Flinders Street and the Tullamarine Freeway featuring daily water storage updates. Weekly water updates continued in metropolitan daily newspapers and key radio and television stations. Daily storage updates were published on our website and several other popular websites, such as The Age online.

Water storage advertisements also appeared in 32 suburban newspapers, while storage updates, water conservation messages and information on Melbourne's water supply system were translated into 10 languages for ethnic newspaper and radio advertisements.

A Newspoll market research study in June 2003 found that more than six in 10 people knew the water storage level within two percentage points, and 44 per cent of all respondents knew the storage level to the nearest percentage point.

Publications

Melbourne Water produces a range of publications to increase community knowledge and understanding of water issues and our activities. This year, we began producing our bi-monthly magazine, *The Source*, and other publications on CD-ROM to save paper and reduce costs.

Melbourne Water's Business Review 2001/02 received a silver award in the Australasian Reporting Awards. We also received a special commendation for the report in the communication award that recognises excellence in communication with stakeholders.

We produced the following magazines, booklets, brochures, newsletters, CD-ROMs and technical papers:

Water

Living with Drought
Our Precious Drinking Water
Rain Hail Shine flyer

Stormwater/drainage/waterways

Wetlands – Nature's Filter
Water Sensitive Urban Design
Protecting stormwater quality from building and construction sites (with Municipal Association of Victoria and EPA Victoria)

Recycling/sewage

Recycling Water for a Greener Future
Western Treatment Plant: A remarkable community asset
Western Treatment Plant Essential Facts (CD-ROM)
Western Treatment Plant Environment Improvement Plan Summary
Recycled Water Handbook

An introduction to the proposed Balliang district recycled water pipeline studies

Balliang Recycled Water Project: Feasibility Study Summary
On Site Water Recycling, Using recycled water for a greener future

Greenhouse

Meeting the Greenhouse Challenge

Strategic plan

Catchment to Coast: Our long-term plan to make Melbourne the world's most water-sensitive city (also on CD-ROM)

Privacy policy

Melbourne Water Privacy Policy – Protecting your Information Privacy

Annual reports

Melbourne Water Business Review 2001/02
Melbourne Water Environment Review 2001/02
Melbourne Water Social Review 2001/02
Melbourne Water Annual Report 2001/02 CD-ROM

Education

Drain Safety, the Signs are Everywhere
Water Education Tours
Drains to our Waterways (booklet and video)
Western Treatment Plant Explorer (CD-ROM)
Home Water Investigator (CD-ROM)
All About Water: An education resource (CD-ROM)
Essential Facts – various fact sheets
EdStream Newsletter (February 2003 and June 2003)
GreenPlumbers: Caring for our Water – Householder Guide
GreenGardeners: Caring for our Waterways – Program guide
GreenGardeners: Caring for our Waterways – Householder guide

Consultation

Community information bulletins for various capital works programs
Hoddles Creek Streamflow Management Plan (Draft for comment and Final)
Diamond Creek Streamflow Management Plan (Draft for comment and Final)
Devilbend Reservoir Draft Master Plan
Protecting Melbourne's Water Supply – M41 Punt Road Water Main Replacement Project
Protecting Melbourne's Northern Waterways – The Northern Diversion Sewer Project
Newsletter updates for diverter customers
Patterson Lakes Newsletters

Patterson Lakes Jetty Guidelines

Patterson Lakes Tidal Lakes Residents Directory

Patterson Lakes Quiet Lakes Residents Directory

Eastern Treatment Plant Community Liaison Committee Newsletters

Irrigation and Commercial Farm Dams Licence to Water: Registering or Licensing Existing Dams

The Source

Issue 21, August 2002

Issue 22, November 2003

Issue 23, December 2003

Issue 24, February 2003

Issue 25, May 2003

Issue 26, June 2003 (CD-ROM and online versions also)

Technical

Constructed Wetland Systems: Design Guidelines for Developers

Modelling Urban Stormwater Improvement Conceptualisation (MUSIC) Input Parameters and Constructed Wetland Design Guidelines for Developers

Waterway Activity Management Plans, monitoring reports, assessments, studies and waterway quality data reports

Various scientific and technical reports

Internal

Code of Conduct

In Touch newsletter

Education – the key to behavioural change

Our education programs and partnerships aim to improve understanding of our water resources, change patterns of behaviour among young people and increase sustainable water use in the community.

We invested \$1.4 million on our education program this year.

Melbourne Water continued developing partnerships and relationships with teacher associations. We were a major sponsor of annual conferences of Victorian geography and science teachers.

Other initiatives included providing a display at VCE environmental science, chemistry and biology conferences, and developing online case study materials for geography and environmental science teachers and students.

Melbourne Water was also a major supporter of the Australian Geography Teachers' Association Geography Week promotion in June 2003.

Early in the 2003 school year, we distributed our first education kit, including the *EdStream* newsletter and a kit folder of Melbourne Water curriculum support materials to all schools in greater Melbourne. We intend to have one education mailout every school term.



A training day for our tour guides at the Water Discovery Centre at the Western Treatment Plant.

The *Western Treatment Plant Explorer*, a virtual tour that helps users understand Melbourne's sewerage system and the treatment plant at Werribee, won best multimedia education product with an environmental subject in the Pirelli INTERNETional Award 2002. It is the first time an Australian entry has won this international award. Melbourne Water commissioned Curriculum Corporation and Nectarine, to develop this education resource.

Raincheck 3000, an engaging and informative tour of Melbourne's uninhabited water supply catchments, was awarded the gold prize at the American Association of Museums' MUSE Awards. The exhibit follows the path of a raindrop from a cloud, through the catchments and pipe network to the tap. It was developed by Museum Victoria and production company, Megafun, in collaboration with Melbourne Water.

The *Eastern Treatment Plant Explorer* is an additional education resource that takes users on an interactive journey around the Eastern Treatment Plant. It was based on the same award-winning design as the *Western Treatment Plant Explorer* and was also developed by Curriculum Corporation and Nectarine.

We updated our popular *Drains to the Bay* kit with a new *Drains to our Waterways* kit. The kit, developed with the Gould League, is linked to the Victorian curriculum, and provides teachers with a learning program on the impact on our waterways of litter and stormwater pollution.

We also updated our ecological management game *The Bay* CD-ROM. This popular resource, developed in partnership with Curriculum Corporation and CSIRO, is suitable for students of all ages.

Twelve primary and secondary schools shared \$21,000 in the Water Savers Challenge as a reward for reducing their water consumption by up to 50 per cent. The program, initiated by Melbourne Water and supported by the three metropolitan retail water companies, was organised by the Gould League. Schools were required to publicise their water saving plans, closely monitor their water meters and undertake water-saving activities.

Upgrading our website

Melbourne Water's website received 362,684 visits this year, an increase of 21 per cent from 2001/02.

The website was further improved in August 2002 to provide ready access to information. Enhancements included a new front page featuring the daily water storage figure, an upgraded menu system and immediate access to media releases. Increased information was included about our customers, along with links to Melbourne Water's other websites. New sites added during the year were:

www.melbournewater.com.au/education

This site provides comprehensive information and links for students about the water cycle, including games and quizzes. The structure and design of the site was based on research and testing with students and teachers.

The site also provides resources for teachers including case studies, interactive tools and information on our tours program for which an online booking system will be available from late 2003.

www.melbournewater.com.au/wsud

This website brings together information to identify water-sensitive options in urban planning by incorporating water quality treatment in the stormwater drainage system. The site focuses on stormwater treatment but also includes information on water conservation, water recycling and protecting waterways.

It features water-sensitive urban design principles, treatment tools such as litter traps, bioretention systems and wetlands, case studies, resources and key contacts. The site is designed for the development industry, councils, town planners, landscape architects and environmental engineers, and tertiary students.

www.melbournewater.com.au/recycling

This website features a handbook for our recycled water customers, including information on how to obtain recycled water, customer and supplier obligations, water quality available from our sewage treatment plants, and useful contacts.

The site also includes a booklet outlining current and forecast water recycling initiatives and how we plan to meet the Victorian Government's water recycling targets.

Community visits and tours

Melbourne Water opened an innovative education resource at the Western Treatment Plant this year to help students and the broader community understand more about water. The \$2.5 million Water Discovery Centre takes visitors on a stimulating and interactive journey through the water cycle – from the clouds to the bay.

The centre covers our protected catchments, water supply, sewage treatment, water recycling, stormwater, waterways, bays and oceans. The *Western Treatment Plant Explorer* and *Raincheck 3000* – and practical examples of sustainable water use, including rainwater tanks and

environmentally friendly toilets, are included, and a water-sensitive garden is planned for the site.

Educational tours of the Western Treatment Plant increased markedly this year, with 3633 visitors, including 2316 students. These numbers are expected to increase further in 2003/04.

More than 1200 people visited the Western Treatment Plant during a community weekend in June 2003. Visitors inspected progress of the plant's environmental upgrade, and toured the internationally recognised wetlands at Lake Borrie, the Water Discovery Centre, and the plant's cattle farm.

The weekend also featured displays by the Amphibian Research Centre, Western Region Environment Centre and the Australian Water Services Association, and presentations by Green Plumbers and Green Gardeners.

A foyer display at the Eastern Treatment Plant in Bangholme was completed. The display informs visitors of the past, present and future of the plant. This year, 1140 people visited the plant, of which 760 were students.

Lynbrook Estate

This year, we began offering tours to Lynbrook Estate, a new urban development that incorporates water-sensitive urban design principles. Some 216 people, including 186 students, visited and senior environmental science students participated in water quality monitoring at the site.

Devilbend Reservoir

Four VCE geography groups toured Devilbend Reservoir on the Mornington Peninsula. Possible future uses for the site of the decommissioned reservoir include an environment and recreation park. The tour provides an excellent opportunity to investigate a case study of the complexities of environmental management.

Winneke Water Treatment Plant

608 people – mainly primary and secondary school groups – visited Winneke Water Treatment Plant, where they learned how Yarra River water is turned into drinking water for Melbourne. These tours are managed by EcoAdventure Tours.

Plumbers and gardeners go green

The landmark *GreenPlumbers*: caring for our water program was expanded this year, with a further 150 plumbers achieving accreditation. There are now 350 plumbers with Green Plumber accreditation in Melbourne.

The program, run by Melbourne Water and the Master Plumbers' and Mechanical Services Association of Australia, teaches plumbers and plumbing apprentices about water conservation, stormwater pollution and waste disposal methods so that they can provide better advice to the community.

The Senate Environment, Communications, Information Technology and the Arts Reference Committee said in its report *The Value of Water: An Inquiry into Australia's Urban Water Management*, that the program "should provide the

model for similar accreditation programs targeting all professions with a role in water management”.



Camberwell Grammar School students tour Lynbrook Estate, a new urban development that incorporates water-sensitive urban design principles.

We extended our commitment to training industry professionals in water management by developing the *GreenGardeners: caring for our waterways* accredited training program with partners Sustainable Gardening Australia, Landscape Industries Association of Victoria, Holmesglen Institute of TAFE and Environs Australia.

Landscape gardeners and nursery staff across Melbourne can attend workshops on sustainable gardening presented by qualified trainers. The training workshops, which began in June 2003, provide information on issues such as stormwater run-off, use of chemicals and fertilisers, non-invasive plants and water conservation.

We also provided funding for a pilot project in 12 garden centres and nursery businesses to increase community awareness of the environmental impact of gardening and landscaping.

Under this project, Sustainable Gardening Australia provides garden centres and nurseries with information on drought-tolerant and native plants, irrigation systems, greywater and rainwater, chemical toxicity, soil improvements, weeds and composting. A system rating the environmental impact of products such as insecticides, pesticides and herbicides was developed with Melbourne University.

Sponsorships

Melbourne Water supports a broad range of educational, environmental and community activities. Our sponsorship activities include partnerships with teacher and industry associations and support of major educational exhibits at the Melbourne Museum, Melbourne Aquarium, and Scienceworks. We also supported the Dolphin Research Institute's marine education centre.

As part of our commitment to education, we support the Blue Zoo Education Program at the Melbourne Aquarium, which has led to the development of three new interactive online educational games for the 2003 school year.

We also sponsored La Trobe University's Melbourne Wildlife Sanctuary's development of a wetlands tours



David Schultz became the 350th plumber to be accredited under the *GreenPlumbers: caring for our waterways* program.

program – promoted at the Science Teachers' Association of Victoria conference in November 2002 – and a teacher and student education kit with links to the Victorian curriculum standards framework outcomes.

Water for Life Fund

In March 2003, Melbourne Water became one of 25 foundation members of the Water for Life Fund.

The program, run by the World Wide Fund for Nature Australia, aims to change the way Australians value and use water and establish a national plan to preserve water for future generations. Each foundation member contributes \$25,000.

FOCUSING ON GOOD RESULTS

Achievements	<ul style="list-style-type: none"> ✓ ✓ ✓ 	<ul style="list-style-type: none"> Continued to give the highest priority to risk and emergency management with the Victorian Auditor-General acknowledging our work in this area in his March 2003 report. The Eastern Treatment Plant became the second Melbourne Water facility to gain an operating licence under major hazard facilities regulations. A Lloyd's audit of our safety management system found that our system continues to comply.
Disappointments	<ul style="list-style-type: none"> ✗ ✗ ✗ 	<ul style="list-style-type: none"> We did not achieve our goal of protecting 80 vulnerable properties from flooding. A burst water main in Bundoora caused some residential flooding and low-pressure complaints. Our people and contractors had an unacceptable nine lost time injuries – well above our target of zero.
Key Challenges	<ul style="list-style-type: none"> > > > > > 	<ul style="list-style-type: none"> Completing an approved EPA Victoria rehabilitation plan for the disused Dandenong Treatment Plant. Ensuring the security of our built assets. Minimising the risk of bushfires in our protected catchments if dry conditions continue. Achieving zero lost time injuries for our people and contractors. Encouraging a motivated and skilled workforce that generates new ideas and is aligned with the latest technologies and innovations.

Goals:

- Ensure that the integrity of our water, sewerage and drainage infrastructure is well maintained and protected now and into the future
- Achieving zero days lost through injuries to employees and contractors



It is our responsibility to provide a safe and healthy workplace for anyone who enters Melbourne Water's work areas. This involves achieving our target of zero injuries for our people and contractors, and ensuring the health and safety of the people, property and environment that are potentially impacted by our operations.

We have a WorkCover self-insurance licence, SafetyMAP Level 1 certification, and are working to improve our occupational health and safety systems and culture.

About \$300,000 was committed to improving our health and safety performance including risk assessments, employee assistance, training, compliance, medical consultancy, fitness testing and vaccinations.

There were nine lost-time injuries, seven of which were due to strains, sprains and minor cuts, with two fractures. This performance was unacceptable and comprehensive individual action plans were developed to address this poor result.

We initiated a pilot program this year to improve the health and fitness of our operators and to reduce injury. Twelve people have completed the program at Preston and Silvan reservoirs. The training awareness included stretching techniques and information on nutrition and diet.

Managing risk and maintaining high security

The Victorian Auditor-General's performance audit, presented to Parliament in March 2003, highlighted that Melbourne Water was an organisation that performed very well in risk management, including emergency management.

Security continued to be a major priority for us this year, and we upgraded security systems using the latest technology to control and monitor access to our sites, and completed much of the design work to upgrade security at our reservoirs.

Melbourne Water attended an emergency response workshop in December 2002 to reach a common understanding of emergency response practices for the Victorian water industry. The workshop highlighted industry concerns regarding security and the need for a co-ordinated approach to risk assessments and emergency response.

Melbourne Water is committed to providing a healthy and safe workplace, and promotes improvements in work processes. We work to reduce and control risk as part of a comprehensive approach to safety management at and around our sites. We also have contingency plans to manage and recover from emergencies.

Managing our built assets

We have comprehensive procedures for condition monitoring and risk assessment of assets to enable us to calculate the likelihood and consequence of an asset failing. These procedures are used to determine the condition of assets and to calculate business risk. For each of Melbourne

Water's assets the following have been determined:

- Required level of service
- Likelihood or probability of failure
- Consequence of failure
- Existing level of business risk.

This year, we undertook the following initiatives in managing risk associated with our water, sewerage and drainage infrastructure:

- Continued to use the latest technology to control and monitor access to our sites and worked with the Victoria Police and our retail water customers on security protocols to manage risk at our sites
- Continued to implement a vulnerability risk assessment guideline to identify and categorise water and sewerage assets and recommend a minimum level of security that could be adopted by all water authorities
- Invested \$100,000 to undertake an independent review of fire protection and suppression arrangements in our water supply catchments and major water supply assets. This work will be completed by August 2003
- Continued examining the potential impacts on the Hobsons Bay Sewer of the Victorian Channels Association's project to deepen the Port Phillip shipping channel. This sewer runs under the Yarra River and takes 21 per cent of Melbourne's flow. Options include lowering the three-metre sewer to minimise operational risk or protecting its present location
- Continued to work closely with VicRoads to reduce the impact on the stormwater system of such construction projects as the Hallam Bypass, Pakenham Bypass, Melba Highway Bypass, Craigieburn Bypass and Eastern Freeway upgrades. This also involves minimising risk to our assets
- Completed much of the design work to upgrade security at our reservoirs.

World first water safety and risk management conference

Dr Melita Stevens, Research and Technology, and Kevin Hellier, Public Health Planning, were invited to speak at the world's first water safety and risk management conference in Berlin in April 2002.

Dr Stevens presented the World Health Organization's approach to Hazard Analysis and Critical Control Point (HACCP) Water Safety Plans that contain guidance for the third edition of the *WHO Guidelines for Drinking Water Quality*, due for release late in 2003. Dr Stevens and several other scientists were responsible for preparing the Water Safety Plan text for the World Health Organisation. Kevin Hellier spoke about Melbourne Water's experience in developing and implementing a HACCP plan for drinking water supply.

In November 2002, Dr Stevens organised and moderated the first HACCP workshop for drinking water in the United States. The workshop reinforced the leading roles that Melbourne Water and the Australian water industry play in

the adoption and promotion of an overarching and sensible approach to risk management.

Melbourne Water, in conjunction with the Australian Water Association, staged a workshop in March 2003 on the application of HACCP for drinking water quality.

The workshop was an initiative of Melbourne Water to help rural and regional water utilities gain a better understanding in developing and implementing risk management plans based on HACCP.

Fire protection

Melbourne Water is involved with fire protection, along with the Department of Sustainability and Environment and the Country Fire Authority, to protect our water supply catchments and water supply assets.

Fires in the water supply catchments have the potential to impact on short-term water quality, as experienced this year in Canberra and Victoria's north-east, and on long-term water yield.

Given the serious wildfire threat this year, Melbourne Water liaised closely with the statutory authorities to ensure we were prepared. Our catchment operations people were trained and equipped to the accredited standard, and all equipment, tanks, bulldozers, pumps and auxiliary equipment were checked to ensure they were fully operational.

Melbourne Water attended 15 fires that could have threatened our assets. Only one of these, at Frankston Reservoir, developed into a significant blaze, burning about 40 of the 98 hectares of land around the reservoir. We are reviewing the Frankston Reservoir fire plan and seeking input from the local council, Country Fire Authority and neighbouring residents.

Our firefighting resources provided backup during January 2003 in the Port Phillip Region while Department of Sustainability and Environment reinforcements were rushed to the huge fires that broke out in Victoria's north-east and Gippsland.

Dandenong Treatment Plant

The Dandenong Treatment Plant is subject to a Pollution Abatement Notice issued by EPA Victoria. EPA Victoria is redrafting the notice using additional data obtained from site investigations completed during the year.

Melbourne Water and VicUrban (formerly the Urban and Regional Land Corporation) have signed a memorandum of understanding that will produce a joint rehabilitation and development plan. Planned site remediation techniques are waiting for in-principle approval by EPA Victoria.

Flood protection

Melbourne Water is responsible for drainage and flood protection. Our aim is to reduce the impact on people and buildings from flooding due to a one in 100-year storm – the standard for development. We undertook the following key initiatives this year to minimise the impact of flooding:

- Continued to roll out flood area information into council town planning schemes. To date, the Minister has approved 22 amendments
- Began work on the design and construction of retarding basins at Narre Warren North, Lyndhurst South Drainage Scheme (Ayres Close Retarding Basin) and Lyndhurst North. The need for planned retarding basins at Toomuc Creek and Stony Hill Creek is begin reviewed
- Provided flood protection to 63 vulnerable properties at a cost of \$3.7 million. We did not achieve our goal to reduce the number of vulnerable properties by 80 a year by June 2003 at a total cost of \$7.8 million because detailed analysis found some projects were uneconomical
- Projects started or completed included the Clarinda Main Drain (Kingston), Tooronga Main Drain (Stonnington), Dingley Diversion Drain (Kingston), Elsternwick Main Drain (Bayside), Palmer Main Drain (Yarra), Five Ways Drain (Yarra Ranges).

Melbourne Water has now included available flooding information in all planning schemes under our responsibility. This has been a substantial undertaking involving 31 planning scheme amendments, requiring the individual notification of about 105,000 affected landowners and occupiers.

The successful collection and public release of flood data on such a large scale has been unprecedented anywhere in Australia. This ready availability of accurate, consistent flooding information will make a major contribution to land development decision-making and the planning process, as well as to community safety.

Burst water main

In April 2003, a burst occurred in a 105-year-old wrought iron water main in Bundoora. Melbourne Water and Yarra Valley Water worked together to shut down the main and arrange alternative supply for the area.

The burst caused flooding in some nearby houses and several customer complaints were made relating to low water pressure.

A 13-kilometre section of the main, from Morang to Preston, was due to be replaced in 2006/07. That was revised following a pipeline condition assessment and, as a result of the burst, a small section will be replaced by the end of 2003. Design began late in the year to replace the entire section with a steel, cement-lined structure.

A safe work place

An audit by Lloyd's Register Quality Assurance found that our safety management system continues to comply with the criteria required by SafetyMAP. The audit, conducted in March 2003, included a visit to our maintenance systems team at Healesville. The Lloyd's auditor noted the risk assessments, health and safety checks and contract management work undertaken by the team, and praised actions taken to improve our management focus on safety, and the work being done to identify and control hazards across the organisation.

Key safety indicators 2002/03

Lost Time Injuries	
Melbourne Water	6
Contractors	3
Incidents	
Melbourne Water	35
Contractors	33
Near Misses	
Melbourne Water	4
Contractors	10

Major hazard facilities

Victoria's Occupational Health and Safety (Major Hazard Facilities) regulations, administered by WorkSafe Victoria, aim to improve health and safety and reduce the likelihood and consequences of incidents.

This year, the Eastern Treatment Plant at Bangholme became the second Melbourne Water facility to receive an operating licence under these regulations. The site stores and uses liquid chlorine, diesel and natural gas, and creates and uses biogas as part of its sewage treatment process.

The licence was received following the preparation of a 650-page safety case, which has been praised by WorkSafe Victoria. Some 20 Melbourne Water people were involved in this 18-month process, which included three workshops with the Country Fire Authority.

Melbourne Water will spend more than \$500,000 over the next three years on improvements to the plant identified in the safety case, which range from upgraded signage to increased online process monitoring via the plant's process control system.

Melbourne Water's Winneke Water Treatment Plant was the first facility in Victoria to receive an operating licence under these regulations in May 2002.

For Winneke, we now have a formally documented understanding of:

- The major hazards at the site
- The critical control measures required to prevent these hazards causing a major incident
- A Safety Management System to manage those critical controls

- An updated emergency response plan developed in conjunction with State emergency organisations.

Our third and final safety case for a major hazard facility is for Silvan Reservoir. This is due for submission to WorkSafe Victoria in September 2003.



One small step

Andre Belterman
Health and Safety Representative

Our people will enjoy safer, more comfortable and ready access to our utility vehicles, thanks to an observant Health and Safety representative, Andre Belterman.

Mr Belterman, who works in our water supply catchments, spotted a Parks Victoria utility with a colourful step attached to the towbar ball. He realised that the step would give easy access to the tray of a utility and protect people's legs from hitting the towbar.

He had previously experienced difficulty trying to reach items stored in the back of his utility. He found the contact for the Queensland company that sold the steps. It didn't have a stock model for our towbar coupling, but was prepared to produce a version to suit our design.

Mr Belterman took the idea to the Health and Safety Steering Committee. Members thought it a good idea to pursue and a coupling was sent to Queensland. A sample came back in time for a demonstration at a site Health and Safety meeting. The product was enthusiastically endorsed and a very visible red model is being manufactured for our vehicles.

Health and safety workshops

Melbourne Water began a series of 11 workshops to identify all health and safety hazards and develop a risk table. The workshops will be completed in December

2003. In addition, task risk assessment workshops were held to train people to competently and actively manage risks associated with their work.

To ensure our people regard talking about safety as a high priority, a series of fact sheets are produced and distributed at team meetings. These safety awareness sessions ensure that managers communicate key health and safety messages in a consistent manner, and enable people to provide feedback on important safety issues. To ensure that the messages are reaching all parts of the organisation, internal audits of awareness will be conducted.

In addition, all our people receive regular health and safety updates that give safety tips, details on new and revised standards, case studies, incidents, health information and results of any court cases.

Lead indicators

Melbourne Water will continue to focus on the lead indicators that drive improved safety performance. Lead indicators are the requirements that if achieved today, will significantly reduce the risk of injuries occurring to our people or contractors tomorrow, or further into the future.

Our current lead indicators include audits of our safety performance and workplace inspections. While most of Melbourne Water's attention is on lost time injuries (which is not a lead indicator), the Health and Safety Steering Committee is examining several lead indicators that will complement current measures and provide more information about how well we are managing safety.

WorkCover claims management audit

PriceWaterhouseCoopers reviewed Melbourne Water's processes and controls for WorkCover Claims Management in August and September 2002 and found that Melbourne Water people had a sound knowledge of legislative requirements, and the case-by-case decisions made in respect of WorkCover were reasonable.

Our people

Melbourne Water aims to provide a safe and enjoyable work environment where people can learn and perform to full potential and be committed to achieving our goals.

We acknowledge that our success depends on the skills and efforts of our people, and we support them through performance management systems, leadership and development programs together with reward and recognition. We also acknowledge that success is very much dependent on our people's ability to establish positive relations with the community and other key stakeholders.

A skilled and diverse work environment

Melbourne Water is an equal opportunity employer. Our objective is to have a workforce representative of the community we serve. Women make up less than one third of our people and this needs to be addressed. At 30 June 2003, we had 114 female employees, an increase from 103 last year.



Managing Director Brian Bayley addresses a Melbourne Water employee forum.

A key initiative is Melbourne Water's graduate program. We recruited 14 graduates (engineering, science and finance) to join our program during the year. A presentation kit was developed and courses were prepared for all interested graduates to help develop their presentation skills. These people are now part of our Speakers' Group and deliver presentations to the community on a range of Melbourne Water issues.

To continue to improve our approach to recruitment and selection, our procedures are revised six monthly to focus on recruiting people who would be best equipped to contribute to the achievement of our business objectives.

Melbourne Water continued supporting the Apprenticeships Victoria scheme in the water operations area to help with succession planning and to bring younger people into the organisation. The success of this program is highlighted by the fact that six people have now been appointed to permanent positions at Melbourne Water.

Our people are encouraged to take annual leave regularly to support individual and organisational health. We have a target for our people to have an annual leave balance of 30 days or less at 30 June each year. At 30 June 2003, 93 per cent of our people met this target. This compares with 91 per cent who met the target last year. Initiatives such as flexible working arrangements and free flu injections helped reduce the level of absenteeism to 2.64 days per person against a target of three.

During the year, our policies on parental leave were enhanced to incorporate three months paid maternity leave and up to 12 months total leave. We now provide the same benefits to adopting parents who are primary carers.

Our annual employee turnover target is between five and 10 per cent of our people. During the year, the turnover rate was seven per cent compared with eight per cent the previous year.

Learning and development

We recognise that learning and development training for our people will help to achieve our vision, as well as enhance their skills in line with career aspirations.

Our people undertake overseas visits to maintain strong links with the international water industry. This year, senior Melbourne Water people attended conferences or made study tours to the United States, Britain and Europe to further develop our knowledge and experience.

For example, Gavin Love, our Business Risk Manager, attended the American Water Works Association water security congress in Los Angeles in March 2003. The congress provided an overview of how US water authorities and government agencies were addressing security of water assets. Ian Morrison, our Group Manager, Human Resources, attended an executive program at the University of Michigan Business School.

Other developmental programs undertaken include leadership and interpersonal skills training, recruitment and selection training, strategic negotiation, project and contract management and risk management awareness training. The Graduate Development Program provided tailor-made workshops in presentation skills.

Recognising excellence and achievement

We operate an employee recognition program so that outstanding achievements by our people are recognised. Ninety-six of our people were acknowledged under the employee recognition program.

The majority of our people are covered by an Enterprise Agreement. As part of the agreement with our people, we have established a set of key performance indicators linked to remuneration. Related to our objectives, these targets have been established to reflect Melbourne Water's commitment to continuous improvement and the need to meet its statutory obligations. During the year, 11 of the 12 key performance targets were met.

Our health and safety performance during the year was disappointing with nine lost time injuries – six for Melbourne Water employees and three contractor injuries. It is unacceptable that people are being injured while working for us and to focus on improving our performance a safety improvement plan has been developed.

A flexible and healthy workforce

Melbourne Water is committed to providing work/life balance for our people. We offer paid parental leave, flexible working hours, flexible time off, working remotely and family leave. We also provide assistance with further study. For example, civil asset engineer Melissa DeVeth is completing a Masters in Environment (majoring in land management, conservation and restoration), and service delivery accountant Michael Gomez is undertaking Certified Practising Accountant qualifications.

We believe these initiatives have helped attract talented people who recognise Melbourne Water as a preferred employer, and have helped provide a work environment

where people can perform to their full potential. Melbourne Water expects the highest standard of performance, conduct and commitment particularly in relation to our values.

This year, we initiated a program to help our people improve their health and fitness. Some 175 people, or 35 per cent of the organisation, participated voluntarily in the program that analyses cholesterol, blood pressure and general fitness levels. Depending on the results, people were advised on appropriate exercise patterns, nutrition and any need for further medical investigations.

Some 230 of our people had influenza vaccinations, and we also help smokers through Quit Smoking support and seminars.

Supporting our graduates

The Melbourne Water Speakers' Program continued, with 54 presentations on water resource management, 20 of them given by our graduates. Audiences included teacher, school, university and community groups, and *GreenPlumber* and *GreenGardener* training workshops.



Melbourne Water employees learn fitness techniques at Silvan Reservoir.

The program, which reached 2980 people, enabled the graduates to improve their presentation skills, share the knowledge they have obtained, and increase their expertise in community engagement. School groups were especially receptive to our graduates.

Melbourne Water also supports engineering graduates who become members of the Institution of Engineers Australia to gain the Chartered Professional Engineer status. Applied Science graduates can also participate in the program and achieve recognition from the Institution of Engineers Australia.

Mentors are available to help graduates with technical, business process and leadership development issues. Graduates are encouraged to manage their own careers – an important skill for their longterm development and retention.

Well-informed ambassadors

A survey rated the level of knowledge and understanding of the organisation's business objectives by our people at only 61 per cent, and we introduced a major new internal communications program to ensure our people are well-informed ambassadors for our business. This program, which will be completed in 2003/04, encourages all our people to understand our business.

It complements existing internal communications initiatives, which include our *In Touch* news bulletin, an Intranet site, information bulletins, employee forums, fortnightly team meetings, presentations by the Managing Director and/or project managers on major works, and our Employee Representative Committee. This committee is one of several consultative mechanisms that works with management and provides feedback on policy. During the year, there was no time lost as a result of industrial disputes involving Melbourne Water people.

Each year, Melbourne Water holds a series of employee forums, which bring together our people to share information and consider future opportunities for the organisation and our stakeholders. This year's forum was held over three days and attended by 410 people, representing 80 per cent of our people. In addition to presentations from speakers, interactive workshops were held to provide information on key business improvements.

Enterprise Agreement

Melbourne Water is developing a new Enterprise Agreement. The current agreement expires on 13 December 2003. A communication strategy was developed to ensure clear, consistent and timely information was provided to our employees throughout the process.

Service awards

Melbourne Water recognised people who had achieved 25 years or more of service. Ten of our people achieved 25 years service, 16 reached their 30-year milestone, four achieved 35 years and Barry Cartledge received a 40-year award.

Waterways and drainage charter

Melbourne Water's three core functions relating to waterways and drainage are:

Regional drainage and flood protection

Providing regional-scale facilities to accommodate stormwater flows, undertaking works to reduce the risks of flooding in priority areas, and preventing inappropriate development in floodplains.

Waterway management

Protecting, restoring and maintaining the physical condition and environmental health of creeks, rivers and wetlands, and regulating the volumes of water extracted for irrigation.

Water quality protection

Implementing controls, providing treatment facilities and working with other agencies, local councils, industries and community groups to improve stormwater quality and protect waterways and bays.

Our operating charter, developed in 1999, defines the objectives, goals, strategies and specific service commitments for the above functions. The charter was prepared in consultation with an external reference committee, taking into account:

- Community expectations
- Responsibilities assigned by legislation
- Financial resources available for waterways and drainage management.

The charter sets out 34 individual service commitments covering the specific activities and outputs each year across the spectrum of waterways and drainage responsibilities, including annual monitoring and monitoring of performance.

Twenty-six commitments were achieved fully, two were not applicable this year, five were only partly achieved and no progress was made on one.

The detailed performance records for 2002/03 were audited by John Kowarsky and Associates, and Melbourne Water has summarised the results for our commitments in the table below.

The operating charter is under review and a proposed draft is planned for presentation to government later this year. We will report performance against the revised set of commitments in 2004.

OPERATING CHARTER PERFORMANCE

Commitment as set out in the charter	1999/00	2000/01	2001/02	2002/03	Summary 2002/03
Asset management					
Minimal instances of asset failure causing significant flooding, serious damage or personal injury.	✗	✓	✓	✓	No such instances occurred. Asset inspection, management and replacement continued in accordance with the program. We invested \$2 million on asset upgrade/replacement projects.
Flood mitigation (progress)					
Annual expenditure on flood mitigation works will be sufficient to reduce the number of vulnerable properties by 800 over 10 years.	✓	✗	✓	✗	Difficulties in identifying viable and cost effective projects caused this program to again fall behind schedule. We invested \$1.75 million on the first stages of mitigation works in Elsterwick and Croydon.
Flood mitigation (project management standards)					
All projects undertaken in any one year will fully comply with the project management requirements.	✓	✗	✓	✓	Audit results indicate that projects were consistently managed in accordance with the required standards. The demands of keeping explicit, detailed process records were again noted.
Flood event monitoring					
The Bureau of Meteorology will receive the initial notification and subsequent forecast information for all notifiable events on the stipulated waterways.	✓	✓	✓	✓	The rainfall and streamflow monitoring systems and flood warning duty officer arrangements operated as planned. There were no significant flooding events to report on the stipulated waterways.
Property information statements					
All urban properties affected by flooding will have up-to-date flooding information available by June 2001 and continuously thereafter.	✓	✓	✓	✓	Regular updates were again carried out as circumstances changed or new properties were created. In all, records were processed for 32,600 properties.
Planning scheme updates					
All municipalities will have up-to-date flood related information in their planning schemes by June 2002.	✓	✓	✗	✗	Of 31 planning scheme amendments required, 22 have been approved, and a further eight have been exhibited, placing 30 amendments on the public record. Exhibition of the final outstanding scheme has been agreed by the responsible municipality.
Waterway works approvals					
No works will be approved unless appropriate measures are incorporated to protect waterway values.	✗	✓	✓	✓	An internal audit of works approvals processes confirmed that this objective was achieved.
Unauthorised waterways works					
All significant instances of unauthorised works will be strenuously pursued.	✓	✓	✓	✓	Legal action has been taken regarding an illegal dam on Darebin Creek and encroachments affecting the banks of Merri Creek. A number of minor issues were dealt with by direct negotiation.
Waterway maintenance					
The maintenance program will be completed annually in accordance with targeted priorities and the project management requirements.	✗	✓	✓	✓	The program was fully implemented in accordance with the approved business plan and internal audits were used to verify compliance with the relevant standards.

PROTECTING THE ENVIRONMENT

OPERATING CHARTER PERFORMANCE

Commitment as set out in the charter	1999/00	2000/01	2001/02	2002/03	Summary 2002/03
Stream frontage protection At least 50,000 plants and 25 kilometres of fencing will be established each year to protect rural waterways under the Stream Frontage Management Program.	✓	✓	✓	✓	We substantially exceeded the targets, with construction of 78 kilometres of fencing and establishment of 122,680 of plants.
Streamflow management plan preparation Streamflow management plans will be produced each year to achieve full coverage by June 2003.	✓	✗	✗	✗	Plans for Diamond and Hoddles Creeks have been submitted to the government for approval. Plans for Woori Yallock, Olinda, Stringybark and Badger Creeks, Plenty, Watts, Don and Little Yarra Rivers are planned for completion by June 2005. The process, made considerably more complex by the farm dams legislation, is proceeding well.
Streamflow management plan review From June 2003, sufficient previous plans will be revised each year to keep all plans up to date thereafter (i.e. no older than five years).	-	-	-	-	No plans are yet old enough to require updating.
Waterway capital works Full implementation of the annually budgeted program will be achieved in accordance with waterways and drainage project management requirements.	✓	✗	✓	✓	Progress was made on 95 projects during the year, at a total investment of \$6.26 million. Audits indicated that project management requirements were achieved, with a note that better records of priority-setting processes should be provided.
Waterway condition reports The condition of a proportion of waterways will be re-assessed and the results will be published each year to cover all waterways every five years using the Victorian Index of Stream Condition.	✓	✓	✓	✓	This year's work focused on Western Port waterways, where Index of Stream Condition ratings were updated for Watsons, Merricks, Cardinia, Deep, Toomuc and Yallock Creeks and the Tarago and Bunyip Rivers. The program is on track.
Waterway management plans 1. New plans will be produced each year to complete the required coverage by 2002. 2. Previous plans will be revised each year from 2002 to ensure that all waterways have up-to-date plans available.	✓	✓	✓	✗	While all new plans have been completed, the revision program is a few months behind schedule. This program will be back on track by June 2004.
Codes of practice – status review The status of Codes of Practice relevant to stormwater quality protection will be reviewed and reported each year.	✗	✗	✗	✗	No progress was made on this topic during the year due to workload pressures in other areas. It was assessed that a lack of progress on this particular commitment would not have any significant adverse consequences.
Codes of practice – preparation and revision Waterways and Drainage will work with other agencies and industry bodies to complete new codes or revise old ones at the average rate of one each year to 2009.	✓	✓	✓	✓	Efforts this year were focused on working with EPA Victoria and a number of municipalities to develop various stormwater related codes covering planning scheme provisions, building sites practices and audit and enforcement protocols.

OPERATING CHARTER PERFORMANCE

Commitment as set out in the charter	1999/00	2000/01	2001/02	2002/03	Summary 2002/03
Stormwater management plans Sufficient stormwater management plans will be produced each year to ensure all 32 municipalities are covered by June 2003.	✓	✓	✓	✗	All the required technical work has been completed, however the target was not fully achieved due to delays in gaining final acceptance of five plans, and the fact that one plan is still in preparation.
Toxicant control recommendations A technical report and recommendations will be provided on at least one new toxicity issue each year.	✓	✓	✓	✓	We published two scientific papers during the year. One highlight was conclusive data relating heavy metal contamination to large industrial estates. Recommendations were made in relation to regulations, enforcement and in-stream remediation.
Water quality improvement facilities New water quality improvement facilities will be constructed each year in accordance with the approved program and project management standards.	✓	✗	✗	✓	Progress was made on 24 projects during the year, at a total investment of \$6.31 million. Audits indicated that project management requirements were achieved, with a note that clearer records of priority setting processes should be provided.
Reports – ambient monitoring The results of the previous calendar year's ambient monitoring program and trend analysis will be published by the end of May each year.	✓	✓	✓	✓	Ambient monitoring results for 2002 were published on Melbourne Water's website in May 2003. Separate reports were prepared detailing the trend analysis work for the Lower Yarra and the Dandenong Valley catchment waterways.
Reports – investigative monitoring Results of the previous calendar year's investigative monitoring will be published by the end of September each year.	✓	✓	✓	✓	Seven reports were completed at various times during the year covering specific water quality investigations. These reports are available in Melbourne Water's technical library.
Data standards All specified scientific and quality control standards, as assessed by periodic independent audit, will be complied with.	✓	✓	✓	✓	Standards and compliance assurance systems were verified, indicating that the scientific integrity of the data continues to be high.
Waterwatch strategy A forward strategy will be developed by June 2000 in collaboration with stakeholders.	✓	-	-	-	The strategy was finalised in May 2000. No action has been required since then.
Waterwatch strategy implementation Implementation of the Waterwatch strategy will be reported annually.	✓	✓	✓	✓	A detailed internal report on the implementation of the Waterwatch Strategy was prepared. It indicated good progress on all strategy components.
Drainage schemes All new growth areas in development corridors will have drainage schemes in place within three years of significant subdivisional activity commencing.	✓	✗	✓	✓	This program is on schedule. Schemes are in place for all greenfield areas where development has been active for three years or more. Further schemes are being prepared in anticipation of future activity.

Measuring our performance – drinking water quality data

The results of drinking water quality tests are reported against recommended levels in either the joint National Health and Medical Research Council/Australian Water Resources Council 1987 Guidelines for Drinking Water Quality in Australia or the World Health Organisation 1993 Guidelines for Drinking Water Quality. The Australian guidelines also recommend sampling frequencies for microbiological parameters related to the size of the population served by a particular zone.

Water quality – parameters and reporting levels

Parameter	Guideline basis	Units	Reporting level
Microbiological – routine			
Faecal coliforms	NHMRC 1987	organisms/100mL	1
Total coliforms	NHMRC 1987	organisms/100mL	20 **
Plate counts	MWC Corporate	Colony forming units/100mL	1000
Physical – routine			
Colour	NHMRC 1987	True colour units (TCU)	15
Turbidity	NHMRC 1987	Nephelometric turbidity units (NTU)	5
pH	NHMRC 1987	pH units	6.5 to 8.5
Chemical – routine			
Aluminium	NHMRC 1987	milligrams/litre – mg/L	0.2
Iron	NHMRC 1987	mg/L	0.3
Manganese	NHMRC 1987	mg/L	0.1
Fluoride	Health Act	mg/L	0.7 - 1.2
Chemical – routine less frequent			
Arsenic	NHMRC 1987	milligrams/litre – mg/L	0.05
Cadmium	NHMRC 1987	mg/L	0.005
Chromium	NHMRC 1987	mg/L	0.05
Copper	NHMRC 1987	mg/L	1
Cyanide	NHMRC 1987	mg/L	0.1
Lead	NHMRC 1987	mg/L	0.05
Mercury	NHMRC 1987	mg/L	0.001
Selenium	NHMRC 1987	mg/L	0.01
Zinc	NHMRC 1987	mg/L	5
Chloride	NHMRC 1987	mg/L	400
Hardness	NHMRC 1987	mg/L	500
Nitrate (as N)	NHMRC 1987	mg/L	10
Sodium	NHMRC 1987	mg/L	300
Sulphate	NHMRC 1987	mg/L	400
Total alkalinity	*	mg/L	*
Calcium	*	mg/L	*
Magnesium	*	mg/L	*
Silica	*	mg/L	*
Total organic carbon	*	mg/L	*
Total phosphorus	*	mg/L	*
Total solids	*	mg/L	*
Radiological			
Radioactivity – alpha	NHMRC 1987	Becquerel/litre	0.1
Radioactivity – beta	NHMRC 1987	Becquerel/litre	0.1

Parameter	Guideline basis	Units	Reporting level
Pesticides			
Aldrin	NHMRC 1987	micrograms/litre – mg/L	1
Dieldrin	NHMRC 1987	mg/L	1
Chlordane	NHMRC 1987	mg/L	6
DDT	NHMRC 1987	mg/L	3
Heptachlor	NHMRC 1987	mg/L	3
Heptachlor epoxide	NHMRC 1987	mg/L	3
Lindane	NHMRC 1987	mg/L	100
2,4-D	NHMRC 1987	mg/L	100
Industrial chemicals			
Carbon tetrachloride	NHMRC 1987	micrograms/litre – mg/L	3
Tetra chloroethene	NHMRC 1987	mg/L	10
Trichloroethene	NHMRC 1987	mg/L	30
1,1 Dichloroethene	NHMRC 1987	mg/L	0.3
1,2-Dichloroethane	NHMRC 1987	mg/L	10
Benzene	NHMRC 1987	mg/L	10
Polynuclear aromatic hydrocarbons (PAHs)			
Benzo-a-pyrene	NHMRC 1987	micrograms/litre – mg/L	0.01
By-products of disinfection			
Pentachlorophenol	NHMRC 1987	micrograms/litre – mg/L	10
2,4,6-Trichlorophenol	NHMRC 1987	mg/L	10
Trihalomethanes (THMs) Total			
Bromoform		micrograms/litre – mg/L	200
Dibromochloromethane		mg/L	
Bromodichloromethane		mg/L	
Chloroform		mg/L	
Chloroacetic acids No limit set			
Chloroacetic acid		micrograms/litre – mg/L	N/A
Dichloroacetic acid		mg/L	50
Trichloroacetic acid		mg/L	100

* Items marked with an asterisk have not had a reporting level set but are monitored for operational purposes.

** Total coliforms is the guideline at customer taps. The Melbourne Water requirement is 10 total coliforms at interface monitoring points.

Notes: NHMRC 1987 – National Health and Medical Research Council/Australian Water Resources Council 1987: Guidelines for Drinking Water Quality in Australia

milligrams/litre = mg/L or parts per million

micrograms/litre = mg/L or parts per thousand million (billion)

Microbiological parameters –

Exceeding reporting level and percentage in zones/population

The reporting levels for *E.coli* and total coliforms are based on National Health and Medical Research Council 1987 guidelines. There is no corresponding guideline for plate counts so the reporting level for that parameter is a corporate target adopted to reflect the conditions of protected catchments and Melbourne's generally unfiltered water supplies. Sampling results are based on monitoring at locations in our agreements with the retail water companies. *E.coli* and total coliforms have been assessed using the defined substrate technology (Colilert) method. The *E.coli*, total coliform and plate count numbers should not exceed the reporting level.

Parameter/retail water companies	Reporting level		Total exceedence			Below 10K			10K to 100K			Above 100K		
	Total zones	Total tests	Fails	% fails	Tests	Fails	% fails	Tests	Fails	% fails	Tests	Fails	% fails	
<i>E.coli</i> (org/100mL)														
All	1	65	5705	1	0.02	1775	1	0.06	3457	0	0.00	1819	0	0.00
Yarra Valley Water	1	35	3474	1	0.03	1405	1	0.07	1832	0	0.00	957	0	0.00
City West Water	1	11	1569	0	0.00	-	-	-	981	0	0.00	743	0	0.00
South East Water	1	30	2436	0	0.00	418	0	0.00	1320	0	0.00	1012	0	0.00
Total coliforms (org/100mL)														
All	10	65	5707	36	0.63	1776	3	0.17	3459	32	0.93	1819	5	0.27
Yarra Valley Water	10	35	3476	10	0.29	1406	2	0.14	1833	8	0.44	957	2	0.21
City West Water	10	11	1569	23	1.47	-	-	-	981	21	2.14	743	4	0.54
South East Water	10	30	2437	9	0.37	418	1	0.24	1321	5	0.38	1012	3	0.30
Plate count (cfu/mL)														
All	1000	65	5705	4	0.07	1776	1	0.06	3457	3	0.09	1818	0	0.00
Yarra Valley Water	1000	35	3475	1	0.03	1406	1	0.07	1832	0	0.00	957	0	0.00
City West Water	1000	11	1568	3	0.19	-	-	-	981	3	0.31	742	0	0.00
South East Water	1000	30	2435	0	0.00	418	0	0.00	1320	0	0.00	1011	0	0.00

Note: The results have been calculated using the interface monitoring locations as listed in the BWSA 1999 for each Retail Company

Routine physical parameters –

Exceeding reporting level and percentage in zones/population

The reporting levels are based on National Health and Medical Research Council/Australian Water Resources Council 1987 guidelines. Sampling results are based on monitoring at locations listed in our agreements with the retail water companies. Target levels are at equal to or less than the reporting level or, in the cases of pH, within the range shown. The physical reporting levels are based on aesthetic rather than health considerations. Values that would be a concern for health are well beyond the reporting levels. The testing for colour is done as “apparent colour” rather than “true colour”; the latter test involves a filtered sample and would not be representative of Melbourne’s water supply. “Apparent colour” gives a higher number than would be obtained for “true colour” for the same sample.

Parameter/retail water companies	Reporting level	Total zones	Total tests	Total exceedence	% fails	No. Exceeding Reporting Level (&%) in Zones/Population									
						Below 10K			10K to 100K			Above 100K			
						Tests	Fails	% fails	Tests	Fails	% fails	Tests	Fails	% fails	
Colour (Pt/Co)															
All	15	65	1847	1	0.1	684	1	0.1	1344	1	0.1	711	1	0.1	
Yarra Valley Water	15	35	1262	1	0.1	387	0	0.0	837	1	0.1	389	0	0.0	
City West Water	15	11	721	0	0.0	-	-	-	461	0	0.0	315	0	0.0	
South East Water	15	30	990	2	0.2	287	1	0.3	403	0	0.0	432	1	0.2	
Turbidity (NTU)															
All	5	65	1850	2	0.1	685	1	0.1	1345	0	0.0	710	0	0.0	
Yarra Valley Water	5	35	1264	1	0.1	388	0	0.0	837	0	0.0	389	0	0.0	
City West Water	5	11	721	0	0.0	-	-	-	461	0	0.0	315	0	0.0	
South East Water	5	30	991	1	0.1	287	1	0.3	404	0	0.0	431	0	0.0	
pH (pH units)															
All	6.5-8.5	65	1847	1	0.1	684	0	0.0	1347	0	0.0	711	0	0.0	
Yarra Valley Water	6.5-8.5	35	1262	1	0.1	387	0	0.0	837	0	0.0	390	0	0.0	
City West Water	6.5-8.5	11	722	0	0.0	-	-	-	461	0	0.0	316	0	0.0	
South East Water	6.5-8.5	30	994	0	0.0	287	0	0.0	406	0	0.0	432	0	0.0	

Note: Some monitoring locations cover multiple zones, different population groups or more than one retail water company.

Routine inorganic chemical parameters –

Exceeding reporting level and percentage in zones/population

The reporting levels for iron, aluminium and manganese are based on National Health and Medical Research Council/Australian Water Resources Council 1987 guidelines. The level for fluoride is based on the Health (Fluoridation) Act 1973. Target levels are equal to or less than the reporting level or, in the cases of fluoride, within the range shown. The reporting levels for iron, aluminium and manganese have been established on aesthetic grounds rather than health considerations. The range for fluoride is that recommended for the control of dental caries. The guideline/reporting level for aluminium is for acid soluble form. Sampling results are based on monitoring at the locations listed in our agreements with the retail water companies. Fluoride concentrations at the points of introduction into the system comply with the calculated annual and short-term averages required under the Standards for Fluoridation of Public Water Supplies. Values outside the reporting range tend to be low rather than high and zones where fluoride is not added or is incidentally reduced by further treatment influence results.

Parameter/retail water companies	Reporting level	Total zones	Total tests	Total exceedence	% fails	Below 10K			10K to 100K			Above 100K		
						Tests	Fails	% fails	Tests	Fails	% fails	Tests	Fails	% fails
Iron (mg/L)														
All	0.3	65	1848	1	0.1	681	0	0.0	1344	2	0.1	711	0	0.0
Yarra Valley Water	0.3	35	1262	0	0.0	384	0	0.0	837	0	0.0	389	0	0.0
City West Water	0.3	11	721	1	0.1	-	-	-	461	1	0.2	315	0	0.0
South East Water	0.3	30	990	1	0.1	287	0	0.0	403	1	0.2	432	0	0.0
Aluminium (mg/L)														
All	0.2	65	275	0	0.0	143	0	0.0	142	0	0.0	70	0	0.0
Yarra Valley Water	0.2	35	245	0	0.0	130	0	0.0	113	0	0.0	33	0	0.0
City West Water	0.2	11	86	0	0.0	-	-	-	42	0	0.0	44	0	0.0
South East Water	0.2	30	83	0	0.0	13	0	0.0	39	0	0.0	57	0	0.0
Manganese (mg/L)														
All	0.1	65	905	0	0.0	301	0	0.0	616	0	0.0	345	0	0.0
Yarra Valley Water	0.1	35	605	0	0.0	206	0	0.0	381	0	0.0	181	0	0.0
City West Water	0.1	11	410	0	0.0	-	-	-	253	0	0.0	185	0	0.0
South East Water	0.1	30	385	0	0.0	104	0	0.0	149	0	0.0	185	0	0.0
Fluoride (mg/L)														
All	0.7-1.2	65	855	12	1.4	126	6	4.8	787	15	1.9	488	12	2.5
Yarra Valley Water	0.7-1.2	35	608	10	1.6	116	6	5.2	543	14	2.6	205	9	4.4
City West Water	0.7-1.2	11	407	7	1.7	-	-	-	209	0	0.0	219	1	0.5
South East Water	0.7-1.2	30	427	9	2.1	53	0	0.0	244	8	3.3	296	9	3.0

Note: Some monitoring locations cover multiple zones, different population groups or more than one retail water company.

Chemical and radiological parameters

The reporting levels are based on National Health and Medical Research Council 1987 guidelines. Results should not exceed the reporting levels. Items marked with an asterisk have not had a reporting level set but are monitored for operational purposes. Sampling is conducted at headworks reservoirs.

Parameter	Reporting level mg/L	Number of analyses	Number exceeding reporting level (%)
Arsenic	0.05	36	0
Cadmium	0.005	36	0
Chromium	0.05	36	0
Copper	1	36	0
Cyanide	0.1	36	0
Lead	0.05	36	0
Mercury	0.001	36	0
Selenium	0.01	36	0
Zinc	5	36	0
Chloride	400	36	0
Hardness	500	36	0
Nitrate (as Nitrogen)	10	36	0
Sodium	300	36	0
Sulphate	400	36	0
Total alkalinity	*	36	
Calcium	*	36	
Magnesium	*	36	
Silica	*	36	
Total organic carbon	*	36	
Total phosphorus	*	36	
Total solids	*	36	
Parameter	Reporting level Bq/L	Number of analyses	Number exceeding reporting level (%)
Radioactivity – alpha	0.1	17	0
– beta	0.1	17	0

Organic chemicals

The reporting levels are based on National Health and Medical Research Council 1987 guidelines. Results should not exceed the reporting levels. Sampling is conducted at headworks reservoirs.

Parameter	Reporting level mg/L	Number of analyses	Number exceeding reporting level (%)
Pesticides			
Aldrin	1	21	0
Dieldrin	1	21	0
Chlordane	6	21	0
DDT	3	21	0
Heptachlor	3	21	0
Heptachlor epoxide	3	21	0
Lindane	100	21	0
2,4-D	100	21	0
Industrial chemicals			
Carbon tetrachloride	3	21	0
Tetra chloroethene	10	21	0
Trichloroethene	30	21	0
1,1-Dichloroethene	0.3	21	0
1,2-Dichloroethane	10	21	0
Benzene	10	21	0
Polynuclear aromatic hydrocarbons (PAHs)			
Benzo-a-pyrene	0.01	21	0
By-products of disinfection			
Pentachlorophenol	10	21	0
2,4,6-Trichlorophenol	10	21	0
Trihalomethanes (THMs)			
	0.2*	42	0
Bromoform	#	42	
Dibromochloromethane	#	42	
Bromodichloromethane	#	42	
Chloroform	#	42	
Chloroacetic acids			
Chloroacetic acid	#	42	0
Dichloroacetic acid	#	42	0
Trichloroacetic acid	#	42	0

Notes: * Guideline refers to all THMs present

No guideline value set

Routine Pathogen Monitoring

Parameter	Reporting level	Number of analyses	Detection rate – level (%)
Should not be detected			
<i>Yersinia</i> spp	Detected (per 2 litres)	132	0
<i>Salmonella</i> spp	Detected (per 2 litres)	132	0
<i>Campylobacter</i> spp	Detected (per 2 litres)	132	0
<i>Vibrio</i> spp	Detected (per 2 litres)	132	0
Enteroviruses by PCR			
adenovirus	Detected (per 20 litres)	132	0
rotavirus	Detected (per 20 litres)	132	0
hepatitis A	Detected (per 20 litres)	132	0
Norwalk virus G1 Genotype	Detected (per 20 litres)	132	0
Norwalk virus G2 Genotype	Detected (per 20 litres)	132	0
Norwalk like virus	Detected (per 20 litres)	132	0
No guideline set			
<i>Faecal Streptococci</i>	Detected (per 100mL)	132	0
<i>Legionella</i> species	Detected (per 2 litres)	132	0
<i>Legionella</i> PN SG 1	Detected (per 2 litres)	132	0
<i>Legionella</i> PN SG2-14	Detected (per 2 litres)	132	0
<i>Clostridium perfringens</i>	Detected (per 100mL)	132	0
<i>Pseudomonas aeruginosa</i>	Detected (per 100mL)	132	0
<i>Aeromonas</i>	Detected (per 100mL)	132	2 (1.5)

Note: *Pseudomonas aeruginosa* and *Aeromonas* are present to some degree in all water systems and are a measure of the health of the systems. They can grow on the inside of the distribution pipes and are only considered a problem if numbers are very high or many samples are positive, which has not been the case here.

GLOSSARY

Algal bloom

A rapid increase in the mass of one or more algae, usually caused by a change in the flow, light, temperature or nutrient levels of the water in which it lives.

Catchment

The area of land drained by a creek or river system, or a place set aside for collecting water which runs off the surface of the land. Catchments provide the source of water for the dams and reservoirs that collect our drinking water. Most of Melbourne's catchments are "protected": that is, they are fenced to keep out people and domestic animals because they might pollute the water.

Dam

Technically, the dam is the wall that holds the water in and the reservoir is the water. Commonly, though, the words are interchanged.

Environmental flow

Water released from a reservoir to keep up water levels downstream of a dam, for the benefit of animal and plant life.

EPA Victoria

Victorian Government body whose job is to protect air, water and land from pollution. Organisations like Melbourne Water must get a licence from EPA Victoria to operate places such as sewage treatment plants.

Flood mitigation

Levee banks and other structures that hold back water in time of flood, reducing (mitigating) damage to property.

Floodplain

Low-lying land around a river, which becomes inundated (covered in water) when the river level rises in time of flood.

Greywater

Waste water from the kitchen, laundry and bathroom (but not the toilet). It usually contains soap, detergents and fats.

Groundwater

Water collecting below ground level in an aquifer or water table.

Incidents

Occurrences for which first aid and/or medical treatment were administered.

Lost Time Injuries (LTIs)

Occurrences that result in a fatality, permanent disability or time lost from work of one day/shift or more.

Planning controls

Flood plains and other flood prone areas are mapped and identified on council planning schemes so that new housing and industrial developments aren't a risk to public health and safety.

Risk

The likelihood that a hazard will result in harm, combined with the severity of the harm that could occur.

Run-off

Rainfall water which flows from a catchment into a river, stream, lake or reservoir.

Sewage and sewerage

Technically, sewage is the water and wastes. They are carried and treated in the sewerage system, pipes and processing plants.

Stormwater

Rainfall which runs off roofs and roads and other surfaces and flows into gutters, streams and waterways where it eventually flows into the bays. This water can carry with it all sorts of contaminants. Some are obvious such as plastic bags or detergents from people washing their cars. Others are not so obvious such as nutrients and heavy metals.

VERIFICATION STATEMENT



Corporate Sustainable Solutions

To the Stakeholders of Melbourne Water:

Melbourne Water commissioned URS to provide independent assurance on this, Social Review 2002/03, which has also been published on its corporate Internet site (the 'report'). Melbourne Water has the responsibility for the preparation of the report. This assurance statement represents the URS' independent opinion. URS has undertaken a number of other commissions for Melbourne Water in the reporting period. Hence independence was ensured by selecting a team of assurance providers that had no other involvement with Melbourne Water during the reporting period.

Assurance Objectives

There are currently no statutory requirements or generally accepted standards for the preparation, public reporting and attestation of non-financial stakeholder reports. In the absence of such standards, our approach to assurance provision has been based on AA1000 Assurance Standard and requirements of the Global Reporting Initiative's Sustainability Reporting Guidelines.

The scope included:

- a review of the report for any major anomalies;
- an overview of the embeddedness of Melbourne Water's key social and environmental policies;
- an examination of Melbourne Water's measurement and reporting procedures, background documentation and data collection and reporting procedures; and
- the execution of an audit trail of selected material claims and data streams to determine the level of accuracy in collection, transcription and aggregation processes.

In addition, compared to previous years, the scope incorporated reviewing reported performance against the three principles of the AA1000 Assurance Standard: materiality, completeness and responsiveness.

Assurance Process

The assurance engagement was undertaken in August 2003. The process involved:

- a series of interviews with key personnel responsible for collating and writing various parts of the report in order to ensure selected claims were discussed and substantiated;
- a review of Melbourne Water's policies, objectives, management systems, monitoring and reporting procedures and an examination of selected data sets, including several drafts of the report; and
- the examination of the aggregation and derivation of, and underlying evidence for, data presented and statements made in the report.

Our Opinion

- A higher rate of errors within the material inspected was found compared to last year.
- The embeddedness of the independent verification program at Melbourne Water, which is now in its sixth year, means that report writers and contributors are conscious of the need to ensure that material presented is accurate and unambiguous. However, in view of the higher rate of errors, it was noted that some systemic issues continue to give rise to a relatively high level of transcription and aggregation errors.

Overall, the auditor is satisfied that the report is a fair and accurate representation of the organisation's policies, management systems and performance. The report is fairly presented and materially not mis-stated. Further:

- all errors identified during the audit process were satisfactorily addressed before report finalisation;
- the report is a good reflection of management commitment towards sustainability performance, and a fair account of performance achieved during 2002/03;
- the systems and processes in place to generate the numerical data presented in the report are sound, but require further improvement to the data aggregation and interpretation, transcription and review processes; and
- the written statements made in the report accurately reflect the results and progress achieved during the reporting period.

General Findings and Recommendations

The following observations and recommendations are made as a result of the assurance process to assist in further improving the standard of reporting:

- The auditor recommends a Reporting System Diagnostic and Audit through a review of quality standards and reporting processes in order to ensure the potential for human error in reporting is reduced. An internal training program on quality controls in reported information may also be beneficial.
- Changes in the report formats each year means that there is some level of disparity and associated lack of clarity over broader progress of Melbourne Water towards sustainability. It is suggested that a suitable format for sustainability reporting, aligned with the Global Reporting Initiative be chosen with emphasis on comparability between reporting periods.

Materiality: Issues material to stakeholders have been considered and reported within the suit of reports. However, a number of potentially material omissions were highlighted during the audit.

Completeness: The suit of reports represents a complete account of organisational performance. It is suggested that supplier and customer level impacts be reviewed in the future.

Responsiveness: The responsiveness to stakeholder concerns at Melbourne Water is considered high. Notwithstanding, the organisation would benefit from further developed systematic response mechanisms to stakeholder mapping and survey processes.

The above findings represent a summary of a more detailed assessment report presented to Melbourne Water.

On behalf of the audit team

10th September 2003

Melbourne, Australia

Terence Jeyaretnam
Principal, URS

FEEDBACK FORM

Melbourne Water Annual Report 2002/03

Please help us to improve our public reporting. Complete this form and return it to Melbourne Water by facsimile (03) 9235 7177 or by mail as a pre-paid envelope. You can also provide feedback by completing this form on our website or by sending your comments to inquiry@melbournewater.com.au.

If you include your name and address we will send you a free pass to visit Melbourne Museum!

Your name (optional)

Your address (optional)

Postcode

State

Your organisation (if any)

Your position (if any)

Report content

The level of detail in the report was: too much about right too little

The report covered Melbourne Water's performance in a way that was: easy to follow hard to follow

The report's design helped make it: easy to read hard to read

The most interesting parts of the report were:

The least interesting parts of the report were:

The report could be improved by:

Is there information you would like included in future reports?

How do you think Melbourne Water could improve its reporting?

Thank you for completing our questionnaire. Please fold and moisten seal before returning this pre-paid envelope.

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Community
Languages

For information on Melbourne's water resources in languages other than English, call 131 722 or visit www.melbournewater.com.au and click on the Community Languages link.

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