

Sydney Water Corporation

Operational Audit 2004/2005



IPART

**INDEPENDENT PRICING AND
REGULATORY TRIBUNAL**
of New South Wales

Sydney Water Corporation

Operational Audit 2004/2005

Compliance No 22

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INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

Our reference: 05/252

February 22, 2006

Contact Bob Burford
Ph: (02) 9290 8408
Fax: (02) 9290 2061
Email: Bob_Burford@ipart.nsw.gov.au

The Hon. David Campbell MP
Minister for Water and Utilities
Level 36
Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Dear Minister

Operational Audit of Sydney Water Corporation 2004-2005

In accordance with Section 31 of the *Sydney Water Act 1994*, the Tribunal is pleased to submit the independent Operational Audit Report for Sydney Water Corporation for the period from 1 July 2004 to 30 June 2005.

The Audit has found that for 2004-2005 "*Sydney Water Corporation has managed its resources to achieve predominantly full to high compliance with the Operating Licence, although some areas of low or moderate compliance or insufficient information have been recorded.*"

Having considered the Audit report, the Tribunal recommends that no penalties should be imposed on the Corporation. The Tribunal would like to highlight the key features of this report in the following paragraphs, including some areas where the auditors suggest that performance could be improved.

Drinking Water Quality

Sydney Water continued to supply excellent quality water throughout 2004-2005, through a comprehensive water quality management system incorporating monitoring, risk minimisation, incident management and continuous improvement.

The Audit concluded that Sydney Water is actively seeking to identify and minimise risks associated with changing bulk water quality, and is working constructively with the Sydney Catchment Authority and NSW Health in this regard. The auditor notes that these relationships "*provide confidence that issues requiring joint consideration by these organisations will be properly dealt with.*"

Reflecting their satisfaction with Sydney Water's performance in supplying water of excellent quality, the auditors have made no primary recommendations relating to drinking water quality.

Water Conservation and Demand Management

Clause 8.1 of the Operating Licence requires Sydney Water to take action to meet a series of water conservation targets. Although these targets were met in 2004-2005, the auditors argue that they would not have been met in the absence of water restrictions. Further, the auditors have argued that it is unlikely that Sydney Water will meet the 2010-2011 target in the absence of water restrictions unless further action is taken. They point out that Audit reports over the last five years have consistently foreshadowed that Sydney Water would have difficulty meeting the 2004-2005 target.

While the auditors cite these past warnings and are critical of Sydney Water, the Tribunal is aware that Sydney Water has undertaken a number of actions to promote water conservation, including customer incentive and education programs, leakage reduction, recycled water programs and regulatory programs.

That said, the Tribunal is of the view that there are a number of further actions that Sydney Water may take to achieve water conservation. The Tribunal supports the auditor's assessment of low compliance for this clause. The Tribunal recommends some further water conservation strategies as suggested by the auditor (Recommendation R8.1 and R8.2 set out in the attachment) and recommends that SWC report progress on water conservation initiatives on a regular basis.

Sydney Water achieved moderate compliance with the requirement to undertake actions to implement non-potable effluent re-use. The auditor notes that "progress in getting new reuse schemes into operation continues to be slow". The Tribunal is mindful that the progress of some of these initiatives is beyond the control of Sydney Water. However, it is aware that failure to achieve progress in these areas has substantial impacts on the community and strains the security of the potable water supply. The Tribunal supports the auditor's suggestions that progress in this area be regularly reported.

System Performance Standards

Sydney Water's performance against the amended system performance standards for water pressure, water continuity and sewer overflows was within the standards. The Tribunal notes the auditor's concerns regarding data validation and the capacity for continuing compliance with the standards given the ageing of the sewer network.

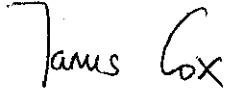
Next steps

Clause 33 (1) of the *Sydney Water Act 1994* requires that the Minister table the report in Houses of Parliament within one month after the Minister receives the report. As well, you have the discretion to impose requirements on Sydney Water arising from this report. To assist you, the Tribunal has provided you with a draft letter which reflects the Tribunal's recommendations.

The Tribunal intends to monitor Sydney Water's progress in addressing all matters raised by the auditor, especially the matters discussed above.

Please do not hesitate to contact me if I can be of further assistance.

Yours sincerely

A handwritten signature in black ink that reads "James Cox". The signature is written in a cursive style, with the first letter of each name being capitalized and prominent.

James Cox
Chief Executive Officer
Full-time Member

Attachment

Auditor's Recommendations for Clause 8 – Water Conservation and Demand Management

It is recommended that Sydney Water:

- R8.1 Reduce overall demand for water by increased focus on industrial and domestic reuse and industrial sewer mining options. Some examples of important activities that have yet to be well developed include: identifying actual customers interested, establishing their requirements for water quality, volume, pricing and funding; removing regulatory barriers (for example, defining domestic grey water guidelines); and completing detailed site specific feasibility studies. A similar approach to that used in the Business Water Efficiency program may be helpful.
- R8.2 Accelerate the flow meter and pressure zone divide valve and pressure reduction valve installation programs to enable more zones to be defined where accurate Minimum Night Flow measurements can be made. This will in turn improve the ability of Sydney Water to target high leakage areas and to confirm leakage reductions.

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**Sydney Water Corporation
Operational Audit 2004/05**

Report



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Abbreviations

Acronym	Description
ABGR	Australian Building Greenhouse Rating
ADWG	Australian Drinking Water Guidelines (1996)
ACCESS	Automated Corporate Customer Enquiry Service System
Act	<i>Sydney Water Act, 1994</i>
AMD	Asset Management Division
ANZECC	Australia and New Zealand Environment and Conservation Council
AS	Australian Standard
ARMCANZ	Agriculture and Resource Management Council of Australia and NZ
BOD	Biological Oxygen Demand
BWEMSC	Botany Wetlands Environmental Management Steering Committee
CBD	Central Business District
C&D	Construction and Demolition
CEO	Chief Executive Officer
CMA	Catchment Management Authority
CMP	Conservation Management Plan
CTTT	Consumer, Trader and Tenancy Tribunal
DEC	Department of Environment and Conservation
DLWC	Former Department of Land and Water Conservation (NSW), now DIPNR
DLWPA	Designated Low Water Pressure Areas
DIPNR	Department of Infrastructure, Planning and Natural Resources (NSW)
DoH	Department of Housing
DWQMS	Drinking Water Quality Management System
ECS	Electronic Complaint System
EDC	Every Drop Counts
EIA	Environmental Impact Assessment
EICR	Environment Indicators Compliance Report
EIMP	Environmental Indicators Monitoring Program
EIS	Environmental Impact Statement
EKAMS	Effluent Knowledge and Management System
EMR	Environmental Management Representative
EMS	Environmental Management System



Acronym	Description
EPA	Environment Protection Authority (NSW)
ESD	Ecologically Sustainable Development
EWON	Energy and Water Ombudsman NSW
FOI	Freedom of Information
FRG	Field Reporting Guide
GHD	GHD Pty Ltd
GIS	Geographical Information Systems
GLPA	Gigalitres per annum
HVRF	Hunter Valley Research Foundation
IICATS	Integrated Instrumentation, Control, Automation and Telemetry System
IPART	Independent Pricing and Regulatory Tribunal (NSW)
ISF	Institute for Sustainable Futures
ISO	International Standards Organisation
JOG	Joint Operational Group
km	Kilometre
KPI	Key Performance Indicator
Lcd	Litres per capita per day
ML	Megalitre (1 million litres)
MOU	Memorandum of Understanding
MNF	Minimum Night Flows
M&R	Monitoring and Reporting
MWh	Megawatt Hour
NATA	National Analytical Testing Authority
NHMRC	National Health and Medical Research Council
NPWS	National Parks and Wildlife Service (NSW)
NSW Health	NSW Department of Health
NTU	Nephelometric turbidity unit
OLCR	Operating Licence Compliance Report
OPC	Operational Policy Committee
PENGO	Peak Environmental Non-Government Organisation
POM	Plan of Management
PRG	Pressure Recording Gauge
PRT	Pollution Reduction Target



Acronym	Description
R&D	Research and Development
SCA	Sydney Catchment Authority
SEIP	Stormwater Environment Improvement Program
SLG	Strategic Liaison Group
SOP	Standard Operating Procedure
SPS	System Performance Standards
SPS	Sewage Pumping Station
SRoH	Significant risk of harm
STP	Sewage Treatment Plant
STS	Sewage Treatment System
Sydney Water	Sydney Water Corporation
SWC	Sydney Water Corporation
TDS	Total Dissolved Solids
THM	Trihalomethane
UV	Ultraviolet
VOCs	Volatile Organic Compounds
WAMC	Water Administration Ministerial Corporation
WAMS	Water Asset Management System
WATHNET	Water Supply Systems Model developed by Sydney Catchment Authority
WELS	Water Efficiency Labelling Scheme
WC&RIR	Water Conservation and Recycling Implementation Report
WFP	Water Filtration Plant
WPIMS	Water Product Integrated Management System
WSAA	Water Services Association of Australia
WSCM	Water Services Division Civil Maintenance



Glossary/definitions

GENERAL TERMS AND DEFINITIONS

Term	Meaning
Act	<i>Sydney Water Act, 1994.</i>
Area of Operations	As specified in section 10(1) of the Act and described in Schedule 2 of the Operating Licence.
Audit period	1 July 2004 to 30 June 2005.
Auditor	GHD Pty Ltd in association with Hunter Valley Research Foundation.
Bulk Water	Water supplied by the SCA to Sydney Water (under the Bulk Water Supply Agreement) and to customers other than Sydney Water.
Bulk Water Supply Agreement	The Bulk Water Supply Agreement between the SCA and Sydney Water signed on 15 September 1999.
Commencement Date	12 April 2000.
End of Term Review	A review of the Operating Licence to be undertaken on or about 1 January 2004.
Function	Means a power, authority or duty.
Minister	The Minister responsible for administering the provisions of the <i>Sydney Water Act, 1994</i> .
Operating Licence	The Licence between 1 January 2000 and 31 December 2004. The Licence was subsequently extended until 30 June 2005.
Water Management Licence	A Water Management Licence granted under the <i>Water Act, 1912</i> and issued by DLWC on 23 April 2001.

COMPLIANCE TABLE ASSESSMENT

Term	Meaning
Grading of Compliance	The following ratings are used to grade achievement of compliance with a Licence condition.
Full compliance	All requirements of the condition have been met.
High compliance	Most requirements of the condition have been met with some minor technical failures or breaches.
Moderate compliance	The major requirements of the condition have been met. (Formerly referred to as "Partial" compliance)
Low compliance	Key requirements of the condition have not been met but minor achievements regarding compliance have been demonstrated.
Non compliance	The requirements of the condition have not been met.
Insufficient information	Relevant, suitable or adequate information to make an objective determination regarding compliance was not available to the auditor.
No requirement	The requirement to comply with this condition does not occur within the audit period or there is no requirement for Sydney Water to meet, such as a definition, or a requirement placed upon another agency.



Preface

GHD Pty Ltd, in association with the Hunter Valley Research Foundation (HVRF), was commissioned by the Independent Pricing and Regulatory Tribunal (IPART) to undertake the 2004/05 Operational Audit of the Sydney Water Corporation (Sydney Water). The 2004/05 Operational Audit (and the extent of this report) covers the period 1 July 2004 to 30 June 2005.

Sydney Water is a State Owned Corporation, which is wholly owned by the NSW Government. The roles and responsibilities of Sydney Water derive from the *Sydney Water Act 1994* (the Act) and the Operating Licence issued pursuant to Part 5 of the Act. The Operating Licence enables Sydney Water to provide water, sewerage and some stormwater drainage services to approximately 4 million customers within the areas of Sydney, the Blue Mountains and Illawarra Regions.

The scope of the audit is defined in Part 10 of the Operating Licence. The scope includes assessment of compliance against the Ministerial requirements as presented by the Minister responsible for administering the provisions of the *Sydney Water Act, 1994*, following the 2003/04 Operational Audit and the Review of the System Performance Standards.

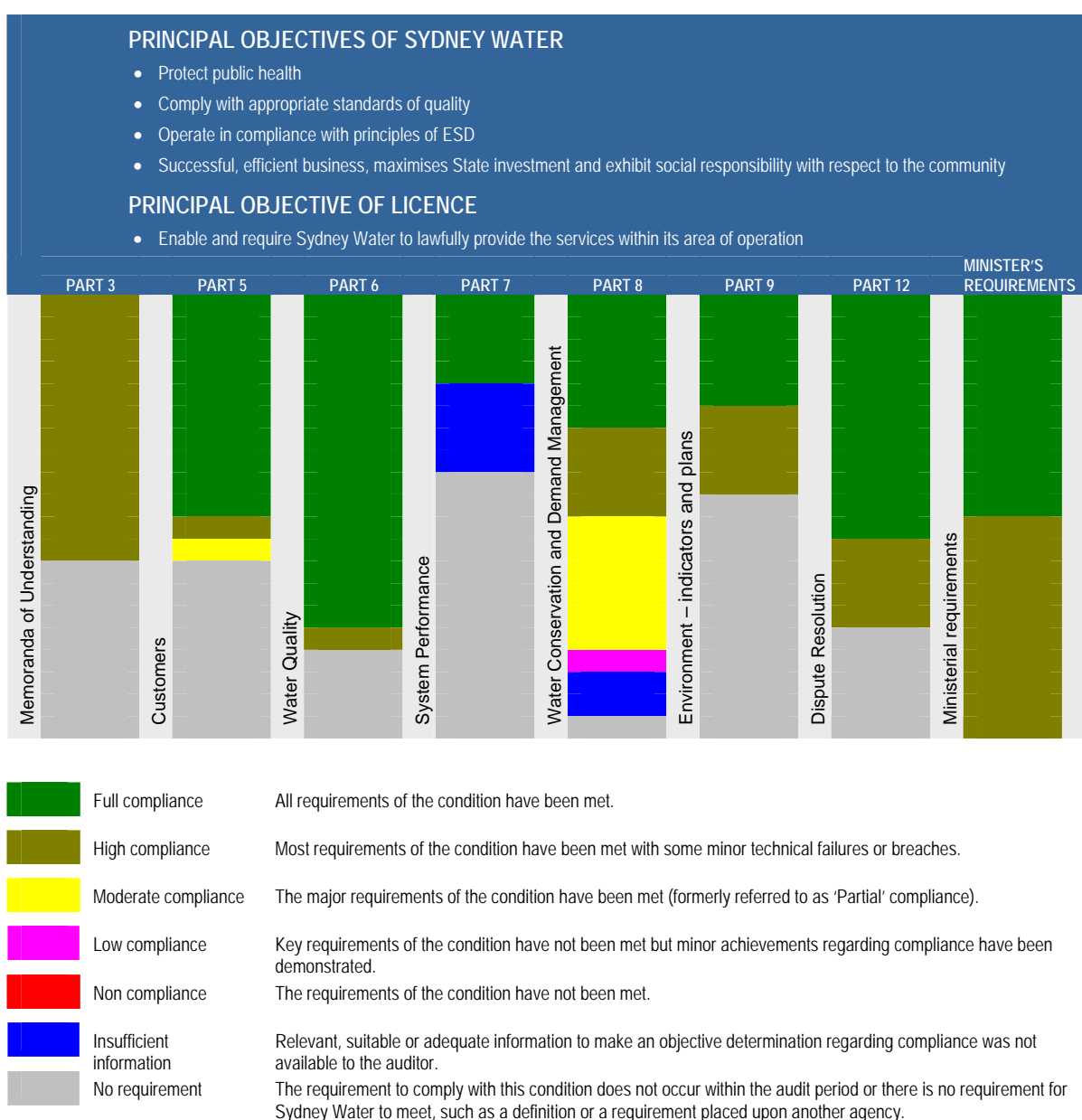
The findings of the report are presented in a format consistent with the Operating Licence structure and not in a 'prioritised order' or 'order of significance'. The report also identifies factors that have affected compliance and presents recommendations to improve compliance in subsequent years.

The audit methodology involved the preparation of an audit plan, inception meetings, application of audit tests, review and reporting. The audit tests directly relate to the respective clauses of the Operating Licence conditions, assembling evidence through document review, interviews and analysis to determine compliance.

Executive Summary

The Sydney Water Corporation (Sydney Water) has managed its resources to achieve predominantly **Full to High compliance** with the Operating Licence, although some areas of **Low** and **Moderate compliance** or **Insufficient information** have been identified. Figure 1 provides an indicative overview of Sydney Water's level of compliance.

Figure 1 Overview of compliance for 2004/05 audit period.



NOTE: Figure is indicative only.



Compliance with each Part of the Operating Licence for the 2004/05 Audit period is summarised below.

Memoranda of Understanding

Sydney Water is required to maintain Memoranda of Understanding (MOU) with the Water Administration Ministerial Corporation (WAMC), NSW Department of Health (NSW Health) and the Environment Protection Authority (EPA) for the term of the Licence.

High compliance was the collective assessment for maintaining the MOUs with all three agencies in that the major requirements of the condition have been met, although performance across the MOUs varied. Sydney Water exhibited **Full compliance** for the MOU with NSW Health, **Moderate compliance** for the EPA MOU and **Low compliance** for the MOU with WAMC. **High compliance** was assessed for the MOUs forming the basis for cooperative relationships, though much of this cooperation was driven by wider Government initiatives, as opposed to the MOU.

Customer and Consumer Rights

A revised Customer Contract has been in effect since 1 April 2002 and Sydney Water achieved **Full compliance** with most clauses relating to the Contract.

Sydney Water obtained **Full compliance** with most aspects of the Customer Councils and overall **Full compliance** with the Code of Practice and procedure on Debt and Disconnection.

Water Quality

Sydney Water obtained **Full compliance** with respect to the requirements for the supply of treated drinking water to its customers. The water quality supplied is generally of an excellent standard and complies with the health related requirements of the Australian Drinking Water Guidelines and the aesthetic related requirements of NSW Health and the Minister.

Sydney Water also obtained **Full compliance** for:

- Having regard to the concepts of risk minimisation in its management of water supplies;
- The preparation of reports on water quality monitoring and water quality improvement (annual *Drinking Water Quality Report*, endorsed by NSW Health, and an *Annual Water Quality Improvement Plan*);
- Monitoring in accordance with the *Annual Drinking Water Quality Monitoring Plan*; and
- The preparation of a *Drinking Water Quality Incident Management Plan*.

Sydney Water obtained **High compliance** in respect to meeting environmental water quality requirements for discharges or water releases that take place under licences issued by regulatory agencies.

Sydney Water obtained **Full compliance** in respect to the requirements for “supply of other grades of water” for the Rouse Hill scheme and other schemes, with the most critical parameters complying with requirements and a continuous program of improvement in place.

System Performance

For System Performance, Sydney Water achieved **Full compliance** with each of the amended System Performance Standards for water pressure, water supply continuity (unplanned interruptions and “planned and warned” interruptions) and sewage overflows, however **Insufficient information** was provided to assess ‘accuracy’ in measuring performance against these standards.

Sydney Water achieved **Full compliance** with the requirement to develop an arrangement for reporting on the accuracy and confidence limits for the System Performance Standards. Sydney Water achieved **High compliance** with the Ministerial requirement to collect (and report) data during the Audit period commencing 1 July 2002 in accordance with the new arrangements under the M&R Protocol. It achieved **High compliance** with the Ministerial requirement to review and report on the causes underlying the upward trend in sewage overflows and to demonstrate strategies to ensure the standard is met under normal operating conditions.

Water Conservation and Demand Management

Sydney Water attained a **Low compliance** for actions taken to reduce the quantity of water (other than reuse) it drew from all sources to achieve the 2004/05 target of 364 litres per capita/day (Lcd). Sydney Water's climate adjusted average demand over 2004/05 was 403 Lcd. **Moderate compliance** was assessed for Sydney Water's progress towards the 2010/11 and 2014/15 targets for water use. The 2010/11 target may be realised if an optimistic estimate of savings is achieved for the planned demand management/ recycling programs and a long-term reduction in demand results from the community's reaction to the drought during 2002-2005.

A **Moderate compliance** was assessed for the Licence requirements dealing with frequency and magnitude of supply deficiencies and water supply reliability issues. No significant progress was evident during 2004/05 by Sydney Water (and SCA) to improve the accuracy of the WATHNET model used by SCA to calculate 'safe yield', by including demand side factors that have an impact on "safe yield" calculations. **Moderate and Insufficient Information compliance** was awarded for cost- benefit assessment and prioritising for demand management options compared to supply options, as a result of Cabinet in Confidence constraints.

Sydney Water attained an overall **High compliance** rating for its actions in evaluating future plans for demand management in terms of cost of alternative water supplies and achieved a **Moderate compliance** with the requirement to reduce effluent discharge to the ocean or waterways "*by way of non potable reuse*".

Full compliance was assigned to requirements for water conservation rating and labelling.

Environment – Indicators and Plans

Sydney Water obtained an overall **High compliance** for requirements relating to Environmental Indicators. Sydney Water prepared a public report that described its performance against most gazetted Environmental Indicators. Data collected over the last ten years was presented for most indicators. Some Environmental Indicators were not monitored or compiled during the Audit period.

Sydney Water obtained **High compliance** for requirements relating to ESD Indicators, having prepared a clear report outlining performance against each indicator (the ESD Indicators and Environment Plan Report 2005). The performance of Sydney Water in relation to the ESD Indicators was diverse, with some indicators demonstrating high performance and others indicating a need for improved performance, especially in relation to larger programs.

Sydney Water's Environment Plan was adopted at the end of September 2000 and includes objectives for the five-year period to the end of 2005. For those targets due in the audit period or for those that had no specific timeframe attached, Sydney Water obtained **High compliance**, achieving most of the targets.



High compliance has been assessed for Sydney Water in meeting its obligations for the Botany Wetlands. A discernable effort was evident by Sydney Water to improve its performance by addressing the need for a new Plan and to re-establish a Steering Committee (of *“other appropriate persons”*).

Sydney Water achieved **Full compliance** in regard to targets for reduction in energy consumption and in regard to meeting the objectives of the Trade Waste Policy.

Dispute Resolution Scheme

Full or High compliance was achieved for most areas relating to Internal Dispute Resolution procedures.

Sydney Water generally achieved **Full compliance** regarding procedures for external complaint handling (EWON). However, no recent information or correspondence was presented to the Auditor regarding external reviews of EWON or compliance with specific clauses of the Licence, particularly the operational issues relating to efficiency, fairness and informality.

Sydney Water indicated that no *“complaints from other bodies”* had been received for this audit period and, hence, a **No requirement** rating has been recorded.

Ministerial Requirements

Following the findings and recommendations of the 2003/04 Operational Audit, the Minister for Energy and Utilities issued two Ministerial requirements to Sydney Water.

► M1 Drinking Water Quality – **Full compliance**

“I endorse the Tribunal’s recommendation that Sydney Water provide confirmation of the Sydney Catchment Authority’s finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low.”

► M2 System Performance Standards – **High compliance**

“I support in-principle the Tribunal’s recommendation that Sydney Water expedite the program to install regional meters to measure leakage.”



‘The big picture’

The 2004/05 Operational Audit of Sydney Water Corporation has identified performance against the following key issues as ‘the big picture’ items for noting or action.

In brief:

- ▮ Sydney Water supplied excellent quality drinking water during 2004/05 through a comprehensive water quality management system, which incorporated quality monitoring, compliance with the Australian Drinking Water Guidelines, risk minimisation, incident management and continuous improvements. Sydney Water reviewed the risk of potential adverse events, such as drought breaking rains, and concluded the risks to public health to be “*acceptably low*”.
- ▮ Sydney Water’s performance in water conservation and in reducing the demand for water continued to under perform during 2004/05.
- ▮ Sydney Water’s demand (for potable water) in 2004/05 was below the Sydney Catchment Authority’s estimate of safe yield (600 GL/yr) reflecting the impact of mandatory water restrictions. However, once the impact of the water restrictions are factored out (that is, if restrictions were not applied) then Sydney Water’s demand of 620 GL/yr, like previous years, continues to exceed the ‘*safe yield*’.
- ▮ No significant progress was evident to improve the accuracy of the (WATHNET) safe yield model.
- ▮ Sydney Water reduced the quantity of water (other than reuse) it draws from all sources to below the specified water conservation target of 364 litres per capita/day (Lcd) in 2004/05. However modeling indicates that this target would not have been achieved without mandatory water restrictions. Sydney Water modeled its climate adjusted average per capita demand, *without water restrictions*, at 403 Lcd.
- ▮ An enhanced program of action, performance monitoring and reporting is needed to drive improved water conservation, reduce dependence on water restrictions and to guarantee Sydney’s long-term water supply. During 2004/05, the NSW Government was investigating new water supply sources such as sea water desalination, ground water storage and deeper off-takes in the storage dams.
- ▮ Sydney Water made progress with water conservation programs (such as a national water conservation rating and labelling scheme for water efficiency in homes, programs for washing machine rebates, residential water saving device retrofits and the ‘*Every Drop Counts*’ business program). However, only one small new water-recycling scheme commenced in 2004/05. It is still possible for Sydney Water to realise its 2010/11 targets for reducing water use, if optimistic estimates of savings are applied and a focussed and concerted effort to increase the level of reuse is implemented.
- ▮ System Performance Standards (SPS) for water pressure, water continuity and supply continuity were met. Sydney Water was below the number of properties permitted to be affected by dry weather sewerage overflows. This performance was achieved with increased sewer main management in the second half of the year, as the first half results and forecasts were close to reaching the maximum number. Continued diligence is needed to ensure standards can continue to be met with the ageing of the sewer network.
- ▮ The introduction of the Monitoring and Reporting Protocols for System Performance is proving of benefit, as has Ministerial requirements to drive improvement in sewerage overflow management.



- ▶ Sydney Water reports its environmental performance across a broad range of Environmental and Ecologically Sustainable Development Indicators and targets contained in its Environment Plan. Its performance against these targets and indicators was good, although variable. For example, over the last ten years a reduction in the concentrations of chemicals discharged to ocean receiving waters has resulted in improved beach water quality. However, phosphorous loads to inland waterways increased by 33% over 2004/05. Improved initiatives in the management of Botany wetlands were evident.
- ▶ Sydney Water's compliance against the Customer Contract and Code of Practice relating to the debt management was clear and subjected to a residential customer survey. Debt and Disconnection Procedures were appropriately applied to customers experiencing difficulty in payment. The reform of the Customer Council was implemented (in 2003/04) and indications are positive.
- ▶ Sydney Water has maintained '*cooperative relationships*' with NSW Health through its Memorandums of Understanding. The EPA and WAMC MOUs do not reflect the changes in role and function of these organisations and, in the case of WAMC, relationships are driven outside of the MOUs by wider NSW Government initiatives.
- ▶ Sydney Water generally performed to a high level in regard to dispute resolutions. Sydney Water relied on an external (EWON) scheme where customers required independent and external review of their complaints and this system operates well.

Comparison of Sydney Water's compliance with the previous four years

This section of the Audit provides a tabular summary of the compliance levels attained by Sydney Water in the 2004/05 Audit period and over the four previous audit periods. Table A provides a summary of the assessment of compliance with each auditable requirement of the Operating Licence.

It is evident from Table A that:

- Sydney Water is continuing to work at generally High to Full compliance, although with some change in Sydney Water's compliance levels from the previous year on most parts of the Licence.
- There was a similar level of performance in relation to MOUs, although much of the '*cooperative relationship*' was driven by wider Government initiatives, as opposed to the MOUs.
- Compliance with the requirements for the customer contract, code of practice and Customer Councils continued at the very high levels of previous years, although compliance levels in regard to Customer Council membership decreased.
- Performance against the drinking water quality requirements also continued to be at very high levels.
- Compliance with the monitoring and reporting requirements for drinking water quality remained at a very high level, as it has done so for the previous four years.
- Planning for maintaining and improving drinking water quality also continued to receive very high levels of compliance.
- Sydney Water was assessed as meeting the guidelines for the supply of '*other grades of water*' for reuse for the second year in a row.
- Compliance with the amended standards for continuity of supply, water pressure and sewage overflows remained high.
- Performance against water conservation targets for the last five years has been Moderate and Low, reflecting Sydney Water's inability to meet targets.
- The preparation of a demand management strategy continued to yield mixed results against the requirements with areas (such as estimates of past, current and projected water use) increasing in performance while others (such as strategies to reduce unaccounted for water losses), decreased in performance. Insufficient information was provided to describe, cost and evaluate additional conservation measures and to assess the prioritisation and scheduling of implementation of courses of action.
- Actions to implement non-potable reuse of effluent remained moderate as planning and implementation schemes slowed over previous years.
- Performance against the requirements for Environmental Indicators and Ecologically Sustainable Development Indicators remained high, although numerous clauses are now 'No requirement' as the Licence moves to the end of its term.
- Performance against the requirements for the Environment Plan was similar to the previous year; although most requirements are procedural and were addressed in the first year of preparing the Plan. Compliance with the Environment Plan itself is reported elsewhere in this report.



- ▶ The energy management compliance targets were met in 2005 and in previous years.
- ▶ Performance against the requirements for the Botany Wetlands increased in regard to implementing the Plan in conjunction with appropriate persons.
- ▶ Performance against the requirements for Trade Waste remained at the High levels of previous years.
- ▶ The requirements for the Internal Dispute Resolution Process demonstrated high performance and consolidated the notable improvement from earlier years.
- ▶ Compliance with the External Dispute Resolution Scheme requirements remained High for the fourth year in a row.
- ▶ Sydney Water indicated that no complaints to other bodies were recorded during the 2004/05 Audit period and, hence, a No requirement rating was recorded.
- ▶ The majority of clauses reported as 'No requirement' for this audit period were also reported as 'No requirement' in previous years. These relate to the development of plans and other milestones that have now been satisfied, to requirements not enacted during the Audit period, or are 'definitions' or requirements on agencies other than Sydney Water.

There are a number of variations from Full to High compliance between years on individual clauses. These results reflect changing priorities and resourcing that take place within organisations from year to year. The Auditor does not believe that this signifies any trend unless numerous clauses also demonstrate a consistent change in level of compliance.

Table A Operating Licence - summary of compliance over the last five years

Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
3.3	Memorandum of Understanding					
3.3.1	Maintain MOUs for Licence term	High	High	High	Partial	Partial
3.3.2	The MOU is to form the basis for co-operative relationships between the parties	High	High	High	Partial	Low
3.3.3	Not limit the persons with whom Sydney Water may have a MOU	NR	NR	NR	NR	NR
5.1	Customer contract					
5.1.1	The Customer Contract may only be varied in accordance with the Act	NR	NR	NR	Full	NR
5.1.2	The Customer Contract automatically applies to persons specified in the Act	Full	Full	Full	Full	NR
5.1.3	The Customer Contract is to set out the rights and obligations of customers and Sydney Water	Full	Full	Full	Full	NR
5.1.4	A copy of the Customer Contract, and any variations to it must be posted on Sydney Water's website	Full	Full	Full	Full	NR
5.1.5	Sydney Water must initiate an independent review of the Customer Contract	NR	NR	NR	Partial	NR
5.1.6	The person undertaking the review must produce a report setting out its findings and recommendations	NR	NR	NR	Full	NR
5.1.7	Within three months of the completion of the review of the Customer Contract, Sydney Water must issue a new Customer Contract	NR	NR	NR	High	NR
5.1.8	Within three months of the review Sydney Water must prepare a pamphlet	NR	NR	NR	Partial	NR
5.1.9	The pamphlet must be updated and disseminated free of charge	Full	Full	NR	NR	NR
5.1.10	Sydney Water may enter into other contracts or arrangements for the supply of services	Full	Full	Full	Full	NR
5.3	Code of Practice & Procedure on Debt & Disconnection					
5.3.1	Develop a code of practice and procedure on debt and disconnection by 12 October 2000	NR	NR	NR	NR	Full
5.3.2(a)	Provide for deferred payment or payment by instalment options for consumption bills	Full	Full	Full	Full	Full
5.3.2(b)	Provide for the payment options referred to in (a) to be advised in consumption bills	Full	Full	Full	Full	Partial
5.3.3	Include the code of practice and procedure on debt and disconnection in its Customer Contract	Full	Full	Full	Full	Non



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
5.3.4(a)	Disseminate information by placing sufficient copies with the Rental Bond Board	Full	Full	Partial	Full	Full
5.3.4(b)	Disseminate information to Customers at least once annually with their quarterly or other bills	Full	Full	Full	Full	Full
5.3.4(c)	Disseminate information to any other person on request	Full	Full	Full	Full	Full
5.4 Customer Councils						
5.4.1	Establish and regularly consult with one or more Customer Councils	Full	Full	Full	Full	NR
5.4.2	A Customer Council may be utilised by Sydney Water to provide high quality advice	Full	High	Full	Full	NR
5.4.3	The first Customer Council must be established within 3 months of the commencement date	NR	NR	NR	Full	NR
5.4.4	Members must be appointed consistent with the licence	Moderate	Full	NR	High	NR
5.4.5	Membership must include the specified groups	Moderate	Full	Full	Full	NR
5.4.6	Sydney Water may require members to serve on multiple Councils	NR	NR	NR	NR	NR
5.4.7	Term of members is two years	NR	NR	Full	Full	NR
5.4.8	Half the members of a Council must be new members	NR	NR	NR	High	NR
5.4.9	No person may have more than two consecutive terms	NR	NR	NR	Non	NR
5.4.10	Appointments for the remaining term of the Council is possible if a position becomes vacant	NR	NR	NR	NR	NR
5.4.11	If members of a Council are not individuals 5.4.8. and 5.4.9 do not apply	Full	NR	NR	Full	NR
5.4.12	Development of a Customer Council Charter addressing the specified issues	Full	Full	NR	Full	NR
5.4.13	Special compliance provisions	NR	NR	NR	NR	NR
5.4.14	A single Customer Council Charter may be applied to other Councils	Full	Full	Full	Full	NR
5.4.15	Provide the necessary information to enable the Council to discharge its tasks	High	High	Full	Full	NR
5.4.16	The Charters must be posted on Sydney Water's website	Full	Full	Full	Full	NR
5.4.17	As part of the end of term review the Licence Review Body must evaluate the effectiveness of the Councils	NR	NR	NR	NR	NR



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
6.2 Drinking Water Quality - Standards						
6.2.1(a)	Comply with NHMRC & ARMCANZ guidelines (1996 Guidelines)	Full	Full	Full	Full	Full
6.2.1(b)	Comply with updates to 1996 Guidelines (Updated Guidelines) specified by NSW Health	Full	Full	Full	Full	NR
6.2.1(c)	Comply with aesthetic guideline values of 1996 Guidelines	Full	Full	Full	Full	Full
6.2.1(d)	Comply with aesthetic guideline values of the Updated Guidelines	Full	Full	Full	Full	NR
6.2.2	Have regard to risk minimisation practices & system management of public water supplies	Full	Full	Full	Full	Full
6.2.3	Commission an independent study on costs & benefits of compliance with 1996 Guidelines	NR	NR	NR	Full	NR
6.3 Drinking Water Quality – Monitoring						
6.3.1	Prepare an Annual Drinking Water Quality Monitoring Plan by 30 June 2000	Full	Full	Full	Full	Full
6.3.2	Include system performance monitoring in the Plan to ensure quality control	Full	Full	Full	Full	Full
6.3.2(a)	The Plan to include health guideline values required in 6.2.1(a) & (b)	Full	Full	Full	Full	Full
6.3.2(b)	The Plan to include aesthetic guideline values required in 6.2.1(c) & (d)	Full	Full	Full	Full	Full
6.3.3	Monitor for aesthetic guideline values of 1996 Guidelines	Full	Full	Full	Full	Full
6.3.4	Monitor to assess drinking water quality	Full	Full	Full	Full	High
6.3.5	Undertake drinking water quality monitoring to 30 June 2001	Full	Full	Full	Full	Full
6.4 Drinking Water Quality - Reporting						
6.4.1	Make monitoring results publicly available and on website	Full	Full	Full	Full	Full
6.4.2	Produce an Annual Drinking Water Quality Report	Full	Full	Full	Full	High
6.4.2(a)	The Report to use health guideline values required in 6.2.1(a) & (b)	Full	Full	Full	Full	High
6.4.2(b)	The Report to use aesthetic guideline values required in 6.2.1(c) & (d)	Full	Full	Full	Full	High
6.4.2(c)	The Report to use aesthetic guideline values of 1996 Guidelines for Physical Characteristics	Full	Full	Full	Full	High
6.4.3	Include a summary of monitoring information, problems and system failures	Full	Full	Full	Full	High



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
6.4.4	Prepare a report by 30 November annually and make publicly available	Full	Full	Full	Full	Full
6.5 Drinking Water – Planning						
6.5.1	Prepare a 5 year Drinking Water Quality Management Plan before 12 September 2000	NR	NR	NR	NR	Full
6.5.2	Include Management Strategies in Plan	NR	NR	NR	NR	Full
6.5.3	Prepare an Annual Drinking Water Quality Improvement Plan for water supply system	Full	Full	Full	Full	Full
6.5.4	The Plan to incorporate system and operational changes	Full	Full	Full	Full	High
6.5.5	Review Plan as part of Mid-term review in 2.3.1	NR	NR	NR	Full	NR
6.5.6	Prepare a Drinking Water Incident Management Plan by 12 May 2000	Full	Full	Full	NR	Full
6.5.7	The Plan to contain procedures and protocols for managing incidents	Full	Full	Full	NR	Full
6.6 Environmental Water Quality						
6.6	Meet environmental water quality requirements for discharges	High	Full	High	High	High
6.7 Other Grades of Water						
6.7.1	Supply other grades of water according to relevant guidelines	Full	Full	Insuff info	Insuff info	High
6.7.2	Identify minimum standards to regulate supply of other grades of water in Mid term review	NR	NR	NR	NR	NR
6.7.3	Minister to resolve any conflict	NR	NR	NR	NR	NR
7.1 Compliance with Performance Standards						
7.1.1	Comply with amended standards for continuity, water pressure and sewerage overflows	Full	Full	Full	Full	Full
	Accuracy and confidence limits	Insuff info	Insuff info	Insuff info	Insuff info	Insuff info
7.2 Standards in Respect of Low Pressure Areas						
7.2.1(a)	Develop standards for minimum level of water pressure required in Blue Mountains	NR	NR	NR	NR	NR
7.2.1(b)	Develop standards for minimum level of water pressure required in non-urban areas	NR	NR	NR	NR	NR
7.2.2	Comply with standards developed in 7.2 (or those determined by the Minister in 7.3)	Full	Full	Full	Full	Full
8.1 Water Conservation Target						
8.1.1(a)	Take action to reduce water quantity from all sources to 364L/day/capita by 2004/05	Low	Partial	Partial	Partial	Low



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
8.1.1(b)	Take action to reduce water quantity from all sources to 329L/day/capita by 2010/11	Moderate	Partial	Partial	Partial	Low
8.1.1(c)	Mid term review to specify reduction target for 2014/15	Moderate	Partial	Partial	Partial	Low
8.2 Demand Management Strategy						
8.2.1	Definition of Demand Management Strategy	NR	NR	NR	NR	NR
8.2.2	Consider demand side management for planning future services	High	Full	Full	Full	Full
8.2.3	Provide Demand Management Strategy Implementation Report by 1 September 2001	Full	Full	Full	Full	Full
8.2.4(a)	The Report to estimate past, current and projected water uses and distinguish users	Full	High	Full	High	High
8.2.4(b)	The Report to describe supply deficiencies	Moderate	Partial	High	Partial	Low
8.2.4(c)	The Report to identify conservation measures	Full	Full	Full	Full	Full
8.2.4(d)	The Report to describe, cost and evaluate additional conservation measures	Insuff info	High	High	High	Partial
8.2.4(e)	The Report to describe future plans for water reclamation & strategies to alter water use practices	High	High	Full	Full	Full
8.2.4(f)	The Report to evaluate cost of plans and alternatives	Moderate	Partial	Partial	High	Non
8.2.4(g)	The Report to prioritise and schedule the implementation of courses of action	Insuff info	High	High	Partial	Partial
8.2.4(h)	Report to identify strategies for reducing unaccounted water losses	High	Full	High	High	Full
8.2.5	Engage third party to verify mathematical models for future water demand	Full	Full	Full	Full	Full
8.3 Reducing Discharges						
8.3.1	Take action to implement non-potable reuse of effluent	Moderate	Partial	High	Partial	Partial
8.4 Water Conservation Rating and Labelling						
8.4.1	Encourage manufacturers to improve water use efficiency of appliances	Full	Full	Full	High	High
9.1 Environmental Indicators						
9.1.1	Monitor and compile data on indicators of impact on environment	Full	High	High	Partial	Full
9.1.2	Use indicators in accord with those published in Government Gazette 15 December 1995	High	High	High	High	Partial
9.1.3	Report to Licence Regulator on performance in relation to indicators by 1 September 2000	High	High	High	Partial	Partial



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
9.1.4	The Report to enable a year to year comparison	Full	High	High	Partial	Low
9.1.5	The Report to be made publicly available within one month of receipt by Licence Regulator	High	High	High	Full	Non
9.1.6	Indicators in 9.1.2 to be reviewed in End of term review	Full	Full	NR	NR	NR
9.2 Ecologically Sustainable Development Indicators						
9.2.1	Develop measures to indicate the degree to which its activities / services comply with ESD principles	NR	NR	NR	NR	Full
9.2.2	Develop a draft list of ESD Indicators by 12 May 2000	NR	NR	NR	NR	Full
9.2.3	The draft list must undergo public consultation.	NR	NR	NR	NR	Full
9.2.4	Present a final list of ESD Indicators to the Minister for approval within three months of 9.2.3	NR	NR	NR	NR	Full
9.2.5	Monitor and compile data on ESD indicators by 1 July	NR	NR	NR	NR	Full
9.2.6	Report to Licence Regulator on performance in relation to ESD indicators by 1 September	High	High	High	High	Full
9.2.7	Make yearly report available to the public within one month of receipt by Licence Regulator	High	High	High	Full	Non
9.2.8	The ESD indicators in Clause 9.2.4 are to be reviewed as part of the End of term review	NR	NR	NR	NR	NR
9.3 Environment Plan						
9.3.1	Produce 5 year Environment Plan by 30 September 2000	NR	NR	NR	NR	Full
9.3.2	Engage public consultation in developing the Plan	NR	NR	NR	NR	Full
9.3.3(a)	The Plan to contain water, waste water and stormwater strategies and environmental aspects of other activities	NR	NR	NR	NR	Full
9.3.3(b)	The Plan to endorse ESD principles	NR	NR	NR	NR	Full
9.3.3(c)	The Plan to be recognised in business plans	Full	Full	High	NR	Full
9.3.4	The Plan must set targets & time tables for compliance over term of Plan	NR	NR	NR	NR	Full
9.3.5	Make Plan publicly available and on website	NR	NR	NR	NR	Full
9.3.6	Compile report detailing progress in meeting Plan and complying with targets and timetables	Full	Full	Full	Full	Partial
9.3.7	Amendments to Plan made only after public consultation	NR	NR	NR	NR	NR



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
9.4 Energy Management						
9.4.1	Energy Management Policy	NR	NR	NR	NR	NR
9.4.2	Adopt energy consumption targets in the Energy Management Policy	NR	NR	NR	Full	Full
9.4.2(a)	Targets in Policy to reduce consumption in buildings to 15% of 1995 level by 2001	NR	NR	NR	Full	Insuff info
9.4.2(b)	Targets in Policy to reduce consumption in buildings to 25% of 1995 level by 2005	Full	NR	NR	NR	NR
9.4.2(c)	Targets in Policy to reduce consumption to any subsequent targets set by Policy	NR	NR	NR	NR	NR
9.4.3	Report to licence regulator on performance in relation to Clause 9.4.2 by 1 September	Full	Full	Full	Full	Full
9.5 Botany Wetlands						
9.5.1	Definition of Botany Wetlands Plan	NR	NR	NR	NR	NR
9.5.2	Implement Plan in conjunction with appropriate persons	High	Partial	High	High	Full
9.5.3	Report annually to IPART on compliance with Plan	Full	Full	Full	Full	Full
9.5.4	Prior to End of term review, review Plan in consultation with EPA, DLWC and NPWS	NR	Low	NR	NR	Full
9.7 Trade Waste						
9.7.1	Prepare trade waste policy & management plan	NR	NR	NR	Full	High
9.7.2	Report to IPART on progress on objectives and indicators under Clause 9.7.1 by 1 September	Full	Full	Full	Full	Full
12.1 Internal Dispute Resolution Process						
12.1.1	Establish internal complaints handling procedures	Full	Full	Full	Full	Full
12.1.2	Base internal complaints handling procedures for customer and consumer complaints on AS4269-1995	High	High	High	High	Partial
12.1.3	Make information on procedures publicly available	Full	Full	Full	Full	Full
12.1.4	Provide information in 12.1.3 through customer bills at least annually	Full	Full	Full	Full	Full
12.1.5	Complaint process to be reviewed and amended where necessary to AS4269	High	High	High	High	Partial
12.1.6	Report each year to the Licence Regulator concerning complaints on the following:	Full	NR	NR	Low	Partial
12.1.6(a)	number & type of complaints each month in each suburb	Full	Full	Full	Low	Partial



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
12.1.6(b)	number & type of complaints & how well each was handled	High	High	High	Low	Partial
12.1.6(c)	any systemic problems	Full	Full	Full	Partial	Partial
12.2 External Dispute Resolution Scheme						
12.2.1	Establish Dispute Resolution Scheme for customers and consumers by 12 May 2000	NR	NR	NR	NR	Full
12.2.2	Scheme subject to Minister's approval	NR	NR	NR	NR	Full
12.2.3	Dispute Resolution Body to handle complaints	Full	Full	Full	Full	Full
12.2.4	Scheme to comply with minimum standards as in Benchmarks for Industry based Consumer Dispute Resolution Schemes	High	High	Full	Full	Full
12.2.5(a)	Scheme to be independent of Sydney Water	Full	Full	Full	Full	Full
12.2.5(b)	Sydney Water to abide by decisions of Body	Full	Full	Full	Full	Full
12.2.5(c)	Scheme must discourage legalistic adversarial approach	High	High	High	Full	Full
12.2.5(d)	Decisions of Body to be fair	High	High	High	Full	High
12.2.5(e)	Scheme to operate efficiently by keeping track of disputes	High	High	High	Full	High
12.2.5(f)	Scheme to be free of cost to customers	Full	Full	Full	Full	Full
12.2.6	Prepare pamphlet to explain Scheme	Full	Full	Full	Full	Full
12.2.7	Provide pamphlet to customers through bills	Full	Full	Full	Full	Full
12.2.8	Provide reports to Licence Regulator on determinations of Body	NR	NR	NR	NR	NR
12.2.9(a)	Produce annual report to Licence Regulator on Dispute Resolution Scheme on:	Full	Full	Full	Full	Full
12.2.9(b)	number and types of complaints received by Body	Full	Full	Full	High	Full
12.2.9(c)	outcome of complaints	Full	Full	Full	Full	Full
12.2.9(d)	time taken to resolve complaints	Full	Full	Full	Full	Full
12.2.9(e)	procedure for resolving complaints	Full	Full	Full	Full	Full
12.2.9(f)	systemic problems arising from complaints	Full	Full	Full	High	Full
12.2.9(g)	other information required by IPART	NR	NR	NR	NR	NR
12.2.10	Make report in 12.2.9 publicly available	Full	Full	Full	Full	Full
12.3 Complaints to Other Bodies						
12.3(a)	Report to Licence Regulator on number & type of complaints made to a court or tribunal by 1 September	NR	Insuff info	Insuff info	Full	Full



Licence Clause	Summary of Requirement	2004/05	2003/04	2002/03	2001/02	2000/01
12.3(b)	Report on outcome of these complaints	NR	Insuff info	Insuff info	Full	Full
12.3(c)	Report on how complaints were resolved	NR	Insuff info	Insuff info	Full	Full
12.3(d)	Report on systemic problems arising from complaints	NR	Insuff info	Insuff info	NR	NR
12.3(e)	Report on other information required by Licence Regulator	NR	Insuff info	Insuff info	NR	NR

Table B provides a summary of compliance levels reached by Sydney Water in the 2004/05 Audit period for the Ministerial requirements. Ministerial requirements are usually specific to each operating year and hence yearly comparisons with previous operational audits are not applicable for a number of requirements.

Table B Ministerial Requirements - summary of compliance

Directive No.	Summary of Requirement	2004/05
<i>Summary of Ministerial requirements arising from 2003/04 Operational Audit</i>		
M1	<i>"Sydney water provided confirmation of Sydney Catchment Authority's finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low."</i>	Full
M2	<i>"I support in principle the Tribunal's recommendation that Sydney Water expedite the program to install regional meters to measure leakage..."</i>	High



Summary of Key Recommendations

The *key recommendations* of the 2004/05 Operational Audit are presented below and grouped by the audited parts of the Operating Licence.

Additionally, *secondary recommendations* are presented in the body of this report. Sydney Water is encouraged to give due consideration to those recommendations and facilitate improved performance and compliance for subsequent audit periods.

Memoranda of Understanding

It is recommended that Sydney Water:

- R 4.1 Update its MOUs with WAMC and EPA to reflect the broader and changed portfolios of the agencies.
- R 4.2 Include the Sydney Catchment Authority in the revised MOU between Sydney Water and DEC recognising the integral role of the SCA and Sydney Water in delivering water from the 'catchment to tap'.

Customers

It is recommended that Sydney Water:

- R 5.1 Conduct an annual customer survey with industrial and commercial customers to provide feedback on the performance of Sydney Water in this area.
- R 5.2 Inform all members of the Customer Council, in writing, about those areas of interest that are expected to represent.
- R 5.3 Invite the Chairman of the Sydney Metro Catchment Management Authority, or his delegate, to participate in the Customer Council.

Water Quality

Nil

System Performance

Nil

Water Conservation and Demand Management

It is recommended that Sydney Water:

- R 8.1 Reduce overall demand for water by increased focus on industrial and domestic reuse and industrial sewer mining options, including: identifying customers, establishing their requirements, removing regulatory barriers and completing feasibility studies.
- R 8.2 Accelerate the flow meter and pressure zone divide valve and pressure reduction valve installation programs to enable more zones to be defined where accurate Minimum Night Flow measurements can be made.

- R 8.3 Be required to comply with:
- ▶ An intermediate 2007/08 water conservation target, and pro rata annual targets (from the 2004/05 unrestricted consumption of 403 Lcd to the 329 Lcd target by 2010/11);
 - ▶ Mandatory water reuse targets; and
 - ▶ Report annual performance against these annual targets to the Minister and IPART with a penalty regime if the (pro rata annual) targets are not achieved.

Environment – Indicators and Plans

It is recommended that Sydney Water:

- R 9.1 Review and strengthen programs to improve performance in areas where environmental and ESD indicators show low or decreasing performance (especially demand management, effluent re-use, energy use, greenhouse gas emissions) or where progress indicates future targets are unlikely to be met (such as reduced water consumption).
- R 9.2 Identify the reasons and take corrective action for major capital works programs that benefit the environment not being delivered on time or undergoing significant changes following the start of implementation.
- R 9.3 Develop a new Botany Wetland Plan of Management, to provide direction, actions, desired outcomes and timetables for the Management of the Botany Wetlands over the next five years by December 2006 and provide this Plan to the Minister for approval.
- R 9.4 Maintain continuity of Botany Wetlands Plan of Management and restore implementation expenditure levels, pending the adoption of a new Plan.
- R 9.5 Establish a reinvigorated Botany Wetlands Environmental Management Steering Committee, in conjunction with appropriate persons over 2005/06.

Dispute Resolution

It is recommended that Sydney Water:

- R 10.1 Develop a more comprehensive investigation and survey system for complaints including refinement of the Emergency Contact Survey to test all dimensions of AS4269-1995.
- R 10.2 Develop an integrated customer contact and complaints recording system.



1. Introduction and objectives

1.1 Sydney Water Corporation

Sydney Water Corporation (Sydney Water) is a State Owned Corporation, wholly owned by the NSW Government. The roles and responsibilities of Sydney Water derive from the *Sydney Water Act, 1994* (the Act) and the Operating Licence issued pursuant to Part 5 of the Act. In accordance with the Act, the NSW Government granted an Operating Licence to Sydney Water in 1995. At the end of 1999, the Licence Regulator recommended to the Government various terms and conditions to amend the Operating Licence for Sydney Water. The current Operating Licence was developed by IPART and commenced on 12 April 2000 for a 5-year term.

The Operating Licence enables Sydney Water to provide, construct, operate, manage and maintain systems and services (in accordance with the Act) for:

- a) Supplying water;
- b) Providing sewerage services;
- c) Providing stormwater drainage systems, and
- d) Disposing of wastewater.

Throughout its area of operations, Sydney Water provides services to approximately four million customers within the areas of Sydney, the Blue Mountains and Illawarra Regions. The area of operations for which Sydney Water is responsible is shown in Figure 1.1. A schematic representation of the major infrastructure under the control of Sydney Water is shown in Figure 1.2.

1.2 Independent Pricing and Regulatory Tribunal

The Independent Pricing and Regulatory Tribunal (IPART) was established in 1992 to regulate the pricing of monopoly services. On 1 November 2000 the NSW Government initiated the *Independent Pricing and Regulatory Tribunal and Other Legislation Amendment Act*, which, under Schedule 1, transferred Licence auditing and other regulatory responsibilities for the three metropolitan water authorities (Sydney Water, Hunter Water and the Sydney Catchment Authority) to IPART.

1.3 Scope of Operational Audit

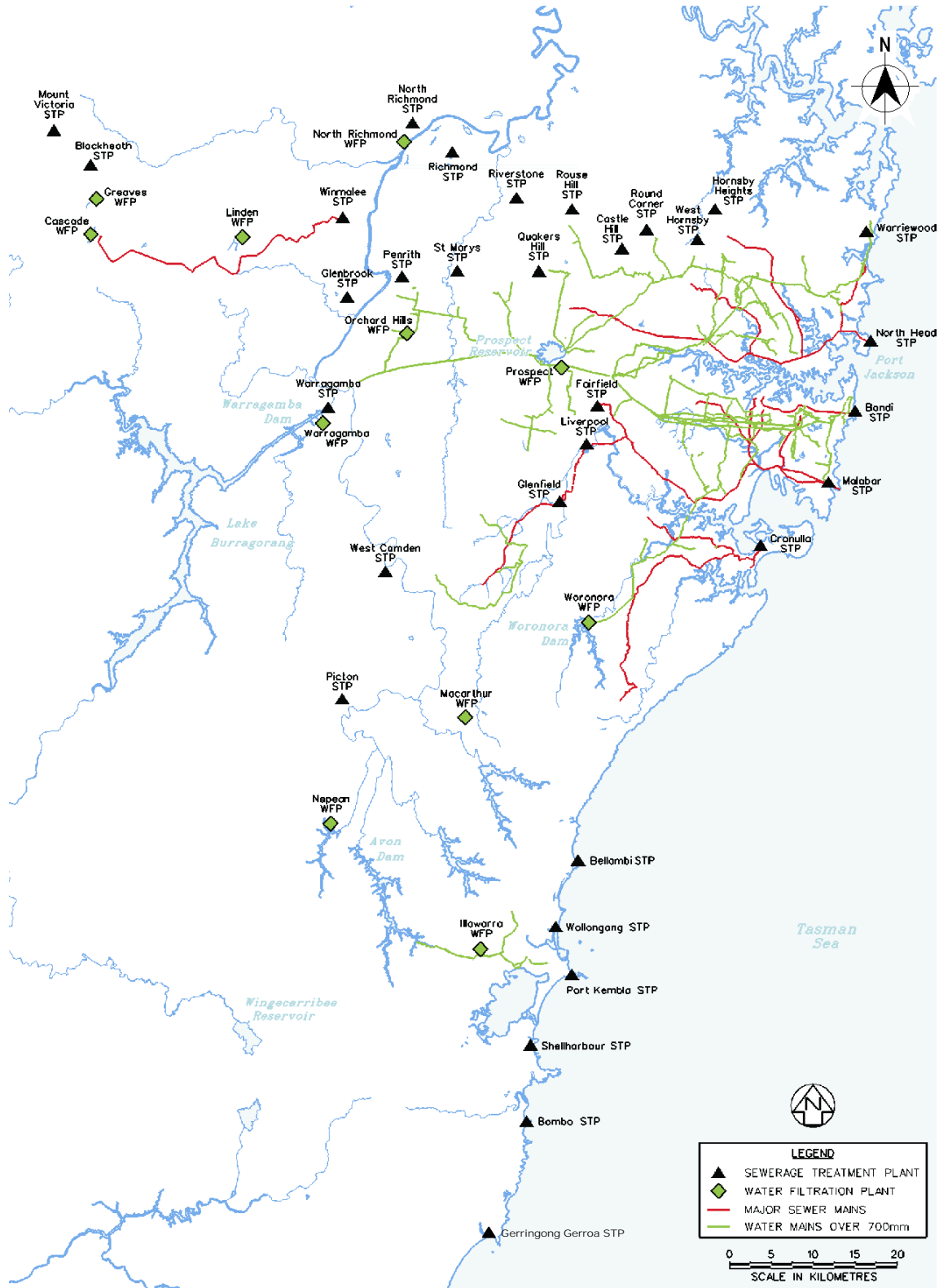
This is the ninth annual audit of Sydney Water's compliance against the requirements of the Operating Licence. It is the fifth annual audit against the requirements of the current Operating Licence.

Figure 1.1 Sydney Water Corporation's Area of Operations



Source: Sydney Water Corporation

Figure 1.2 Sydney Water Corporation's major infrastructure



Source: Sydney Water Corporation

The audit of the Operating Licence for Sydney Water (and the extent of this report) covers the period 1 July 2004 to 30 June 2005. The scope of the audit is defined in Part 10 of the Operating Licence and broadly includes assessment of compliance against the Parts of the Licence as outlined in Table 1.1.

The scope of the audit also includes assessment of compliance against the requirements of the Minister for Energy and Utilities resulting from previous Operational Audits and the Review of System Performance Standards.

The full audit brief is contained in Appendix A. The Operating Licence and the Ministerial requirements are provided in Appendix B and C, respectively.

Table 1.1 Scope of the 2004/05 Audit

Licence Part - Key Area		General Requirements	Report Section
Part 3	Sydney Water's Responsibilities	Memoranda of Understanding with the Department of Health, the Environment Protection Authority and the Water Administration Ministerial Corporation.	Section 4
Part 5	Customer and Consumer Rights	Customer Contract; Code of Practice and procedures on debt and disconnection; and Customer Councils.	Section 5
Part 6	Water Quality	Drinking water quality standards, monitoring and reporting; drinking water planning; environmental water quality; and other grades of water.	Section 6
Part 7	System Performance	Compliance with performance standards; standards in respect to low pressure areas; review of performance standards; keeping of records of discontinuity, low pressure and sewage overflow; and annual reporting on compliance with performance standards.	Section 7
Part 8	Water Conservation and Demand Management	Water conservation targets; demand management strategy; reducing discharges; and water conservation rating and labelling.	Section 8
Part 9	Environment – Indicators and Plans	Environmental indicators; ecologically sustainable development indicators; environment plan; energy management; Botany Wetlands; pollution reduction targets; and trade waste.	Section 9
Part 10	Operational Audits of the Licence	Commission of audits; what the audit is to report on; reporting of audit; additional audits; and provision of information.	NA
Part 12	Dispute Resolution Scheme	Internal dispute resolution process; external dispute resolution scheme; and complaints to other bodies.	Section 10

1.4 Structure of the audit report

This 2004/05 Operational Audit report has been presented in plain English and in a format that provides information directed at different levels of readership and to allow an understanding of Sydney Water's operations and its compliance with specific statutory requirements.

The audit report has been specifically prepared to meet the audit brief and Part 10 of the Operating Licence. The findings of the report are not presented in a 'prioritised order' or 'order of significance'. Rather, the report is designed to follow the structure of the Operating Licence. The report is structured into compliance sections that correspond to the key areas (parts) of the Operating Licence (see Table 1.1 above). Each compliance section of the report provides the following:

- ▶ A *compliance summary* addressing the principal compliances and any non-compliances;
- ▶ A *requirements summary* placing in context and summarising the requirements of the Operating Licence against which the performance of Sydney Water is assessed;
- ▶ *Substantive evidence and findings* that support the assessments of compliance and are presented in compliance tables breaking each auditable requirement into sub-clauses and includes:
 - A statement describing the *level of compliance* with the Licence condition; and
 - A detailed appraisal of the *findings* of the audit based on the evidence provided.

There are up to three compliance tables in each section:

- ▶ The first table presents compliance under Part 10 of the Licence;
- ▶ The second table presents compliance with the relevant Part of the Licence; and
- ▶ The third table presents the assessment of compliance with any Ministerial requirements or System Performance Standard.

This is followed by:

- ▶ A discussion or expansion of compliance comments for each key area where required;
- ▶ Factors affecting compliance for each key area where applicable; and
- ▶ Recommendations for each key area.

The specific requirements of Part 10 of the Operating Licence and the Ministerial requirements and System Performance Standards are reported in the relevant sections. Table 1.1, Table 1.2 and Table 1.3 provide guidance on where these requirements are addressed in this report.

Table 1.2 Requirements of Part 10 of the Operating Licence

Part 10 of the Operating Licence		Report Table
10.2.1 The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:		
(a)	On-going compliance by Sydney Water with its Customer Contract and specific areas of non-compliance	Table 5.1
(b)	Sydney Water's compliance with its Code of Practice and Procedure on Debt and Disconnection under Clause 5.3.2 and any similar initiatives developed by Sydney Water	Table 5.1
(c)	Compliance by Sydney Water with its obligations under Part 6 (Water Quality) of this Licence	Table 6.3
(d)	Compliance by Sydney Water with the performance standards under Clauses 7.1 (Compliance with Performance Standards) and 7.2 (Standards in respect of Low Pressure Areas)	Table 7.1
(e)	Compliance by Sydney Water with the water conservation targets under Clause 8.1.1	Table 8.1
(f)	Sydney Water's performance in relation to implementation of the Demand Management Strategy under Clause 8.2	Table 8.1
(g)	Progress by Sydney Water in meeting the Reuse Target required under Clause 8.3.1	Table 8.1
(h)	Progress by Sydney Water in relation to the implementation of the National Water Conservation Rating and Labelling Scheme under Clause 8.4.1	Table 8.1
(i)	Sydney Water's performance in relation to the Environment Indicators under Clause 9.1	Table 9.1
(j)	Sydney Water's performance in relation to the ESD Indicators compiled under Clause 9.2.5	Table 9.1
(k)	Compliance by Sydney Water with the Environment Plan under Clause 9.3	Table 9.1
(l)	Compliance by Sydney Water with the targets in the Energy Management Policy for Energy Consumption of Buildings in Clause 9.4.2	Table 9.1
(m)	Compliance by Sydney Water with the Botany Wetlands Plan under Clause 9.5	Table 9.1
(n)	Compliance by Sydney Water with the Trade Waste objectives and performance indicators under Clause 9.7	Table 9.1
(o)	The effectiveness of Sydney Water's Internal Dispute Resolution scheme under Clause 12.1	Table 10.1
(p)	The effectiveness of Sydney Water's External Dispute Resolution scheme under Clause 12.2	Table 10.1
(q)	Complaints made against Sydney Water to a court or tribunal under Clause 12.3 (Complaints by other Bodies)	Table 10.1
(r)	Any other matter required by this Licence or the Act to be assessed or considered as part of the Annual Audit, for example, Ministerial requirements	See Table 1.3
10.2.2 Despite Clause 10.2.1, neither the Licence Regulator nor the persons undertaking the Annual Audit may investigate a matter under Clause 10.2.1 if the investigation of that matter is ordinarily within the regulatory activities of the EPA, NSW Health or the DLWC and the relevant agency has undertaken an investigation of that matter. However, the Licence Regulator may, as part of the Annual Audit:		
(a)	Report on Sydney Water's implementation of any Memorandum of Understanding referred to in Clause 3.3.1	Table 4.1

**Table 1.3 Ministerial Requirements**

Ministerial requirement		Report Table
<i>Summary of Ministerial requirements arising from 2003/04 Operational Audit</i>		
M1	<i>"I endorse the Tribunal's recommendations that Sydney Water provide confirmation of the Sydney Catchment Authority's findings that the residual treated water quality risks associated with variations in bulk water quality area acceptably low".</i>	Table 6.5 and Table 8.3
M2	<i>"I support in principle the Tribunal's recommendation that Sydney Water expedite the program to install regional meters to measure leakage".</i>	Table 8.3

2. Audit methodology

2.1 Standards

To meet the specific requirements of IPART, the Operational Audit was undertaken adopting a methodology consistent with ISO14011 "*Guidelines for Environmental Auditing*". This guideline provides a *systematic approach* to defining the requirements of the audit, planning, interpreting Licence conditions, collecting audit evidence, objectively assessing the evidence, and reporting in a clear and accurate manner. It also ensures that the audit has been conducted in accordance with an established and recognised audit protocol.

2.2 Audit preparation

The audit methodology used in the preparation of this audit is described below.

Draft Audit Plan

To ensure that the audit requirements outlined in the Operating Licence and the brief were addressed, the scope of the audit was confirmed with IPART and a draft audit plan prepared.

The audit methodology was amended this year after discussions with IPART. The main changes were:

- ▶ Formal audit interviews were not required for some Operating Licence conditions that were deemed 'low risk' by IPART. The audit was based on the written response to the audit questionnaire and supporting documentation;
- ▶ IPART requested the Sydney Water Managing Director to sign off on the comments provided in the second draft audit report; and
- ▶ An additional meeting with Sydney Water, IPART and GHD at the second draft stage to respond to the major issues with the draft audit.

Inception Meetings

Following the preparation of the draft audit plan, an inception meeting was held with Sydney Water's Managing Director and other representatives on 22 August 2005. IPART representatives also attended the meetings.

The primary objective of this meeting was to develop working relationships, mutual understandings and expectations relating to the requirements and process of the audit, to discuss and agree upon the changes to the audit methodology and to provide an opportunity for Sydney Water to present an overview of compliance and progress since the previous audit period.

Audit questionnaires

Specific audit questionnaires were developed for all requirements within the scope of the audit. These questionnaires were designed to establish *substantive compliance* with the Licence requirements as well as to *identify factors that have, or may have impact on performance in the future*.

The audit questionnaires also assessed the underlying procedures that Sydney Water has in place relevant to the requirements, and the application of these procedures by Sydney Water. This was designed to verify that the underlying management processes within the organisation are sound, and there is confidence that work is carried out systematically and in accordance with internal procedures.

Audit questionnaires were, in most cases, provided to Sydney Water one week prior to the audit interviews to allow Sydney Water the opportunity to prepare for the interview and collate the necessary documentary evidence.

2.3 Conduct of the audit

To ensure a positive relationship, audit protocols were established at the inception meeting between the auditor and Sydney Water representatives. The protocols were designed to ensure efficient and transparent information transfer and foster an open and professional working relationship between all parties.

Both Sydney Water and the Auditor generally adhered to the agreed protocols.

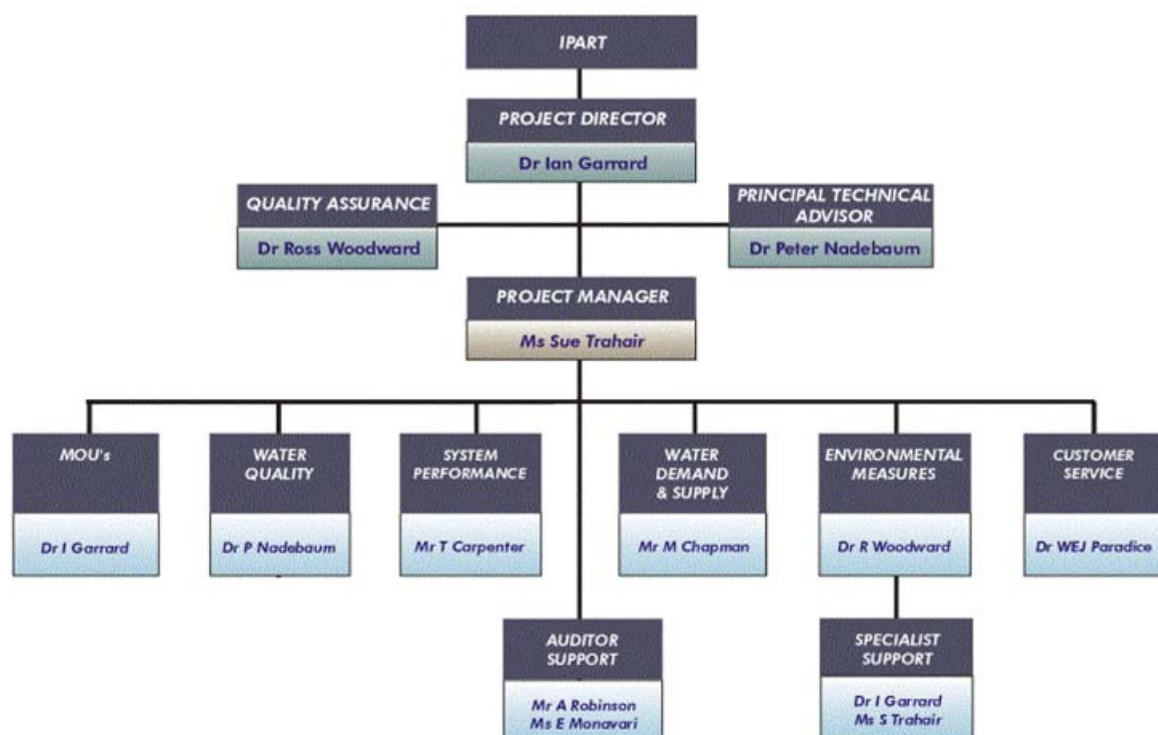
2.4 Audit interviews

Interviews were conducted by the specialist auditors between September and October 2005. The interviews were generally guided, but not limited, by the pre-prepared questionnaires and Sydney Water was provided the opportunity to present evidence towards demonstrating compliance with the Licence requirements.

2.5 Audit team

The audit team consisted of specialist auditors from GHD Pty Ltd and Hunter Valley Research Foundation. The audit was coordinated by the Project Manager calling on the expertise of the team members for the auditing of key areas as shown below in Figure 2.1.

Figure 2.1 Structure and responsibility of the audit team



3. Regulatory regime

3.1 Introduction

Sydney Water has the primary role of managing potable water supply and sewage treatment (including assets) to protect public health and the environment for the benefit of Sydney and surrounding urban areas. These roles and responsibilities of Sydney Water are derived from the *Sydney Water Act, 1994* and the Operating Licence issued pursuant to Part 5 of the Act.

The NSW Government in 1995 granted the Operating Licence to Sydney Water. At the end of 1999, the Licence Regulator recommended to the Government various terms and conditions to amend the Operating Licence for Sydney Water. The Licence was amended by IPART and renewed on 1 January 2000 for a five-year term although it did not commence until 12 April 2000.

The Act establishes a set of subordinate statutory instruments namely: the Operating Licence; Memoranda of Understanding (MOUs) with regulatory or other agencies; and a Customer Contract. Such instruments impose compliance requirements upon Sydney Water, which are measurable and can therefore be audited.

A brief description of the major components of the regulatory framework within which Sydney Water operates is presented below.

3.2 Sydney Water Act, 1994

Under Section 21 of the Act, the principal objectives of Sydney Water are as follows:

- ▶ *To be a successful business and to this end operate at least as efficiently as any comparable businesses, maximise the net worth of the State's investment in the Corporation, and exhibit a sense of social responsibility by having regard to the interests of the community in which it operates;*
- ▶ *To protect the environment by conducting its operations in compliance with the principles of ecologically sustainable development contained in section 6(2) of the Protection of the Environment Administration Act, 1991; and*
- ▶ *To protect public health by supplying safe drinking water to its customers and other members of the public in compliance with the requirements of any operating licence.*

In addition, Sydney Water has special objectives under Section 22(1) regarding reduction of risks to human health and preventing the degradation of the environment.

The Act also establishes the provisions listed in Table 3.1.

Table 3.1 Provisions of the *Sydney Water Act, 1994* - Relating to the Audit

<ul style="list-style-type: none"> ▶ The Sydney Water Corporation (Sydney Water); ▶ The functions of Sydney Water; ▶ The area of operations; ▶ The granting of the Operating Licence; ▶ The objectives of Sydney Water; ▶ The functions of the Licence Regulator; ▶ Environmental management; ▶ The Operational Audit; 	<ul style="list-style-type: none"> ▶ Provisions relating to works; ▶ The preparation and implementation of MOUs; ▶ Customer contracts; ▶ Fees and charges; ▶ Management of infrastructure; ▶ Offences provisions; and ▶ Other miscellaneous matters.
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3.3 Operating Licence

Sydney Water must conduct its activities in accordance with an Operating Licence issued under section 12 of the *Sydney Water Act, 1994*. The current Operating Licence has effect from 1 January 2000 until 30 June 2005 (extended by IPART from 31 December 2004).

The nature and scope of the Operating Licence and the period over which the Licence is applicable, for the purposes of this audit report, have been presented in Section 1.3 of this report. The Operating Licence is reproduced in full in Appendix B.

A summary of the requirements of each Part of the Operating Licence is presented in Section 4 to Section 10 of this report.

3.4 Customer Contract

The Customer Contract sets out the terms of the contract between Sydney Water and each person who is defined to be a customer of Sydney Water. It sets out the rights and obligations of customers and those of Sydney Water. The Contract is comprehensive and includes the areas outlined in Table 3.2. Under the Operating Licence, Sydney Water was required to *"initiate an independent review of the Customer Contract to be carried out within 12 months of the Commencement Date"*. It was also required to:

"...within 3 months of the completion of the review of the Customer Contract, Sydney Water must take all steps necessary to issue a new Customer Contract that addresses the recommendations of the review report".

The Independent Pricing and Regulatory Tribunal, who conducted the review, sent the revised Customer Contract to the Minister on 23 November 2001. The Minister wrote to Sydney Water on 1 March 2002 indicating his approval of the new Customer Contract with implementation of the Contract beginning on 1 April 2002.

This audit assesses Sydney Water's performance against the revised Customer Contract.

Table 3.2 Key Areas of the Customer Contract

<ul style="list-style-type: none"> ▶ Who is covered; ▶ Services provided by Sydney Water including water supply, sewerage services, stormwater drainage; ▶ Charges and payment; ▶ Assistance in payment; ▶ Disconnection or restriction of services; ▶ Redress; ▶ Responsibilities for maintenance; 	<ul style="list-style-type: none"> ▶ Entry into a customer's property for maintenance; ▶ Water meter installation, testing and maintenance; ▶ Obtaining information from Sydney Water; ▶ Complaints and complaint handling; ▶ Consultation, information and privacy; and ▶ Termination of the contract.
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3.5 Memoranda of Understanding

Sydney Water is required, under Part 6, Division 3 of the Act and the provisions of the Operating Licence, to enter into Memoranda of Understanding (MOUs) with certain agencies. The objective of the MOUs is to assist in the formation and development of “*cooperative relationships*” between the agencies with a view to furthering the objectives of the Operating Licence and the Act.

The key regulatory agencies with which Sydney Water has established MOUs are:

- ▶ Water Administration Ministerial Corporation (WAMC) (now amalgamated into the Department of Infrastructure, Planning and Natural Resources (DIPNR));
- ▶ NSW Department of Health (NSW Health); and
- ▶ NSW Environment Protection Authority (EPA) (now amalgamated in to the Department of Environment and Conservation).

MOUs are useful in identifying roles and responsibilities and for establishing the frameworks for on-going consultation and joint initiatives between the parties. They become more useful and rigorous documents when they also contain specific agreements for planning, implementation, monitoring and review of programs.

Note: Following the Audit period, DIPNR was restructured into the Department of Planning and the Department of Natural Resources.

3.6 Other Acts

Sydney Water is obliged to comply with the provisions of all other NSW Acts. The Acts that are most relevant to this audit include:

- ▶ *Environmental Planning and Assessment Act, 1979;*
- ▶ *Protection of the Environment Operations Act, 1997;*
- ▶ *Public Health Act, 1991;*
- ▶ *Water Act, 1912;*
- ▶ *Water Management Act 2000;*
- ▶ *Water Legislation Amendment (Drinking Water and Corporate Structure) Act, 1998; and*
- ▶ *Independent Pricing and Regulatory Tribunal Act, 1992.*



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4. Memoranda of Understanding

4.1 Summary of findings

► Maintain Memoranda of Understanding

Sydney Water is required to maintain Memoranda of Understanding (MOU) with the Water Administration Ministerial Corporation (WAMC), NSW Department of Health (NSW Health) and Environment Protection Authority (EPA) for the term of the Licence. **High compliance** was collectively assessed for the MOUs in 2004/05, in that most requirements have been met, although much of the '*cooperative relationship*' continued to be driven outside of the MOUs and by wider NSW Government initiatives.

Whilst Sydney Water exhibited **Full compliance** for the MOU with NSW Health, which provides a sound model, the requirements of the MOUs for EPA (**Moderate compliance**) and WAMC (**Low Compliance**) were met in 2004/05 at a similar level to previous years. The EPA and WAMC MOUs do not reflect the broader changed role and functions of the Department of Environment and Conservation (DEC) or the Department of Infrastructure, Planning and Natural Resources (DIPNR), respectively, that applied during the year.

► Basis for Cooperative relationships

Sydney Water achieved **High compliance** under this clause, as a clear and cooperative relationship was evident with NSW Health and the activity with EPA was similar to previous years. The opportunities remain for a cooperative relationship to be developed with the WAMC under the requirements of the MOU. A relationship was evident with WAMC, although this was largely outside the MOU and relates to broader inter-agency and NSW Government processes.

The WAMC and EPA MOUs require updating to reflect the changing roles of DEC, which includes the Sydney Catchment Authority, and DIPNR.

► Other MOUs

No requirement applies to this clause, as Sydney Water was not required to establish a MOU with any other agency over the year.

4.2 Summary of requirements

Section 35 of the *Sydney Water Act 1994* requires Sydney Water to maintain MOUs with three agencies, namely the Water Administration Ministerial Corporation (WAMC), NSW Health and the EPA (which since September 2003 become part of the Department of Environment and Conservation, DEC) for the term of this Operating Licence. A Memorandum of Understanding is entered into with each of the three agencies and recognises the regulatory role these agencies have with Sydney Water. Should Sydney Water and the respective regulatory agency not be able to agree with the terms of the MOU, then the views of the regulatory agency prevail. Any amendments to the three Memoranda are to be made available for public input through public exhibition and public comment.

The Operating Licence states the purpose of the Memoranda is to form the basis for "*cooperative relationships*" between the parties (Clause 3.3.2) and, in the case of NSW Health, recognise its role in providing advice in relation to drinking water quality and the supply of safe water. Further, the EPA MOU



needs to recognise DEC's role as an environmental regulator in NSW and also ensure Sydney Water is committed to environmental improvements.

Though not stated within the respective Operating Licence clause, the MOU between Sydney Water and the Water Administration Ministerial Corporation should also reflect Sydney Water's role as a joint manager (with Sydney Catchment Authority) of Sydney's water supply. Sydney Water is licensed by WAMC (through DIPNR) for the North Richmond Water Filtration Plant (which draws from the Hawkesbury River), Manly Dam and Botany Wetlands.

A final clause under Section 3.3 (Clause 3.3.3) also indicates that there is no limit to the persons with whom Sydney Water may have a MOU.



4.3 Details of compliance

Table 4.1 Memoranda of Understanding – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2.2	Despite Clause 10.2.1, neither the Licence Regulator nor the persons undertaking the Annual Audit may investigate a matter under Clause 10.2.1 if the investigation of that matter is ordinarily within the regulatory activities of the EPA, NSW Health or the DLWC and the relevant agency has undertaken an investigation of that matter. However, the Licence regulator may, as part of the Annual Audit.	No requirement	
10.2.2 (a)	Report on Sydney Water's implementation of any MOU referred to in Clause 3.3.1.	No requirement	Sydney Water has MOUs with NSW Health, Environment Protection Authority (via DEC) and the Water Administration Ministerial Council (via DIPNR). Although the Operating Licence does not limit (Clause 3.3.1) the persons with whom Sydney Water may have a MOU, no other MOUs have been established. Audit assessment of the MOUs is outlined in the following Table 4.2 – Memoranda of Understanding – Part 3 Licence Clauses.

Table 4.2 Memoranda of Understanding – Part 3 Licence clauses

Clause	Requirement	Compliance	Findings
3.3	Memoranda of Understanding		
3.3.1	<p>In accordance with Section 35 of the Act, Sydney Water must maintain a Memorandum of Understanding (MOU) with each of the Water Administration Ministerial Corporation (WAMC), NSW Health (Health) and Environment Protection Authority (EPA) for the term of this Licence.</p> <p>[Note: Section 35 of the Act requires Sydney Water to enter into separate Memoranda of Understanding with certain regulatory agencies, being the Water Administration Ministerial Corporation, the Director-General of NSW Health and EPA. If Sydney Water and those regulatory agencies are not able to agree on a term of the memorandum of understanding, the view of the regulatory agency prevails. Section 36 deals with public exhibition of Memoranda of Understanding].</p>	<p>High compliance</p> <p>MOU NSW Health:</p> <p>Full compliance</p>	<p>MOUs exist between Sydney Water and the WAMC, NSW Health and EPA. Operating under current and ‘cooperative’ MOUs is a joint responsibility of Sydney Water and its regulators.</p> <p>In light of Section 35 of the Act, Sydney Water’s performance in ‘<i>maintaining</i>’ the MOUs is also reliant on the response from the respective regulatory agencies. Sydney Water operated and maintained its MOU with NSW Health, WAMC and EPA over the audit period.</p> <p>The MOU with NSW Health exhibits Full compliance. Its Strategic Liaison Group is to meet “regularly” and met on two occasions as compared to five meetings the previous year. Notwithstanding this drop in activity, the minutes of the SLG indicate it continued to provide an active forum to identify and coordinate strategic public health issues. For example, the Strategic Liaison Group (SLG) minutes (6/12/04 minutes sighted) evidenced discussions on the <i>Strategic Issues Agenda for 2004 & 2005</i>.</p> <p>However, the involvement of the SCA under the Health MOU should be formalised if, in fact, this is the best mechanism for SCA’s involvement (recognising the SCA is part of the DEC with which Sydney Water has a separate MOU).</p> <p>It is noted that the term of the MOU expired on 1 July 2005 with the new Operating Licence coming into effect on that day. Sydney Water has indicated it and NSW Health are in the process of reviewing the MOU with the aim of reaching agreement on a new MOU by December 2005.</p>

**Table 4.2 Memoranda of Understanding – Part 3 Licence clauses**

Clause	Requirement	Compliance	Findings
		MOU NSW EPA: Moderate compliance	<p>Moderate compliance was assessed for the EPA MOU in 2004/05 as:</p> <ul style="list-style-type: none">• The current (16 October 2002) MOU continues to require updating to reflect the changed roles of the DEC, including that of the Sydney Catchment Authority. <p>NOTE: Sydney Water does not have a MOU with the SCA despite the fundamental and integral role of both organisations to deliver water from the ‘<i>catchment to tap</i>’. This role is, in effect, recognised through SCA’s participation in the Joint Officers Group under the Health MOU.</p> <p>The Health MOU does not contain nor refer to the SCA participation and reliance on a MOU with a different organisation (Health) to ensure Sydney Water and the SCA form a “<i>cooperative relationship</i>” is not considered a preferred model.</p> <p>Sydney Water has expressed the view that the MOU with DEC should not cover the SCA for reasons, such as, it being managed as a “<i>separate organisation to the rest of DEC</i>”. Further, Sydney Water considered it has a different relationship with SCA, as a bulk water supplier, from that of the EPA, as a regulator. The Operating Licence (Clause 3.3.3) does not limit the persons with whom Sydney Water may have a MOU and the purpose of such a MOU (Clause 3.3.2) is to form the basis for “<i>cooperative relationships</i>”.</p> <ul style="list-style-type: none">• The Chief Executive Officers did not meet under the MOU, the Strategic Liaison Group met on four occasions (three required); the Joint Operational Policy Committee met on four occasions (MOU requires “<i>at least 4 times</i>”), although this was not “driven by an <i>annual work program</i>” over 2004/05; and• No joint forums driven by the MOU were held. Wider Government CEO meetings occurred.



Table 4.2 Memoranda of Understanding – Part 3 Licence clauses

Clause	Requirement	Compliance	Findings
		MOU WAMC: Low compliance	<p>The MOU with WAMC was signed on 28 June 2002 and whilst it formed “<i>the basis for a cooperative relationship</i>”, evidence of such a relationship was low. A low level of activity through the MOU was previously assessed in 2003/04, as the key requirements of the MOU (that is, to form a basis for a <i>cooperative relationship</i>) were not evident. No formal meetings of CEOs under the MOU took place, no matters were referred by the SLG to a CEO meeting and no Strategic Liaison Group meetings were held. A similar pattern was evident in 2004/05 although considerable interchange has occurred through broader NSW Government initiatives (such as the Metro Plan). No joint forums were held under the MOU in 20004/05.</p> <p>Sydney Water applied considerable resources to Cabinet-sanctioned forums and activities including the Water CEOs, Water Taskforce and Metropolitan Water Plan, and the Drought Executive Committee. Sydney Water advised these forums took precedence over matters relating to the MOU (see section 4.4 and 4.5 for further discussion).</p> <p>Thus while the formal mechanisms to ‘<i>maintain</i>’ the MOU with WAMC is assessed as low, the cooperative relationship (Clause 3.3.2) recognised through wider activities appears to be higher.</p>
3.3.2	<p>The purpose of a Memorandum of Understanding is to form the basis for co-operative relationships between the parties to the memorandum. In particular:</p> <p>the memorandum with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to drinking water quality standards and the supply of water which is safe to drink; and</p> <p>the memorandum with the EPA is to recognise the EPA as the environmental regulator of the State and to commit Sydney Water to environmental improvements.</p>	High compliance	<p>Evidence presented by Sydney Water demonstrated that, to varying degrees, the MOUs with NSW Health and the EPA are providing the basis for a <i>cooperative relationship</i> between the respective organisations. The organisations have demonstrated a commitment to fulfilling their roles and responsibilities, cooperatively, and to ensure the supply of safe drinking water.</p> <p>The MOU with the WAMC provides a basis for a <i>cooperative relationship</i> at strategic and operational levels, however, this is operating at a level far below that of the other two MOUs.</p>



Table 4.2 Memoranda of Understanding – Part 3 Licence clauses

Clause	Requirement	Compliance	Findings
3.3.2	MOU NSW Health	Full compliance	<p>The MOU between Sydney Water and NSW Health in 2004/05 has continued to provide a positive basis for a cooperative relationship. NSW Health's role (to provide advice to the Government of NSW in relation to drinking water quality standards and the supply of water which is safe to drink) is clearly stated (see Appendix E, Table E.2). Further, the MOU sets out the roles and responsibilities of each party.</p> <p>NSW Health (Appendix G) has indicated that it is satisfied that Sydney Water had met its public health obligations under the MOU.</p>
	MOU EPA	Moderate compliance	<p>The need to update the current MOU with the EPA and reflect the expanded environmental role of DEC (which incorporates the previous separate agencies of EPA, NPWS and SCA) was recognised in the previous year's audit and is recorded in the committees under the MOU during the 2004/05 period. A revised draft MOU was prepared, but was provided to the DEC outside the audit period (July 2005). This draft does not recognise the SCA as being part of the DEC or the relationship between Sydney Water and the SCA, a relationship that is crucial in ensuring Sydney's drinking water quality.</p> <p>A good working relation was evident within the Strategic Liaison Group and further engagement is occurring outside the MOU (see Appendix E, Table E.2). Opportunities are available to update the MOU to reflect the roles and structure of the DEC including the SCA.</p>
	MOU WAMC	Low compliance	<p>The MOU with WAMC (June 2002) remains to be updated to reflect the current operating environment for the two organisations. The MOU refers to the previous host agency, being the former Department of Land and Water Conservation (DLWC) and not the Department of Infrastructure Planning and Natural Resources (DIPNR) over 2004/05.</p> <p>The MOU does not demonstrate a "<i>cooperative relationship</i>"; rather the Sydney Water - WAMC relationship takes form in broader NSW Government activities, such as the Water CEOs (minutes of 23 June and 27 October, 2004 sighted), Metro Water Senior Executive and Drought Executive Committees. Sydney Water was a participant in inter agency committees, directed to implementing the Metropolitan Water Plan, the Water Sharing Plan Working Group and the Regional Water Plan.</p> <p>An active relationship through the MOU process (for example, agreed strategic and operational committees with active work programs) were again not evident over 2004/05.</p>

**Table 4.2 Memoranda of Understanding – Part 3 Licence clauses**

Clause	Requirement	Compliance	Findings
			However, Sydney Water advised it had established an Executive sub-committee, the <i>Water Resources & Demand Management Strategy Steering Committee</i> that has “ <i>effectively been responsible for monitoring the relationship with DIPNR and implementation of the principles of the MOU</i> ”. However, it is considered that rather than establish a substitute mechanism, the opportunity remains available for Sydney Water and WAMC to utilise the MOU clauses required by the Licence and the MOU itself, for its intended purposes.
3.3.3	Clause 3.3.1 does not limit the persons with whom Sydney Water may have a Memorandum of Understanding.	No requirement	Sydney Water has not exercised this clause in that it does not have MOUs apart from the three required agencies: EPA, WAMC and NSW Health.

4.4 Discussion

At the request of IPART, interviews were not undertaken in 2004/05 with regard to Sydney Water's performance under its MOUs (Clause 3.3) or individual MOUs, rather written evidence and Sydney Water's response to an audit questionnaire formed the basis of the compliance assessment.

Over 2004/05, the Department of Health MOU continued to be applied in a strategic manner and demonstrated the benefits of a sound Memorandum. The MOU has proven its effectiveness in resolving policy and strategic differences, in undertaking cooperative programs and in reducing duplication.

The EPA MOU, which commenced in October 2002, also demonstrated activity at both strategic and operations levels. In 2004/05, specific interagency issues evidenced this activity, particularly the Licences for Sydney Water's 27 sewerage systems, as well as broader multi-department activity such as the Metropolitan Water Plan.

The relationship with WAMC continued to be driven by NSW Government wide initiatives as opposed to the MOU. The NSW Government over 2005 applied significant reform to DIPNR and its delivery of environmental protection, planning and natural resource management. Sydney Water has the opportunity to update this by '*maintaining*' its MOUs with DIPNR to reflect the reform process.

Sydney Water exhibited a continuing low level of activity under the structure of the MOU with WAMC (and DIPNR, see Appendix E). However, cooperation outside the MOU was evident through wider, Cabinet-sanctioned, forums, such as the Waters CEO, Metro Water Senior Executive Committees and the review of Sydney Water's Water Management Licence, which took precedence over the MOUs' procedures.

An overriding purpose of Part 3 of the Operating Licence and the Memorandum of Understanding is to form the basis for cooperative relationships in regard to ensuring Sydney's drinking water quality and environmental improvements. A key agency in both regards is the Sydney Catchment Authority, which is a part the DEC.

Clause 3.3.3 allows for MOUs outside of Health, EPA and WAMC, however the crucial relationship (*from catchment to tap*) between Sydney Water and SCA is not the subject of an MOU. The nature of the Sydney Water – SCA relationship is very broad and not adequately captured by a Bulk Water Agreement. The SCA's current liaison with Sydney Water under the Operating Licence is evident not in the activities under the DEC (EPA) MOU, but rather through the NSW Health MOU.

Further, the revised draft MOU with the DEC (EPA) does not include, or recognise the existence or role of, the SCA or its involvement in strategic and operational matters between the two agencies. It is therefore recommended that the revised MOU between Sydney Water and the DEC include the cooperation and active participation of the SCA. If a restructure results in SCA no longer being part of the DEC, then a Sydney Water – SCA MOU should be established.

Each of the three authorities having MOUs with Sydney Water was asked to comment on the MOUs. NSW Health, DEC and WAMC generally indicated a "*satisfactory*" performance by Sydney Water in regards to the MOUs (refer to Appendix E).



4.5 Factors affecting compliance

As indicated, the revised MOUs with the EPA and WAMC were established in 2002 and have operated over the full audit period as the basis for a *cooperative relationship*.

The significant changes to the host agency DIPNR has impacted on the willingness and ability of DIPNR to participate in the MOU and thus Sydney Water's compliance. Sydney Water has sought to engage all three regulators, although the views of the regulator dominate and strongly affects compliance.

A further factor has been Sydney Water's resources required to meet and respond to Cabinet-sanctioned programs including the Water CEOs, Water Taskforce, Metropolitan Water Plan and the Drought Executive Committee, which has redirected resources from ongoing activities such as those relating to MOUs.

4.6 Recommendations

4.6.1 Key recommendations

It is recommended that Sydney Water:

- R 4.1 Update its MOUs with WAMC and EPA to reflect the broader and changed portfolios of the agencies.
- R4.2 Include the Sydney Catchment Authority in the revised MOU between Sydney Water and DEC recognising the integral role of the SCA and Sydney Water in delivering water from the '*catchment to tap*'.

4.6.2 Secondary recommendations

There are no secondary recommendations.

5. Customer and consumer rights

5.1 Summary of findings

► Customer Contract

The Customer Contract has been operating for a number of audit periods and many of the procedural clauses have **No requirement**. The majority of Customer Contract clauses that were deemed to be relevant to Sydney Water were rated as **Full** or **High compliance**.

The key information sources used to assess performance against the Customer Contract (as part of 10.2.1(a)) include the residential customer survey and emergency contact survey conducted by contractors for Sydney Water. There is no equivalent survey of commercial or industrial customers.

The Auditor also reviewed the Operating Licence Compliance Report to further assess compliance with specific clauses of the Customer Contract. The detailed results of Sydney Water's performance against the Customer Contract are included in Appendix F.

► Debt and Disconnection

Sydney Water developed the Code of Practice and Procedure on Debt and Disconnection to document the principles and policies established to cater for customers who have difficulty in paying their accounts. The code identifies the process, which Sydney Water will follow, in order to continue supplying water to those who are experiencing difficulty in payment.

Sydney Water was rated as **Full compliance** relating to the Code of Practice on Debt and Disconnection.

► Customer Councils

The Customer Councils were reviewed and restructured in the previous audit period. The Corporate Customer Council has been operating for some time and it remains as the sole Council. However, Sydney Water has continued to comply with the relevant clauses of its Licence.

Sydney Water needs to view this consultative body as a mechanism to *develop* policy rather than simply informing it about policies that have already been decided. This was also an issue raised in the Twyford Review and needs to be monitored.

There is also concern that some members of the Council may be expected to represent the views of multiple sectors identified in the Operating Licence, however, there was no evidence that such members are aware of these expectations.

Finally, there needs to be an effective partnership with the Sydney Metro Catchment Management Authority to ensure that there is integration between the activities of the Authority and Sydney Water with regard to customer and community consultation.

5.2 Summary of requirements

Part 5 of the Operating Licence specifies requirements relating to Customer and Consumer Rights. The key requirements of these clauses are outlined below.

Clause 5.1 - Customer Contract: The clause specifies the scope of and the processes for review and communication of the Contract to customers.

Clause 5.2 - Consumers: The need to deal with all complaints under the Customer Contract as if the complainants are consumers.

Clause 5.3 - Code of Practice and procedure on debt and disconnection: The need to have a code, which includes a number of specific features, and the Code is to be included in the Customer Contract and information disseminated in specific ways.

Clause 5.4 - Customer Councils: That one or more Customer Councils be established, consulted and operated under a specific set of protocols as defined in the Licence.

Section 10 of the Licence requires that the audit must investigate and prepare a report on:

- ▶ 10.2.1 (a) ongoing compliance by Sydney Water with its Customer Contract and specific areas of non-compliance (this relates to Clause 5.1).

(Note: While Section 10 does not refer directly to the requirement to report on Clause 5.4 (Customer Councils) it has been interpreted that (as Customer Councils are referred to under the Customer Contract) a review of the requirements for Customer Councils will be reported under this area); and

- ▶ 10.2.1 (b) Sydney Water's compliance with its Code of Practice and procedure on debt and disconnection under Clause 5.3.2 and any similar initiatives developed by Sydney Water.



5.3 Details of compliance

Table 5.1 Customer and Consumer Rights – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:		
10.2.1(a)	Ongoing compliance with Customer Contract and specific areas of non-compliance.	High compliance	Detailed findings are presented for each of the key clauses of the Customer Contract in Appendix F.
10.2.1 (b)	Sydney Water's compliance with its Code of Practice and procedure on debt and disconnection under Clause 5.3.2 and any similar initiatives developed by Sydney Water.	Full compliance	Code of Practice and procedure under Clause 5.3.2 has been incorporated into section 5 of the Customer Contract.

Table 5.2 Customer and Consumer Rights – Part 5 Licence clauses

Clause	Requirement	Compliance	Findings
5.1	Customer Contract		The clauses of the Contract remained the same as the previous year. A detailed analysis of compliance with the Customer Contract is reported in Appendix F.
5.1.1	The Customer Contract may only be varied in accordance with the Act.	No requirement	The Customer Contract was not varied during the audit period.
5.1.2	The Customer Contract automatically applies to persons specified in the Act.	Full compliance	The Customer Contract applies to such persons.
5.1.3	The Customer Contract sets out the rights and obligations of Customers and Sydney Water.	Full compliance	The Customer Contract sets out the rights and obligations of both the Customer and Sydney Water.



Table 5.2 Customer and Consumer Rights – Part 5 Licence clauses

Clause	Requirement	Compliance	Findings
5.1.4	A copy of the Customer Contract, and any variations to it, must be posted on Sydney Water's website.	Full compliance	The Customer Contract was available. The Contract could be downloaded, free of charge, from the website and was available on request from Sydney Water's offices
5.1.5	Sydney Water must initiate an independent review of the Customer Contract to be carried out within 12 months of the Commencement Date.	No requirement	Review conducted prior to this audit period.
5.1.6	The person undertaking the review must produce a report setting out its findings and recommendations.	No requirement	Review conducted prior to this audit period.
5.1.7	Within 3 months of the completion of the review of the Customer Contract, Sydney Water must issue a new Customer Contract.	No requirement	Issue of new Customer Contract prior to this audit period. A new Customer Contract was issued as part of the new Operating Licence which began on 1 July 2005.
5.1.8	Within 3 months of the review Sydney Water must prepare a pamphlet.	No requirement	The pamphlet was prepared outside of this audit period.
5.1.9	The pamphlet must be updated and disseminated free of charge.	Full compliance	There has been no change to the Customer Contract over this audit period and therefore no requirement to update the pamphlet. The pamphlet has been disseminated free of charge and sent to customers, annually. In this audit period it was sent with the customer's July 2004 quarterly bill. It is available upon request from Sydney Water offices (the pamphlet viewed by the Auditor had been printed in June 2004).
5.1.10	Sydney Water may enter into other contracts or arrangements for the supply of services.	Full compliance	Sydney Water has entered into other agreements dealing with trade waste.
5.3	Code of Practice and Procedure on Debt and Disconnection		
5.3.1	The Code of Practice and procedure on debt and disconnection must be developed within 6 months of the commencement date (by 12 October 2000).	No requirement	The Code was previously developed and was listed as a Customer Service Policy and the procedures are included in the Customer Contract. The Code has been in place since October 2000, although a revised version was approved on 22 June 2001.
5.3.2(a)	Provide for deferred payment or payment by instalment options for consumption bills.	Full compliance	The Code provided for deferment or payment by instalment. These are described in the above customer service policy; a pamphlet titled <i>"Experiencing financial hardship? Need help paying your Sydney Water bill?"</i> ; and Section 5 of the Customer Contract.



Table 5.2 Customer and Consumer Rights – Part 5 Licence clauses

Clause	Requirement	Compliance	Findings
5.3.2(b)	Provide for the payment options referred to in (a) to be advised in consumption bills.	Full compliance	A sample of bills was reviewed and all included information about obtaining payment assistance, specifically deferred payment or payment by instalment. The schedule of bill inserts indicated that the brochure, titled “ <i>Experiencing Financial Hardships</i> ”, was included in the April 2005 bill run.
5.3.3	Sydney Water must include the Code of Practice and procedure on debt and disconnection in its Customer Contract.	Full compliance	The Code as it relates to customers experiencing payment difficulty is included in section 5 of the Customer Contract. Sydney Water’s policy and procedures on disconnection or restriction of water and sewerage services is covered in section 6 of the Customer Contract.
5.3.4	Sydney Water must disseminate free of charge information on its Code of Practice and procedure on debt and disconnection:		
5.3.4 (a)	by placing sufficient copies with the Rental Bond Board for collection by interested persons.	Full compliance	Sydney Water advised that the pamphlets had been provided to the Office of Fair Trading which now oversees the former Rental Bond Board. The Office of Fair Trading was contacted by telephone by the Auditor seeking confirmation that the pamphlet had been provided. After numerous transfers between officers in the Office of Fair Trading it was apparent that nobody dealing with the public on a day to day basis was aware of the existence of the pamphlet. Sydney Water provided evidence through an e-mail contact and advice that a Sydney Water officer had met with an officer of the Office of Fair Trading and left a quantity of pamphlets in the Sussex Street offices.
5.3.4 (b)	to Customers at least once annually with their quarterly or other bills.	Full compliance	Sydney Water provided the billing insert schedule which indicated the pamphlet “ <i>Our Customer Contract in Brief</i> ” had been inserted in July 2004 and “ <i>Experiencing financial hardships? – Need help paying your Sydney Water bill?</i> ” was inserted in the April 2005 bill run. Both the <i>Contract in Brief</i> and the <i>Financial hardships</i> pamphlets include aspects of the Code and how the customer can obtain assistance.
5.3.4 (c)	to any other person on request.	Full compliance	Sydney Water confirmed that people were supplied with copies of the Customer Contract and Code (as interpreted in the Financial Hardships brochure) upon request.
5.4	Customer Councils		
5.4.1	Sydney Water must establish and regularly consult with one or more Customer Councils.	Full compliance	As was reported last year, following the review of Customer Councils, a number of Councils were disbanded towards the end of 2003. The Corporate Customer Council continued to operate. The Commercial and Industrial Customer Council has become the Commercial and



Table 5.2 Customer and Consumer Rights – Part 5 Licence clauses

Clause	Requirement	Compliance	Findings
			Industrial Customer Forum. Sydney Water advised that it no longer considered it a Customer Council, thus Sydney Water has not provided any further information on the operation of the Forum.
5.4.2	A Customer Council may be utilised by Sydney Water to provide high quality advice.	Full compliance	Sydney Water uses the Corporate Customer Council to obtain advice on a range of issues including consumer services, planning and capital works, and urban growth and development.
5.4.3	The first Customer Council must be established within 3 months of the commencement date.	No requirement	Customer Councils had been operating prior to the commencement of the Licence.
5.4.4	Members must be appointed consistent with the Licence.	Moderate compliance	The Licence specifies that if the Customer Council(s) has a majority of members representing groups, rather than appointed as individuals, the clauses relating to the term of office and the number of terms do not apply. This is the case for the Council. Sydney Water complies with the relevant clauses with the exception of Clause 5.4.5.
5.4.5	Membership must include the specified groups.	Moderate compliance	Attendance lists of the Council were sighted for 29 March 2005 and 28 June 2005 together with the letter inviting organisations to nominate members to the Council. While some members may be able to represent more than one group this was not specified in the letter of invitation. For example there are a number of people that would appear to represent business interests and there are others that have specifically been asked to represent low-income households, environment groups, local government and the Ethnic Communities Council. There would appear to be no person specifically appointed to represent people living in rural and urban fringe areas, residential consumers and consumer groups. While the Auditor acknowledges Sydney Water's advice that some Council members may have dual constituencies, no evidence was provided that such members were aware that they were expected to represent such groups.
5.4.6	Sydney Water may require members to serve on multiple Councils.	No requirement	This situation did not occur within the audit period.
5.4.7	Term of members is 2 years.	No requirement	In the restructured Council, members are appointed as representatives of groups and, therefore, this clause becomes irrelevant because Clause 5.4.9 does not apply. With no limitation to the number of terms that a member may sit, the length of term becomes irrelevant.
5.4.8	Half the members of a Council must be new members.	No requirement	As per Clause 5.4.11, this clause does not apply.



Table 5.2 Customer and Consumer Rights – Part 5 Licence clauses

Clause	Requirement	Compliance	Findings
5.4.9	No person may have more than 2 consecutive terms.	No requirement	As per Clause 5.4.11, this clause does not apply.
5.4.10	Appointments for the remaining term of the Council is possible if a position becomes vacant.	No requirement	The Licence allows for vacancies to be filled although it does not require that Sydney Water must fill the vacancy presuming the other clauses of the Licence (that is, all required groups are represented) have been met.
5.4.11	If members of a Council are not individuals 5.4.8 and 5.4.9 do not apply.	Full compliance	This clause is relevant to the Corporate Customer Council which has representatives of groups rather than specifically appointed individuals.
5.4.12	Development of a Customer Council Charter addressing the specified issues.	Full compliance	A Charter has been sighted and was revised and amended in April 2005. The Charter covers the issues specified in the Licence.
5.4.13	Special compliance provisions.	No requirement	This clause was prepared to clarify the positions relevant to Clause 5.4.12.
5.4.14	There must be a Customer Council Charter for each Customer Council. A single Customer Council Charter may be applied to other Councils.	Full compliance	The Customer Council has a Charter.
5.4.15	Sydney Water must provide the necessary information to enable the Council to discharge its tasks.	High compliance	A sample of Council members was contacted and given an opportunity to comment on the conduct of the Council and whether it received adequate information. Comments were received from only one Council member who indicated that they were generally satisfied. However they did suggest that there is a constant need to remind all involved that the Council's effectiveness depends on it being able to contribute to Sydney Water's policy debate in a timely manner, that is, before management and the Board have made decisions.
5.4.16	The Charters must be posted on Sydney Water's website.	Full compliance	The Charter is available on Sydney Water's website. Sydney Water advised it will download and print such information from the web page and provide it free of charge to members of the public on request.
5.4.17	As part of the end of term review, the Licence Review Body must evaluate the effectiveness of the Councils.	No requirement	Sydney Water undertook a review of Customer Councils in August 2002. IPART, as the Licence Review Body, confirmed that it has evaluated and reported to the Minister on the effectiveness of Customer Councils and compliance with the Customer Council Charter.

**Table 5.3 Customer and Consumer Rights – Ministerial Requirement**

ID	Requirement	Compliance	Findings
SPS7	“While I am satisfied that negotiations between Sydney Water and the Tribunal have begun, I would like Sydney Water to commence collection of data on the customer service indicators in Attachment 3 from 1 July 2001.”	Full compliance	The <i>Operating Licence Compliance Report 1 July 2004 – 30 June 2005</i> , which reports on the customer service indicators, was provided by Sydney Water. A review of the performance of Sydney Water against these indicators is provided in the discussion.

5.4 Discussion

5.4.1 Customer Contract

The Customer Contract has continued to operate since its finalisation in 2002. There are two components to the audit of the Customer Contract: first is the audit of the procedural clauses (under section 5.1), and, secondly, the audit of the Customer Contract (as defined in Clause 10.2.1 (a)). The results of the latter are discussed in Appendix F.

Sydney Water continues to comply with the various clauses of the Customer Contract. The Contract defines the services provided by Sydney Water, what customers pay, what they can do if they are unable to pay, and how customers can obtain redress if they have a complaint. It also defines the rights of the customer and Sydney Water in terms of access to property to undertake work.

The key mechanism to assess Sydney Water's compliance with its own Customer Contract is to use the results from its customer survey and emergency contact survey. These surveys are conducted on a regular basis. However, the Auditor is reliant upon the methods used by the organisation collecting the information and the level of rigour and independence applied to the task. Sydney Water does not have a current survey of industrial and commercial customers which could be used to determine their level of satisfaction with the performance of the organisation.

5.4.2 Code of Practice and Procedure on debt and disconnection

Sydney Water developed the code to document the principles and policies established to cater for customers who have difficulty paying their accounts.

The code identifies the process, which Sydney Water will follow, to continue the supply of water to those who are experiencing difficulty in payment.

As part of the code, Sydney Water provides special assistance to disadvantaged and low income customers. Sydney Water also provides a range of payment opportunities for those experiencing payment difficulties such as deferment of payment for a short period; payment through instalments, or allowing smaller more regular payments to suit the needs of the customer; or referral to a welfare agency that may provide assistance through the issuing of Payment Assistance Scheme vouchers.

The code also specifies how debt recovery will take place and the circumstances that would result in disconnection or restriction of supply. It also specifies how tenants will be treated if the property owner fails to make payment to Sydney Water.

The code is communicated through a pamphlet titled, *"Experiencing financial hardship?"* and *"Our Customer Contract in brief"*. These pamphlets are circulated in Sydney Water's bill inserts program on an annual basis. The pamphlets also provide contact details for customers requiring further information or to get a copy of the pamphlet in another language. Pamphlets are required to be available for customers to collect at the Office of Fair Trading.

The Payment Assistance Scheme, which issues vouchers, is one measure of the outcomes related to the Code. During the audit period, there were 12,326 payment assistance vouchers valued at \$308,141, which is a 26% decline in the number of vouchers issued.



During the audit period, there were 917 flow restrictions enforced for non-payment on properties. Two disconnections were made during the audit period.

There were a total of 1,690,821 debt recovery actions during the period, a reduction from 1,833,558 in the previous year.

5.4.3 Customer Councils

The only Customer Council continuing to operate during the audit period was the Corporate Customer Council. The Commercial and Industrial Customer Council became the Commercial and Industrial Customer Forum and is now not regarded by Sydney Water as a Customer Council.

Sydney Water uses the Customer Council to obtain advice on a range of issues including consumer services, planning and capital works, and urban growth and development.

5.5 Factors affecting compliance

5.5.1 Customer Contract

Sydney Water has obtained Full compliance with all the relevant clauses according to the procedural components of the Customer Contract clause, Clause 5.1 in the Operating Licence. The majority of the clauses within the Customer Contract itself were evaluated as either High or Full compliance. In the case of clauses rated for High compliance, many are related to the performance as judged by the customers and reported in the Customer Survey and the Emergency Contact Survey. If the response recorded by customers was so positive that there was no opportunity for improvement by Sydney Water then the relevant clause was judged as Full compliance. If a substantial proportion of the customers provided positive feedback through the surveys then the relevant clause was judged as having High compliance.

The consultative process undertaken by Sydney Water should be cognizant of the establishment of Catchment Management Authorities and the *Catchment Management Authorities Act 2003*, specifically the formation of the Sydney Metro Catchment Management Authority. While the membership of the Authority is yet to be formally announced, it will be important that Sydney Water has a close association with the Authority in a variety of areas, but specifically with regard to customer and community consultation.

5.6 Recommendations

5.6.1 Key recommendations

It is recommended that Sydney Water:

- R5.1 Conduct an annual customer survey with industrial and commercial customers to provide feedback on the performance of Sydney Water in this area.
- R5.2 Inform all members of the Customer Council, in writing, about those areas of interest that are expected to represent.
- R5.3 Invite the Chairman of the Sydney Metro Catchment Management Authority, or his delegate, to participate in the Customer Council.

6. Water quality

6.1 Summary of findings

▸ Drinking Water Quality – Standards

Sydney Water obtained **Full compliance** with respect to the supplies of treated drinking water to its customers. The water quality supplied is generally of an excellent standard and complies with the health related requirements of the Australian Drinking Water Guidelines and the aesthetic related requirements of NSW Health and the Minister (a summary of results is shown in Tables 6.1 and 6.2).

▸ Drinking Water Quality - Monitoring

Sydney Water has prepared an *Annual Drinking Water Quality Monitoring Plan* for the water supply systems to monitor health-related and aesthetic-related water quality parameters and to demonstrate compliance with the Guidelines. The Plan has been prepared in accordance with the Licence requirements and has been endorsed by NSW Health.

Sydney Water obtained **Full compliance** with respect to considering and including the concepts of risk minimisation practices and system management in its operation of the water supply.

Sydney Water obtained **Full compliance** with respect to monitoring in accordance with the *Annual Drinking Water Quality Monitoring Plan*. Sydney Water maintains an effective system of quality assurance for monitoring, sampling, testing and reporting on the Plan.

▸ Drinking Water Quality – Reporting and Drinking Water - Planning

Sydney Water obtained **Full compliance** for the preparation of reports on the results of water quality monitoring and water quality improvement. A draft annual *Drinking Water Quality Report* for the 2004/05 year, which includes results of monitoring for health and aesthetic water quality characteristics, and an *Annual Water Quality Improvement Plan* have been prepared.

Sydney Water obtained **Full compliance** with respect to the preparation of a *Drinking Water Quality Incident Management Plan*.

▸ Environmental Water Quality

Sydney Water obtained **High compliance** with respect to meeting environmental water quality requirements for discharges or water releases that take place under licences issued by regulatory agencies.

▸ Other Grades of Water

Sydney Water obtained **Full compliance** with the requirements for “supply of other grades of water” for the Rouse Hill scheme and other schemes, with the most critical parameters complying with requirements and a continuous program of improvement in place.

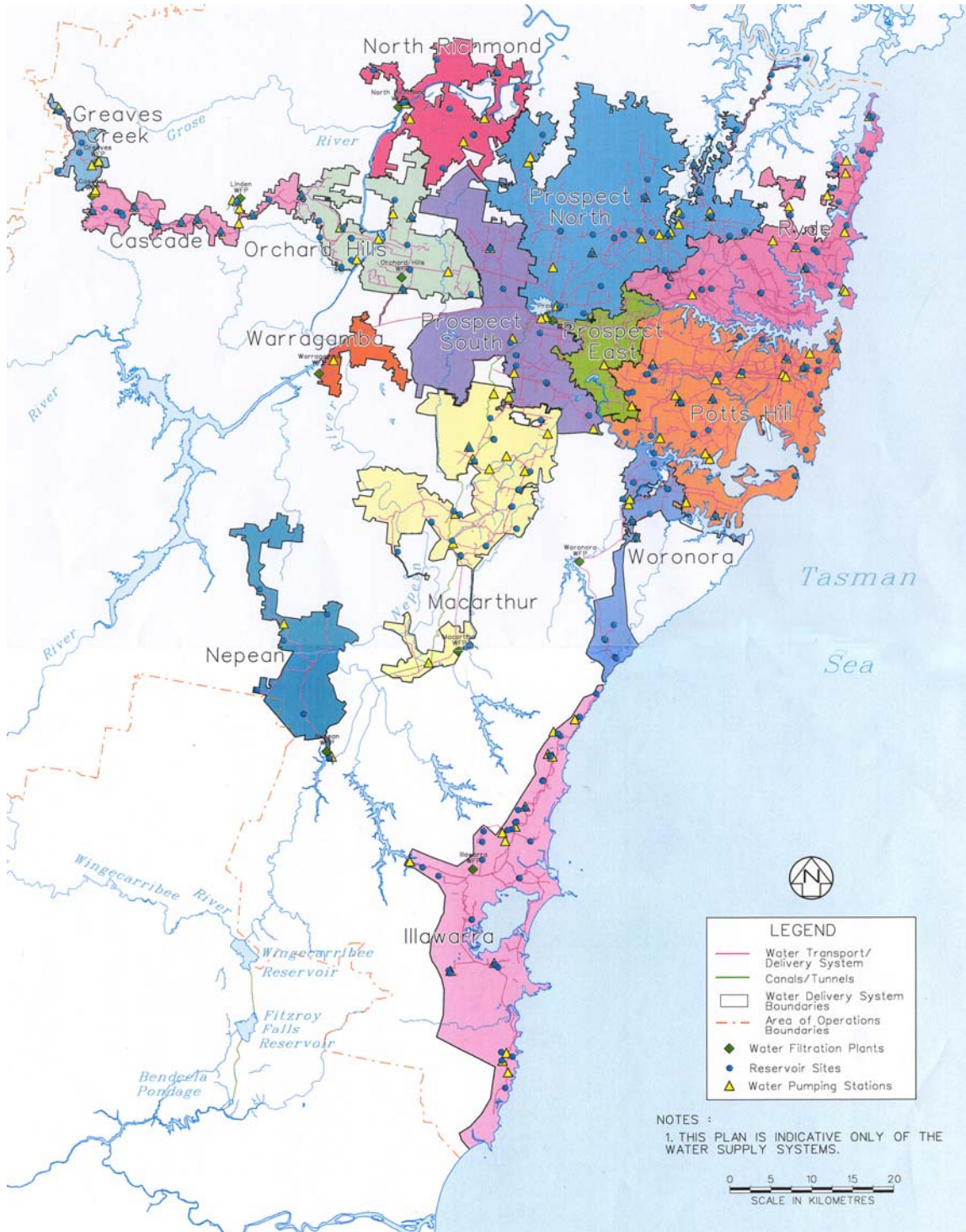
Table 6.1 Water quality performance: water supply systems

Delivery System	Thermo-tolerant coliforms			Total coliforms		
	2002/03	2003/04	2004/05	2002/03	2003/04	2004/05
	At least 98% of samples shall contain no Thermo-tolerant Coliforms			At least 95% of samples shall contain no Total Coliforms		
Greaves Creek	100	100	100	100	96.1	100
North Richmond	100	99.5	99.6	100	99.0	99.2
Orchard Hills	100	100	99.8	99.8	99.3	99.6
Prospect South	100	100	100	99.8	99.2	99.3
Prospect North	100	99.9	100	100	98.3	98.3
Prospect East	100	100	99.8	100	99.6	99.3
Ryde	100	100	100	99.9	98.0	99
Potts Hill	100	100	100	99.8	99.2	99.3
Warragamba	100	100	100	100	97.2	100
Nepean	100	100	100	100	100	100
Macarthur	100	100	100	99.1	98.7	99.6
Illawarra	100	100	100	99.6	99.2	99.6
Woronora	100	100	100	100	98.7	100
Cascade	100	100	100	100	99.1	100
Combined Systems	100	99.9	99.9	99.8	98.9	99.3

Table 6.2 Water quality performance: last seven years

Year	Thermo-tolerant coliforms	Total Coliforms
	At least 98% of samples shall contain no thermo-tolerant coliforms	At least 95% of samples shall contain no total coliforms
2004/05	99.9	99.3
2003/04	99.9	98.9
2002/03	100	99.8
2001/02	99.9	99.2
2000/01	99.9	99.1
1999/00	99.8	98.4
1998/99	99.8	97.8
1997/98	99.9	97.9

Figure 6.1 Sydney Water's 14 Water Delivery Systems



Source: Sydney Water

6.2 Summary of requirements

The objectives of Part 6 of the Operating Licence are to ensure that Sydney Water:

1. Supplies drinking water that is safe and meets appropriate guidelines;
2. Supplies other grades of water in a manner that is safe to the end users and meets appropriate guidelines;
3. Is abreast of emerging water quality issues and engages the community in the development of future water quality goals; and
4. Has in place appropriate strategies and management plans that minimise risks and ensure continual improvements in its operation.

To meet the requirements of Part 6, Sydney Water is required to undertake the following:

- Supply treated drinking water to customers that complies with the health related requirements of the Australian Drinking Water Guidelines and the aesthetic related requirements of NSW Health.
- Have regard to the concepts of risk minimisation in its management of the water supplies.
- Commission an independent study on the costs and benefits of complying with aesthetic guideline values; this is to involve community consultation and the report is to be completed prior to 31 January 2002.
- Prepare a comprehensive Annual Drinking Water Quality Monitoring Plan to monitor health-related and aesthetic-related water quality parameters to demonstrate compliance with the Guidelines. The sampling frequency and locations chosen for monitoring should be such that the results are representative of the water quality supplied to customers.
- Undertake monitoring in accordance with the Plan.
- Prepare an Annual Drinking Water Quality Report on the health-related and aesthetic-related monitoring results, and make the Report available free of charge and include on the Sydney Water website.
- Prepare a five-year Drinking Water Quality Management Plan. The preparation of this Plan is to include public consultation and strategies for the comprehensive management of drinking water quality, minimise risk to public health and to meet aesthetic guidelines. The Plan is also to include an audit program for potable water backflow prevention devices.
- Prepare an Annual Drinking Water Quality Improvement Plan incorporating system and operational changes needed to address problems identified through monitoring and inspection, reduce risk to public health and to meet aesthetic guidelines.
- Prepare a Drinking Water Quality Incident Management Plan that coordinates management of drinking water incidents.
- Meet environmental water quality requirements for discharges or water releases that take place under licences issued by regulatory agencies.
- Supply other grades of water, such as water for reuse, in accordance with relevant guidelines and requirements of government agencies.



6.3 Details of compliance

Table 6.3 Water Quality - Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2.1	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:	No requirement	
(c)	Compliance by Sydney Water with its obligations under Part 6 of this Licence.	High compliance	Refer to Table 6.4. Sydney Water was assigned ratings of Full compliance with all requirements relating to drinking water supply. However a rating lower than Full compliance was given for environmental discharges; thus, an overall rating of High compliance was achieved under part 6 of the Licence.

Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
6.2	Drinking Water Quality – Standards		
6.2.1	Sydney Water must comply with the following relating to drinking water:		
6.2.1(a)	The NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996 ("1996 Guidelines") relating to health guideline values.	Full compliance	The monitoring results indicated the water supplied by Sydney Water to its customers is of an excellent quality and complies with the health guideline values outlined in the <i>Annual Drinking Water Quality Monitoring Plan 2004/2005</i> , as approved by NSW Health. A number of the characteristics listed in the 1996 Guidelines were not monitored. The basis for this and conformance with the Guidelines has been explained in the 2004/05 Plan. In particular, with respect to the reported monitoring results: ► All systems complied with the health related guidelines (that is, 99.9% of samples



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>contained no <i>E Coli</i> (compared with the guideline value of 98%) and 99.3% of samples contained no Total Coliforms (compared with the guideline value of 95%) ;</p> <ul style="list-style-type: none"> There was Full compliance with the guidelines for disinfection by-products, inorganic compounds (various metals, cyanide, fluoride, nitrate, nitrite, sulphate), selected organic compounds and pesticides at North Richmond WFP. <p>The laboratory used for the analyses maintained NATA accreditation through the period.</p> <p>In the 2004/05 year, characteristics added to the monitoring plan included: dichloroethenes, dichloromethane, trichlorobenzenes, cyanogen chloride and the pesticides Diazinon, Dicamba and Dimethoate.</p> <p>In the 2004/05 year, characteristics that were deleted from the previous year's monitoring plan were: hydrogen sulphide, benzene, ethylbenzene, toluene, chloroacetic acids and chlorophenols; and styrene and the pesticides Chlorpyrifos, Clopyralid, Hexazinone, Picloram, Propiconazole, Amitrole, Diuron and Temephos for North Richmond only. These characteristics were shown to comply in the previous year and were not expected to be present at concentrations in excess of the guideline value.</p> <p>All results complied with the guideline values and in particular:</p> <ul style="list-style-type: none"> <i>E coli</i>: similar to the previous year. Total Coliforms: an improvement over the previous year (percentage of samples containing no total coliforms detections increasing from 98.9 to 99.3%). The levels are well within the guideline values. Free chlorine: average levels remained largely stable in most systems during 2004/05 and 2003/04. All test results were well below the health guideline value. Disinfection residuals: THMs similar to the previous year; average monochloramine levels in 2004/05 dropped slightly from those in 2003/04. All test results were well below the health guideline. With respect to pesticides, Sydney Water advised in the 2003/04 year that it expected to receive and review a report that the SCA had prepared on pesticides in the catchment. Sydney Water advised that it understands that the SCA has carried out the work, but the SCA had not sent the report for review. It is recommended that Sydney Water follow up



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>on this matter.</p> <p>While not required for compliance, the results of monitoring for <i>Cryptosporidium</i> and <i>Giardia</i> were similar to the previous year. Of approximately 930 treated water samples analysed, there were no positive detections of <i>Cryptosporidium</i> or <i>Giardia</i>, representing a slightly better situation than in the previous year.</p>
6.2.1(b)	Any amendments, updates or supplements to the 1996 Guidelines ("Updated Guidelines") relating to health guideline values specified by NSW Health.	Full compliance	There have been no changes to the health guideline values in the audit period.
6.2.1(c)	The aesthetic guideline values of the 1996 Guidelines specified by the NSW Minister for Health following consultation with the Minister.	Full compliance	<p>The results of the monitoring program for the 2004/05 period indicate that:</p> <ul style="list-style-type: none"> ▮ All systems complied with the aesthetic guideline values specified by NSW Health; ▮ All systems complied with the aesthetic characteristics (True Colour, turbidity, aluminium, pH, iron and zinc) specified by the Minister following the mid-term review. In the case of pH, there was some variation in the measured results as is typical for water supply systems involving cement lined pipes and there was a slight reduction in average levels, which Sydney Water advised resulted from a reduction in pH set point at some of the water filtration plants. ▮ Turbidity, an indicator of the potential for dirty water, was similar to the previous year. <p>The measurements support the conclusion that the aesthetic quality of the water is generally excellent and quality has been maintained over the audit period.</p> <p>In terms of customer water quality complaints (1,870 for 2004/05), the number of complaints has decreased from the previous year (2,388 for 2003/04) and the generally increasing trend in the percentage of customers who are satisfied with the quality of their tap water continues.</p> <p>Of the complaints, complaints associated with dirty water comprised the largest proportion (>60%). Of the dirty water complaints, the highest rates occurred for Cascade and Orchard Hills systems (typically more than twice the rate of other systems). In the case of the Cascade system, this occurs as a result of the higher proportion of unlined mains in the system. In the Orchard Hills system, Sydney Water advised that the manganese levels are higher than those in the other systems and this gives rise to dirty water and customer complaints. Actions by Sydney Water to overcome this include the commissioning of a lime solution clarifier at the</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>WFP, optimisation of the plant for manganese removal and pH control. The lime clarifier was put on line in July 2005.</p> <p>Sydney Water decommissioned the Greaves Creek WFP and as of 1 January 2005, the area previously supplied by the Greaves Creek WFP was rezoned and is now supplied from the Cascade WFP via a new pipeline and related infrastructure, thus avoiding the poorer water quality associated with the Greaves Creek supply.</p>
6.2.1(d)	The aesthetic guideline values of the Updated Guidelines specified by the NSW Minister for Health following consultation with the Minister.	Full compliance	There have been no changes required under this clause to the aesthetic guideline values.
6.2.2	In delivering the Services, Sydney Water must have regard to the concepts of risk minimisation practices and system management of public water supplies in the 1996 Guidelines (including in relation to <i>Cryptosporidium</i> and <i>Giardia</i>).	Full compliance	<p>As noted in previous audits, Sydney Water has adopted the concepts of risk minimisation and system management of public water supplies outlined in the 1996 Guidelines and that are further developed in the 2004 Guidelines. The body of work being undertaken by Sydney Water provides evidence of a systematic and well directed approach to managing water quality risk. Elements of this approach include:</p> <ul style="list-style-type: none"> ▮ A 5-year Drinking Water Quality Management Plan, which demonstrates a comprehensive risk-based approach to drinking water quality management. ▮ A comprehensive risk study of the entire water supply system from 'Catchment to tap' (carried out in 1999). ▮ Standard Operating Procedures for assuring water quality. ▮ Annual drinking water quality monitoring plans and consumer satisfaction reports to verify water quality. ▮ Incident management planning. ▮ Employee training on water quality issues, with records of training maintained on a register. ▮ Community consultation, including communication of information relating to water quality, for example, daily posting of test results on the website and a consumer confidence report. <p>During the 2004/05 audit period, Sydney Water undertook a review of the risk of variations in</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>the bulk water quality that might not be able to be adequately treated by the water treatment plants. This work considered high and very high hazard events identified by the SCA in its Risk Management Framework and was carried out in conjunction with SCA and NSW Health. This work resulted in a <i>Report on the Residual Treated Drinking Water Quality Risks associated with Variations in Bulk Raw Water Quality</i>.</p> <p>This work concluded that:</p> <ul style="list-style-type: none"> ▮ The health risks to consumers from variations in raw water quality as a result of the hazard events identified by the SCA are acceptably low (refer to discussion in section 6.4.3); ▮ The controls that the SCA and Sydney Water have put in place need to be properly operated and maintained; and ▮ The key Sydney Water barriers that maintain the low risk include: operations and maintenance plans that ensure all WFPs routinely achieve 0.1 NTU turbidity; operation of the new filter backwash treatment facility at Prospect WFP and the filter backwash upgrades at other WFPs; and maintenance of the Quality Management Systems and Incident Response Plans. <p>Also during the 2004/05 audit period, Sydney Water revised the Drinking Water Quality Event Management Standard Operating Procedure which together with the Emergency Response Plan comprises a new <i>Drinking Water Quality Incident Management Plan</i>. This Procedure is important in providing guidance to Sydney Water's asset management staff in identifying and responding to unusual events or occurrences, or water quality test results or trends that could lead to an incident, and potentially harm public health or result in customer dissatisfaction with drinking water quality.</p>
6.2.3	Sydney Water must commission an independent study of the costs and benefits of Sydney Water complying with the aesthetic guideline values of the NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996 and must report to the Licence Review Body on the results of that study by no later than 31 January 2002, to enable the Licence Review Body to report on the matter as part of the Mid term review.	No requirement	Sydney Water has previously complied with this requirement.



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
	Sydney Water must ensure that the process of conducting the independent study includes public consultation in accordance with Clause 1.2.2 on a discussion paper before the study is finalised.		
6.3	Drinking Water Quality – Monitoring		
6.3.1	Sydney Water must prepare, to the satisfaction of NSW Health, a comprehensive Annual Drinking Water Quality Monitoring Plan for the Water supply system by 30 June 2000 and then by 31 March in each subsequent year, for the duration of this Licence.	Full compliance	<p>A 2005/06 Drinking Water Quality Monitoring Plan was prepared in consultation with NSW Health on 16 March 2005 and was signed by NSW Health on 22 April 2005.</p> <p>The monitoring plan includes health and aesthetic parameters.</p> <p>The main changes from the 2004/05 Plan included:</p> <ul style="list-style-type: none"> ▶ The number of samples required for microbiological monitoring has been adjusted to reflect new population estimates. ▶ Various characteristics have been added to the monitoring program and some have been removed; these relate to contaminants that are not expected to be present and have the objective of providing a check that they are in fact not present. For the 2005/06 period, those characteristic added were acrylamide, dichloroethanes and hexachlorobutadiene. Characteristics that have been deleted from the monitoring plan are dichloroethenes, trichlorobenzenes, cyanogen chloride and dichloromethane (methylene chloride). ▶ Additional monitoring for microbiological indicators <i>E. coli</i> and Total Coliforms for certain zones that did not meet the requirement for 95% of samples to contain no Total Coliforms or 98% of samples to contain no <i>E. coli</i>. These situations arise as a result of the small numbers of samples, rather than poor water quality, and the additional sampling has the objective of demonstrating this. ▶ It is foreshadowed that it is expected that Total Coliforms will be deleted as a microbiological indicator organism for compliance purposes in accordance with the newly revised Australian Drinking Water Guidelines 2004. Sydney Water advised the Auditor that it will continue measuring Total Coliforms for operational purposes. ▶ Changes to numbers of samples for the Greaves Creek and Cascade systems, following decommissioning of the Greaves Creek supply.

**Table 6.4 Water Quality - Part 6 Licence clauses**

Clause	Requirement	Compliance	Findings
6.3.2	The Annual Drinking Water Quality Monitoring Plan for the Water supply system must include system performance monitoring and regular sampling, laboratory testing and processes to ensure quality control. The monitoring of Drinking water quality must include:	Full compliance	<p>The Annual Drinking Water Quality Monitoring Plan includes system performance monitoring and regular sampling at a large number of sites. Sampling and analysis is undertaken by Sydney Water's Analytical and Field Services Laboratory.</p> <p>As in previous years, the Plan is an excellent and well presented document and includes the following:</p> <ul style="list-style-type: none">▶ A comprehensive listing of parameters, the requirements of the Australian Drinking Water Guidelines 1996 (ADWG), the past history of monitoring, the results reported and the proposed monitoring for the years to 2008/09. This listing provides an excellent reference point for understanding the basis for inclusion of parameters from year to year; and▶ An outline of the Quality Control procedures, including the basis for numbers of blanks, duplicates and spikes per batch or collection run. <p>In addition to the quality control measures that are included in the Plan, Sydney Water and its laboratories undertake a number of other quality assurance measures. These were reviewed in detail in the 2003/04 Operational Audit.</p> <p>The laboratory provided an updated report on the current status of <i>Cryptosporidium</i> and <i>Giardia</i> testing methodology on 31 August 2005. The Auditor was advised that the report would be submitted to NSW Health's Expert Panel for review. This report outlined a number of improvements that had been carried out in the testing methodology to improve recoveries, including the use of Bovine Serum Albumin (BSA); the later replacement of BSA with a lower cost reagent; and development of an improved DAPI staining procedure. These improvements were reviewed and approved by the NATA auditor.</p> <p>A Business Review of the Laboratory was carried out in December 2004 and audited against AS/NZS ISO 9001 – 2000. This audit concluded that, overall, the laboratory has a sound and well implemented management system and systems are adequately maintained and followed. Support of the system is sound. Weaknesses identified revolved around regular organisation restructures which take some time to settle and change the boundaries of reporting channels and process ownership; and a transition in IT systems with the new IT systems not fully implemented. The audit listed 7 improvement requests and 1 observation.</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
6.3.2(a)	The health guideline values for which compliance is required under Clauses 6.2.1(a) and (b).	Full compliance	The Annual Drinking Water Quality Monitoring Plan includes all health guideline values for which compliance is required by NSW Health.
6.3.2(b)	The aesthetic guideline values for which compliance is required under Clauses 6.2.1(c) and (d).	Full compliance	The Annual Drinking Water Quality Monitoring Plan includes all aesthetic guideline values for which compliance is required by NSW Health.
6.3.3	Sydney Water must monitor Drinking water quality for the aesthetic guideline values of the 1996 Guideline that apply to the Physical characteristics of Drinking water.	Full compliance	The Annual Drinking Water Quality Monitoring Plan includes monitoring and reporting against the aesthetic guideline values that apply to physical characteristics of drinking water. These include, for example, pH, hardness, taste and odour, and colour. Sydney Water carried out this monitoring.
6.3.4	The Drinking water quality monitoring must assess the quality of Drinking water in Sydney Water's Water supply system. The sampling frequency and the locations chosen for the monitoring should be such that the results are representative of the quality of water supplied to Customers and Consumers.	Full compliance	<p>It was confirmed that:</p> <ul style="list-style-type: none"> ▶ The sampling frequencies for the various water quality parameters were in accordance with those listed in the Australian Drinking Water Guidelines (1996); and ▶ The basis for selection of the sampling locations is consistent with the requirements of the Guidelines and has the objective of being representative of the quality of water supplied to customers and consumers. <p>In the previous audit, information on the selection of sampling locations for compliance purposes was reviewed and it was concluded that the selection of taps considers the requirements of the 1996 NHMRC Guidelines and includes situations that are representative of the water supplied to customers. Samples from both the extremities and dead end sections of the system and from supply loops and mains were included.</p> <p>Taste and odour monitoring continues to be restricted to a single month (February) and the taking of only a single sample at each site, which is unlikely to provide a good characterisation of odour issues. Instead, Sydney Water uses complaint frequency as the indicator of taste and odour concerns.</p> <p>With regard to the frequency of sampling, Sydney Water has put in place a procedure that allows for an increased number of samples to be taken where the results are insufficient to demonstrate compliance. Additional sampling as a result of this protocol was included in the 2004/05 <i>Annual Water Quality Monitoring Plan</i> and the additional monitoring was carried out in the 2004/05 period. This additional monitoring applied to three zones in the Prospect North</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>system and one zone in the Macarthur system. This procedure is being applied in the current year and Sydney Water has increased the sampling rate for the 2005/06 year for zones that failed in the 2004/05 year.</p> <p>The list of pesticides to be monitored was modified after consideration of a review of the current usage of pesticides in catchments, persistence in the environment and detections in previous years, and now includes Diazinon, Dicamba and Dimethoate.</p>
6.3.5	Sydney Water must undertake the Drinking water quality monitoring for the period from the Commencement Date to 30 June 2001 and after that for each subsequent financial year.	Full compliance	Monitoring has been carried out for the period 1 January 2000 to 30 June 2005.
6.4	Drinking Water Quality – Reporting		
6.4.1	Sydney Water's water quality monitoring test results must be placed on its website on the internet for downloading by the public, free of charge and made available at its offices for access or collection by any person, also free of charge.	Full compliance	Quarterly and annual summaries of monitoring results and daily test results for <i>Cryptosporidium</i> and <i>Giardia</i> are placed on Sydney Water's website for downloading. These are also printed on demand, free of charge, if a person requests them at a Sydney Water office.
6.4.2	Sydney Water must produce an Annual Drinking Water Quality Report that reports on the Water supply system in relation to:	Full compliance	In carrying out the audit, the Annual Drinking Water Quality Report 2004 and a final draft of the Annual Drinking Water Quality Report 2005 (dated August 2005) were reviewed. These reports are similar and the review comments below generally apply to both documents. For the purposes of this audit, information in the 2004 Report has been reviewed as the report was completed within the audit period.
6.4.2(a)	The health guideline values for which compliance is required under Clauses 6.2.1(a) and (b).	Full compliance	<p>The 2004 Report is an excellent and comprehensive document.</p> <p>Tables in the Report provide a summary of compliance with the health guideline values for which compliance is required.</p>
6.4.2(b)	The aesthetic guideline values for which compliance is required under Clauses 6.2.1(c) and (d).	Full compliance	Table 11 in the Report provides a summary of compliance for the aesthetic characteristics for which compliance is required.
6.4.2(c)	The aesthetic guideline values of the 1996 Guidelines	Full compliance	Table 12 in the Report provides a comparison of the results with the guideline values that



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
	that apply to the Physical characteristics of drinking water.		apply to the physical characteristics of drinking water.
6.4.3	The Annual Drinking Water Quality Report must also include a summary of monitoring information, indicating water quality trends and problems, and a summary of system failures (significant and major water quality incidents) over the previous year and action taken to resolve them and how public health was protected.	Full compliance	<p>The Report includes a summary of water quality trends for key parameters. The Report is excellent and provides information on changes in requirements, system performance and system failures and the actions taken in response.</p> <p>Sydney Water commissioned an independent auditor to verify the content and data of the Report prior to its publication. The auditor concluded that the report was a complete and accurate representation of the organisation's drinking water quality performance and noted that:</p> <ul style="list-style-type: none"> ▀ The high level of data accuracy presented within the report is commendable; ▀ Sydney Water had carried out its own internal verification and data review; and ▀ Sydney Water had utilised easily verifiable trails for verifying the data.
6.4.4	The Annual Drinking Water Quality Report must be prepared by 30 November each year and must be placed on Sydney Water's website for downloading by the public free of charge and made available at its offices for access or collection by any person, also free of charge.	Full compliance	<p>The Annual Drinking Water Quality Report for 2003/04 was posted on the Sydney Water website on 29 November 2004 in accordance with the requirement of this clause.</p> <p>The Annual Drinking Water Quality Report for 2004/05 had been prepared in draft by Sydney Water in August 2005 and a final draft was made available for the audit on 5 October 2005. Sydney Water advised that this report will be posted on its website before 30 November 2005.</p>
6.5	Drinking Water – Planning		
6.5.1	Sydney Water must prepare, to the satisfaction of NSW Health, a Five Year Drinking Water Quality Management Plan within 5 months after the Commencement Date. Sydney Water must release a discussion paper in relation to the Five Year Drinking Water Quality Management Plan within 2 months after the Commencement Date and must engage in a public consultation in accordance with Clause 1.2.2 on the discussion paper	No requirement	The Commencement Date as defined in the Operating Licence is the 12 April 2000. The <i>Five Year Drinking Water Quality Management Plan 1999 – 2004</i> was prepared in March 2000 and finalised and endorsed by NSW Health on the 12 September 2000. Community consultation was carried out on the management plan.



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
6.5.2	The Five Year Drinking Water Quality Management Plan must include strategies for the comprehensive management of the quality of Drinking water in Sydney Water's water supply system, the aim of which is to reduce risk to public health and meet any aesthetic guideline values extended to Sydney Water in or by this Licence. It must also include an audit program for Potable water backflow prevention devices.	No requirement	<p>As noted in a previous audit, the <i>Five Year Drinking Water Quality Management Plan 1999 – 2004</i> is an excellent and comprehensive document. The Management Plan sets out the current situation of the supply system, the emerging issues and performance gaps and contains action plans for maintaining high quality drinking water.</p> <p>The Management Plan encompasses catchment management, bulk water delivery, water treatment and water distribution to consumer's taps. It also addresses the areas of risk management, emerging water quality issues, monitoring and reporting, research and development, communication with stakeholders and incident management.</p> <p>Sydney Water is commencing the preparation of a new Five Year Drinking Water Quality Management Plan for the period 2005 – 2010. A Discussion Paper on the proposed plan was released by Sydney Water in August 2005, with a request for public comment by September 2005.</p> <p>As noted in the 2003/04 audit, although no audit program for backflow prevention devices is included in the Management Plan, the Management Plan itself includes a discussion of the issues and refers to separate documents available within Sydney Water.</p> <p>A Progress report for the period 1 January 2005 – 30 June 2005 on Sydney Water's implementation of the Backflow Prevention Policy was reviewed. The report indicated that at the end of June 2005:</p> <ul style="list-style-type: none"> ▶ 14,508 customers had been notified of the requirement to install a backflow prevention device, exceeding the target of 10,000. ▶ Of 7,746 customers who were required to install a backflow prevention device, 7,026 had installed an appropriate device. The number still to install a backflow prevention device (720) was higher than in the previous year (490). ▶ 94% of customers comply with the requirements of the Policy (that is, have installed a device or have been assessed as not being required to install a device). ▶ In the period 1 January – 30 June 2005, there was evidence of considerable effort by Sydney Water in encouraging customers to comply (including 372 explanatory letters and information packs, 133 reminder letters). No final reminder letters were issued, extensions were granted for 8 customers, no customers have been disconnected, and no



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>customers had their flow restricted for failure to install a backflow prevention device.</p> <ul style="list-style-type: none"> 1,861 annual test reports were received. No customers were disconnected for failure to carry out the annual test of the backflow prevention device. 200 audits of properties are proposed for the 2005/06 year. The Backflow Prevention Policy has been revised to apply to all medium and high risk sites rather than basing requirements on a rating of properties by local councils.
6.5.3	Sydney Water must prepare, to the satisfaction of NSW Health, an Annual Drinking Water Quality Improvement Plan for the Water supply system within one month after the Commencement and after that by 31 March in each year, unless otherwise specified following the review under Clause 6.5.5.	Full compliance	<p>The <i>Annual Drinking Water Quality Improvement Plan 2004/2005</i> was submitted to NSW Health on 30 March 2004 and NSW Health endorsed the Plan on 5 October 2004.</p> <p>The <i>Annual Drinking Water Quality Improvement Plan 2005/2006</i> was submitted to NSW Health on 30 March 2005 and NSW Health endorsed the Plan on 26 August 2005.</p>
6.5.4	The Annual Drinking Water Quality Improvement Plan must incorporate system and operational changes needed to address problems identified through drinking water quality monitoring data and through periodic system inspections and evaluations, the aim of which is to reduce risks to public health and meet any aesthetic guideline values extending to Sydney Water in or by this Licence.	Full compliance	<p>The <i>Annual Drinking Water Quality Improvement Plan 2005/2006</i> is an excellent document. It includes, in concise form, for each of the delivery systems:</p> <ul style="list-style-type: none"> A systematic consideration of the status of water quality in the various water supply systems and incidents that have occurred; Information on the trends in operational data, including, for example, the trend in raw water quality at the WFP inlet and treated water quality at the WFP outlet and service reservoir; and For each water quality issue, proposed actions, the benefit, the improvement, and the timeframe for implementation. <p>It was noted in a previous audit that it would be expected that the Improvement Plan should include reference to action plans for gaps identified in the risk assessment for all water filtration plants and bulk water supply. This has now been included and Section 5 of the Improvement Plan includes a review of the various risk assessments carried out by Sydney Water and the SCA (including the risk assessments for the Catchment to Tap (July 2004), for the WFPs (2002) and the Water Networks (2002/04)).</p> <p>This review lists the key risk management actions, their status, the residual risk, and</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>commentary on how the residual risk will be further reduced. The majority of the actions have been completed, and residual risks are now 'Medium' or 'Low' in most cases. There are two cases where the residual risk is 'High'; these are associated with major wet weather events and the effect on source water for the North Richmond and Orchard Hills systems. Sydney Water notes that risk is reduced by the existing Granular Activated Carbon and Dissolved Air Flotation systems at North Richmond and additional mitigation strategies will be implemented for the Orchard Hills system.</p> <p>In addition, the Improvement Plan refers to other water quality improvement actions plans:</p> <ul style="list-style-type: none"> • <i>Post Implementation Review of Aspects of the McClellan Inquiry into Water Quality Incidents – Action Plan - February 2005; and</i> • <i>Expert Panel on Water Quality – Review of Management of Sydney's Water Supply, May 2003 – Action Plan – December 2004 Update.</i>
6.5.5	The Annual Drinking Water Quality Improvement Plan must be reviewed as part of the Mid-Term Review under Clause 2.3.1 to assess its continued effectiveness and whether there is a continued need for the plan each year.	No requirement	A review of the Plan was carried out as part of the Mid-Term Review. The Review concluded that the Annual Drinking Water Quality Plan should remain as a Licence condition.
6.5.6	Sydney Water must prepare, to the satisfaction of NSW Health, a Drinking Water Quality Incident Management Plan, within 1 month of the Commencement Date which must remain in place until any new plan is developed in agreement with NSW Health.	Full compliance	An initial Drinking Water Quality Incident Management Plan was prepared in 1999 and a new Drinking Water Quality Incident Management Plan was developed in 2001/02. The new Plan comprises the Event Management Standard Operating Procedure and the Emergency Risk Management Manual. NSW Health confirmed its agreement with the Plan on 12 August 2002. Further revisions were made to the Plan on 31 December 2004 and the latter revision was endorsed by NSW Health on 11 February 2005.
6.5.7	The Drinking Water Incident Management Plan must contain, or incorporate by reference, procedures and protocols for the coordinated management of Drinking water incidents including media and stakeholder liaison and any notification of public health advice received from NSW Health to Customers.	Full compliance	<p>Drinking water incidents are managed within an Emergency Response Framework. As noted under Clause 6.5.6, there is an overarching Emergency Risk Management Manual, strategic level plans (such as the Drinking Water Quality Emergency Response Plan) which manage hazards that relate to the whole of Sydney and tactical level plans (such as Business Community Plans, WFP Emergency Response Plans and STP Emergency Response Plans) for specific systems.</p> <p>The revisions to the Event Management Standard Operating Procedure included items arising</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>from <i>Exercise Camel</i> carried out in the previous year, a Response Protocol, Hazard Identification and Risk assessment Matrix, details regarding the NSW Health Expert Panel, a Summary Table of information required for Incidents and a Water Quality Incident Responsibility Matrix.</p> <p>The Sydney Water Emergency Risk Management Unit has also prepared a revised Emergency Response Handbook to assist in the control of incidents and emergencies (2nd Edition, dated 12 November 2004).</p> <p>Sydney Water has adopted the categories of <i>Incident</i>, <i>Major Incident</i>, and <i>Emergency</i>. In addition, the term 'event' is used to refer to an occurrence or test result that could develop into an incident. In 2004/05, there were no declared <i>Emergencies</i> or <i>Major Incidents</i>, and there were 27 <i>Incidents/Events</i> that were notified to NSW Health in accordance with the requirements of the Plan. This number is lower than the 31 reported in the previous year. These included:</p> <ul style="list-style-type: none"> ▮ 17 minor excursions in Total Coliforms or <i>E. coli</i>; ▮ 4 security breaches at reservoirs by vandals (including one involving children swimming in a storage reservoir); ▮ 2 excessive chlorine residual levels (including one involving a free chlorine level of 50 mg/L resulting from pipe cleaning activities); ▮ 1 minor lead excursion; ▮ 1 electrical power outage and water quality excursions and customer complaints; and ▮ 1 cross connection resulting from unauthorised plumbing work. <p>Debriefs are carried out by Sydney Water for incidents and the results of the debriefs are included as Action Plans.</p> <p>The Incident Management System was tested during 2003/04 with a joint exercise called "Camel" in May 2004 involving Sydney Water, the SCA, Australian Water Services and NSW Health. Review of the status of the actions resulting from this exercise (listing of <i>Joint Agency Actions</i> dated May 2005) indicates that of 51 action items, all have been completed with the exception of 3 items (one was 90% completed and two items were 85% completed). The Auditor considers this to be an indication of excellent follow up on the findings of the <i>Exercise</i>.</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>In late 2004, Sydney Water, the SCA and NSW Health commenced planning for <i>Exercise Olive</i>, similar to <i>Exercise Camel</i>. The Strategic Liaison Group decided it was necessary to delay this Exercise to address communication debrief items resulting from <i>Exercise Camel</i>. This latter exercise was termed <i>Exercise Southern Slip</i> and was held on 7 April 2005. The purpose of the Exercise was to validate the assumptions and procedures documented within the Asset Management Water Continuity Plan and associated Procedures, identify opportunities for improvement, and to promote awareness. 41 people attended the exercise and information on the Exercise indicated that it met its objectives.</p>
6.6	Environmental Water Quality		
6.6	Sydney Water must meet the environmental water quality requirements for any discharges or water releases by licences issued to it by the EPA or the Department of Land and Water Conservation (DLWC, now DIPNR since May 2003).	High compliance	<p>In 2004/05, Sydney Water held 27 Environment Protection Licences for its sewage treatment systems and 2 Licences for water treatment plants (North Richmond and Cascades); the operating contractor holds one Licence for the Gerrigong / Gerroa sewage system.</p> <p>The Licences contain maximum limits for pollutant concentrations for discharge, above which Sydney Water is not permitted to discharge to the environment without breaching the conditions of the Licence. Limits for discharges to the environment were exceeded on seven occasions for sewage treatment system licences and on two occasions for water filtration plant licences. The details are:</p> <ul style="list-style-type: none"> ▶ Picton STP: exceeded suspended solids, faecal coliforms and total phosphorus during a precautionary discharge to Stonequarry Creek (three non compliances). ▶ Mt Victoria STP: the 3-Day Geometric Mean was exceeded for suspended solids on one occasion. ▶ Fairfield STP: maximum limit exceeded for BOD on two occasions (two non compliances). ▶ West Camden STP: the 90 percentile chemical limit for iron was exceeded. ▶ Cascades WFP: the limit for Total Suspended Solids was exceeded on 18 April 2005. ▶ North Richmond WFP: the limit for Total Suspended Solids was exceeded on 3 September 2004. <p>The exceedances at Picton and Fairfield were related to wet weather flows and so corrective action was not possible.</p>



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>None of the above exceedances was found to have impacted receiving water quality and the DEC had not initiated any penalties or prosecutions at the time of the audit.</p> <p>Sydney Water tabled the corrective action undertaken for each non compliance. For example, corrective action at West Camden involved changing the dosing point for iron (pickle liquor) and cleaning the filters more frequently; and at Fairfield STP monitoring procedures have been amended as sampling error may have contributed to the exceedances.</p> <p>Sydney Water reports compliance with the EPA licences to the EPA on an annual basis as a requirement of the licences. Sydney Water advised that it reported the non compliances with water quality requirements set by the Clause L3 of the licences to the EPA. Nine minor non compliances compared to the number and volume of environmental discharges demonstrate a high level of compliance with the requirements of this clause.</p> <p>The sewage treatment systems and the water filtration plants are managed through certified environmental and quality management systems. These certified systems provide confidence that for the purposes of this audit, the reporting and corrective action procedures are robust.</p> <p>DIPNR (former DLWC) has issued a Water Management Licence to Sydney Water for water extraction from Botany Wetlands, Manly Dam and for North Richmond WFP. The Licence does not impose environmental water quality requirements for discharges or water releases. Therefore with respect to the DIPNR licence, there is no requirement under this clause.</p>
6.7	Other Grades of Water		
6.7.1	Other Grades of water supplied by Sydney Water must be supplied according to relevant guidelines and requirements prescribed by EPA, NSW Health, the Department of Land and Water Conservation, the Department of Agriculture, other relevant government agencies and the NSW Recycled Water Coordination Committee.	Full compliance	<p>Sydney Water supplies reclaimed water for a number of non-potable purposes including parks and golf course irrigation, residential use (Rouse Hill) and some industrial applications. The guidelines to be applied vary with the use of the water, as outlined below:</p> <ul style="list-style-type: none"> Use for irrigation (such as by golf courses and Sydney Water's STPs – there are 12 external organisations using the recycled effluent and 32 Sydney Water STPs): DEC Environmental Guidelines "Use of Effluent by Irrigation, October 2004", and the National Water Quality Management Strategy (ARMCANZ, ANZECC, NHMRC) "Guidelines for Sewerage Systems – Use of Reclaimed Water November 2000". Environment Protection Licences exist for each of the Sewage Treatment Plants and in these Licences, the DEC sets the effluent quality limits that must be met. Use for urban residential use (for example, Rouse Hill): NSW Recycled Water



Table 6.4 Water Quality - Part 6 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>Coordination Committee “NSW guidelines for Urban and Residential Use of Reclaimed Water, 1st Edition, 1993.</p> <ul style="list-style-type: none"> Industrial applications (for example, BlueScope Steel, Port Kembla): National Water Quality Management Strategy (ARMCANZ, ANZECC, NHMRC “Guidelines for Sewerage Systems – Use of Reclaimed Water, November 2000”). <p>The level of treatment for the various reuse applications was:</p> <ul style="list-style-type: none"> Supply of treated sewage effluent for irrigation: the water is treated to a tertiary or a secondary standard, including disinfection. Sydney Water advised that approximately 9.8 GL of treated sewage effluent was used on site at STPs and 2.9 GL was used off site, slightly less than in 2003/04. The total reuse corresponds to approximately 3% of the total sewage effluent. Supply for residential toilet flushing and outside use (Rouse Hill): sewage effluent is microfiltered. The Rouse Hill scheme served 15,245 properties in June 2005 and a further 2,200 lots were under development. Approximately 1.7 GL was supplied for this purpose. Supply to Blue Scope Port Kembla, unfiltered raw water (not sewage effluent) subject only to disinfection. The quantity supplied was approximately 13 GL. <p>The 2003/04 Operational Audit reviewed the systems that Sydney Water has in place to assure performance of its supply of recycled water and concluded that management of the supply of recycled water is being carried out in accordance with good management principles. Sydney Water continues to improve its operations in this area. These systems continued in place in the 2004/05 period.</p> <p>In reporting on performance, Sydney Water has a Standard Operating Procedure (WPIMS5330.SOP) “Reporting Water Quality” to address recycled water quality measurement and reporting under its ISO9001:2000 certified Water Product Integrated Management Systems.</p> <p>Use of Recycled Water for the Rouse Hill scheme</p> <p>The results of monitoring treated effluent quality indicated that there was generally Full compliance with requirements for the Rouse Hill supply. All monitoring results for all</p>

**Table 6.4 Water Quality - Part 6 Licence clauses**

Clause	Requirement	Compliance	Findings
			<p>parameters at the recycled water plant outlet and at customer taps complied with the guideline values with the exception of one result for <i>Giardia</i> at the plant outlet. NSW Health was advised and because chlorine will inactivate <i>Giardia</i> cysts it was considered that the observation did not represent a public health concern. A repeat sample did not detect <i>Giardia</i> cysts.</p> <p>In the previous audit period, the monitoring indicated pH values greater than the guideline value arose when potable water was used for top up purposes; NSW Health has approved a variation to the upper pH level to bring it in line with the potable water pH requirement of 8.5 and this has avoided pH non compliance.</p> <p>There was one cross connection that resulted from an unauthorised plumbing connection at a dwelling under construction. Actions included location and isolation of the cross connection, flushing, advice and consultation with the community, monitoring the area for any sickness and a full independent review of the management of risks for the recycled water scheme was implemented. Auditing of the regulation of plumbers and recycled water systems is to be reviewed by Sydney Water and other agencies. NSW Health advised that the event was unlikely to result in any health effects because the recycled water is treated to a very high standard that exceeds guideline requirements.</p> <p>In the audit period, Sydney Water completed a two year program of Third Party Assessments of external users of recycled water. This program will continue. The audits found that users had poor compliance with the requirements for public advisory signage and recycled water plumbing standards. Sydney Water advised that negotiations are under way with users to progress improvements in these areas.</p> <p>Use of treated effluent from STPs for irrigation</p> <p>Treated effluent from STPs is used for irrigation (mainly on golf courses). Annual Returns on compliance monitoring were provided to the DEC and the Auditor. The reporting on compliance had been improved from 2003/04 and an <i>Annual Compliance Report – Irrigation Reuse Schemes 2004/2005</i> indicated that all results complied with the requirements, with a few exceptions for parameters that were not related to the suitability of the water from a public health or irrigation perspective (such as Total Phosphorus). It is concluded that the supply of treated effluent for irrigation is in compliance with the requirements for irrigation.</p>

**Table 6.4 Water Quality - Part 6 Licence clauses**

Clause	Requirement	Compliance	Findings
6.7.2	Minimum standards and guidelines to regulate the supply of Other Grades of water must be identified in the Mid-Term Review. Where the Minister is of the opinion that the minimum standards and guidelines for the supply of Other Grades of water identified in the Mid-Term Review are appropriate, such standards and guidelines must be observed by Sydney Water as a condition of this Licence	No requirement	The Mid-Term Review recommended that no minimum standards and no guidelines (in addition to those in Clause 6.7 of the Licence) be included in the Licence. No change to Sydney Water's practices is required from the Mid-Term Review.
6.7.3	Where there is a conflict between any of the guidelines, requirements or standards applying to Sydney Water under Clause 6.7 the Minister's decision will prevail	No requirement	No conflicts have been identified.

Table 6.5 Water Quality - Ministerial Requirements

ID	Requirement	Compliance	Findings
M1	Sydney Water provide confirmation of Sydney Catchment Authority's finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low.	Full compliance	A Report on the residual treated drinking water quality risks associated with variations in bulk raw water quality June 2005 has been prepared. This Report concludes that <i>"the health risks to consumers from variations in raw water quality as a result of the hazard events identified by the Sydney Catchment Authority are acceptably low"</i> . Refer to discussion in Section 6.4.3.
There were no Ministerial Requirements for 2003/04.			
M2 (2002/ 03)	In 2002/03 there was the Ministerial Requirement: "I therefore require Sydney Water to consider risks that may occur through variations in bulk water quality or plant failure through its Annual Drinking Water Quality Improvement Plan." This was assigned partial compliance in the 2003/04 operational audit.	Full compliance	The <i>2005/2006 Annual Water Quality Improvement Plan</i> now considers the risks associated with variations in bulk water quality that have been identified in the risk assessments carried out by the SCA.

**Table 6.6 Water Quality - recommendations from 2003/04 Audit of the Operating Licence**

ID	Recommendation	Addressed	Findings
1	Confirm that the residual treated water quality risks associated with variations in bulk water quality such as have been identified by SCA are acceptable and, in particular, that the risk of a recurrence of the 1998 <i>Cryptosporidium</i> incident is low.	Addressed	<i>A Report on the residual treated drinking water quality risks associated with variations in bulk raw water quality June 2005</i> has been prepared. This Report concludes that “the health risks to consumers from variations in raw water quality as a result of the hazard events identified by the Sydney Catchment Authority are acceptably low”. In particular, the residual risk associated with <i>Cryptosporidium</i> following events such as drought breaking rain was ranked as ‘Low’ (low likelihood and moderate impact). Refer to discussion in Section 6.4.3.
2	Consider risks that may occur through variations in bulk water quality or plant failure through its Annual Drinking Water Quality Improvement Plan. (Note: recommendation carried over from the previous audit.)	Addressed	Refer comment on Ministerial requirement M2 carried over from 2003/04 operational audit.
3	Prepare a report for senior management on risks to Drinking Water Quality (recommendation carried over from the previous audit).	Addressed	<i>A Report on the residual treated drinking water quality risks associated with variations in bulk raw water quality June 2005</i> has been prepared.
4	With regard to the supply of ‘other grades of water’, prepare a compliance report that summarises the results in a form that allows direct comparison with the licence requirements and applicable guidelines.	Addressed	The reporting on compliance had been improved from 2003/04, and an <i>Annual Compliance Report – Irrigation Reuse Schemes 2004/2005</i> has been prepared that provides a direct comparison with Licence requirements.
5	A report be prepared that outlines the basis for the action plan in response to the report by the Expert Panel in May 2003, and which provides a clearer outline of actions and their status.	Addressed	<i>A Review of Management of Sydney’s Water Supply - Action Plan – December 2004 Update</i> has been prepared and this provides a good outline of actions their basis, and their status.

6.4 Discussion

6.4.1 Drinking Water quality

The quality of drinking water supplied to customers is generally of an excellent standard and complies with the health related requirements of the Australian Drinking Water Guidelines and the aesthetic related requirements specified by NSW Health and the Minister.

6.4.2 Joint working with SCA and NSW Health

It is clear from the information provided to the Auditor that Sydney Water maintains a good working relationship with the SCA and NSW Health. This relationship provides confidence that issues requiring joint consideration by these organisations will be properly dealt with.

6.4.3 Water Quality Risks and their Management

There were recommendations in the previous Operational Audit and a Ministerial requirement in 2003/04 directed at confirming that the variations in bulk raw water quality, such as may occur with drought breaking rains, do not pose a risk to Sydney. These recommendations followed the concern that the SCA had carried out a risk assessment showing that there were a number of possible events that could give rise to 'high risks' with regard to bulk water quality and Sydney Water had not shown through its assessments that these would not pose a risk to its customers.

In response to these recommendations, Sydney Water, the SCA and NSW Health carried out workshops in 2004/05 and in June 2005 issued a *Report on the residual treated drinking water quality risks associated with variations in bulk raw water quality*. This Report concluded that "*the health risks to consumers from variations in raw water quality as a result of the hazard events identified by the Sydney Catchment Authority are acceptably low*".

The report concluded that, in overview, the highest bulk water quality hazard events and the risk after existing controls are taken into account are:

- ▶ Presence of *Cryptosporidium* in raw water due to activity in catchments or following events such as drought breaking rain – with the controls in place (particularly the WFP processes) the residual risk is considered to be low. Documentation reviewed by the Auditor indicated that consideration had been given to whether additional controls were needed (such as UV at a cost of \$50 million). It was concluded that these were not warranted because Sydney Water currently meets or exceeds all water quality requirements, there is no evidence of infections of *Cryptosporidium* causing public health problems, a new filter backwash treatment facility has been constructed at Prospect WFP, filter backwash processes have been upgraded at other WFPs and all WFPs routinely achieve 0.1 NTU on filter outlets which provides an effective barrier against *Cryptosporidium*.
- ▶ Elevated levels of sediments, nutrients, pesticides and/or heavy metals in the raw water – the controls are adequate and the residual risk is low.
- ▶ Presence of algae in raw water, due to algal blooms in the catchments/storages – the controls are adequate and overall the residual risk is low (one system was ranked as medium and all other systems were ranked as low).

- ▶ Deliberate or accidental contamination of catchments or storages with harmful, chemical, biological or radiological agents – the controls are adequate and the residual risk is low.

The report concluded that “*the residual risk to public health was acceptably low*”.

The process of risk assessment, as reported, appeared to rely on judgement rather than careful quantitative analysis (any supporting investigation and analysis was not referenced) and caution is required with respect to the certainty of the conclusions of the risk assessment. Notwithstanding this, in carrying out the risk assessment Sydney Water and the SCA have involved staff with broad experience in the ranges of water quality that are observed and can be expected and in the performance and capability of the water filtration plants. This can be expected to have provided a good understanding in overview terms of the expected system performance.

In terms of reporting the results of the risk assessment, the report does not provide a consistent description of the severity of events and this could lead to uncertainty about the conclusions. For example, in assessing the residual risk of the presence of *Giardia*, the main potential consumer risks are described in the report as an “acute public health risk to consumers”, whereas the impact is described as “minor” which is defined in the report as: “some minor impact with unimportant consequences”, “public ignores”, “isolated customer complaints”, or “non-reportable events”. Sydney Water advised that the commentary in the report was intended to indicate the impact on consumers if the situation actually occurred, whereas the overall assessment considered the likelihood of the impact and concluded that it was unlikely that consumers would be adversely affected.

It is recommended that the reporting of the risk assessment avoid such apparent inconsistency.

Similarly, in the *Annual Water Quality Improvement Plan 2005/2006*, commentary on the residual risks is now ‘Medium’ or ‘Low’ in most cases. There are two cases where the residual risk is listed as ‘High’; these are associated with major wet weather events affecting source water for the North Richmond and Orchard Hills systems. Sydney Water notes that risk is reduced by the existing Granular Activated Carbon and Dissolved Air Flotation systems at North Richmond, and additional mitigation strategies will be implemented for the Orchard Hills system. These risk rankings are somewhat higher than those in the *Report on the residual treated drinking water quality risks associated with variations in bulk raw water quality*. Sydney Water advised that this occurred because in some earlier risk assessments, risks were ranked on a relative basis (High, Medium, Low), rather than on an absolute basis. Sydney Water advised that it will progressively review this as risk assessments are conducted in the future, with the aim of establishing a common basis for risk ranking. It is recommended that Sydney Water review the various risk assessments to ensure that there is a common basis and ranking.

Notwithstanding these inconsistencies, the documentation provides evidence that Sydney Water has in place a program of continuous improvement in water quality and the extent to which Sydney Water has identified issues and has systems in place to address these issues is impressive.

6.4.4 Expert Panel Report – Progress on Actions

In April 2003, Sydney Water and the SCA convened a second meeting of the Water Quality Expert Panel to review progress on recommendations made during the first panel meeting in 1999 and to make additional recommendations based on progress and changes in the industry over the past 4 years.

The Panel report was issued in May 2003 and noted that Sydney Water had made good improvements in implementing the 1999 Panel recommendations and had made significant improvements in public health

protection. The Panel made a number of suggestions regarding further improvements and the balance of the programs, such as the focus of the monitoring program and the balance between improving the microbiological quality of the water versus increasing the concentrations of disinfection byproducts.

Sydney Water has considered the various recommendations in conjunction with the SCA and NSW Health. The agencies have developed an Action Plan dated May 2003. This is an important document with respect to the supply of safe and acceptable water to Sydney in the long term.

The status of actions has been reported in *Action Plan – December 2004 Update*. This report lists each of the recommendations of the Expert Panel, nominates a lead agency, outlines the status in November 2003, the proposed action, and the current status (as of December 2004, reported in February 2005).

The 2003/04 Operational Audit concluded that many of the recommendations raised by the Expert Panel had been addressed or are being addressed, although it appeared that some recommendations may not be acted on or the action may be deferred. In some cases the action proposed did not appear to be relevant to the recommendation, or commentary indicating the status of actions had not been completed. The Auditor recommended that a report be prepared that outlines the basis for the action plan and provides a clearer outline of actions and their status.

The status of actions in December 2004 that Sydney Water is responsible for is indicated in Table 6.7. Note, that there were many recommendations and those listed in Table 6.7 are indicative of only a few recommendations and responses.

This review indicates that Sydney Water is considering and acting on the recommendations raised by the Expert Panel and the report provides a clearer basis for the action plan and a clearer outline of actions and their status.

Table 6.7 Response and Progress to date on selected recommendations for Sydney Water from Expert Panel

Recommendation	Status reported by Sydney Water and Examples of Progress (December 2004)
Continue to maintain 0.1 NTU finished water turbidity.	All WFPs are targeting 100% compliance from 2004/05
Develop integrated and robust response plan to initiate incremental operational and facility upgrades to gain significant water quality improvements.	Asset Management Plans for all WFPs have been finalised and issued in August 2004. The Asset Management Plans include consideration of scenarios dealing with potential changes to water quality guidelines. Greaves Creek WFP has been taken off line.
Develop plans for reducing disinfection by-products, taste and odour and algal toxins.	Consistent water quality complies with Australian Guidelines. Sydney Water is carrying out research related to this and is also maintaining a watching brief on the issues via work being carried out involving the Cooperative Research Centre for Water Quality and Treatment and AWWARF (USA). Continue optimisation of systems to minimise effects of DBPs, taste and odour and algal toxins.
Test extreme bulk water conditions (pilot and full scale)	Review of historical data indicated that control strategies are available to ensure that all WFPs will meet the target of 0.1 NTU; in the case of North Richmond this requires additional treatment prior to the filters and increased pumping capacity at Prospect Reservoir. Stress testing of the WFPs is not considered necessary until the WFPs are closer to operating at full capacity.



Recommendation	Status reported by Sydney Water and Examples of Progress (December 2004)
Provide a disinfection barrier to <i>Cryptosporidium</i> oocysts.	All water quality requirements are currently met. There is no prior evidence of infectious oocysts causing public health problems. No further action is proposed.
Continue programs of improving residual maintenance and water quality.	Over 90% of chlorine residual test results meet targets; all systems routinely comply with microbiological requirements. There is a continuing program to prevent nitrification. Further refinements in mains cleaning were proposed; Sydney Water has curtailed mains cleaning because of the need to save water in the drought conditions.
Continue to focus on public health concerns; do as much as possible to reduce formation of disinfection by-products.	THM values comply with guidelines, and continue to decline. R&D is being carried out into DBPs and their reduction.
Reassess water treatment monitoring.	The Review Panel prepared a paper on revisions to the monitoring program, and Sydney Water proposes a revised program. Further action is required to finalise the program and to seek approval.
Monitor other surrogates of WFP performance.	All WFPs have on-line monitoring of key parameters; no further action proposed.
Develop protocol to determine when to switch between water sources.	Protocol is in place; R&D is underway to further develop the protocol.

6.4.5 Incident Management

Sydney Water has a well established Incident Management Plan and has tested this Plan on a number of occasions in previous years. Although there was not a Trial Incident in 2004/05, related activity took place and Sydney Water continues to improve its incident management systems.

6.5 Factors affecting compliance

6.5.1 General

The quality of water supplied to customers is of an excellent standard and complies with the health related requirements of the Australian Drinking Water Guidelines and the aesthetic related requirements specified by NSW Health and the Minister. Although the water has been of an excellent standard, this is in part due to the continuing drought and some reduction in water quality may be experienced when and if the drought breaks, or if storage levels reduce to very low levels.

Sydney Water has carried out a significant program of water quality improvement works over the past decade, including a major program of works since the McClellan inquiry, and this provides greater assurance of ensuring compliance with water quality guideline requirements.

Sydney Water has in place excellent systems for the management of drinking water quality and, through its various risk management procedures, has identified where risks to drinking water quality may arise and is developing strategies to manage these risks.

Sydney Water and the SCA are working together through various committees and joint activities, such as the risk assessments, and are specifically considering how the catchment systems and resulting bulk

water quality interface with Sydney Water's treatment plants. This is important in ensuring that the overall water supply system works effectively and will provide water of assured quality.

Sydney Water advised that it has recently restructured its operations. It appears that the number of staff now involved with activities related to water quality management is significantly reduced and some staff with many years experience in the field are no longer working in this area. This may lead to a reduced performance. It is recommended that Sydney Water specifically consider its resourcing and skills availability against requirements for good management of water quality to ensure that this area continues to be properly managed.

6.5.2 Drinking Water Quality Improvement Program

Sydney Water has completed many significant projects that will result in improved drinking water quality. Table 6.8 provides a summary of progress.

Table 6.8 Summary of Progress – Drinking Water Quality Improvement Projects 1999 - 2005

Category	Budget (\$million)	No. Projects	No. Complete	In Progress	On Schedule	Behind Schedule	Not required or by SCA
Planning	0.7	7	6	0	0	0	1
Risk Assessment	13.4	12	12	0	0	0	0
Drinking Water Quality	24.4	13	12	0	0	0	1
Bulk Water	32.1	10	8	1	0	1	1
Water Treatment	42.2	39	34	2	0	2	3
Distribution	49.4	23	22	1	0	1	0
Monitoring	1.2	8	8	0	0	0	0
Research	10.2	45	43	1	0	1	1
Communications	4.9	23	23	0	0	0	0
Incident Management	1.5	12	11	1	0	1	0
Total	180.0	192	179	6	0	6	7

NOTE: Budget figures also include the projected expenditure covering the period 2004 through to 2006.

Review of the information provided indicates that Sydney Water is progressing well in carrying out water quality improvement projects:

- ▶ All of the recommendations of the McClellan Inquiry reports for which Sydney Water had full or partial responsibility have been implemented.
- ▶ Projects related to operating the Water Filtration Plants at optimum levels have been completed.
- ▶ Projects related to achieving adequate disinfection residual throughout the distribution system have been well advanced. These have included major programs involving installation of large numbers of on-line chlorine analysers (126 installed of 189 proposed), installation of mixers in reservoirs to avoid depletion of chlorine in stagnant areas and to reduce the variability of disinfection level (140

installed), and installation of on-line re-chlorination equipment as a more cost effective alternative to manual dosing (31 installed).

- Decommissioning of the Greaves Creek Water Filtration Plant and provision of alternative supply from the Cascade Water Filtration Plant is now complete. The Greaves Creek supply was of a lower quality than the other supplies.
- While some projects have been delayed because of funding limitations, this reason has been cited for only a small number of the projects and it appears that Sydney Water has been able to allocate sufficient funds for the water quality improvement program.
- Where major projects have been delayed, the project delays are generally in the order of 12 months and in most cases Sydney Water projects their completion within the five-year period.

As noted in the 2003/04 Operational Audit, Sydney Water continues to adopt the policy of not carrying out works (such as mains cleaning and swabbing of the distribution systems) other than reactive flushing on a needs basis, to reduce loss of water and cost. Sydney Water advised that this does not appear to result in reduced water quality (such as increased dirty water complaints) and may be accepted for the Sydney system because of the very low turbidity now being achieved by its Water Filtration Plants.

It is concluded that Sydney Water has achieved generally good performance on completing water quality improvement actions, although some system cleaning actions have been deferred because of drought.

The next five-year plan is in preparation and it can be expected that this will lead to a new set of water quality improvement actions to be carried out.

6.6 Recommendations

6.6.1 Key recommendations

There are no primary recommendations.

6.6.2 Secondary recommendations

It is recommended that Sydney Water:

- R 6.1 Review the terminology and ranking of risks to water quality to ensure that there is consistency in the various reports
- R 6.2 Consider its resourcing and skills availability against requirements for good management of water quality to ensure that this area continues to be properly managed.
- R6.3 Review work that the SCA has carried out on pesticides in the catchment.

7. System Performance

7.1 Summary of findings

- ▶ Sydney Water achieved **Full compliance** with each of the amended System Performance Standards for water pressure, water supply continuity (unplanned interruptions and “*planned and warned*” interruptions) and sewage overflows. However, **Insufficient information** was provided to assess ‘*accuracy*’ in measuring these standards (see below regarding agreement for reporting on the accuracy and confidence limits with IPART). Sydney Water provided a historical comparison of performance, trend analysis and proposed actions in this year’s Compliance Report and, therefore, continued to fulfil the requirement following the 2002/03 audit.
- ▶ Sydney Water achieved **Full compliance** with the requirement to collect and report data on those performance indicators that relate to the amended standards for drinking water pressure, drinking water continuity, and sewage overflows on private land by 1 September each year.
- ▶ Sydney Water reported 21,462 properties were affected by dry weather sewage overflows during 2004/05 and this number is compliant with the maximum standard of 25,000 properties. The results reflect actions by Sydney Water, implemented in the second half of the year, in response to the half-year report to IPART forecasting that overflows were likely to reach 24,500 by 30 June 2005. The results suggest the need for Sydney Water to continue to monitor and advise IPART on the causes of the upward trend in sewage overflows and the proposed actions to ensure the standard will not be exceeded in the future. In relation to the 2003/04 Audit recommendation that the review needs to take into account the ageing of the sewer network, Sydney Water advised that it has started to address this by developing an optimal choke management strategy for 2005/06 to 2009/10. The project commenced in April 2005.

Sydney Water previously achieved **Full compliance** with the requirement to develop an arrangement for reporting on the accuracy and confidence limits for the System Performance Standards as part of the Monitoring and Reporting (M&R) Protocol. This arrangement does not require Sydney Water to report on accuracy and confidence for its reported data.

- ▶ Sydney Water achieved **High compliance** with the Ministerial requirement to collect (and report) data during the audit period in accordance with the amended arrangements under the M&R Protocol.
- ▶ Sydney Water achieved **High compliance** with the Ministerial requirement to review and report on the causes underlying the upward trend in sewage overflows and to demonstrate strategies to ensure the standard is met under normal operating conditions. It is noted that, in the future, Sydney Water will be able to provide appropriate supporting evidence in its explanations of trends and demonstrate how longer-term strategies will ensure the standard is met. Supporting evidence should include forecasting existing trends and the likely, or desired, changes in forecast due to implementation of its strategies (or due to improved understanding based on Sydney Water’s investigations).

7.2 Summary of requirements

The requirements of Clauses 7.1, 7.2 and 7.3 of the Operating Licence are that Sydney Water ensures its systems comply with the standards of service in Schedule 4 of the Licence or such other standards determined by the Minister. The Minister has amended the standards, which in summary are:

- ▶ Water Pressure – The number of properties connected to the water supply system not receiving water pressure at the main tap of at least 15 metres head will not exceed 15,000;
- ▶ Water Continuity – Unplanned Interruptions. The number of properties connected to the water supply system reported as affected by an unplanned shutoff of water supply exceeding 5 hours will not exceed 35,000;
- ▶ Water Continuity – Planned and Warned Interruptions. The number of properties connected to the water supply system reported as affected by a “planned and warned” shutoff exceeding 5 hours will not exceed 32,000; and
- ▶ Sewage Overflows – The number of private properties reported as affected by dry weather uncontrolled sewage overflows will not exceed 25,000.

These standards include requirements for accuracy and confidence levels for the reported numbers.

In respect to Ministerial requirements, Sydney water is required to:

- ▶ Collect and report data on system performance indicators relating to the amended standards for drinking water pressure, drinking water continuity and sewage overflows (SPS 5), and report these indicators to the Tribunal by 1 September each year, commencing in 2002 (SPS 6). (These indicators are designed to provide greater insight into Sydney Water’s performance against the system performance standards as specified in Schedule 4 of the Licence); and
- ▶ Review the causes underlying the upward trend in sewage overflows and to demonstrate strategies to ensure that the standard is met under normal operating conditions, and report to the Tribunal and the Minister by 1 September 2004 (M3).



7.3 Details of compliance

Table 7.1 System Performance – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:		
(d)	Compliance by Sydney Water with the performance standards under Clauses 7.1 and 7.2.	Full compliance	Refer to findings for Clause 7.1.1 in Table 7.2 for each amended System Performance Standard (SPS).

Table 7.2 System Performance – Part 7 Licence clauses

Clause	Requirement	Compliance	Findings
7.1	Compliance with Performance Standards		
7.1.1	<p>Sydney Water must ensure that its Systems comply with the standards for continuity, water pressure and sewage overflows in Schedule 4 or other such standards determined by the Minister under Clause 7.3.</p> <p><i>Amended standards were determined by the Minister to apply from 1 July 2001, as detailed below.</i></p>	No requirement	<p>Refer to findings below for each amended System Performance Standard (SPS).</p> <p>Although not a Licence requirement for System Performance Standards, Sydney Water provided the historical comparison of performance, trend analysis or explanations or proposed actions in the Compliance Report, as set out in the M&R Protocol. This analysis will provide a useful context for stakeholders.</p>
	<p>Water Supply Pressure – The number of properties connected to Sydney Water's system that are reported as not receiving continuous water pressure at the main tap of at least 15 metres [head] should not exceed 15,000 properties in a report year. The number of reportable properties is to include designated low pressure areas.</p>	Full compliance	<p>Sydney Water reported 2,860 properties as not receiving continuous water pressure, of at least 15 metres head during the year, including properties in Designated Low Water Pressure Areas (DLWPAs).</p> <p>The number of properties experiencing more than one instance of pressure problems has increased from 814 in 2003/04 to 2,498 in 2004/05. This increase was attributed to operational issues related to water system maintenance. There were three significant events that affected 2,027 of the 2,860 properties affected, which were documented.</p>



Table 7.2 System Performance – Part 7 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>The measurement and reporting of the standard is generally reliable and adequate systems appear to be in place to ensure that the amended standard is maintained. Sydney Water should continue to review its program of improvements for effectiveness. Refer to Section 7.3.2 for further discussion on drinking water pressure.</p>
	Water Supply Pressure – Accuracy of the above standard to +/- 10% with 95% confidence limits.	Insufficient information	<p>IPART no longer requires Sydney Water to undertake reporting of accuracy and confidence of the System Performance Indicators. Sydney Water did not analyse or report the accuracy of the indicator. Therefore, there is insufficient information available to the Auditor to make an objective judgement on whether Sydney Water has met the accuracy and confidence limit requirements for the indicator.</p> <p>However, the Auditor is satisfied that the methods used would not be expected to result in under-reporting of the number of properties affected. Consequently, this finding does not affect the above finding of Full compliance with the standard. Estimates of the error range of the data provided by Sydney Water are the subject of a separately commissioned research report.</p>
	Water Supply Continuity – Unplanned Interruptions. Sydney Water must ensure that in any report year, the number of properties connected to its water supply system that are reported as affected by an unplanned shutoff of water supply exceeding 5 hours does not exceed 35,000.	Full compliance	<p>Sydney Water reported 19,214 properties as being affected by an unplanned shut-off of water supply exceeding 5 hours, which is below the maximum of 35,000. This is an increase on the 16,345 properties reported last year.</p> <p>Sydney Water advised there were a small number of major unplanned events that accounted for the increase. A water main fault in Potts Hill accounted for 1,844 properties being affected and a valve fault accounted for 1,785 properties affected in Ryde. In addition there were eight events that had between 760 and 542 properties affected. Two of these events were in both Potts Hill and Ryde, while the rest were in Prospect North, Nepean, Woronora and Macarthur. These ten interruptions accounted for 8,638 of properties affected by unplanned interruptions.</p> <p>The reliability, validation of field data recording and data input that were noted as areas of concern in 2003/04 have been improved with the introduction of data entry quality assurance. The processes following data input seem generally reliable. Adequate systems appear to be in place to ensure that the amended standard is maintained both in the short term, and—with the asset management plans now incorporating a risk-based approach that includes asset condition assessment and valuation—in the longer term.</p>

**Table 7.2 System Performance – Part 7 Licence clauses**

Clause	Requirement	Compliance	Findings
	Water Supply Continuity – Unplanned Interruptions. Accuracy of the above standard to +/- 5% with 95% confidence limits.	Insufficient information	<p>IPART no longer requires Sydney Water to undertake reporting of accuracy and confidence of the System Performance Indicators. Sydney Water did not analyse or report the accuracy of the indicator. Therefore, there is insufficient information available to the Auditor to make an objective judgement on whether Sydney Water has met the accuracy and confidence limit requirements for the indicator.</p> <p>However, the Auditor is satisfied that the methods used would not be expected to result in under reporting of the number of properties affected. Consequently, this finding does not affect the above finding of Full compliance with the standard. Estimates of the error range of the data provided by Sydney Water are the subject of a separately commissioned research report.</p>
	Water Supply Continuity – “Planned and Warned” Interruptions. Sydney Water must ensure that in any report year, the number of properties connected to its water supply system that are reported as affected by a “planned and warned” shutoff of water supply exceeding 5 hours does not exceed 32,000.	Full compliance	<p>Sydney Water reported 8,527 properties as being affected by a “planned and warned” shut-off of water supply exceeding 5 hours, well below the maximum of 32,000 properties.</p> <p>The measurement and reporting against the standard is generally reliable and adequate systems appear to be in place to ensure that the amended standard is maintained. The comments on field data recording and data input processes for unplanned interruptions also apply to the data collection for “Planned and Warned” interruptions.</p>
	Water Supply Continuity – “Planned and Warned” Interruptions. Accuracy of the above standard to +/- 5% with 95% confidence limits.	Insufficient information	<p>IPART no longer requires Sydney Water to undertake reporting of accuracy and confidence of the System Performance Indicators. Sydney Water did not analyse or report the accuracy of the indicator. Therefore, there is insufficient information available to the Auditor to make an objective judgement on whether Sydney Water has met the accuracy and confidence limit requirements for the indicator.</p> <p>However, the Auditor is satisfied that the methods used would not be expected to result in under-reporting of the number of properties affected. Consequently, this finding does not affect the above finding of Full compliance with the standard.</p>
	Sewage Overflows – Sydney Water must ensure that in any report year, the number of private properties reported as affected by dry weather uncontrolled sewage overflow incidents does not exceed 25,000.	Full compliance	<p>Sydney Water reported 21,462 private properties as being affected by a dry weather uncontrolled sewage overflow, which is below the maximum of 25,000 properties.</p> <p>The measurement and reporting against the standard is generally reliable and adequate systems appear to be in place to ensure that the amended standard is maintained in the short term.</p>



Table 7.2 System Performance – Part 7 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>In 2002/03, Sydney Water was observed as over-counting the number of properties affected in the case of “superlots” and “master strata” properties, which have been addressed since 2003/04.</p> <p>It is appropriate that Sydney Water continues to report to the Tribunal on the causes of any adverse trends in sewage overflows and the proposed actions to ensure the standard will not be exceeded in the future. A more holistic review of sewage overflows was presented this year, including the trending report and development of a Choke Management Strategy for 2005/06 to 2009/10 to address the need for long-term compliance.</p>
	Sewage Overflows – Accuracy of the above standard to +/- 5% with 95% confidence limits.	Insufficient information	<p>IPART no longer requires Sydney Water to undertake reporting of accuracy and confidence of the System Performance Indicators. Sydney Water did not analyse or report the accuracy of the indicator. Therefore, there is insufficient information available to the Auditor to make an objective judgement on whether Sydney Water has met the accuracy and confidence limit requirements for the indicator.</p> <p>However, the Auditor is satisfied that the methods used would not be expected to result in under-reporting of the number of properties affected. Consequently, this finding does not affect the above finding of Full compliance with the standard. Estimates of the error range of the data provided by Sydney Water are the subject of a separately commissioned research report.</p>
7.2	Standards in Respect of Low Pressure Areas		
7.2.1	Within 1 month after the Commencement Date, Sydney Water must develop standards that establish the minimum level of water pressure required for the low pressure areas in Schedule 4.	No requirement	Sydney Water complied with this requirement during the 2000/01 audit period.
7.2.2	Sydney Water must comply with the standards developed under Clause 7.2. Sydney Water must comply with such other standards determined by the Minister under Clause 7.3.	Full compliance	Designated Low Water Pressure Areas (DLWPAs) were included in the amended standard for Water Pressure for the 2001/02 Audit. Refer to Clause 7.1 for details of compliance.

**Table 7.3 System Performance – Ministerial Requirements and System Performance Standards**

ID	Requirement	Compliance	Findings
SPS5	"I support the use of performance indicators to provide further insight into performance against system performance standards. Accordingly, I require Sydney Water to collect and report data on those performance indicators that relate to the amended standards for drinking water pressure, drinking water continuity and sewerage overflows on private land."	Full compliance	<p>Sydney Water has collected and reported data on performance indicators for drinking water pressure, drinking water continuity and sewage overflows on private land, in accordance with this requirement.</p> <p>The performance indicators are drawn from the same base data, and collated and reported using the same processes as the Service Performance Indicators. They will consequently have the same degree of validation and reporting accuracy as the Performance Indicators. There are no accuracy requirements specified for performance indicators. It is considered relevant and useful to stakeholders to present forecast data for these indicators, including the perceived or desired improvements due to Sydney Water's actions and remedial programs.</p>
SPS6	"Performance indicators are to be reported to the Tribunal by 1 September each year with the first report due to the Tribunal on 1 September 2002."	Full compliance	The indicators were reported to the Tribunal as part of the Operating Licence Compliance Report for 1 July 2004 – 30 June 2005. IPART has confirmed receipt of all required reports by the 1 September due date.
SPS8	"I require Sydney Water to finalise this Protocol in consultation with the Tribunal as soon as possible, so that data collected during the audit period commencing 1 July 2002 is covered by the new arrangements"	No requirement.	Sydney Water finalised the Monitoring and Reporting Protocol with the Tribunal by 30 June 2003 and is no longer required to ascertain the accuracy and confidence levels for the system performance standards data. Raw performance data collected in the 2003/04 period was the first reported under the new arrangements.
M3	"I require Sydney Water to review the causes underlying the upward trend in sewage overflows and to demonstrate strategies to ensure that the standard is met under normal operating conditions. I expect the corporation to report to the Tribunal and myself by 1 September 2004 on progress against this requirement and on year to date performance against the overflow standard"	High compliance	Sydney Water has reviewed and reported on the causes underlying the upward trend in sewage overflows and outlined short and long-term strategies to ensure the standard is met under normal operating conditions. It is recommended that Sydney Water provides appropriate supporting evidence when providing explanations for any trends. It should also demonstrate how proposed actions and strategies will contribute to ensuring standards are met by, for example, forecasting the likely changes in performance.

7.4 Discussion

7.4.1 General processes for measurement, reporting and ensuring compliance

General comments on Sydney Water's processes for measurement, reporting and ensuring compliance are set out in this section, as they are common to all the System Performance Standards. The general requirements for reporting are covered in the Monitoring and Reporting (M&R) Protocol, which was finalised 30 June 2003 between Sydney Water and IPART. There is a specific section in the Protocol relating to reporting against the System Performance Standards with particular reference to the accuracy and confidence limits applying to each indicator. Sydney Water and IPART have agreed that the provision and auditing of accuracy and confidence limits are no longer required, but IPART requested the Auditor to carry out an estimate of error in parallel with the 2004/05 audit. This investigation will be the subject of a separate report.

For System Performance Standards, the audit generally covered the aspects listed in Table 7.4. Items 1 to 4 in the Table are discussed below, as they apply to all System Performance Standards, while Items 5 and 6 are discussed separately for each Standard.

Table 7.4 Aspects covered by the Audit for the System Performance Standards

- | |
|---|
| <ol style="list-style-type: none"> 1. Interpretation and application of the amended standards. 2. Existence of appropriate procedures, documentation and data collection, and reporting systems for the amended standards. 3. Compliance of Sydney Water with procedures and requirements. 4. A subjective evaluation by the Auditor of the processes and procedures in place for identifying, assessing and recording events 5. Analysis of performance compared to the standard and to historical performance where possible and relevant. 6. Strategies, plans and programs in place to ensure compliance with each standard are maintained in the future. |
|---|

Interpretation and application of the amended standards

Sydney Water's definitions and interpretations of the standard are generally consistent with the Minister's requirements as expressed in the Minister's Notice of Amended Performance Standards. Sydney Water defines the number of properties affected as the number of rateable properties plus any associated flats affected. This definition does not include non-rateable properties (including parks, roads, vacant land, creeks and rivers), which is appropriate.

Procedures, documentation and data collection, and reporting systems

Sydney Water has maintained extensive documentation for collecting, collating and reporting of data against the standards under its Operating Licence Monitoring and Reporting System (M&R). The Process for Compilation and Reporting of the Operating Licence Compliance Requirements was last updated on 30 June 2002 and has not been amended to reflect the amended M&R Protocol. The Quality Assurance Manual for Operating Licence Monitoring and Reporting was updated on 1 July 2003 to reflect



changes of scope and management and includes reference to the M&R Protocol. The system is certified to ISO 9002: 2000.

In 2004/05, changes were made to the data collection and reporting systems used by Sydney Water for performance indicators. Evidence was produced of a significant development effort in data collection and reporting systems. This work includes:

- ▶ Updated Standard Operating Procedures for the individual indicators;
- ▶ Staff utilising the shared drives to store information, for example, previously pressure tables were locally stored, however now these are centrally stored and reviewed on a monthly basis; and
- ▶ Training notes and attendance records are now stored in the shared drive.

During the 2003/04 audit process, it was evident that the Auditor had been supplied with an outdated version of a folio of progress. The 2004/05 Audit found that the folio of progress version control problem has now been rectified as there was a footer with saved date and status details. The Auditor was also provided with high quality Standard Operating Procedure (SOP) documentation and was provided with records of training attendance for relevant staff. Evidence was produced that Sydney Water has been updating training manuals, however, in one case nothing was being done in relation to succession planning. It is noted that the records of training did not include evidence of assessment of competency. Sydney Water considered competency is measured by demonstrated performance in the live work environment under the quality assurance regime in place. Given there is now a quality assurance process that directly monitors the data entry and other processes, the Auditor considers this need is now met. Adequate training of staff in the processes for reporting is required to demonstrate competency and to meet the terms of the M&R protocol.

Compliance of Sydney Water with procedures and requirements

Management and compliance staff demonstrated a sound understanding of the measurement and reporting process relevant to their responsibility.

The M&R Protocol (Section 3.2) for Compliance Reports, provides that: *"Where appropriate, and specifically for System Performance Standards, reports should provide a historical comparison of performance, preferably presented graphically, along with an analysis of any trends, together with a commentary on the possible explanations and proposed actions to address any adverse trend."* While this is not a Licence requirement, the intent of this paragraph is to inform stakeholders and provide an understanding of trends and actions to address them. For the System Performance Standards, the Operating Licence Compliance Report for 1 July 2004 to 30 June 2005 included historical comparison of performance, a brief trend analysis and some explanation of the reasons for the result. There was little commentary on proposed actions or programs by Sydney Water. The analysis provides a useful, and probably a sufficient, context for stakeholders and could be extended in future to include the System Performance Indicators.

Interviews of Sydney Water staff demonstrated that verification checks and reviews were undertaken on the various System Performance Standard reports. Sydney Water has implemented a quality assurance review process for data entry of job cards for 2004/05.

No detailed sampling or review of the process for collection and compilation of reports was undertaken by the Auditor, as this was not required. This aspect is separately discussed below.



ISO 9001:2000 Standard Certification certificates, dated 1 November 2004, were provided. Internal process audit information was also provided.

In general, the process of monitoring and reporting is considered to be reasonably reliable based on a subjective evaluation by the Auditor of the processes and procedures in place for identifying, assessing and recording events.

Accuracy and confidence limits of reported numbers

The amended System Performance Standards included requirements for accuracy and confidence limits to apply from 1 July 2001. The M&R Protocol includes agreed interpretations, applications and audit expectations for the accuracy and confidence limit requirements. The Minister (requirement SPS8) required these arrangements to apply to the audit period commencing 1 July 2002.

IPART and Sydney Water reached an agreement that Sydney Water does not have to undertake auditing for accuracy and confidence against the System Performance Standards for the 2004/05 reporting year.

In order to have some confidence in the reported numbers, the Auditor gave consideration to *subjective* assessments of the accuracy of the reported data. Specific aspects are discussed below for each System Performance Indicator.

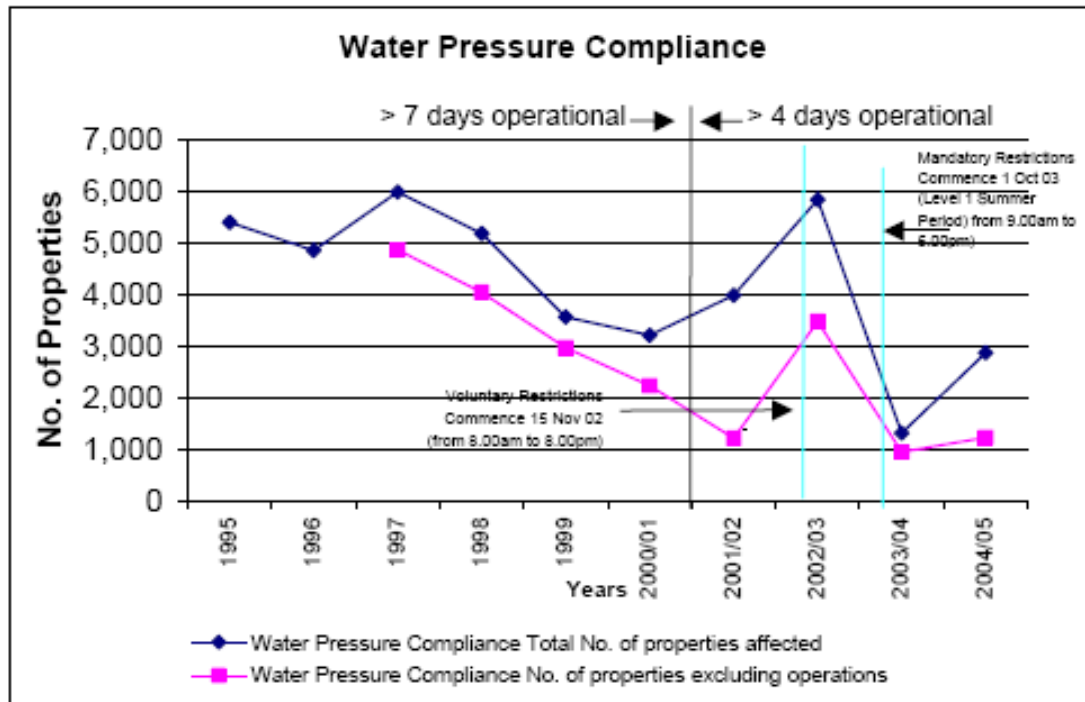
7.4.2 Drinking water pressure

Reported compliance and historical trend comparison

Sydney Water reported the number of properties affected by a low pressure event as 2,860, which is significantly below the Licence standard of 15,000, but more than double the 1,304 recorded in 2003/04.

A historical comparison of the number of properties affected at least once by a low pressure instance was provided as part of the Compliance Report by Sydney Water (Figure 1) (Note: The Licence standard was changed from 2001/02).

Figure 7.1 Comparison of the number of properties affected at least once by a low pressure instance



Source: SWC Compliance Report

Comparison of the 2004/05 data with 2003/04 indicates an increase in the number of properties affected. Sydney Water has attributed this increase to operational issues related to water system maintenance, in particular three significant events that affected 2,027 of the 2,860 total properties affected. These were:

- Operational changes at Bronte to allow a water main renewal to proceed resulted in 541 properties being affected for > 4 days;
- Operational changes at Wiley Park to allow a reservoir to be offline for maintenance resulted in 1,079 properties being affected for > 4 days; and
- High demand in Revesby Heights and Panania resulting in 407 properties receiving low pressure.

With the underlying low numbers of properties affected by low pressure issues, it is inevitable that necessary maintenance activities such as those at Bronte and Wiley Park (that can lead to temporary low pressure) will significantly affect perceived performance. In this case, the Auditor does not view the temporary deterioration reported in 2004/05 as being of on-going concern.

Accuracy and confidence assessment

Assessing this audit component against the agreed interpretation in the M&R Protocol, Sydney Water provided evidence of:

- Investigating, measuring and reporting water pressure SOP;
- Training records for the SOP;
- Summary of Progress on Water Pressure 2004-05;



- Water Pressure Folio of Progress;
- Pressure Recording Gauge (PRG) calibration certificates for non-IICATS (Integrated Instrumentation, Control, Automation and Telemetry System) Gauges;
- Water Product Integrated Management System (WPIMS) Internal Audit Reports for the Northern Network (Hermitage), 10/03/2004 and 17/09/2004;
- "Water pressure accuracy and confidence" report for reported non-compliance areas in 2002/03, dated 7 October 2004;
- Review of PRG Locations 2004/05;
- ISO 9001: 2000 Certificate for WPIMS;
- Design standards for water pressure; and
- An update on the capital program for replacement of inaccurate older technology (chart) pressure recorders. Sydney Water advised that chart gauges are currently being replaced as part of the IICATS pressure monitoring project and it will be completed by the end of 2005.

Sydney Water explained the processes for ensuring the water pressure monitoring and recording system was robust and adequate.

Considering the procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the method used is not likely to result in under reporting of the number of properties affected. As major over-reporting issues have been addressed (such as "superlots"), the need for adequate accuracy and confidence assessment becomes increasingly relevant, although the low numbers being reported, relative to the standard counterbalances this.

Strategies, plans and programs to ensure compliance

Sydney Water reported it maintained a Business Analysis Team comprising of relevant pressure portfolio officers that meet every six weeks for a half a day to discuss, analyse and review the water pressure process, data and information collected on an exception basis.

Sydney Water displayed evidence of an updated Poor Pressure Program with both current and forecast expenditure for:

- Stage 1: was completed in 2002/03, comprising of 5 booster pump stations and other works;
- Stage 2: three of the six areas were completed, with the remaining three over 90% complete;
- Stage 3, all three areas were 30% complete;
- Stage 4: one area was 30% complete, while the other was 5% complete;
- A list of six projects completed or in progress outside the Poor Pressure Program were provided, with details of how the problems were solved; and
- Two projects were cancelled from the program, one of which had a high expenditure. Given there was only one property, and the other showed the pressure was satisfactory, the two projects are currently uncertain to proceed.

On review of these programs, Sydney Water reported that the boosters were working successfully and both sites and customer complaints were being monitored in the previously affected areas. Evidence was



produced that current pressure at areas in both Stage 1 and 2 of the capital works program had increased to around 20 to 25 metres in the affected areas.

Sydney Water discussed with the Auditor an amendment to the Minister's Report, for the Cascades water system, whereby the number of properties impacted by abnormal operations will decrease, whilst the number of properties affected due to higher demand will increase by the same amount. However, the total number of properties affected will not change.

Given the implementation of mandatory restrictions, it is not possible to assign the reduction in pressure problems to either the improvement program or the restrictions.

Nonetheless, this review indicates that Sydney Water, generally, has adequate processes and programs in place to maintain water pressure. As noted last year, it may also be appropriate for Sydney Water to undertake a review of the effect of possibly permanent water restrictions on peak demands, the impact this has on areas vulnerable to low pressure, and ways in which Sydney Water can mitigate pressure problems for customers.

Summary

Sydney Water fully complies with the standard requirement for not more than 15,000 properties affected by water pressure, at the main tap of less than 15 metres head. Although the figure has increased from 2003/04, Sydney Water has easily achieved the standard for drinking water pressure, even though it was affected by a number of operational issues related to water maintenance. The measurement and reporting against the standard is generally reliable with adequate planning and systems appearing to be in place in order to ensure that the amended standard is maintained. Sydney Water has been working on properties with persistent pressure problems and evidence was shown of the improvements in changes in water pressure as a result of the capital works program. Considering the interpretation, procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the methods used would not be expected to result in under reporting of the number of properties affected.

7.4.3 Drinking water continuity (unplanned and "*Planned and Warned*")

Reported compliance and historical trend comparison

Sydney Water reported the number of properties affected by an unplanned interruption as 19,214 compared to the Licence standard of 35,000, and the number of properties affected by a "*planned and warned*" interruption as 8,527 compared to the Licence standard of 32,000. Comparable figures for 2003/04 were 16,345 and 16,064 respectively. The total number of properties affected by an interruption of water supply exceeding 5 hours was 27,741 (32,409 in 2003/04) including multiple interruptions.

Sydney Water accounts the increase in unplanned water discontinuity as a reflection of the relative complexity of the repair work required to restore water supply. Sydney Water attributed the decrease in the number of planned and warned interruptions to the variable nature of the work and the implementation of control measures to reduce, where possible, the duration of planned discontinuity events.

In response to the increasing trend of the unplanned interruptions, Sydney Water advised that the frequency of events had remained relatively static but that there were some major unplanned events that accounted for this increase. A water main fault in Potts Hill accounted for 1,844 properties being affected, and a valve fault accounted for 1,785 properties affected in Ryde. In addition there were eight events (in



Prospect North, Nepean, Woronora and Macarthur) that resulted in between 760 and 542 properties affected. These ten interruptions accounted for 8,638 of properties affected by unplanned interruptions.

A historical comparison of the number of properties affected by a water supply interruption exceeding the 5 or 6-hour period (as appropriate) at least once in the reporting period, compared to previous years, was included in Sydney Water's Compliance Report and, consequently, is not repeated herein.

However, comparison of the 2004/05 numbers with years prior to 2002/03 should be undertaken with care, as the Licence standard is expressed differently (that is, as a number of properties affected compared with a percentage of all properties connected to the water supply system previous to 2001/2002) and is tighter than previously (that is, the reporting threshold is interruptions exceeding 5 hours rather than 6 hours previously).

A key indicator is the number of properties affected by each interruption, and the duration of the interruption. In 2004/05 the number of properties affected by unplanned interruptions to water supply which was greater than five hours, increased 17.5% to 19,214. Sydney Water report this as a consequence of a number of small jobs that affected a large number of properties, as ten events out of the total of 329 accounted for over 20% of the total number of properties affected in the 12 month period.

However, 2004/05 planned interruptions to water supply greater than five hours decreased 47% from the 2003/04 period to 119 events.

The occurrence of "planned and warned" interruptions is largely a function of the water main maintenance and renewals programs and connection of developer works. There has been a significant increase in the number of planned interruptions over the past 6 years, attributed to planned maintenance, water main replacement activity, and increased developer-related works and customer connections. Conversely there has been a downward trend in the number of properties affected by planned shutdowns by additional valve inserts in water mains, which reduce the length of main between valves.

Accuracy and confidence assessment

This component of the audit assessment is undertaken against the agreed interpretation in the M&R Protocol.

Sydney Water provided evidence of:

- ▶ Drinking Water and Recycled Water Continuity, M&R SOP;
- ▶ Water Service Division Civil Maintenance (WSCM) Field Reporting Guide (FRG) Manual;
- ▶ Training records for FRG;
- ▶ Audit Program for data and other business processes; and
- ▶ WSCM Data Integrity Audit Result 2004/ 05.

Considering the procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the method used is not likely to result in under reporting of the number of properties affected.

Sydney Water provided an internal audit program record and it was explained that internal audits on water continuity were usually completed on three levels, the field crew audits, audit supervisor checking and an audit of what goes into the system and job cards. Feedback and additional training is provided as a result of the audits.



Sydney Water explained it had introduced GIS processes to identify the actual number of properties impacted by water shutdowns since 23 August 2005. The Auditors were shown this process and Sydney Water detailed how it “over reports” rather than “under reports” in terms of determining the number of properties affected in a shutdown, although this was undocumented.

As noted above, considering the procedures, documentation and systems in place, the information provided by Sydney Water should be reliable. It is noted that as major over-reporting issues are addressed (such as “superlots”), the need for adequate accuracy and confidence assessment becomes increasingly relevant. Nevertheless, given that the reported numbers were around 25 to 60%, respectively, of the standard for unplanned and “planned and warned” water continuity events, identified inaccuracies were not considered to create a significant risk of failure of Sydney Water to meet the standard.

Strategies, plans and programs to ensure compliance

Processes are in place to identify poorly performing mains for replacement, based on historical failures or system analysis. Sydney Water has an internal benchmark of 3 breaks in two years, which triggers an investigation of a water main for renewal. Normal practice provides for assessment of water main maintenance activity to ascertain if the work can be undertaken without causing a service interruption.

Sydney Water indicated the Asset Management Division (AMD) works closely with the Water Service Division Civil Maintenance (WSCM) staff to focus on reducing the number of properties impacted by water shut downs, particularly those properties affected for less than five hours and other water discontinuity incidents.

In addition, during technical coordination meetings between AMD and WSCM, properties impacted by water shut downs that are longer than five hours are analysed (as well as other discontinuity incidents) with the aim of reducing the number of properties affected by water discontinuity.

In order to prevent unplanned water discontinuity, 91.5 kilometres of water mains were replaced by Sydney Water in 2004/05 at a cost of \$45.9 million, which is considerably higher than the 54 kilometres of water mains that were replaced in 2003/04.

For planned water shut downs, there have been plans to make these shorter through pre-shutdown site preparation, for example through excavations and pre-ordering the parts. Jobs that include water being shut off for longer than five hour periods are flagged.

Sydney Water has also considered the long-term future trend of water main breaks and considered these trends in developing its ongoing investment strategies for water mains. The Auditor has reviewed the water mains Asset Management Plan and considers that Sydney Water has made adequate provision to maintain its level of service for drinking water continuity, in the short term, and has considered the long term ageing of the network and its affect on the number of water main bursts and leak. A sound risk-based approach (incorporating condition-based asset assessment and valuation) has been described that should ensure that water main renewals are based on maintaining customer service standards over the longer term.

Summary

Sydney Water fully complies with the standard requirement for not more than 35,000 properties affected by an unplanned water interruption and not more than 32,000 properties affected by a “planned and warned” interruption. The measurement and reporting of the standard is reasonably reliable and

adequate systems appear to be in place to ensure that the amended standard is maintained in the short term.

Considering the procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the methods used did not create a significant risk of failure of the standard due to the numbers reported being significantly under the standard. Consequently, this finding does not reduce the above finding of Full compliance with the standard.

7.4.4 Sewage overflows

Reported compliance

Sydney Water reported the number of private properties affected by dry weather uncontrolled sewage overflows as 21,462 compared with a Licence standard of 25,000.

Comparison with previous performance for sewage overflows was provided by Sydney Water in its 2004/05 compliance report.

The number of properties affected by an overflow has increased from the 2003/04 figure of 19,612 and the increasing trend of the past 5 years continues, although (with the exception of 2002/03) it remains within the historical range of values. The number of properties affected by sewage overflows is closely linked to the number of sewer “chokes” or blockages, however, the number of properties affected shows an increasing trend against the number of chokes. This is attributed to more accurate recording of properties affected over the last four years compared to previously.

Sewer chokes have averaged around 76 per 100km of sewer over the past decade, but vary considerably from lows of around 60 per 100km of sewer to peaks of up to 112 per 100km of sewer. The choke rate for 2004/05 was 82 per 100km of sewer, compared to 73 per 100km for 2003/04. Sydney Water advised that some 75% of chokes are caused by tree root intrusion into sewers and into private property connections. Tree roots seek out moisture, which may result from leakage from pipe joints and cracked pipes. Older pipe materials with mortar joints and rubber rings are more subject to leakage and tree root problems than newer materials.

The number of dry weather overflows has increased from 16,798 in 2003/04 to 19,075 in 2004/05, whereas the number of confirmed wet weather overflows in both 2003/04 and 2004/05 were relatively low (with 117 and 168 respectively) compared to the seven years previous which ranged from 210 to 608. (Note that there are many more unconfirmed overflows in wet weather.)

It is clear from the discussions with Sydney Water regarding the results of the mid-year reporting to IPART (indicating a forecast end of year result of 24,500), that Sydney Water is having to explicitly target renewals and replacements in order to meet the standard. In 2004/05, all older mains that had had redevelopments in excess of 100 properties constructed were targeted for renewal/replacement. If through natural growth in the number of properties, the number of properties affected continues to approach the target, then mains with redevelopments of 50-100 properties in size will need to be targeted. A much higher number of mains will require replacement. Analysis should take place on the likely distortion of the renewal/replacement program that this could cause.

Accuracy and confidence assessment

This component of the audit assessment was undertaken against the agreed interpretation in the M&R Protocol.

Sydney Water provided evidence of:

- ▮ Graph of the different types of properties affected by sewage overflows, with both single properties and total properties affected, and total chokes and total chokes affecting properties;
- ▮ WAMS reporting, which included:
 - Frequency of sewage overflows
 - Frequency of repeat sewage overflows
 - Response times to surcharge
 - Sewage Breaks Restoration time
 - Compliance Reports, with frequency of sewage overflows and the type, that is, wet or dry weather overflows.
- ▮ An updated Asset Management Process for Compilation and Reporting of the Operating Licence Compliance Requirements and Ministerial Requirements; and
- ▮ Certification Documents from an auditor.

These indicated that the systems, processes and documentation relating to the standard are robust and adequate.

Based on the evidence provided on the compliance processes, the procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the methods used were not likely to result in under reporting of the number of properties affected by sewage overflows. Now that major over-reporting issues have been addressed (such as “superlots”), the need for adequate accuracy and confidence assessment becomes increasingly relevant, particularly with the number of properties affected approaching the standard.

Strategies, plans and programs to ensure compliance

In relation to maintenance of overflows, Sydney Water stated approximately 1000 overflows were “dig and repair”, otherwise jetting and cutting was used to fix the problem. Generally crews respond with the jet truck, otherwise a heavy duty cutter is used to cut tree roots. Instead of the past approach of having a reactive response, Sydney Water has been using a targeted preventative approach in managing its assets, having increased its sewer preventative cleaning program. Strategies are being used to prevent re-occurrence in high choke and overflow areas. Such strategies include using closed circuit televisions (where small remote control cameras are sent down the sewer to videotape the quality of the sewer), to make assessments as to whether root cutting or cleaning of the pipe is needed. Prioritisation then occurs for pipes and the higher risk pipes get ranked with a higher priority. Sydney Water noted that approximately 650 kilometres of pipe with a history of chokes and overflows were cleaned last year. In the period of March to May 2005, 75 kilometres of pipe that needed urgent cleaning were completed.

Sydney Water was required by the Minister, in a letter of 23 January 2004, to report on the causes underlying the upward trend in sewage overflows, to demonstrate strategies to ensure that the standard is met under normal operating conditions and to report to the Tribunal and the Minister by 1 September 2004. Since the last report to the Minister, Sydney Water has continued its implementation of the Standard Operating Procedure to analyse system performance data and initiate investigations to reduce the possibility of an overflow occurring (or of a repeat overflow if one has already happened) in the respective sewer assets associated with the high count of multiple dwelling properties. Additional cleaning work was also focussed on sewer mains that have a history of chokes affecting large numbers

of multiple dwelling properties. Sydney Water's strategies, plans and programs to ensure compliance are discussed in Section 7.3.6 which addressed Sydney Water's response to the Ministerial request.

Sydney Water reported that urban consolidation has had an impact on the counts. To demonstrate this, a graph was presented that showed the different types of properties affected by sewage overflows, with both single properties affected, total properties affected and total chokes affecting properties. Overall, chokes have increased, however, if sewage overflow events were reported then this has not increased as much as total properties affected. Sydney Water noted that around 15% of sewage overflows affected multiple properties, with multiple properties accounting for 60% of the total properties.

Summary

Sydney Water fully complies with the standard requirement for not more than 25,000 properties affected by an uncontrolled dry weather sewage overflow. The measurement and reporting of the standard is generally reliable and adequate systems appear to be in place to ensure that the amended standard is maintained in the short term. The straight line trend is still showing an increase (even with the 2002/03 data point considered as an abnormal result due to the drought). Even though this trend is attributed to continuing drought conditions, it is appropriate that Sydney Water update its report to IPART on analysis of the causes of the increasing trend in sewage overflows and the progress in proposed actions to ensure the standard will not be exceeded in the future. The review should be extended to take into account continuing ageing of the sewer network and its impact on chokes and sewage overflows, to ensure long term compliance with this standard.

Considering the procedures, documentation and systems in place, and the information provided by Sydney Water, the Auditor is satisfied that the methods used would not be expected to result in under reporting of the number of properties affected.

7.4.5 Ministerial Requirements SPS5 and SPS6 – System Performance Indicators

System performance indicators were reported by Sydney Water as part of its Compliance Report forwarded to IPART (IPART has confirmed receipt of all required reports by the 1 September due date).

The reported information is presented in Table 7.5 along with a comparison of performance in the previous three years. This data has only been required to be reported for these years.

Table 7.5 Comparison of System Performance Indicators

Water Pressure

Indicator	2001/02	2002/03	2003/04	2004/05
Number of properties that do not receive continuous water pressure at main tap of a least 15 metres as a result of abnormal operations.	2,338	2,357	361	1,870
<i>(This data includes properties as a result of abnormal operations and includes operational problems greater than 4 days. The data excludes system capability problems).</i>				
Number of properties where pressure of less than 15 metres head at the main tap occurs more than once during the report year.	3,136	5,769	814	2,498
<i>(This data includes properties affected for a period exceeding 15 minutes per 1 calendar day as a result of system capability deficiencies and exceeding 4 days as a result of abnormal operations. Properties in Designated Low Pressure Areas are included).</i>				



Water Continuity

Indicators	Indicator Parameters	2001/02	2002/03	2003/04	2004/05
Water Continuity – Planned Number of properties affected by shut-offs in a report year that are:	>1 hour but ≤ 5 hours	73,188	76,264	81,919	67,481
	>5 hours but ≤ 12 hours	18,816	20,132	15,968	8,527
	>12 hours but ≤ 24 hours	526	98	96	0
	>24 hours	0	0	0	0
Water Continuity – Unplanned Number of properties affected by shut-offs in a report year that are:	>1 hour but ≤ 5 hours	163,338	253,332	201,125	198,915
	>5 hours but ≤ 12 hours	14,658	18,976	15,983	18,292
	>12 hours but ≤ 24 hours	1,010	604	362	751
	>24 hours	102	0	0	171
Water Continuity – Number of events in a report year by type of interruption:	Planned and warned	1,412	1,334	1,406	1,227
	Unplanned:				
	<i>Third Party Damage</i>	51	64	101	79
	<i>Power Failure</i>	6	0	0	0
	<i>Other</i>	4,256	6,071	4,851	4,855
	Unplanned Total	5,719	6,135	4,952	4,934

Note: The Unplanned Total for water continuity events reported in the 2003/04 Operating Licence Compliance Report included the Planned and Warned interruptions.

Sewage Overflows

Indicators	Indicator Parameters	2001/02	2002/03	2003/04	2004/05
Number of dry weather uncontrolled sewage overflow events in a report year resulting from:	Chokes	15,290	18,968	16,765	19,065
	Third party damage	13	33	9	5
	Hydraulic overload	0	0	0	0
Response to priority 6 sewer incidents by time band in a report year:	≤ 1 hours	3,729	4,040	3,015	2,681
	>1 hour	1,109	1,740	1,365	1,500
Response to priority 5 sewer incidents by time band in a report year:	≤ 3 hours	20,908	23,910	19,206	20,500
	>3 hour	2,035	5,067	4,163	6,357

Trend Analysis of Sydney Water performance over the 2004/05 period indicates that:

- ▶ The number of properties that do not receive continuous water pressure at the main tap of a least 15 metres as a result of abnormal operations, has increased since the 2003/04 period, but is still significantly lower than the period from 2001/02 to 2002/03. This trend is also similar for when this problem occurs more than once in the reporting year;

- ▶ It was more likely that a water pressure problem would reoccur, than to not reoccur during the reporting period;
- ▶ Planned water continuity interruptions have decreased in all three time categories from more than one hour to 24 hours, and the greater than 24 hours category has had no change as both 2003/04 and 2004/05 recorded no water shut offs. Whereas unplanned water continuity interruptions have increased in all four time categories, except in the more than one hour and less than five hour period where there was a decrease in the amount of unplanned water continuity interruptions;
- ▶ For both planned and unplanned water continuity, most of the water shut offs were for more than one hour but less than five hours;
- ▶ The 2004/05 period recorded the highest number of properties affected by sewer chokes in ten years. This was attributed to the extended dry conditions, which correlated with an increase in the number of chokes affecting properties and the growing urban consolidation trend, which tends to increase the number of properties affected by sewer overflows;
- ▶ Most of the priority 6 sewer chokes were responded to within the hour, while most of the priority 5 sewer chokes were responded to within the three hour time frame.

Based on the 2003/04 recommendation that Sydney Water provide some trend analysis on System Performance Indicators to the Minister in the 2004/05 Compliance Report, Sydney Water included in historical data for the past ten years which was beneficial for stakeholder appreciation of Sydney Water performance.

7.4.6 Discussion on Ministerial Requirement SPS 3

The Auditor reviewed supporting documentation for the Sydney Water Compliance Report on Sewage Overflows. After review of supporting documentation, as outlined in Section 7.3.4, the report is generally considered to be in High compliance with the Minister's requirement but could be improved in the following areas to achieve Full compliance:

- ▶ The comments on the impact of drought conditions and growing trend of urban consolidation could be supported by appropriate evidence, otherwise such comments could be considered as anecdotal;
- ▶ The longer term strategies and actions advised to the Auditor were not sighted and no information was made available on these strategies other than they were in formulation and that they had been subject to peer review. Therefore, the Auditor was not able to determine if they address the issues raised in last year's Audit. Forecasting of existing trends and desired outcomes would also be expected.

It is noted that a high number of chokes occur on private property. Sydney Water advised that it used to notify property owners to address problems in private connections, but that this practice was discontinued as owners did not generally comply. Sydney Water advised that it is continuing to develop a Private Sewer Policy in order to introduce appropriate management practices for this issue.

The Auditor was provided with an update on progress with regard to the development of Sewer Catchment Asset Management Plans in order to confirm that Sydney Water is addressing the management of the aging of the sewerage network, the impact of this on the long-term trend of sewage overflows and to ensure longer term future compliance with the standard.



7.4.7 Discussion on Ministerial Requirement M5 and SPS8

The Monitoring and Reporting Protocol was completed and signed off by 30 June 2003.

The Compliance Report to the Minister for the period commencing 1 July 2004 covered the reporting against the standard and the monthly accumulation for the period. The report included historical comparison of performance, analysis of trends and commentary on possible explanations for changes but did not cover the following:

- ▶ The forecasting of trends and any assessment of the desired and/or likely impact of improvement strategies or proposed actions; and
- ▶ Any historical comparison of performance, analysis of any trends, or any commentary on the possible explanations and proposed actions to address any adverse trends for System Performance Indicators. This comparison may be considered appropriate.

Consequently, the Auditor concludes that Moderate compliance was achieved for this requirement.

7.5 Factors affecting compliance

There are no external factors considered to have affected compliance during the year, other than the ongoing drought conditions and hot weather which continued to contribute to a higher than average number of properties affected by sewage overflows and water continuity issues. The number of properties affected dropped significantly for planned water continuity interruptions but increased for unplanned water interruptions and sewage overflows. The introduction of mandatory restrictions in the 2003/04 year and the implementation of a pressure improvement program resulted in a significant drop in the number of properties affected by pressure deficiencies. As noted elsewhere, all reported numbers remained within the standards. It was noted that, with both the increasing growth and urban consolidation in Sydney, in the future it would be increasingly difficult for Sydney Water to meet the sewer performance standards.

7.6 Recommendations

7.6.1 Key recommendations

Nil

7.6.2 Secondary recommendations

It is recommended that Sydney Water:

- R7.2 Submit to IPART a report on the causes of the increasing trend in sewage overflows and actions to ensure the standard will not be exceeded, include the strategy for choke management and take into account the ageing of the sewer network.



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8. Water Conservation and Demand Management

8.1 Summary of Findings

► Water conservation targets

Sydney Water has attained a **Low compliance** for actions taken to reduce the quantity of water (other than reuse) it draws from all sources to achieve the 2004/05 target of 364 litres per capita per day (Lcd). Sydney Water's climate-adjusted average per capita demand over 2004/05 was 403 Lcd. **Moderate compliance** was assessed for Sydney Water's progress towards the 2010/11 and 2014/15 targets. The 2010/11 target may be realised if an optimistic estimate of savings is achieved for the planned demand management/ recycling programs and a long term reduction in demand results from the community's reaction to the drought during 2002-2005.

The *Water Conservation and Recycling Implementation Report* ("WC&RI Report") identified that Sydney Water has continued to achieve success in the areas of leakage reduction and the *Every Drop Counts* (EDC) Business. Also significant progress has occurred on public housing retrofits for the Department of Housing (DoH). However, only one small scheme for recycled water for potable water replacement has commenced operating during 2004/05.

The estimated 'average' unrestricted demand for 2004/05 was 620,000 ML/yr. This remains an undesirable position as it is in excess of the estimated 'yield' for water supply of 600,000 ML/yr.

► Demand management strategy

A **Moderate compliance** was assessed for the Licence requirements dealing with frequency and magnitude of supply deficiencies and water reliability issues. No significant progress was evident over 2004/05 on Sydney Water and Sydney Catchment Authority cooperative efforts to improve the accuracy of the WATHNET model, used by the SCA to calculate 'safe yield', by including demand side factors that have an impact on 'safe yield' calculations. Examples include climate variation in demand, demand hardening and revisions to the split of demand across the models to demand centres. In addition no evidence has been provided during the audit period to show actual joint work by SCA and Sydney Water on alternative supply reliability measures.

Insufficient information was awarded for cost-benefit assessment and prioritising of demand options compared to supply options, due to limited information available to the Auditor because of 'cabinet in confidence' constraints.

Sydney Water attained an overall **high compliance** rating for its actions in evaluating future plans for demand management and alternative water supplies. Although a substantial amount of work has been completed by a number of agencies for the *Metropolitan Water Plan*, details that demonstrate the quality of work done and the extent of Sydney Water's participation have not been provided, as they were 'cabinet in confidence'.

A **High compliance** with the Ministerial requirements for regional flow meters for leakage measurement was achieved, reflecting the good progress on commitment to installing the additional flow meters. However, it is noted that most leakage measurements remain a subjective estimate based on visual inspection of the leak being repaired.

► Reducing discharge

Sydney Water obtained **Moderate compliance** with the requirement to reduce effluent discharge to the ocean or waterways "by way of non-potable reuse". Progress on getting new

reuse schemes into operation continues to be slow. Sydney Water has a good set of procedures and practices in place to ensure the domestic reuse schemes, such as Rouse Hill, do not have a significant risk of long term shutdown, causing a net reduction in the quantity of non-potable reuse, due to contamination. These procedures and practices include preventing pipe cross-connection and multiple barrier treatment for reuse water.

► **Water conservation rating and labelling**

Sydney Water has demonstrated **Full compliance** as a national Water Efficiency Labelling Scheme (WELS) has been introduced, requiring mandatory labelling of water efficiency appliances and new residential developments in Sydney now require water saving systems. Sydney Water also represents WSAA on the intergovernmental Ministerial Council Working Group for WELS.

8.2 Summary of Requirements

Section 8 of the Operating Licence requires Sydney Water to comply with specific water conservation and demand management objectives. This is to ensure that Sydney Water achieves appropriate water demand reduction targets and implements water re-use to reduce the growth in total demand for potable water from catchment sources managed by Sydney Catchment Authority (SCA).

Section 8 specifically addresses the following aspects of water conservation and demand management. Achievements must be reported each year.

Water Conservation Targets

Sydney Water must act to reduce water consumption to specified conservation target levels over the next six years. Assessment of compliance with these targets must consider effects of weather on water usage and annual averages. Progress in meeting these targets must be reported annually.

Demand Management Strategy

Sydney Water must give priority consideration to demand side management in the provision of services. Sydney Water must produce an annual Demand Management Strategy Implementation Report on activities over the previous 12 months.

Reducing Discharges

Sydney Water must take action to re-use, intercept or otherwise prevent wastewater from discharging to the ocean, waterways and other waters “by way of non-potable reuse”.

Water Conservation Rating and Labelling

Sydney Water must encourage manufacturers of water appliances to improve the water use efficiency of these appliances.



8.3 Details of compliance

Table 8.1 Water Conservation and Demand Management – Part 10 Licence Clauses

Clause	Requirement	Compliance	Findings
10.2	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:	No requirement	
	e) Compliance by Sydney Water with the water conservation targets under Clause 8.1.1.	No requirement.	<p>There is no compliance requirement against this clause, other than assessment of 'performance'.</p> <p>The water conservation targets are specified for an "<i>average year</i>". This is taken to mean climate-corrected with no water restrictions in place.</p> <p>Sydney Water did not achieve the 2004/05 target for water use based on this definition. Also, Sydney Water's projection for the outcome of its current demand management program suggests significant uncertainty regarding achievement of the 2010/11 target. The total expenditure (CAPEX plus OPEX) over 2004/05 to 2010/11 is estimated at around \$212m to gain an extra 101,000 ML/yr saving. Again, no direct comparison of demand management costs against the cost of new supply options has been provided to confirm the cost-effectiveness of this expenditure.</p> <p>See Table 8.2 for further information.</p>

**Table 8.1 Water Conservation and Demand Management – Part 10 Licence Clauses**

Clause	Requirement	Compliance	Findings
	f) Sydney Water's performance in relation to implementation of the demand management strategy under Clause 8.2.	No requirement	<p>There is no compliance requirement against this clause, as it requires an assessment of 'performance' rather than 'compliance'.</p> <p>Sydney Water has developed a comprehensive, well-defined demand management program that is obtaining measurable reduction in water consumption and is concentrating on activities that are in most cases value for money. Leakage reduction, EDC Business programs, Residential Indoor retrofits and the Rouse Hill recycling scheme are all producing good results. Pressure reduction as a means to reduce leaks and demand is also showing promise. Sydney Water is also completing good research to understand water use in home units. The <i>Water Conservation & Recycling Implementation Report</i> has become a well organised and accurate summary of activities. However, the overall recycling program is only progressing slowly. Also, accuracy of estimates for leakage reduction, residential outdoor and impact of water efficient washing machines remains uncertain. That is, progress is slow on installing additional zone water meters and on creating smaller pressure zones. Also, a means to track where water efficient washing machines are installed, so that before and after impacts on actual household water use can be assessed, has not been developed.</p> <p>Concern is expressed regarding lack of access to key documents marked "Cabinet in Confidence" that give details on Sydney Water's contribution to demand management/ reuse activities associated with the Metropolitan Water Plan (for example, levelised cost-benefit assessments of existing and proposed new programs relative to new supply options).</p>
	g) Progress by Sydney Water in meeting the reuse targets required under Clause 8.3.1.	No requirement	<p>There is no compliance requirement against this clause, as it requires an assessment of 'performance' rather than 'compliance'.</p> <p>Reuse at sewage treatment plants did not increase. Only Liverpool Golf Course was added, increasing potable water savings by 24 ML/yr.</p> <p>At Rouse Hill an additional 975 houses were connected delivering an additional long term average potable water saving of about 33 ML/yr. Total recycled water for the year was 1,370 ML/yr plus 298 ML/yr top up with potable water. This compares with 1,338 ML/yr recycled water plus 487 ML/yr top up with potable water in 2003/04.</p> <p>New recycling targets for potable water replacement is one option to encourage greater development in this important activity.</p>

**Table 8.1 Water Conservation and Demand Management – Part 10 Licence Clauses**

Clause	Requirement	Compliance	Findings
	h) Progress by Sydney Water in relation to the implementation of the National Water Conservation Rating and Labelling Scheme under Clause 8.4.1.	No requirement	<p>There is no compliance requirement against this clause, as it requires an assessment of 'performance' rather than 'compliance'.</p> <p>The <i>Water Efficiency Labelling and Standards Act 2005</i> came into force in April 2005 requiring mandatory water efficiency labelling for shower heads, washing machines, dishwashers, toilets, taps and urinals by July 2006. Sydney Water has developed a useful data set that demonstrates the water savings arising from water efficient washing machines.</p> <p>Domestic/ commercial air conditioning and industrial cooling towers, dishwashers and laundromats may be considered for WELS rating in the future.</p> <p>Budget for this program is included under "Program Management" for the overall Water Conservation & Recycling Program.</p>



Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses

Clause	Requirement	Compliance	Findings
8.1	Water Conservation Target		
8.1.1	Sydney Water must take action to reduce the quantity of water (other than re-use water) it draws from all sources to the following target levels ("water conservation targets"):		Further information that helps define these targets is found in Clause 8.1.2. Clause 8.1.2 requires the demand to be adjusted for " <i>the effects of weather on water usage</i> " and " <i>for an average year</i> ". The Auditor has undertaken the compliance assessment based on the adjusted per capita demand value (that is, the estimated value for an average climate year with impacts of water restrictions removed) compared with the target of 364 litres per capita per day (Lcd). The only exception would be if permanent restrictions were part of Sydney Water's current water conservation program. This was not the case in 2004/05.
	a) 364 litres per capita per day by 2004/5 (being a reduction of 142 litres per capita per day or 28% from the 1990/1991 baseline).	Low compliance	Sydney Water has estimated that its 2004/05 unrestricted average per capita demand was 403 Lcd compared to the Licence target of 364 Lcd. This shortfall is also documented in Sydney Water's <i>Water Conservation & Recycling Implementation Report 2004-05</i> (Executive Summary and Section 1.2.4 and 3.1.2) and <i>ESD Indicators and Environment Plan Report</i> (Objective 1, Action 1.1).
	b) 329 litres per capita per day by 2010/2011 (being a reduction of 177 litres per capita per day or 35% from the 1990/1991 baseline).	Moderate compliance	(Note: Sydney Water's actual consumption figure in 2004/05 was 342 Lcd, which is below the 2004/05 water conservation target of 364 Lcd. However, this consumption was not achieved under an <i>average year</i> , as required by Clause 8.1.2, but rather through the mandatory restrictions set in place over that year as a result of the drought. Sydney Water estimates the unrestricted consumption to be 403 Lcd, which exceeds the 364 Lcd target).
	c) Such target level for 2014/2015 as determined as part of the Mid term review of this Licence conducted under Clause 2.3.1.	Moderate compliance	Compliance against Clause 8.1.1 does not simply require assessment against a target being met but also requires an assessment of the actions taken, " <i>to reduce the quantity of water... it draws from all sources...</i> ". In regard to the actions taken, Sydney Water established a water conservation program in 1999 (then expected to cost some \$50M). Sydney Water has provided the Auditor with additional information on the actions taken to achieve this target.

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
			<p>Progress by Sydney Water on meeting individual program water savings and expenditure targets for 2004/05 was marked by:</p> <ul style="list-style-type: none">▶ Greater than expected uptake of rainwater tanks with over double the planned number of rebates;▶ Excellent outcome for the residual indoor retrofit program with about 35% greater than planned water savings for the year;▶ Poor outcome for the recycling programs with significantly lower than expected number of houses connected at Rouse Hill and failure to start recycling at Blue Scope Steel; and▶ Over 50% lower than expected savings from the leakage reduction program in spite of inspecting 14% more kilometres of mains than planned.▶ The 42 ML/yr savings attributed to Residential Outdoor programs has a significantly improved basis for calculation.▶ Rouse Hill metering shows toilet and outdoor use is around 40% and compared favourably with the assumption of 35-40% used in Sydney Water's End Use model.▶ A pilot study by Sydney Water of the possible driving factors for outdoor water usage has been completed showing weak correlations between garden and lawn areas and estimated outdoor water use. It also identified a number of key areas for achieving water savings (for example, mulching and reduction in landscaped green areas).

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
			<p>The Residential Outdoor programs have significant scope to save substantial amounts of water, as illustrated by the impact on demand of Stage 2 restrictions on 1 June 2004.</p> <p>(It is noted that estimated gains attributed to installation of rainwater tanks are based on average rainfall over the past 19 years. However, unlike many other demand management programs that are relatively insensitive to drought conditions, savings due to rainwater tanks would be significantly lower in dry compared to wet years due to much lower rainfall. A long-term study of actual households before and after installation of a tank is needed).</p> <p>Despite these water conservation actions, modeling has indicated that the 2004/05 target for reduced water use (of 364 Lcd) would not have been achieved without mandatory water restrictions. Thus, there is a continuing long term supply-demand imbalance.</p> <p>It is also considered unlikely that, at current rates of water conservation, the 2010/11 target will be met, unless optimistic assumptions are made.</p> <p>Over the past 5 audit years <i>'partial/moderate compliance'</i> has been assigned for Clause 8.1.1 based on the "actions" undertaken to achieve these targets. Consistently, these audit reports have foreshadowed the 2004/05 target was unlikely to be achieved. The audit has confirmed Sydney Water's modeling that, without mandatory water restrictions, the 2004/05 target would not have been met. To address this shortfall, it is recommended that IPART institute, through Ministerial Requirements:</p> <ul style="list-style-type: none">▶ An intermediate 2007/08 water conservation target and pro rata annual targets (from the 2004/05 unrestricted consumption of 403 Lcd to the 329 Lcd target by 2010/11);▶ Mandatory reuse targets; and▶ The requirement to report annual performance against these annual targets and a penalty regime if the (pro rata annual) targets are not achieved.



Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses

Clause	Requirement	Compliance	Findings
8.1.2	<p>The following principles and parameters must be applied by Sydney Water in assessing compliance within water conservation targets:</p> <ul style="list-style-type: none"> a) assessment of performance against water conservation targets is to be adjusted for effects of weather on water usage. b) the water conservation targets in Clause 8.1.1 are for an average year. 	No requirement	<p>Sydney Water uses a model based on seasonal decomposition and regression analysis to forecast a "climate corrected" annual. It does not factor out restrictions and estimates demand at 342 Lcd (525,893 ML/yr) for 2004/05. If restrictions are removed, Sydney Water estimates that the climate-adjusted unrestricted demand would have been 403 Lcd (620,000 ML/yr) for 2004/05.</p> <p>The estimated increase in demand due to lifting of restrictions is based on a relatively simplistic comparison with seasonalised 10 year average demand and allowance for current accumulated demand management savings.</p>
8.2	Demand Management Strategy		
8.2.1	In this clause: Demand Management Strategy means the 1995 Demand Management Strategy updated from time to time by Sydney Water or as required by the Minister.	No requirement	
8.2.2	Sydney Water must give priority consideration to demand side management as the basis for planning the future provision of its services, including addressing unaccounted water losses.	High compliance	<p>The release of the Metropolitan Water Plan (October 2004) provides a clear government level endorsement of the importance of demand side management for future water resource planning for Sydney. Sydney Water has contributed to the development of this Plan.</p> <p>Sydney Water also uses an adaptive management process that is well defined and has modelling approaches that identify best options in cost and non cost terms, possible interactions between options that need to be accounted for and, recently, level of uncertainty forecasts for demand projections.</p> <p>However, the uncertainty forecasts are simple plus/ minus estimates that are usually only judgement-based. Quantifying the uncertainty has only been tried for residential retrofits.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
			<p>Comparison of planned works against delivered works for 2004/05 shows:</p> <ul style="list-style-type: none">Water savings of 7,475 ML/yr were delivered compared to 11,354 ML/yr planned; andActual expenditure of \$28.55M compared to \$22.66M planned. <p>While it is recognised that drought impacts and delays with Blue Scope Steel reuse are the main reasons for this lower than expected water savings and are largely beyond the control of Sydney Water, similar events are likely to emerge in the future. Also the external review of some of the future demand savings projections, and the likely band of uncertainty associated with them, suggests Sydney Water's projection to 2010/11 could easily be 17% higher than what will actually occur.</p> <p>Particular areas where lower than forecast outcomes are likely are recycling, BASIX and outdoor residential programs.</p> <p>Detailed evaluation by the Auditor of the assumptions used and outcomes of cost-benefit evaluations over 2004/05 for future demand management options was impeded by the fact that key options assessment details are currently "Cabinet in Confidence".</p> <p>Sydney Water has provided good evidence that after 4 years no significant decay of water savings from residential retrofits has occurred. Sydney Water continues to include relatively conservative decay rates in its projections for leakage reduction. However, there has been little progression installing extra flow meters and reducing pressure zone size that would help validate actual leakage reduction values.</p> <p>Surveys to help confirm assumptions about the uptake of water saving devices have been carried out. However, the back up work to identify 'in the house' savings for devices other than EDC-targeted retrofits has been slow to develop. For example, no substantial assessment of actual impact of rainwater tanks or washing machines in Sydney households has commenced.</p> <p>Research aimed at better understanding whether there is an upper limit to customer acceptance of voluntary demand management activities has not commenced.</p> <p>Based on inability to check the assumptions of the Metro Water Plan, relatively lower than expected outcomes on increased water savings but higher than planned costs and uncertainty about future water saving projections, a High compliance rating has been given.</p>

Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses

Clause	Requirement	Compliance	Findings
8.2.3	By no later than 1 September each year, Sydney Water must provide a report ("the Demand Management Strategy Implementation Report") to the Licence Regulator on implementation of Sydney Water's Demand Management Strategy for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.	Full compliance	<p>A <i>Water Conservation and Recycling Implementation (WC&RI)</i> Report that represents Sydney Water's obligation under this clause was delivered by 1 September 2005. It provided an excellent summary of progress. It would be improved by inclusion of more reference to support documents that validate key statements (for example the difference between observed demand of 343 Lcd and climate adjusted demand of 403 Lcd).</p> <p>Sydney Water has further improved the timetable and responsibilities matrix to ensure the WC&RI Report is delivered on time and contains accurate information. Sydney Water has demonstrated a high level of commitment to answering all audit questions and providing background documents where possible.</p> <p>However, the recycled water section does not make it clear that the only real increase in use of recycled water for potable water replacement during 2004/05 was Liverpool Golf Course at 24 ML/yr.</p> <p>The lack of written explanation of Figure 14 (Supply Demand Balance) and of reasons for apparent lack of work Sydney Water is doing with SCA to develop performance measures for water reliability was a weakness.</p>
8.2.4	<p>The Demand Management Strategy Implementation Report is to:</p> <p>a) Contain an estimate of past, current and projected water uses and distinguish between residential, industrial, commercial and government uses.</p>	Full compliance	<p>A Full compliance has been awarded as the report contains the history of annual water demand for each use for the period 1991 to 2005. While demand per account has generally decreased, the observed reduction in 2004/05 is mainly due to restrictions for residential and commercial sectors. A change in definition of Government and institutional properties explains why the step reduction in 2004 industrial consumption per property occurred.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	b) Describe the frequency and magnitude of expected supply deficiencies, including those arising as a result of wastage or loss, drought or emergency.	Moderate compliance	<p>Again concern is expressed by the Auditor regarding the perceived lack of cooperative efforts between SCA and Sydney Water during 2004/05 on improving the understanding of the impacts of demand management activities on frequency and magnitude of supply deficiencies arising from drought. An interagency modelling group has been in place since April 2002. However, no evidence has been provided to the Auditor that demonstrates work by this group related to this aspect of the Licence. The Auditor interprets this clause to mean cooperative work between SCA and Sydney Water to improve the accuracy of the WATHNET model in its estimation of 'safe yield'. Previous work looking at what happens to 'safe yield' when normal climate driven changes in demand and/or less reduction in demand occurs during restrictions (in response to demand management activities reducing this discretionary water saving) suggests 'safe yield' could drop from 600 GL/yr to 580 GL/yr. If true, this would have a significant impact on overall security of supply given the unrestricted demand is currently estimated at 620 GL/yr.</p> <p>Sydney Water continues to complete good social research into customer attitudes to supply deficiency arising from drought. There is broad acceptance of the importance of restrictions on demand for water and that some permanent restrictions should be imposed. However, a significant proportion of customers, particularly if they are prevented from watering their garden between 8am and 8pm, would resent tougher restrictions. The services provided by Sydney Water are considered by 80% of respondents to be good to very good value for money. Overall trust in Sydney Water is displaying a downward trend from 7.2 out of 10 in 2003 to 6.7 out of 10 in 2005, in part due to a perceived lack of forward planning.</p> <p>These outcomes must, however, be viewed in the context of concern about the current drought and low water levels in dams. Different responses may occur after the dams recover.</p> <p>Based on the lack of evidence of relevant cooperative efforts by Sydney Water and SCA during 2004/05, but good preliminary work by Sydney Water on relevant social research, a Moderate compliance has been awarded.</p>
	c) Identify conservation measures currently adopted and being practiced.	Full compliance	<p>The WC&RI Report describes the currently adopted and practiced measures and further information validates the reasonableness of performance and practice. Hence a Full compliance rating has been awarded.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	d) Describe, cost and evaluate additional conservation measures (In this context, additional conservation measures are taken to mean new measures not currently implemented or planned in 2004/05).	Insufficient information	<p>New conservation programs added into the WC&RI report for 2004/05 included Retrofix, ORICA treated groundwater recycling and DIY water saving kits.</p> <p>Total expenditure by 2010/11 for all projects, since commencement of the Demand Management & Recycling Program in 1998/99, is estimated at approximately \$395M to achieve a cumulative water saving of about 158,325 ML/yr. Of this cost, the long term annual costs are likely to be in the range \$21 to \$22M per year based on the forecast program.</p> <p>Written reports or details of levelised cost-benefit assessments for various new supply measures, to confirm the overall cost effectiveness of the planned Demand Management & Recycling program, could not be assessed due to Cabinet-in-Confidence status.</p> <p>The levelised cost details are uncertain. For example, the analysis for Rouse Hill (Stage 3) is based on a new residential dwelling reuse demand of 366 L/dwelling/day whereas the WC&RI report says it is 320 L/dwelling/day and other detailed summaries suggest 310 L/dwelling/day.</p> <p>It is also noted that during 2004/05 recycled water was only about 250 L/dwelling/day in the Rouse Hill reuse area, probably due to voluntary response to restrictions.</p> <p>An Insufficient information rating has been awarded due to insufficient information and uncertainties regarding levelised cost-benefit analysis.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	e) Describe future plans for water reclamation and strategies to alter water use practices, including those relating to the installation of more efficient water appliances and devices by users.	High compliance	<p>Sydney Water is preparing a Metropolitan Strategy: Recycled Water that is likely to go to Government in October 2005. The WC&RI report for 2004/05 documents only one additional possible future STP recycling project at Bondi compared to the 2003/04 WC&RI report. Additional stages of the Rouse Hill recycling project are now defined. The new Recycling Strategy to be implemented in 2008/09 is quoted to deliver 13.62 GL/yr savings by 2010/11.</p> <p>A major augmentation of the Rouse Hill Sewage Treatment Plant has been considered by Sydney Water's Board, but has yet to be approved. The Hoxton Park servicing strategy has been noted by the Sydney Water Board. Background papers for the Recycling Strategy identify 15 possible recycling schemes that could generate up to 22.9 GL/yr potable water savings. Of these, five are priority schemes with total possible water savings of 11.1 GL/yr.</p> <p>Little progress has been made since the previous year on recycling opportunity planning in terms of detailed market evaluation, resolution of pricing and agreement on standards for water quality for specific markets.</p> <p>Sydney Water has commenced surveys of customers to understand and provide ideas to overcome resistance to installation of water-efficient appliances.</p> <p>Detailed survey information provided to the Auditor to date has not specifically addressed the problem of the extent or means to overcome customer resistance to residential retrofits (for example, shower heads, tap aerators, front loading AAA washing machines). It is also noted that until this year it appears no work has been initiated on other water appliances, such as residential and commercial air conditioners.</p> <p>There is reasonable progress on future plans. However, due to the lack of detail and slow progress on water reclamation practices, including investigation of other water appliances, a High compliance was given.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	f) Evaluate these plans in terms of their cost and contrast with the cost of alternative water supplies.	Moderate compliance	<p>Assessment of sampled detailed calculations for levelised cost/benefit for rainwater tanks, Rouse Hill Stage 3, Outdoor Education and Blue Scope Steel indicated some mismatches with other information provided to the Auditor. For example, the utility and customer levelised cost/benefit in the WC&RI for rainwater tanks is quoted as 90 c/kL and 65 c/kL respectively, whereas detailed spreadsheets show 69 c/kL and 385 c/kL respectively. Similarly, assumed recycled water values for Rouse Hill Stage 3 of 366 Litre/dwelling/day are not consistent with Attachment A in the WC&RI, which quotes 320 Litre/dwelling/day. A detailed independent review of its End Use model is underway but is only at a preliminary stage.</p> <p>It also remains questionable as to why rainwater tanks continue to be included in the program at considerable cost given they have the highest levelised cost and the claimed savings based on average rainfall is unrealistic.</p> <p>Details of levelised cost/benefit for comparison with alternative water supplies have not been provided. It is unclear to what extent Sydney Water has carried out the required comparisons with alternative water supply options. There is also no detail provided on the non-economic comparison of options. The published summary of the Metropolitan Water Plan does not provide this comparison of options.</p> <p>For these reasons, a Moderate compliance was awarded.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	g) Prioritise and schedule the implementation of courses of action found to be cost effective.	Insufficient information	<p>The Metropolitan Water Plan indicates a good level of cooperation exists between relevant authorities and an integrated and prioritised plan for balancing supply, demand and environment is evident.</p> <p>However, it remains unclear what Sydney Water's input was to this Plan as written reports on the Sydney Water basis for prioritising programs and external review papers are Cabinet in Confidence.</p> <p>Details have not been provided on how Sydney Water's conservation program for 2005 to 2011 was constructed using levelised cost/benefit, non-economic evaluation criteria and its adaptive management strategy.</p> <p>The maximum and minimum projections for future demand projects are not based on a 'scenario' type assessment. They are based on judgements about the percent uncertainty for each element listed in the overall Conservation and Recycling Program. Uncertainty is estimated by Sydney Water at about $\pm 33\%$. Independent assessment by external reviewers suggests Sydney Water's uncertainty estimates are generally too small.</p> <p>Based on lack of information regarding how Sydney Water has used its adaptive management process and considered levelised cost/benefit and non-economic evaluation criteria to establish its current version of the future Conservation Program, an Insufficient information rating has been given.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
	h) Identify strategies for reducing Unaccounted water losses.	High compliance	<p>Sydney Water has significantly ramped up its leakage detection and repair program from around \$1.7M in 2002/03 to about \$2.46M in 2004/05. The average time to repair leaks has also dropped from 40 days in 2002/03 to 12 days in 2004/05. Inspection of over 7,988km of water mains occurred in 2004/05. However, significantly lower than expected leakage gains were achieved at 1,825 ML/yr instead of 3,832 ML/yr.</p> <p>During 2005/06, up to 18,000 km/yr of the length of mains inspected for leaks will occur (\$5.5M).</p> <p>No research work to improve methods of detection and repair is noted in the WC&RI report. It is noted that no leakage reductions were calculated from Minimum Night Flow (MNF) records using flow meters and level changes in tanks during 2004/05. All leakage gains were estimates from visual inspection. The proposed additional flow meters and divide valves needed have yet to be installed. It is also noted that it is uncertain what the leakage reduction is due to repairs inside residential and DoH houses as part of the retrofit of new showerheads etc.</p> <p>Overall there is an increased focus on reducing unaccounted water. However concern is raised about the lack of evidence of a reasonable level of investigation towards improved methods of detection, measurement of leaks and limited Sydney Water staff resources to audit contractors. Improvement in these areas is needed to drive efficient targeting of inspection/ repair and accurate estimation of leakage reductions. For these reasons only a High compliance is awarded.</p>
8.2.5	Sydney Water must engage a suitably qualified third party to verify the accuracy and soundness of its mathematical models for water usage and report the results to the Licence Regulator within 1 month after the commencement date.	Full compliance	Completed in March 2000. The review by external reviewers (for the Metropolitan Water Plan) represents a relatively complete third party audit.

Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses

Clause	Requirement	Compliance	Findings
8.3	Reducing Discharges		
8.3.1	Sydney Water must take action to re-use, intercept or otherwise prevent from discharge into the ocean, waterways and other waters, sewage or effluent of customers and consumers by way of non-potable re-use. Sydney Water is to meet the targets set by the Minister from time to time.	Moderate compliance	<p>Significant delays continue to occur in implementation of Sydney Water's recycling projects to prevent discharge to the water environment <i>"by way of non potable reuse"</i>. Total potable water saved via non-potable water reuse in STP's operational procedures dropped marginally in 2004/05 compared to 2003/04 due to dry conditions and no new reuse schemes at STPs. Sydney Water has not developed a climate correction model to help define an <i>"average climate year"</i> effluent reuse value. The Blue Scope Steel project has yet to be commissioned.</p> <p>The recycled water projects for 2005 to 2011 aimed at reducing drinking water consumption have a total estimated cost (CAPEX & OPEX) of about \$100M to generate a saving of about 28,070 ML/yr.</p> <p>Sydney Water is developing a Metropolitan Strategy: Recycled Water due to go to Cabinet in October 2005 (Cabinet in Confidence). The strategy identifies potential projects and barriers to implementation (for example, no guidelines for on site greywater reuse). Water quality risks were not considered in this strategy. Of nine projects, Sydney Water has talked to potential customers for three of them. Also, no detailed market assessments have been completed. However, a preliminary assessment of water quality requirements for common industrial applications and of local potential customers has been completed. Customer surveys indicate water quality requirements tend to be very specific and/or default to a drinking water standard.</p> <p>As recycled water consumption for non-potable uses increases, it is important to ensure risk of accidental cross connections and/or mistaken consumption as drinking water is avoided. Sydney Water has Standard Operating Procedures and multiple barrier treatment that aim to prevent such risks at Rouse Hill.</p> <p>Sydney Water has committed to Rouse Hill Stage 2 augmentation at an estimated cost to 2010 of \$77.4M for treatment. However, this cost does not appear to be included in Sydney Water's Demand Management and Recycling program summary in the WC&RI report.</p> <p>A Moderate compliance is assigned, as it is the Auditors view that progress has been slow given the recycling program commenced 5 years ago for schemes aimed at recycling <i>"by way of non-potable reuse"</i> and only a small amount of the forecast water savings proposed in earlier years has actually been delivered. This may not reflect the effort applied but rather is based on the reasonableness of the outcomes achieved.</p>

**Table 8.2 Water Conservation and Demand Management – Part 8 Licence Clauses**

Clause	Requirement	Compliance	Findings
8.4	Water Conservation Rating and Labelling		
8.4.1	Sydney Water, through continuing support for the National Water Conservation Rating and Labelling Scheme, is to encourage manufacturers of water appliances to improve the water use efficiency of these appliances where consistent with Sydney Water's objectives.	Full compliance	<p>There has been substantial progress in this area with the Water Efficiency Labelling Scheme (WELS) Act being passed and the BASIX scheme being implemented in NSW. Sydney Water is the WSAA representative on the WELS implementation Ministerial Advisory Committee. There is also good evidence of market penetration of most water-efficient appliances.</p> <p>The WELS program has commenced consideration of new appliances not yet given a water efficiency rating, such as residential and commercial air conditioners. Tracking of washing machine installations has commenced and work to avoid 'double counting' of water savings in other programs (eg: BASIX) has been initiated.</p> <p>A Full compliance rating has been given.</p>

**Table 8.3 Water Conservation and Demand Management – Ministerial Requirements**

ID	Requirement	Compliance	Findings
M1	Demand management <i>"I endorse the auditor's recommendation that Sydney Water seeks to expedite the completion of retrofits for the Department of Housing properties. I require Sydney Water to provide reports to me and the Tribunal on progress in expediting these proposed retrofits by no later than 1 September 2005."</i>	Full compliance	<p>Sydney Water is now planning to complete DoH retrofits within two years and obtain DoH contributions later, as water savings are achieved. Cost is around \$1.5M.</p> <p>The expected savings are greater than for residential retrofits but Sydney Water has planned a study (2006/07) to assess actual savings. For the moment, a conservative view has been taken with savings per household the same as for residential houses. Progress to date is 7,831 retrofits against a planned 12,000.</p> <p>The WC&RI report contains a summary of progress on DoH retrofits and was delivered by 1 September 2005.</p> <p>A Full compliance rating is given as good progress has been achieved after a long delay in commencement.</p>
M2	<i>"I support in principle the Tribunal's recommendation that Sydney Water expedite the program to install regional meters to measure leakage."</i>	High compliance	<p>To date, approval and construction work has commenced on installation of 68 flowmeters (including 30 renewals) over the next 2 years to monitor minimum night flows at a cost of about \$10.4M. The work will raise the ability to undertake leakage trend analysis on current supply zones from 30% to 75%. Based on success of this first stage, Sydney Water proposes a total of 480 flow meters at an investment of \$69M over 4 years.</p> <p>Significant progress has occurred over 2004/05, however to date none of the new flowmeters have been installed. A High compliance rating is therefore awarded.</p>

Table 8.3 Water Conservation and Demand Management – Ministerial Requirements

ID	Requirement	Compliance	Findings
SPS2	'I require Sydney Water to work with the Sydney Catchment Authority with a view to develop performance measures for water reliability for further consideration at the end of term review of both Operating Licences'.	Moderate compliance	<p>Sydney Water and SCA are members of the Interagency Modelling Group established by DIPNR in 2002. Previously its focus has been on Hawkesbury-Nepean River Management Forum Work. Also both authorities are members of the Water CEO's, where it was recently noted that the Modelling Group <i>"will be critical in assisting development of the Water Sharing Plan for the Sydney/Hawkesbury/Nepean, including links with the Shoalhaven, for which a robust modelling process is needed"</i> and hence needs a redrafted terms of reference.</p> <p>The current proposed work program relevant to SPS2 includes documenting WATHNET, understanding the interaction of water supply security and demand management and a new safe yield calculation. However, the last two activities only have a medium priority.</p> <p>The WATHNET model remains the main way to test alternative performance measures. Hence, an accurate WATHNET model is essential.</p> <p>To date, there is no evidence provided to the Auditor that, over 2004/05, Sydney Water has worked with SCA to improve WATHNET to ensure realistic seasonal demand patterns, restriction impacts that take into account demand management impacts and that there is accurate understanding of both water transfer limitations between demand centres and the size of demand centres.</p> <p>In the WC&RI report a Supply-Demand balance projection (Figure 14) has been inserted, however, there is no explanation of the meaning of this complex diagram.</p> <p>Sydney Water has assessed the impact of restrictions (Level 1, 2 & 3) over 2002-2004 in the WC&RI:</p> <ul style="list-style-type: none"> ▀ About 8% reduction occurred for Level 1; ▀ About 20% reduction occurred for Level 2; and ▀ It is too early to tell the impact of Level 3. <p>The finding may have significant impact on calculated water reliability using WATHNET as this model assumes 7% reduction for Level 1 restrictions and 12% reduction for Level 2 restrictions.</p> <p>Based on evidence of work being done by Sydney Water relevant to WATHNET related topics listed above, but no evidence of Sydney Water and the SCA working together on improving understanding of performance measures for water reliability, a Moderate compliance rating has been given.</p>

8.4 Discussion

8.4.1 Overview

This audit has considered information provided by Sydney Water in the *Water Conservation and Recycling Implementation* (WC&RI) Report and supplementary information documents arising from the audit interviews and relevant information from Sydney Water.

8.4.2 Compliance with Water Conservation Targets defined in Clause 8.1.1 and 8.1.2 of the Operating Licence

These clauses of the Operating Licence refer to targets for “per capita demand” for the drinking water distribution system managed by Sydney Water. The per capita demand is calculated by dividing the volume of water supplied into this distribution system by the total population receiving this water. Corrections to the volume need to be made if restrictions are in place and if the climate during the year is considered to be wet or dry. The objective is to estimate what the volume would have been for an *average year* when restrictions are not in force.

Guidance on this definition of “per capita demand” for which targets are established in Clause 8.1.1 of the Operating Licence is provided in Clause 8.1.2. In Clause 8.1.1 the target is defined for the “*quantity of water drawn from all sources*” (excluding re use water) and Clause 8.1.2 says this quantity of water is to be “*adjusted for the effects of weather*” and is to be for an “*average year*”. This has been interpreted by the Auditor to mean that each year the actual demand that occurs must be adjusted to firstly, exclude the impact of water restrictions, and secondly, to be adjusted to account for the impact of a dry climate year or a wet climate year. The climate adjustment is mainly based on whether the rainfall and air temperatures throughout the year were “*average*” or not. The reason why the effect of water restrictions is excluded is that this action is not part of Sydney Water’s Demand Management program and restrictions only impact on water consumption during very dry climate sequences of years when the volume of water in storages drops below a preset trigger level. In reality, these trigger values (for imposing and lifting of restrictions, the targets for reduction in demand when restrictions are applied and the resultant overall impact on supply security) are primarily a responsibility of SCA with assistance of Sydney Water only in terms of measuring whether the required reductions occurred. Regarding the second issue of wet and dry years, climate adjustment means that the actual volume supplied is reduced in dry years and increased in wet years to create the average year per capita demand figure.

Each year Sydney Water compares the estimated actual average per capita demand against a forecast of desired year-by-year values after the impact of its future Water Conservation Program and expected growth in the number of people supplied is included. Over the past five audit years, the actual average per capita demand has been above the forecast values required to achieve the targets for 2004/05, 2010/11 and 2014/15 specified in the Licence. Prior to 2004/05, there were no specified per capita targets in the Operating Licence and, as such, the Auditor rated compliance for these years based on “*actions taken by SWC to reduce the quantity of water*”.

For 2004/05, a milestone target for water demand (364 litres per capita per day) is contained in the Operating Licence. Hence both “*actions taken*” by Sydney Water and whether Sydney Water achieved the milestone value were considered in this year’s Audit.

The methodology used by Sydney Water to establish the estimated average demand that is to be compared against the Licence target for 2004/05 is covered in section 3.1.2 of the *Water Conservation & Recycling Implementation Report 2004-2005*. On pages 59 and 6 of this Report it, respectively states:

"Under average climate conditions without the influence of water restrictions, it is estimated that per capita demand (in 2004/05) would have been approximately 39 Lcd above the operating licence target level." and

"The programs implemented as part of the strategy have saved approximately 34.5 GL/year. This represents a 20 percent reduction in per capita water use during the period June 1991 to June 2005, lower than the 28 percent per capita water use reduction required in the Operating Licence".

8.4.3 Cost, Accuracy and Sustainability of Leakage Reduction

The main opportunity for improvements include pressure reduction by installing about 350 Pressure Reduction Valves, reducing pressure zone size, installing extra flow meters and divide valves to permit monitoring of Minimum Night Flows and undertake zone pressure reduction work. Observed differences in leakage rates and in times for original levels of leakage to return (3 to 20 years) occur across Sydney; these reductions in zone size and more flow meters, etc, will help target the right areas and define the best return frequencies for inspection for leaks.

8.4.4 Recycling Activities

Key areas of concern continue to be lack of progress on implementing new schemes of recycling for potable water replacement and lack of detail provided on potential customers and their requirements.

It was noted that Sydney Water has well developed Standard Operating Procedures and Forms to minimise the risk of cross connection. It also regularly replaces the filter membranes at its microfiltration plant in response to best practice methods of detection of risk of failure of the microfiltration membrane. Also, a well-defined and suitable multi barrier treatment process is in place. It is important to maintain good practices in treatment for recycled water as a major contamination incident could cause shutdown of a reuse scheme and hence reduction of the amount of reuse water for non-potable replacement. Performance is further discussed in Part 6.7 of this Audit report.

8.4.5 Performance Measures for Water Reliability

Progress in this area over 2004/05 has again been minimal. However DIPNR may refocus the interagency modelling group to better coordinate reliability related studies. The main vehicle for assessing alternative performance reliability criteria for water supply is the WATHNET model. A focus on ensuring that the WATHNET model used to assess different performance measures is as accurate as possible on the demand side and on assessing the demand side implications of changes to water reliability measures is an important task. The Metropolitan Water Plan does not discuss performance measures for water reliability that underpin the concept of "safe yield" and which are the basis for balancing supply and demand.

8.4.6 Prioritising of Water Conservation and Reuse Programs and Cost Allocations

The accuracy of levelised cost/benefit assessments continues to remain uncertain as a number of mistakes were evident in the small sample reviewed. It is also unknown what work Sydney Water completed in terms of levelised cost/benefit and non-economic analysis of options to help establish

priorities in the Metropolitan Water Plan. Of particular interest is Sydney Water's work on comparison of new supply options with demand management programs. Finally, there appears to be a mismatch between levelised cost/benefit values quoted in the WC&RI report and those actually in the working End Use Model for some programs (for example, rain water tanks).

8.4.7 Climate Adjustment of Demand and Demand Management Estimates

Sydney Water has developed an agreed and sound method to define the climate adjusted unrestricted demand. The resultant demand figure does not include "demand management" impacts. The final demand figure is estimated by simply deducting the estimated demand management savings from this figure. The unrestricted average demand for 2004/05 was 423 Lcd and the estimated demand management impact was 20 Lcd giving an estimated average climate adjusted demand for 2004/05 of 403 Lcd (620,000ML/year).

8.4.8 Customer Acceptance of Demand and Demand Projections

There continues to be evidence that, at present, customers accept demand management (viz water restrictions) as acceptable (and that they are continuing to receive value for money). However, more severe restrictions on garden watering (say only before 8am or after 8pm) would be seen by many to be unreasonable.

8.5 Factors Affecting Compliance

The key factors of concern are the lack of action on developing new reuse schemes and uncertainty regarding Sydney Water's capacity to achieve the required interagency cooperation and customer participation to ensure all proposed reuse and demand management programs are delivered on time and achieve target potable water reductions (for example, Department of Housing retrofits program delays). This could be a growing problem as the number of schemes (for example, BASIX) requiring interagency cooperation is increasing.

There is also growing potential for complex interactions between demand management and reuse programs and between demand management and regulatory actions (eg: pricing, restrictions). This complexity is illustrated by experience at Rouse Hill during 2004/05. In this area there was a reduction in reuse volume after implementation of mandatory water restrictions across Sydney. Although these water restrictions did not apply to the reuse water, this does not appear to have been clearly understood by people in the Rouse Hill area. In the future, resistance to achieving target reductions in water consumption when water restrictions are implemented may develop (that is, demand hardening) as outdoor demand management programs begin to work. The net result could be a deterioration in the 'yield' of the water supply managed by Sydney Catchment Authority.

8.6 Recommendations

8.6.1 Key recommendations

It is recommended that Sydney Water:

- R8.1 Reduce overall demand for water by increased focus on industrial and domestic reuse and industrial sewer mining options, including: identifying customers, establishing their requirements, removing regulatory barriers and completing feasibility studies.
- R8.2 Accelerate the flow meter and pressure zone divide valve and pressure reduction valve installation programs to enable more zones to be defined where accurate Minimum Night Flow measurements can be made.
- R8.3 Be required to comply with:
 - ▶ An intermediate 2007/08 water conservation target, and pro rata annual targets (from the 2004/05 unrestricted consumption of 403 Lcd to the 329 Lcd target by 2010/11);
 - ▶ Mandatory water reuse targets; and
 - ▶ Report annual performance against these annual targets to the Minister and IPART with a penalty regime if the (pro rata annual) targets are not achieved.

8.6.2 Secondary recommendations

It is recommended that Sydney Water:

- R8.4 Define more clearly the levelised cost-benefit and non-economic basis for choosing options.
- R8.5 Assist SCA in fine tuning the WATHNET model by, for example, including seasonal demand variations for wet and dry years and defining a more up to date model structure for the demand centres and the transfer links between them, and planned reduction in outdoor water uses.



9. Environment - indicators and plans

9.1 Summary of findings

▮ Environmental Indicators

Sydney Water obtained an overall **High compliance** for requirements relating to Environmental Indicators. Sydney Water prepared a public report that described its performance against most gazetted Environmental Indicators. Data collected over the last ten years was presented for most indicators. Some Environmental Indicators were not monitored or compiled during the audit period. The reporting and monitoring of Environmental Indicators in accordance with the Operating Licence remained problematic because of changes to monitoring required by other regulators in 2004 and earlier changes initiated by Sydney Water as far back as 1996. These matters have been resolved with the new Operating Licence issued on 1 July 2005.

Sydney Water demonstrated that the Effluent Knowledge and Management System (EKAMS) has maintained improvements in data reliability and quality control with increased efficiency.

Sydney Water's performance against each of the environmental indicators was variable. For some key indicators performance is continuing to improve. For example, over the last 10 years the concentrations of chemicals in ocean receiving waters were below ANZECC trigger levels and there has been an improvement in beach water quality. However, phosphorus load discharged to inland waterways increased by 33% during 2004/05.

▮ Ecologically Sustainable Development (ESD) Indicators

Sydney Water obtained **High compliance** for requirements relating to ESD Indicators, having prepared a clear report outlining performance against each indicator (the ESD Indicators and Environment Plan Report 2005). The performance of Sydney Water in relation to the ESD Indicators was diverse, with some indicators demonstrating high performance and others indicating a need for improved performance, especially in relation to larger programs.

Both the Environmental and ESD Indicators were the subject of the End of Term Review. This resulted in an amended set of Environmental Indicators required by the Operating Licence that commenced in July 2005 to better inform the community of Sydney Water's environmental performance.

▮ Environment Plan

Sydney Water's Environment Plan was adopted at the end of September 2000 and includes objectives for the five-year period to the end of 2005. For those targets due in the audit period or for those that had no specific timeframe attached, Sydney Water obtained **High compliance**, achieving most of the targets. The performance of Sydney Water against the Environment Plan was clearly presented in the ESD Indicators and Environment Plan Report 2005.

▮ Energy Management

Sydney Water achieved **Full compliance** over this audit period in regard to specific reduction in energy consumption.

► Botany Wetlands

High compliance has been assessed for Sydney Water in meeting its obligations for the Botany Wetlands. A discernable effort was evident by Sydney Water to improve its performance by addressing the need for a new Plan and to re-establish a Steering Committee (of “*other appropriate persons*”). The rate of progress, in this regard, can be increased. Sydney Water has continued to implement the site-specific programs (such as weed, carp, algal management) under the 1997 Plan of Management, although expenditures on some programs were reduced. The Plan is being implemented almost solely by Sydney Water and not “*in conjunction with other appropriate persons*” and the implementation of broader catchment programs (for example, *Landscape and Visual* and *Land Management*) has not been actioned, despite the plan being in its ninth year.

► Trade Waste Management

Sydney Water achieved **Full compliance** over this audit period in regard to meeting the objectives of the Trade Waste Policy.

9.2 Summary of requirements

This section of the audit report addresses the following clauses:

- 9.1 – Environmental Indicators;
- 9.2 – ESD Indicators;
- 9.3 – Environment Plan;
- 9.4 – Energy Management;
- 9.5 – Botany Wetlands; and
- 9.7 – Trade Waste.

In summary, Clauses 9.1 and 9.2 of the Operating Licence require Sydney Water to monitor and compile data on the ESD and Environmental Indicators, to report to the Licence Regulator by 1 September each year on its performance in relation to the indicators, and to make the report available to the public within one month of its receipt by the Licence Regulator.

Clause 9.3 required Sydney Water to prepare a five-year Environment Plan by 30 September 2000 involving public consultation. The Plan contains environmental strategies, endorses ESD principles and is recognised in business plans. The Plan sets targets using the environmental and ESD indicators, timeframes for achieving the targets and is available to the public. Sydney Water must also produce an annual report detailing progress on meeting the Plan as well as compliance with the targets and timetables.

Clause 9.4 requires Sydney Water to adopt energy reduction targets for buildings, identified in the NSW Government Energy Management Policy, and to report by 1 September each year to the Licence Regulator on its performance in relation to the targets.

Clause 9.5 requires Sydney Water to implement the Botany Wetlands Plan of Management, report on its compliance with the plan by 1 September each year and review the Plan in consultation with key government and non-government agencies.



Clause 9.7 requires Sydney Water to prepare a trade waste policy that contains objectives and performance indicators, and it must report by 1 September each year on its progress in satisfying the objectives and indicators.

This section of the audit also includes the reports on Sydney Water's performance and/or compliance in relation to the environmental indicators, the ESD indicators, the Environment Plan, energy management targets, Botany Wetlands Plan of Management and trade waste related objectives as required by Clause 10.2.1 of the Operating Licence.



9.3 Details of compliance

Table 9.1 Environment: Indicators and Plans – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2.1	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:		
(i)	Sydney Water's performance in relation to the environment indicators under Clause 9.1.	No requirement	<p><i>There is no compliance requirement against this clause, as the clause requires an assessment of 'performance' by the Auditor rather than 'compliance'.</i></p> <p>Sydney Water obtained High compliance for requirements in Part 9 of the Licence relating to the Environmental Indicators. Sydney Water's performance against the Environmental Indicators is presented in the <i>Environmental Indicators Compliance Report 2005</i> (EICR). The EICR contains commentary and summarised data in Volume 1 and presents the compiled monitoring data in Volume 2.</p> <p>Improvements in the reporting format were made in 2003/04 and were maintained during the 2004/05 period. The improvements included providing summaries of performance at the beginning of the report and for each section of the report. For each parameter monitored, the range of values as well as the mean is shown. These improvements assist the lay reader to interpret the report.</p> <p>The accuracy of the data in the EICR is 'independently' verified and this confirms a very high level of accuracy. This reflects the quality control procedures in place as part of the Waste Water Integrated Management System.</p> <p>The EICR is produced primarily to address regulatory requirements. The data it contains (not the report) are also used to assist in asset planning and management on a day-to-day basis.</p> <p>The EICR will be published on a CD-ROM in the Annual Report later in 2005. This is to streamline reporting and prepare a 'total sustainability' Annual Report.</p> <p>On 1 April 2004, Sydney Water and the DEC agreed on changes to the reporting requirements of the Sewage Treatment System (STS) Environment Protection Licences issued to Sydney Water. The Licences were amended to remove Pollution Reduction Targets (PRTs) for substances listed in Schedule 10 of the <i>Sydney Water Act 1994</i>. The</p>



Table 9.1 Environment: Indicators and Plans – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>targets were replaced with effluent toxicity testing and specific limits for chemicals in effluent. Most of the Schedule 10 chemicals were monitored up to 1 April 2004, however, monitoring of these chemicals stopped after 1 April 2004.</p> <p>As a result of these changes and previous internal reviews of the monitoring program, some Environmental Indicators required by the Licence were not monitored or compiled for the audit period (refer to Appendix H). Consequently, Sydney Water has not reported environmental performance against all the indicators, for example:</p> <ul style="list-style-type: none"> ▶ Schedule 10 chemicals (a suite of over 114 pollutants identified in the Act) for receiving water quality in rivers and streams, and for effluent after 1 April 2004, have not been monitored and so these data have not been compiled for the audit period; ▶ Oil and grease from sewage effluent discharges to rivers and streams was not monitored for eight sites; and ▶ For the Sewerage Reticulation System, the environmental indicators relating to Schedule 10 chemicals for discharge quality, receiving water quality and sediment have not been monitored and data have not been compiled for the audit period. <p>Sydney Water reported performance against the key environmental indicators in Volume 1 of the EICR using graphs and trend plots together with an interpretation of the results.</p> <p>For those indicators measured by Sydney Water, data are presented for 10 years or more. The Licence requires Sydney Water to “to use the indicators with historical annual values over at least the previous 10 years where comparable data permits such a compilation”. Sydney Water has stated that the integrity of data prior to 1994 is questionable and so is not included in the Report.</p> <p>The monitoring data compiled in Volume 2 shows trends in the environmental indicators in database, bar graphs and trend plots formats. The data compiled in Volume 2 is primarily to satisfy regulatory requirements rather than for use by the public. As a consequence, the majority of the large volume of data is presented in tabular form and graphs.</p> <p>The Auditor acknowledges the difficulties in reporting the data and performance on all environmental indicators within the timeframe required by the Licence. Sydney Water has made improvements to the reporting as recommended in previous Audits.</p>



Table 9.1 Environment: Indicators and Plans – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>A summary of Sydney Water's performance against key Environmental Indicators is presented in Section 9.4 of this report.</p> <p>For further details on compliance with monitoring requirements, refer to Appendix H.</p>
(j)	Sydney Water's performance in relation to the ESD Indicators compiled under Clause 9.2.5.	No requirement	<p><i>There is no compliance requirement against this clause, as the clause requires an assessment of 'performance' by the Auditor rather than 'compliance'.</i></p> <p>Sydney Water obtained High compliance for requirements in Part 9 of the Licence relating to the ESD Indicators. Sydney Water reported performance in relation to the ESD Indicators to IPART in the form of a draft ESD Indicators and Environment Plan Report 2005 and 'Folios of Progress' – an internal document system in Sydney Water that tracks compliance with the Operating Licence. Numerous folios addressing a number of subjects covered by the ESD Indicators were provided to IPART. Each folio number represented the ESD Indicator addressed in the folio. However, the format and presentation of the folios was unclear and it was difficult to find specific items of information.</p> <p>The draft "ESD Indicators and Environment Plan Report 2005" provides a comprehensive and clear report on performance in relation to each ESD Indicator (and each target in the Environment Plan). This draft report was provided to IPART on 1 September 2005. The ESD Indicators and Environment Plan Report will be published as part of the Annual Report 2005. Sydney Water advised that the Annual Report would not be available until after 31 October 2005.</p> <p>Sydney Water reported on its overall performance against all 29 ESD Indicators.</p> <p>Performance is very high with little scope for improvement for some ESD Indicators such as: 100% of captured biosolids were recycled from sewage treatment plants, indicating sound management of trade waste; 100% of residuals from water filtration plants were recycled or stored for future use; 98.8% of customers do not experience sewer overflows on their property and the Sydney Water Environment Management System (EMS) was accredited to ISO14001 during the year.</p> <p>Overall, performance in relation to other ESD indicators showed that improvement in nearly all areas is being made, for example: water use per person fell by approximately 7% (mainly as a result of water restrictions); odour and noise complaints decreased; the number of customers' properties affected by sewage overflows decreased by 21%; Environmental</p>



Table 9.1 Environment: Indicators and Plans – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>Management System/ Environmental Impact Assessment procedures have been developed and certified; total suspended solids from Illawarra coastal STPs dropped by 36%; there was a 0.9% reduction in nitrogen discharged from inland STPs in the Hawkesbury Nepean Catchment; the number of trade waste agreements continued to increase; total energy use decreased by 1.2%; recycling targets for office waste paper were met with 85% of paper recycled; and there was an increase in the number of items on the State Heritage Register managed by a Conservation Management Plan (54%).</p> <p>Sydney Water's performance decreased against some key ESD Indicators from 2003/04, for example, there were two Tier 3 (Penalty Infringement Notice) and no Tier 1 or Tier 2 penalties under the <i>Protection of the Environment Operations Act 1997</i>; a 33% increase in the load of phosphorus discharged to inland waters; a decrease in the amount of cogeneration power; and a 12% increase in the number of dry weather sewer overflows.</p> <p>Performance against some ESD Indicators remained low or requires improvement. Unaccounted for water (or losses) from the water system runs at 11.8% of water supplied; per capita water consumption would not meet targets if mandatory water restrictions were relaxed; and a stormwater strategy is yet to be developed.</p>
(k)	Compliance by Sydney Water with the Environment Plan under Clause 9.3.	High compliance	<p><i>There is no compliance requirement against this clause, as the clause requires an assessment of 'performance' by the Auditor rather than 'compliance'.</i></p> <p>The 2000 – 2005 Environment Plan identifies the actions proposed by Sydney Water to minimise adverse effects on the environment whilst performing its important service delivery and public health functions. The Environment Plan addresses the issues required under Clause 9.3 of the Operating Licence. Sydney Water achieved High compliance in meeting these requirements.</p> <p>Sydney Water's progress in meeting the targets and timeframes of the Environment Plan is detailed in the <i>ESD Indicators and Environment Plan Report 2005</i>. The Report describes the progress against the 10 objectives, 36 actions and multiple targets in the Environment Plan.</p> <p>Many of the targets in the Environment Plan were developed without a specific deadline. It has been assumed that the timeframe for these targets would be the end of the operating period of the Plan, that is, at the end of 2005. Therefore compliance with many of the targets could be determined in this reporting period.</p>



Table 9.1 Environment: Indicators and Plans – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>It is evident that Sydney Water has made progress in meeting most of the targets of the Environment Plan. For the targets that were to be achieved in the 2004/05 reporting period, Sydney Water met most of the milestones.</p> <p>Areas that did not meet the performance target or deadline are demand management; effluent reuse from West Camden STP; the Upper Georges River Wastewater Strategy has been significantly changed and did not meet its target for implementation; the Illawarra Wastewater Strategy has been delayed; and the Priority Sewage Program has been delayed.</p> <p>Refer to Appendix I for further detail on performance against targets in the Environment Plan.</p>
(l)	Compliance by Sydney Water with the targets in the Energy Management Policy for energy consumption of buildings in Clause 9.4.2.	Full compliance	Refer to Clause 9.4.2.
(m)	Compliance by Sydney Water with the Botany Wetlands Plan under Clause 9.5.	High compliance	<p>Sydney Water was assessed as High compliance in implementing the Plan of Management. A discernable effort was evident by Sydney Water to improve its performance by addressing the need for a new Plan and to re-establish a Steering Committee (of “<i>other appropriate persons</i>”). The rate of progress, in this regard, can be increased.</p> <p>Sydney Water continued implementation of the Plan across a range of program areas, including the surveillance and monitoring of blue-green algae, and weed and pollution management.</p> <p>However, implementation of some programs (for example, Landscape and Visual and Land Management) have not been actioned, despite the Plan being in its eighth year. The Plan is being implemented almost solely by Sydney Water and not “<i>in conjunction with other appropriate persons</i>”.</p>
(n)	Compliance by Sydney Water with the trade waste objectives and performance indicators under Clause 9.7.	Full compliance	Progress in achieving trade waste objectives and performance indicators was reported in Sydney Water’s <i>Trade Waste Objectives and Performance Indicators – 2004-2005 Operating Licence Annual Report 2005</i> (TWOIR), produced in August 2005. See Clause 9.7.2.



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.1	Environmental Indicators		
9.1.1	Sydney Water must monitor and compile data on indicators of the direct impact of its activities on the environment, whether such activities are carried out by or on behalf of Sydney Water, in accordance with section 14(1)(d) of the Act.	Full compliance	<p>Sydney Water is required to monitor and compile data for 4 principal environmental aspects that are monitored through 15 groups of environmental indicators and for over 154 different analytes. Sydney Water presents these data in the <i>Environmental Indicators Compliance Report (EICR) 2005</i>, which contains tens of thousands of data points. The Auditor acknowledges that the interpretation and documentation of these data requires a considerable effort within the timeframe allowed.</p> <p>Volume 1 of the EICR 2005 contains summarised data and interpretation; Volume 2 contains a large quantity of supporting data in tabular and graphical forms. Volume 2 also contains details of the methods used to collect and compile the data. As Sydney Water ceased to monitor Schedule 10 substances in the previous audit period, it is no longer reporting on these substances and is no longer producing Volume 3 of the EICR.</p> <p>An 'independent' auditor verified the accuracy and reliability of the data presented in the EICR. A high level of accuracy with only a small number of errors (which were corrected prior to finalisation of the report) was confirmed and it was reported that data trails were easily identifiable, traceable and verifiable.</p> <p>Early in 2004, Sydney Water agreed with the DEC (formerly the EPA) to include toxicity based reporting and to remove the requirements for reporting on Schedule 10 chemicals and on Pollution Reduction Targets (PRT) from its Sewage Treatment System (STS) Environment Protection Licences. The Auditor sighted a copy of a letter to IPART from the DEC on 15 July 2004, stating that the new toxicity requirements and specific chemical limits became affective as at 1 April 2004. The full year's results for toxicity testing for the 2004/05 period can be found in the 2005 EICR report.</p> <p>Sydney Water provided the Auditor with a copy of a letter to the DEC, dated 4 August 2004, describing changes to reporting of environmental indicators. The DEC licences no longer require the monitoring of Schedule 10 substances and Sydney Water ceased to monitor them in April 2004. Thus Sydney Water is in non-compliance with this requirement of the Operating Licence.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>Sydney Water prepared an Environmental Indicators Monitoring Program Methods Report 2005 that outlines the “methodology for collection, analysis and storage of data collected for Sydney Water’s Environmental Indicators Monitoring Program”. This document contributes to the soundness of the data acquired. Changes to note over the 2004/05 period are the removal of Schedule 10 chemicals and the inclusion of testing for toxicity. These changes are not in accord with the Operating Licence but reflect the requirements of the DEC Environment Protection Licences.</p> <p>The <i>Process for Compiling the Environmental Indicators Compliance Report</i> describes the system for reporting on the indicators. The document is part of the quality system and demonstrates the process and quality controls in place for data management.</p> <p>The <i>Effluent Knowledge and Management System</i> (EKAMS) has been used for the last three years as the system of choice for the generation of the regulatory reports. EKAMS is now used by over 290 users for operational purposes in Sydney Water. EKAMS helps ensure data quality and facilitates quality assurance.</p> <p>The verification auditor noted a high level of data accuracy recognising Sydney Water’s effort in developing robust data collection, management and reporting systems over the last few years.</p>
9.1.2	The environmental indicators used are to accord with those published in the Governmental Gazette on 15 December 1995, except for those indicators solely applicable to the Sydney Catchment Authority (SCA).	High compliance	<p>A copy of the gazetted indicators was provided by Sydney Water. Reporting of the indicators is based on the gazetted indicators (see Clause 9.1.1).</p> <p>It is noted that some of the indicators are not monitored and compiled.</p> <p>On 31 December 1995, Sydney Water published the <i>Environmental Indicators Monitoring Program</i> (EIMP) Report. This document details a ‘final’ list of indicators and Sydney Water’s interpretation of the monitoring to be undertaken. This document is the main tool used for guidance on monitoring Environmental Indicators and is referred to as the “Grey Book” or “internal review”. The EIMP Report was not consistent with the list of environmental indicators that were published in the NSW Government Gazette on 15 December 1995, to which Clause 9.1.2 of the Operating Licence refers. Recommendations in the EIMP Report to not monitor some Environmental Indicators were not reflected in the subsequent revision of the Operating Licence in 2000; thus Sydney Water continues to be in non-compliance with those monitoring requirements. This is the principal reason that Sydney Water does not achieve Full compliance for this Licence requirement.</p>

**Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses**

Clause	Requirement	Compliance	Findings
			<p>As noted above, Sydney Water and the DEC agreed to amendments to the monitoring and reporting requirements of the Sewage Treatment System (STS) Licences, which came into effect on 1 April 2004. The Licences were amended to remove Pollution Reduction Targets (PRTs) for substances listed in Schedule 10 of the <i>Sydney Water Act 1994</i>, and were replaced with effluent toxicity requirements and specific chemical limits. Most of the Schedule 10 chemicals were monitored up to 1 April 2004, however monitoring of these chemicals stopped after 1 April 2004 and they were replaced with testing for toxicity.</p> <p>As a result of the above reviews and changes, not all Environmental Indicators identified in the Operating Licence were monitored or compiled for the audit period (refer to Appendix H). Consequently Sydney Water has not reported environmental performance against all indicators, for example:</p> <ul style="list-style-type: none">▶ Schedule 10 chemicals (a suite of over 114 pollutants identified in the Act) for receiving water quality in rivers and streams, and for effluent after 1 April 2004, have not been monitored and so these data have not been compiled for the audit period;▶ Oil and grease from sewage effluent discharges to rivers and streams was not monitored for eight sites; and▶ For the Sewerage Reticulation System, the environmental indicators relating to Schedule 10 chemicals for discharge quality, water quality and sediment have not been monitored and data have not been compiled for the audit period. <p>Notwithstanding these omissions, Sydney Water maintained a comprehensive monitoring and reporting system during the audit period.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.1.3	Sydney Water must report on its performance in relation to the indicators compiled under Clause 9.1.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as a part of the Annual audit, by no later than 1 September each year.	High compliance	<p>The “<i>Environmental Indicator Compliance Report</i>” (EICR) 2005 is the document presented by Sydney Water to the Licence Regulator to meet this requirement. An ‘independent’ consultant has independently verified the accuracy and reliability of the data.</p> <p>A draft EICR 2005 report was provided to IPART on 1 September 2005.</p> <p>The final EICR 2005 was provided to the Licence Regulator on 26 September 2005. However, as the final report was completed after the date of the Licence requirement (1 September 2005), a Full compliance cannot be assigned.</p> <p>The EICR 2005 provides a satisfactory report on Sydney Water’s performance for most gazetted environmental indicators. Improvements have been made to the report format and presentation.</p> <p>Refer to Appendix H for performance in relation to the Environmental Indicators in 2004/05.</p>
9.1.4	The yearly report provided by Sydney Water must provide information, which enables year to year comparison in relation to Sydney Water’s performance in this area. In particular, Sydney Water is to use the indicators with historical annual values over at least the previous 10 years, where comparable data permits such a compilation.	Full compliance	<p>Year to year comparison</p> <p>Sydney Water provided data that enables a year to year comparison for all the indicators that were monitored. These data are presented in Volume 2 of the EICR 2005 and are discussed and summarised in Volume 1. The aggregated data show trends in the environmental indicators in a database and graphical format.</p> <p>Volume 1 of the EICR presents the interpretation and discussion of the data, however, as previously noted, not all indicators are presented or discussed. Summaries for ten-year performance (where data are comparable) are provided at the start of each section, however, there is limited discussion of year to year comparisons and trends.</p> <p>At least the previous ten years of data, where comparable data permits such a compilation</p> <p>Data for most of the environmental indicators have been presented for 10 years, or for close to ten years. Performance over the 10 year period is presented in summary charts and discussed.</p> <p>According to Sydney Water, to maintain the integrity of the monitoring data, the best comparable data is post 1994. The PIPES historical database was the data source used from 1994 – 2001; data for this period was not ‘independently’ verified. Prior to this period, integrity of the data is questionable and was not verified.</p> <p>The number of years of data for each parameter is identified in more detail in Appendix H.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.1.5	<p>The yearly report is to be made available to the public by Sydney Water within 1 month after receipt by the Licence Regulator.</p> <p>Copies are to be made available from Sydney Water's offices on request free of charge and posted on Sydney Water's website on the internet for downloading by any person free of charge. A reasonable number of copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.</p>	High compliance	<p>EICR 2004</p> <p>Sydney Water provided IPART with a copy of the final EICR on 29 September 2004. Thus, the Licence requires that the report be made available to the public by 29 October 2004. The EICR 2004 Report formed part of the Annual Report. Sydney Water advised that the Annual Report was provided to Treasury on 29 October 2004 and to the Minister on 10 November 2004. The Auditor confirmed that the EICR 2004 was available on the Sydney Water website on 6 December 2004.</p> <p>Sydney Water therefore did not comply with the time requirement of the Operating Licence but did put in place processes to comply as far as possible within the reporting constraints imposed by other statutory requirements.</p> <p>Sydney Water advised that the EICR was distributed to all Sydney Water Business Centres, numerous environment centres, public libraries and placed on the internet as part of the Annual Report. The report was available free of charge to the public.</p> <p>EICR 2005</p> <p>Sydney Water provided IPART with a copy of the final EICR on 28 September 2005. Thus, the Licence requires that the report be made available to the public by 29 October 2005. Sydney Water advised that the final EICR 2005 Report will be made available to the public as part of the Annual Report. Sydney Water advised the EICR report was available to the public and posted on its website on 30 November 2005. The Auditor confirmed that the EICR 2005 was available on the Sydney Water website on 15 December 2005.</p> <p>Sydney Water therefore did not comply with the time requirement of the Operating Licence but did put in place processes to comply as far as possible within the reporting constraints imposed by other statutory requirements.</p> <p>Sydney Water advised that the EICR was to be distributed to all Sydney Water Business Centres, numerous environment centres, public libraries and placed on the internet following release of the Annual Report later in 2005. The report will be available free of charge to the public.</p>
9.1.6	The environmental indicators in Clause 9.1.2 are to be reviewed as part of the End of Term Review.	Full compliance	IPART commenced the End of Term Review process for the Operating Licence at the end of 2003 by inviting submissions from Sydney Water, stakeholders and the public. In



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>consultation with Sydney Water and key stakeholders, IPART systematically worked through the Licence identifying amendments and removing redundant requirements. Public workshops were also convened in April 2004 to discuss proposed amendments and obtain feedback in a workshop type forum. Issues relating to the environmental indicators that have been identified in previous audits were addressed during the review. This included the lack of monitoring for some indicators identified in the Licence following internal reviews in Sydney Water and the technical nature of many of the indicators making it difficult for non-technical people to understand.</p> <p>Sydney Water actively participated in this process and submitted a number of reports that reflected its viewpoint on Licence issues including the environmental indicators. These submissions were made available publicly on the IPART website. The new Operating Licence became effective 1 July 2005. The Licence has removed the need to report against the gazetted indicators identified in 1995. Sydney Water advised that the gazetted indicators will be moved to the STS Licences and will be reviewed with the DEC, to create a new Sewage Treatment Environmental Impact Monitoring Program as part of the Environment Protection Licences issued by the DEC.</p> <p>The new Operating Licence requires reporting against a more streamlined list of Environmental Indicators that will facilitate greater transparency and understanding for the public and lay reader.</p>
9.2	Ecologically Sustainable Development (ESD) Indicators		
9.2.1	Sydney Water must develop measures to indicate the degree to which its activities and services comply with the principles of ESD.	No requirement	Full compliance in 2000/01 audit period.
9.2.2	<p>Sydney Water must develop a draft list of ESD Indicators within 1 month after the Commencement Date (12/4/00).</p> <p>The draft list must have regard to:</p> <p>a) Corporate management (including corporate policy and planning, and corporate asset management)</p>	No requirement	Full compliance in 2000/01 audit period.



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
	b) Management of the system c) The planning, design & construction of: i) New Systems; ii) The upgrading of existing Systems; and iii) Depots.		
9.2.3	The draft list developed by Sydney water must undergo public consultation where the public has at least 20 days to provide their comments. Specific comments must also be invited from the EPA, DLWC, NPWS, NSW Fisheries, SEDA and peak environment non-governmental organisations.	No requirement	Full compliance in 2000/01 audit period.
9.2.4	Sydney Water must present a final list of ESD Indicators to the Minister for approval, and if approved, for publication in the Gazette, within three months of the close of submissions, following public consultation under Clause 9.2.3.	No requirement	Full compliance in 2000/01 audit period.
9.2.5	Sydney Water must commence monitoring and compiling data on the ESD Indicators from the later of the Commencement Date (12 April 2000) and 1 July 2000.	No requirement	Full compliance in 2000/01 audit period for the commencement of monitoring and compiling data. Sydney Water reported against the ESD indicators for 2004/05 in the <i>ESD Indicators and Environment Plan Report 2005</i> .
9.2.6	Sydney Water must report to the Licence Regulator on its performance in relation to the ESD indicators compiled under Clause 9.2.4 for the previous 12 months, by no later than 1 September each year, to enable the Licence Regulator to consider and report on the matter as a part of the Annual audit.	High compliance	Reporting 2003/04 Sydney Water submitted to IPART a copy of the draft <i>ESD Indicators and Environment Plan Report 2004</i> and Folios of Progress that deal with the ESD Indicators on 1 September 2004. A copy of the transmittal letter to IPART was provided to the Auditor. The final <i>ESD Indicators and Environment Plan Report 2004</i> was included in the Annual Report 2004, as part of the <i>triple bottom line</i> reporting initiative. Sydney Water advised that

**Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses**

Clause	Requirement	Compliance	Findings
			<p>the Annual Report was provided to Treasury on 29 October 2004 and to the Minister on 10 November 2004.</p> <p>Sydney Water therefore did not comply with the time requirement of the Operating Licence but did put in place processes to comply as far as possible within the reporting constraints imposed by other statutory requirements.</p> <p>The draft <i>ESD Indicators and Environment Plan Report 2004</i> was presented in a logical and clear manner and was written in plain English. All 29 ESD indicators were reported. Data for the previous 12 months, in addition to results prior to the 2003/04 audit period, were reported. Performance in relation to the indicators over the period was clearly stated.</p> <p>Reporting 2004/05</p> <p>Sydney Water submitted to IPART a copy of the draft <i>ESD Indicators and Environment Plan Report 2005</i> and Folios of Progress that deal with the ESD Indicators on 1 September 2005. A copy of the transmittal letter to IPART was provided to the Auditor.</p> <p>The final <i>ESD Indicators and Environment Plan Report 2005</i> was to be included in the Annual Report 2005 and provided to the Minister on or before 31 October 2005.</p> <p>Sydney Water therefore did not comply with the time requirement of the Operating Licence but did put in place processes to comply as far as possible within the reporting constraints imposed by other statutory requirements.</p> <p>The draft <i>ESD Indicators and Environment Plan Report 2005</i> was presented in a logical and clear manner and was written in plain English. All 29 ESD indicators were reported. Data for the previous 12 months, in addition to results prior to the 2004/05 audit period, were reported. Performance in relation to the indicators over the period was clearly stated.</p> <p>See Section 9.4 for discussion on trends in performance against key ESD Indicators.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.2.7	<p>The yearly report provided under Clause 9.2.6 is to be made available by Sydney Water to the public within 1 month after receipt by the Licence Regulator.</p> <p>Copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.</p>	High compliance	<p>Reporting 2003/04</p> <p>The <i>ESD Indicators and Environment Plan Report 2004</i> should have been made available to the public by 1 October under the terms of the Licence. Sydney Water advised that the final <i>ESD Indicators and Environment Plan Report 2004</i> was included in the Annual Report, as part of a <i>sustainability reporting</i> initiative. Sydney Water advised that the Annual Report was submitted to Treasury on 29 October and to the Minister on 10 November 2004 and was then tabled in Parliament. The Auditor confirmed the Report was available on the Sydney Water website on 6 December 2004.</p> <p>Sydney Water advised that the Annual Report was available in all Sydney Water Business Centres, numerous environment centres, public libraries and placed on the Sydney Water website. A list of all places it was distributed to was sighted. The report was free of charge to the public.</p> <p>Reporting 2004/05</p> <p>The <i>ESD Indicators and Environment Plan Report 2005</i> should have been made available to the public by 1 October under the terms of the Licence. Sydney Water advised that the final <i>ESD Indicators and Environment Plan Report 2005</i> would be published in the Annual Report. The Report was made available to the public and posted on Sydney Water's website on 30 November 2005.</p> <p>Sydney Water advised that the Annual Report was to be available in all Sydney Water Business Centres, numerous environment centres, public libraries and placed on the Sydney Water website. A list of all places was sighted. The report will be free of charge to the public.</p>
9.2.8	The ESD indicators in Clause 9.2.4 are to be reviewed as part of the End of Term review (1 January 2004).	No requirement	<p>Sydney Water actively participated in the End of Term Review of the Operating Licence and submitted a number of reports that reflected its viewpoint on Licence issues including the ESD Indicators. These submissions were made available publicly on the IPART website. The new Operating Licence issued in July 2005 reflected these deliberations in the form of a streamlined set of Environmental Indicators that closely allied to the previous set of ESD Indicators. Refer to commentary at 9.1.6.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.3	Environment Plan		
9.3.1	Sydney Water must produce a five year Environment Plan by the later of the Commencement Date (12 April 2000) and 30 September 2000. After that Sydney Water must produce further five year Environment Plans every 5 years.	No requirement	Audited in 2000/01 audit period and received Full compliance. A new Environment Plan is required to be developed under the terms of the new Operating Licence issued in July 2005.
9.3.2	Sydney Water must engage in public consultation in developing the Environment Plan.	No requirement	Audited in 2000/01 audit period and received Full compliance.
9.3.3	The Environment Plan must:		
9.3.3 (a)	Contain details of Sydney Water's water, waste water and stormwater strategies, as well as the environmental aspects of its other activities such as waste minimisation and heritage.	No requirement	Audited in 2000/01 audit period and received Full compliance.
9.3.3 (b)	Endorse ESD principles.	No requirement	Audited in 2000/01 audit period and received Full compliance.
9.3.3 (c)	Be recognised in Sydney Water's business plans.	Full compliance	The Auditor reviewed copies of the Corporate Plan 2004-2009 and the Asset Management Plan 2004-2005. Each of the sampled business plans either referred to or reflected targets in the Environment Plan. The development of the plans includes input and review by internal environmental representatives before being approved. Reviews of the Environmental Management System can also give rise to 'action requests', which are used as inputs into amendments to the Business Plans. However, there is still scope to better relate targets established in the Environment Plan to targets in each of the Business Plans and to the process for the allocation of funds.
9.3.4	The Environment Plan must set targets and timetables for compliance by Sydney Water with those targets set over the term of the Environment Plan. These targets must utilise the environmental and ESD indicators in Clauses 9.1 and 9.2 and also the targets	No requirement	Audited in 2000/01 audit period and received Full compliance.



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
	and indicators in Clauses 9.6 and 9.7.		
9.3.5	The Environment Plan must be posted on Sydney Water's website on the internet for downloading free of charge, made available at its premises for access or collection by any member of the public and lodged with environmental centres and public libraries in the Area of Operations, in each case also free of charge.	No requirement	Audited in 2000/01 audit period and received Full compliance. The Auditor confirmed the Plan remains available on the Sydney Water website.
9.3.6	<p>The report detailing Sydney Water's progress in meeting the Environment Plan, and in particular, in complying with the targets and timetables in Clause 9.3.4 are to be compiled on a yearly basis.</p> <p>Within 1 month of its completion, the report must be posted on Sydney Water's website on the internet for downloading free of charge, made available at its premises for access or collection by any member of the public and lodged with environmental centres and public libraries in the Area of Operation, in each case also free of charge.</p>	Full compliance	<p>The 2000-2005 Environment Plan identifies how Sydney Water will minimise adverse effects on the environment whilst performing its important service delivery functions. The <i>ESD Indicators and Environment Plan Report</i> describes the progress against the 10 Environment Plan objectives (as well as the ESD Indicators).</p> <p>For the 2003/04 audit period, Sydney Water provided the Auditor with a draft copy of the <i>ESD Indicators and Environment Plan Report 2004</i>. This document reports on performance against the ESD Indicators and the targets in the Environment Plan.</p> <p>The final <i>ESD Indicators and Environment Plan Report 2004</i> was included in the Annual Report, as part of a 'sustainability reporting' initiative. The Annual Report was submitted to the Minister on 10 November 2004 and was confirmed on Sydney Water's website on 6 December 2004.</p> <p>For the 2004/05 audit period, Sydney Water provided IPART with an early draft of the Report on 1 September 2005 and provided the Auditor with a later draft on 14 October 2005. The report was finalised during November and posted on Sydney Water's website on 30 November 2005.</p> <p>The report is well structured, easy to comprehend and the accuracy of the information was verified by an 'independent auditor'.</p> <p>The performance of Sydney Water against the objectives and targets of the Environment Plan is summarised in Appendix I.</p>
9.3.7	Amendments may only be made to the Environment Plan following public consultation	No requirement	<p>No amendments to the Environment Plan were made within the audit period.</p> <p>The review of the requirements relating to the Environment Plan was part of the End of</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>Term Review undertaken by IPART. Sydney Water and other stakeholders were afforded opportunities to provide submissions, attend meetings and workshops, and exchange initiatives as part of the Review process during late 2003 and 2004.</p> <p>The new Operating Licence reflects these considerations in the requirements for the Environment Plan for the next Licence period.</p>
9.4	Energy Management		
9.4.1	In this clause Energy Management Policy means the energy management policy of the NSW Government released by the NSW Department of Energy (now the Ministry of Energy and Utilities) in 1998 and updated from time to time.	No requirement	Definition.
9.4.2	Sydney Water must adopt the following targets in the Energy Management Policy for energy consumption of buildings:		
	(a) 15% reduction from the 1995 level by 2001.	No requirement	No requirement this audit period. The 15% reduction from the 1995 level by 2001 was met in a previous audit period.
	(b) 25% reduction from the 1995 level by 2005.	Full compliance	<p>The 1995 energy consumption for buildings was 24,528 MWh. The 2005 energy consumption was 14,981 MWh. A reduction of 39% was achieved over the period, which met the requirement. Data supporting the 1995 and 2005 energy consumption levels were reviewed by the Auditor. This significant reduction in energy consumption is predominantly attributable to the:</p> <ul style="list-style-type: none"> • closure of a number of offices and transfer of staff to existing buildings; and • optimisation of the air conditioning system in Head Office. <p>Australian Building Greenhouse Rating (ABGR) assessments were undertaken in November - December 2004 of three commercial/office buildings (Wollongong, Liverpool and Head Office Sydney CBD), with only the Liverpool building reaching 3 stars.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
	(c) Any subsequent targets set by the Energy Management Policy.	No requirement	<p>Although the target only applies to energy consumption in buildings, Sydney Water has demonstrated that it is actively investigating and implementing energy efficiency measures across all its operations.</p> <p>There were no subsequent targets set by the Energy Management Policy during the 2004/05 Audit period.</p>
9.4.3	By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its performance in relation to Clause 9.4.2 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.	Full compliance	Sydney Water's Operating Licence Compliance Report and covering letter were sent to IPART prior to 1 September 2005.
9.5	Botany Wetlands		
9.5.1	Botany Wetlands Plan means the plan of management (POM) for the area known as Botany Wetlands, issued by Sydney Water in December 1997.	No requirement	<p>The POM (1997) outlines actions to be undertaken and delegated responsibilities to members of the Botany Wetlands Environmental Steering Committee (BWEMSC).</p> <p>Sydney Water formally reviewed the POM in February 2000 and in 2004 and undertakes operational performance reviews annually (see Clause 9.5.4).</p>
9.5.2	Sydney Water is to implement the Botany Wetlands Plan in conjunction with other appropriate persons.	High compliance	<p>In summary, Sydney Water has continued to implement the on-site management programs under its control and to address shortfalls in the current Plan and its implementation (for example, a re-established Botany Wetlands Environmental Management Steering Committee and terms of reference for a new Plan of Management). These actions are positive, although progress over 2004/05 has been slow, contributed in part to external decision making processes. The commitment to reform and improvement was evident. Sydney Water is encouraged to realise these reforms and initiatives during 2005/06 to demonstrate the retention of a High compliance rating.</p> <p>Further details of performance are outlined below.</p> <p>► A review of information (for example, Implementation of Botany Wetlands Plan of Management – Summary Report 2004-05, Botany Wetlands Review of Monitoring Programs, Draft Report June 2005 and Botany Wetlands Plan of Management (2005-</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>2006) Operational Plan, Rev 3-January 2005)) demonstrated a continuing program of site specific planning, implementation, monitoring and reporting.</p> <ul style="list-style-type: none">▶ Sydney Water has demonstrated implementation across a range of program areas, including weed management, carp removal, algal control and ecological assessment. Sydney Water provided a schedule of its annual implementation costs since 1996/97, which showed an increasing trend of expenditure (from some \$200K to \$351K) up to 2003/04. However, expenditure dropped in 2004/05 (due to reduced mechanical weed clearing, native fish release and ecological monitoring) to some \$259k, or by some 25%. Sydney Water advised this related to existing contracts ending and some administrative delays. To ensure transparency it is recommended that Sydney Water maintain continuity of these programs and establish appropriate program budgets for the forthcoming year, pending the adoption of a new Plan of Management.▶ The Act requires implementation “in conjunction with other appropriate persons”. To this end, implementation reached an impasse a number of years ago. A Botany Wetlands Environmental Management Steering Committee (BWEMSC) was established to, in part, review and update the Plan of Management as required and to discuss new programs and bids for the following financial year. For the fourth year the Committee has not met. However, in 2004/05 Sydney Water has gained agreement (documents sighted) for the Sydney Metropolitan Catchment Management Authority to chair a reformation of a Botany Wetlands Environmental Management Steering Committee.▶ Some programs (such as <i>Landscape and Visual</i>) have not been implemented over the nine-year life of the Plan of Management. Sydney Water believes these actions are outside its responsibility. However, Sydney Water is responsible to implement the whole Plan and if such broader catchment actions cannot be implemented by Sydney Water, then the Plan and Operating Licence should be duly amended. (Note: Operating Licence clause 9.5.2 currently requires “<i>implementation with other appropriate persons</i>”).▶ The Plan of Management (see Clause 9.5.4) is over a decade old and 25% of its actions have been completed, another 20% have yet to commence and are unlikely to do so without participation from ‘<i>other appropriate persons</i>’. The Plan and its management (namely BWEMSC) require amendment and renewal. Further, the 2003/04 review of the 1997 Plan recommended that a new Plan of Management be developed. During 2004/05 Sydney Water waited for Ministerial approval to prepare a new Plan and



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>advised that a suitable consultant is in the process of being engaged to develop a new Plan, although this was after the audit period.</p> <p>Broader catchment programs requiring input of 'appropriate persons' were not implemented over 2004/05 (pending a new Steering Committee). Sydney Water was requested by the Auditor to provide copies of the letters of invitation and draft Steering Committee's Terms of Reference as referred to in the Implementation Report (Section 2.12) but subsequently advised that neither were available.</p>
9.5.3	By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its compliance with the Botany Wetlands Plan for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit	Full compliance	<p>The <i>Implementation of Botany Wetlands Plan of Management – Summary Report 2004/05</i> dated August 2005 was provided to IPART by 1 September 2005 and was sighted. The report and covering letter were reviewed.</p> <ul style="list-style-type: none"> Refer to Clause 9.5.2 for findings on Sydney Water's performance during 2004/05. <p>It is recommended that:</p> <ul style="list-style-type: none"> The format of the publicly available Implementation Summary Reports be enhanced by including graphed trends (for example, water quality, trash removed, carp removed, algae counts etc.) to demonstrate the ecological performance achieved through the implementation of the POM over the last 9 years. A number of these graphs are contained in the full implementation reports but not in the publicly promoted Implementation Summary Report. The yearly trend line of expenditure by POM program be included in the Implementation Summary Reports.
9.5.4	Prior to the commencement of the End of Term Review, Sydney Water must review the Botany Wetlands Plan in consultation with EPA, the Department of Land and Water Conservation, National Parks and Wildlife, and peak environmental non-governmental organisations for the purpose of advising the Minister whether any amendments are required to the Plan	No requirement	<p>Sydney Water was required to complete a review of the Plan prior to the commencement of the End of Term Review, nominally January 2004. Sydney Water undertook an internal review, which involved consultation and a site visit with representatives of EPA, NPWS, and PENGOS. The review commenced in December 2003 and was completed by March 2004.</p> <p>The Department of Natural Resources, in responding to an invitation to comment on Sydney Water's performance indicated by letter 19 October 2005 that following an inspection of the Botany Wetlands in early 2004, it was satisfied with Sydney Water's rehabilitation works.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
9.7	Trade Waste		
9.7.1	Sydney Water must prepare a trade waste policy and management plan, which must include trade waste water objectives and performance indicators. Sydney Water must ensure that the process of preparing the trade waste policy and management plan includes public consultation in accordance with Clause 1.2.2 on a discussion paper before the plan is finalised.	No requirement	Sydney Water complied with this requirement in a previous audit period.
9.7.2	By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its progress in satisfying the objectives and indicators under Clause 9.7.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the annual audit.	Full compliance	Sydney Water prepared and presented to IPART the annual report on Trade Waste Objectives and Performance Indicators prior to 1 September 2005. This report identifies progress against each of the seven trade waste objectives and performance indicators, and is comprehensive.
	Objective 1: Protect the health and safety of all people working in the sewerage system by applying strict standards for harmful substances.	Full compliance	<p>The performance indicator for this objective is the number of injuries or lost time for sewerage system workers due to substances attributable to trade waste sources. Although a number of injuries occurred, only one minor injury was due to sewage that may have contained trade wastewater. There were no lost time injuries attributable to trade waste sources.</p> <p>Sydney Water's Incident Reporting System was reviewed for three incidents, potentially related to trade waste activities. The reporting, investigation procedures, actual investigations carried out, response and subsequent changes to practices (such as revising the trade waste acceptance standards, monitoring chemicals along sewers and developing manual handling guides) appeared adequate to ensure ongoing protection of the health and safety of people working in the sewerage system.</p> <p>Activities and investigations undertaken during the audit period relating to health and safety effects of harmful substances in the sewerage system included:</p> <ul style="list-style-type: none"> Revising the <i>Safe Work Procedure for Activities carried out by Commercial & Industrial Customer Services Personnel, February 2005</i>, and ensuring all staff were trained in the



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>procedure;</p> <ul style="list-style-type: none"> Production and display of various <i>Safety Lesson</i> and <i>Hazard Alert</i> posters detailing incidents and lessons learnt; Development of a <i>Trade Waste in Sewage Hazard Management Manual, August 2005</i>, and training package; Investigations of sources of VOCs and development of a new acceptance standard for aldehydes; and A study entitled <i>Health Study; Assessment of health outcomes for employees working in the Sydney Sewage System</i> was undertaken during the audit period, with results expected 2005/06. The desired outcome of the study is for the provision of recommendations, advice and guidelines in order to protect the health and safety of wastewater employees, including risks associated with chemicals in wastewater.
	Objective 2: Protect receiving waters from toxic substances originating from trade waste discharges.	Full compliance	<p>The performance indicator for this objective is the progress in achieving pollution reduction targets for trade waste pollutants set by the DEC. The DEC issued revised licences to Sydney Water in March 2004 for all Sydney Water sewerage systems. The revised licences specify a reduced list of key pollutants; instead, biological toxicity tests are specified to protect receiving waters from toxic substances.</p> <p>Monthly testing was performed during the audit period and was reviewed for inland and ocean sewage treatment plants (STPs). A number of tests showed potential toxicity to the receiving waters, however, all STPs met their licence limits for toxicity.</p> <p>For all inland STPs that exhibited toxicity, further testing was conducted to detect the presence of organophosphorus pesticides. Five out of eight samples exhibiting toxicity were probably due to an organophosphorus pesticide. However, a cause for toxicity in the other three samples was not found.</p> <p>For ocean discharge STPs, further testing was conducted to correlate toxicity with non-ionic detergents and to detect the presence of organophosphorus pesticides.</p> <p>Sydney Water should continue to investigate the source(s) of the substances that are assumed to be causing toxicity and develop trade waste strategies (where applicable) to reduce the potential for toxicity.</p>



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
	Objective 3: To protect sewerage transport systems and sewage treatment plants from damage due to harmful substances from trade waste sources.	Full compliance	<p>The performance indicator for the objective is trade waste agreements in place restricting the discharge of substances that may damage sewerage system assets. These substances include: flammable/explosive substances; acids; sulphur compounds in combination with a source of oxygen demand, measured as Biological Oxygen Demand (BOD); and temperature.</p> <p>Sydney Water is continuing to control these substances through trade waste agreements. Where problems have arisen for individual customers, effluent improvement programs have been imposed and/or the customer disconnected from the sewer. Examples sighted included <i>Hazard Alert 2003-2004</i>, indicating that a customer pumping contaminated groundwater to sewer was ordered to cease discharge.</p> <p>Where problems have arisen for sewer catchments, investigations have been conducted to monitor and track down sources of harmful substances. Examples sighted included: specific monitoring of Volatile Organic Compounds at Camelia SPS 0067; number and details of breaches for customers in the Smithfield SPS 419 catchment; <i>Site Inspection Reports</i> for four customers' pre-treatment plants in the SPS 419 catchment; Sydney Water audits of benzene and flammable hydrocarbon results exceeding acceptance standards; and annual monitoring of contaminants at SPSs.</p> <p>In addition:</p> <ul style="list-style-type: none"> new acceptance standards have been set for benzene and petroleum hydrocarbons (flammable); trade waste acceptance standards have been investigated for acetaldehyde and propionaldehyde; catchments or sub-catchments can be declared 'corrosion impacted' with stricter limits on BOD, temperature and pH; an investigation of high temperature discharges was conducted for nine commercial laundries (monitoring report sighted); and Sydney Water continues to track the number of trade waste agreements in place for industrial and commercial customers and from different industry sectors.



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
	Objective 4: Assist Sydney Water to meet relevant environmental and other regulations and pollution reduction targets.	Full compliance	<p>The performance indicator for the objective is compliance with DEC licences with respect to trade waste contaminants. Trade waste contaminants are considered to be all substances excluding domestic substances, nutrients and disinfectants.</p> <p>In March 2004, the DEC issued new Environmental Protection Licences for Sydney Water's Sewerage Systems, resulting in a reduced list of contaminants to be monitored. Based on data summarised in the <i>Sydney Water Compliance Report, Trade Waste Objectives and Performance Indicators – 2004-2005 Operating Licence Annual Report</i>:</p> <ul style="list-style-type: none"> There were no exceedances of trade waste substances over the period; Organophosphorus and organochlorine pesticides were investigated at 33 sites, with no sites detecting pesticides (except for one which was not connected to the sewer). The sampling results were sighted; Higher than normal concentrations of cadmium detected at Blackheath STP were investigated and found to be caused by paints and glazes. An awareness campaign to reduce the discharge of paints containing cadmium was instigated. This resulted in the average and 90 percentile concentrations being met; High concentrations of cobalt at Castle Hill were investigated. Average and 90 percentile concentrations were met. <p>In addition, System Performance Reports for a representative selection of inland and ocean discharge STPs were reviewed, which indicated that contaminant limits were met.</p>
	Objective 5: Assist Sydney Water sewage processing operations to produce a guaranteed quality of water and biosolids.	Full compliance	<p>Performance indicator 1 is to meet agreed quality specifications for achievement of corporate targets for biosolids reuse (90%). During the 2004/05 reporting period, 97.1% of biosolids were initially suitable for reuse (down on 2003/04 levels of 99.8%). Biosolids unsuitable for reuse were:</p> <ul style="list-style-type: none"> Zinc contaminated biosolids from Wollongong. Zinc concentrations were investigated in previous years. Sydney Water advised that there were no new studies during the 2004/05 audit period. Mercury contaminated biosolids from Richmond. Mercury contamination is possibly from mercury seals in the STP itself (long since replaced). A new treatment plant was completed in February 2005 so the problem should not continue, although no sampling



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>has yet been undertaken.</p> <ul style="list-style-type: none"> ▶ Poor quality biosolids were managed through product separation and reprocessing through composting. As a result, all captured biosolids were beneficially used. <p>Performance indicator 2 is to meet agreed quality specifications for substances from trade waste sources for effluent reuse schemes. During this reporting period, only reused water distributed within the Rouse Hill catchment had quality specifications in relation to trade waste contaminants. The Rouse Hill effluent quality complies with all chemical quality requirements of the Guidelines that may be attributable to trade waste sources, with the exception of total dissolved solids (TDS) and Electrical Conductivity. Sydney Water has developed a Standard Operating Procedure for irrigation of high salinity recycled water. A limit for TDS has been set for discharge to STPs with effluent reuse schemes.</p>
	Objective 6: Encourage waste minimisation and cleaner production in the commercial and industrial sectors.	Full compliance	<p>The performance indicator for this requirement is that the trade waste education program addresses waste prevention, minimisation and cleaner production.</p> <p>Waste minimisation/ cleaner production is encouraged via Effluent Improvement Programs for individual customers and via incentive pricing. Sample concentrations higher than the published <i>Acceptance Standards and Charging Rates</i> attract a penalty rate per kilogram. Customers are encouraged to adopt cleaner production processes in order to avoid such penalties.</p> <p>During the audit period Sydney Water has:</p> <ul style="list-style-type: none"> ▶ Revised fees and charges for commercial and industrial customers and published new risk factor guidelines, which determines annual fees and sampling frequency: <i>The risk index and the risk factor formula</i>; ▶ Published guidelines for the commercial sector: <i>Pre-treatment of trade wastewater from commercial customers, January 2005</i>; ▶ Published guidelines for categorisation of customers: <i>Trade Waste Processes, September 2004</i>; ▶ Published guidelines for deemed business processes: Building construction - slab formation; Residential garbage bin wash areas; and Residential vehicle wash bays;



Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses

Clause	Requirement	Compliance	Findings
			<ul style="list-style-type: none"> Developed a draft Business Process Guideline for laundries; Participated in the DEC Cleaner Production Industry Partnership Program <i>Environmental Change in the Electroplating Industry June 2005</i>; Continued to track mass loads of trade waste contaminants entering the sewer. Trend graphs for metals indicate that mass loads are decreasing due to enforcement of trade waste agreements; Conducted seminars for plumbers involved in installing pre-treatment equipment; Conducted presentations on cleaner production/waste minimisation and water conservation at seminars; Conducted inspections of customers premises and encouraged waste minimisation and cleaner production (sample <i>Site Inspection Reports</i> were reviewed); and Conducted a survey in 2005, <i>Trade Waste Customer Survey: Research Report</i>, which indicated that a significant percentage of customers had reduced wastage, improved housekeeping and introduced/ increased recycling.
	Objective 7: Encourage and enable further water conservation.	Full compliance	<p>The performance indicator for this requirement is Trade Waste Agreements in place, enabling reduction of total water consumption as a result of the mass based policy. Following observations by industry that the emphasis on tight concentration limits was a disincentive to water conservation, concentrations expressed in the 'Acceptance Standards' were raised for some pollutants.</p> <p>During 2004/05, Sydney Water developed fact sheets and flyers relating to water conservation efforts; continued to implement the Every Drop Counts program; sent reminders to all industrial (and selected commercial) customers on Level 3 Water restrictions; inspected/ audited premises applying for water restriction exemptions; and continued to track CPI-adjusted water consumption for commercial and industrial customers.</p> <p>For the audit period, commercial and industrial customers' water consumption has reduced considerably (-31%) since the base line of the year 2001, due to the imposition of mandatory water restrictions and trade waste initiatives.</p>

**Table 9.2 Environment: Indicators and Plans – Part 9 Licence clauses**

Clause	Requirement	Compliance	Findings
			The <i>Trade Waste Customer Survey: Research Report</i> , 2005 indicated that customers only rated Sydney Water as 4.6 out of 10 on “providing information on how to reduce the volume of trade wastewater”. Sydney Water should continue to develop programs for trade wastewater customers to reduce water consumption (and hence the volume of trade wastewater).

9.4 Trends in Performance of Sydney Water against selected ESD Indicators

The Operating Licence for 2005-2010 came into effect from July 2005. It contains a revised list of environmental performance indicators that Sydney Water is to report on. The list has its origins in the ESD and Environmental Indicators reported under the Operating Licence 2000 – 2005. The following section provides trend information for the last ten years, where that information is available, for those indicators or similar indicators that will be carried forward in the new Operating Licence.

9.4.1 Potable water

Total water drawn for 2004/05 was 526,367 ML, a 6.5% decrease from 2003/04 releases of 562,746 ML. This is largely due to the continuing mandatory Level 1 and 2 water restrictions during the 2004/05 audit period. Water drawn in 2004/05 was similar to 1994/95 and represents a substantial decrease in water drawn since 1996/97. Over the last 10 years there has been a general increase in total water drawn as a result of steady population growth.

Daily per capita water use has fallen significantly since 1991, from 506 litres to 342 litres in 2004/05.

9.4.2 Demand management

The target for demand management was 364 litres per capita per day by 2004/05. While progress has been made under Sydney Water's Demand Management Program, the decrease in demand during 2004/05 was primarily a result of mandatory water restrictions and would not be sustained if restrictions are lifted, as demand would increase to an estimated 403 litres per person per day.

9.4.3 Water leakage

Water losses are about 11.8% of total water supplied (or 62,727 ML) which includes leakages of approximately 10%. Unaccounted for water has fallen from 65,817 ML in 2003/04 to 52,900 ML in 2004/05, representing a 21% decrease. Unaccounted for water has continued to fall since 1994/95 from approximately 19% to 10% in 2004/05. Real losses from water leakage make up the largest component of unaccounted for water and are estimated at 143 ML or 9.3% of demand, an improvement from 10.7% in 2002/03.

9.4.4 Water recycled

Since 1995 recycled water use has increased approx 100% from 17 ML/day to 34.9 ML/day. There are several water recycling schemes in place with several more in various stages of planning or development. Some 34.9 ML/day was reused or intercepted in 2004/05, an increase of 7.8 ML/day since 2000. Approx 77% was associated with recycling in STPs. However, re-use at STPs does not result in prevention of the discharge as required by the Environment Plan.

9.4.5 Sewage effluent volume

During 2004/05, 56,666 ML was discharged from inland STPs, a 1.3% increase from the previous year.

Sydney Water's coastal STP total discharge was slightly lower at 389,941 ML during 2004/05 or 1,068 ML per day. Sydney's three major coastal plants discharged 86.3% of this amount. Of the total effluent from the Illawarra, 45.1% was discharged from Wollongong STP.

Year to year volume changes are highly dependent on the rainfall conditions during the year. In 2004/05, volumes were lower than those 10 years ago during the last dry period.

9.4.6 STP Effluent Quality

Suspended solids loads have increased overall from 1995/96.

During the 2004/05 audit period, 51,974 tonnes of suspended solids were discharged from coastal Sewage Treatment Plants (STPs) representing a slight decrease from 52,133 tonnes in 2003/04. Suspended solids loads have generally increased since 1994/95, with a peak in tonnage during 1999/00 of approximately 55,000 tonnes. The loads have steadily reduced since 1999/00 with the exception of last year during which a slight increase was measured.

Loads of oil and grease decreased by 6.0% from the coastal plants during 2004/05. A major contributor to this reduction was the increased treatment performance of the upgraded Wollongong STP and the removal of discharges from Bellambi and Port Kembla STPs.

Since 1994/95, Sydney Water has achieved a significant reduction in the nutrient loads being discharged to the Hawkesbury-Nepean River system from inland STPs as a result of major upgrades to the Hawkesbury-Nepean STPs, the decommissioning of old and poorly performing plants, and the transfer of flows to new facilities that treat effluent to a higher standard.

Phosphorus loads have been reduced from approximately 35-38 tonnes during 1994/98 to 8.4 tonnes in 2004/05. However, there was a 33% increase in phosphorus discharge from inland STPs during 2004/05 compared to 2003/04 (8.4 tonnes, up from 6.3 tonnes 2003/04).

Nitrogen loads have also significantly decreased since 1994/95, with a reduction from between 680-750 tonnes during 1994 – 1999 to 410 tonnes in 2004/05. Recent reductions are associated with improvements in wastewater management at Hornsby Heights and West Hornsby STPs, and completion of upgrades at St Marys and Quakers Hill STPs.

9.4.7 Breaches of statutory instruments

No Tier 1 or 2 prosecutions were incurred in 2004/05, however the EPA issued two Penalty Infringement Notices (Tier 3) for the amounts of \$400 and \$1,500 under the Protection of the Environment Operations Act for pollution of the environment. Information was not provided on the performance of Sydney Water contractors for this indicator for 2004/05.

9.4.8 Overflows from the sewerage system

During the 2004/05 audit period, there were a total of 19,075 field-verified dry weather overflows from the Sydney Water systems, representing a 13.6 % increase from the 2003/04 audit period. The number of dry weather overflows has varied markedly since 1995/96, with a peak of 24,297 overflows in 1997/98 and a minimum of 13,919 in 1999/00. On average, 17,209 field-verified overflows have occurred over the last 9 years. Fluctuations in dry and wet weather conditions appear to be the major cause of variations. During dry weather conditions, overflows are generally associated with chokes caused by tree roots seeking moisture. Sydney Water believes that tree roots are the cause of around 80% of sewer chokes.

The low number (117) of confirmed wet weather overflows in 2003/04 is considered by Sydney Water to be a result of low rainfall and very few extended rainfall events through 2003/04. Recorded wet weather

overflows varied from 26 in 1995/96 to 608 in 2002/03. On average since 1995/96, 349 wet weather overflows are verified. The recorded number of overflows is not representative of the total number in the system as they are based on field verification of overflows reported by customers, and customers do not report all overflows. It could be expected that the actual number of wet weather overflows is orders of magnitude greater than that reported.

9.4.9 Stormwater

1,859 cubic metres of rubbish and 2,060 tonnes of sediment were removed from GPTs in 2004/05 and 12,770 tonnes of sediment were collected from the drainage systems. Litter booms in Sydney Harbour collected approximately 84 cubic metres of rubbish during 2004/05, and 32 cubic metres were trapped at Botany Bay over the same period.

9.4.10 Recreational water quality

Bathing water quality was high at Sydney beaches, with 31 out of 35 Sydney beaches suitable for swimming over 80% of the time in summer. In the Illawarra, 13 out of 14 beaches were suitable for swimming over 80% of the time in summer.

There has been a marked improvement in beach water quality since the installation of the deep water ocean outfalls for North Head, Bondi and Malabar STPs and the Cronulla STP upgrade.

9.4.11 Biosolids

During 2004/05, sewage treatment plants produced a total of 47,583 dry tonnes of biosolids. 100% of captured biosolids were beneficially re-used in 2004/05. This is an improvement from 80% in 1994/95. Prior to 1989, all biosolids collected were either incinerated or disposed of to the ocean.

9.4.12 Water treatment residuals

2,188 tonnes of water treatment residuals were generated in 2004/05. Sydney Water has recycled (65%) or temporarily stored for later use (35%) water treatment residuals from nine water filtration plants. Residuals are mixed with or applied to soil for horticultural or agricultural purposes.

9.4.13 Trade waste

Overall trade waste quality improved during 2004/05. Most contaminant loads have fallen from 2002/03. Heavy metal loads have decreased significantly over the last 10 years, with the exception of zinc which has decreased approx 30%. Total mass of selected heavy metals received in the sewage system was 15.2 tonnes in 2004/05 compared with 31.23 tonnes in 1994/95.

9.4.14 Waste

During 2004/05, 92,016 tonnes of construction and demolition waste by internal teams was produced, 17,743 tonnes landfilled, and 74,273 tonnes (81%) recycled or sent for reuse by Sydney Water. Some 99,128 tonnes of construction and demolition waste by external contractors was produced in 2004/05, with 20,183 tonnes sent to landfill and 78,946 tonnes recycled or reused, representing 80% of the total produced. The recycling rate for 2004/05 was substantially higher than 2003/04 (an increase of almost 35%) and lower than 2000/01 (a decrease of almost 15%). The 55% target for office waste recycling met

in 2004/05 with 55% of office waste recycled, compared to 53% in 2003/04. Sydney Water's target of 80% of office paper in Head Office recycled was achieved with 85% recycled. An analysis of trends in waste recycling over the past 10 years is not available due to insufficient data.

9.4.15 Greenhouse gases

Greenhouse gas emissions resulting from Sydney Water's purchase of electricity, gas and fuel in 2004/05 was 380,554 tonnes, representing a 3.6% increase from 2003/04, despite lower power consumption. This anomaly occurred as a result of a change in calculation methodology by the Australian Greenhouse Office. Greenhouse gas emissions have generally risen since 1994/95 due to an increase in the use of electricity sourced from the burning of fossil fuels. More stringent requirements for effluent quality and system performance and increased population result in higher total energy use and thus higher greenhouse gas emissions.

9.4.16 Electricity

Total energy consumption in 2003/04 was 1,528,437 GJ, of which electricity accounts for approx 87%. This was a decrease of 1.2% since 2003/04 – as a result of reduced water demand following the implementation of tighter mandatory water restrictions.

The electricity consumed by sewage services per megalitre (ML) of sewage treated increased slightly from 467.3 kWh/ML in 2003/04 to 467.7 kWh/ML in 2004/05. This is due to ongoing upgrades to STPs to meet population growth and to achieve higher standards for effluent quality.

The energy efficiency of water services decreased slightly over the past year, with electricity consumption per ML of water supplied rising from 252 kWh/ML in 2003/04 to 261.0 kWh/ML in 2004/05. Overall energy consumption by water infrastructure fell by 3.1 per cent as a result of a similar decline in water demand.

9.4.17 Contaminated land

During 2004/05, no new sites were notified to the DEC (EPA) for determination of potential 'significant risk of harm' (SRoH) under s.60 of the *Contaminated Land Management Act 1997*. All properties for acquisition or disposal within the audit period were assessed for potential contamination issues and 15 contamination assessment reports were completed for 13 sites as part of Sydney Water's Contaminated Land Risk Ranking Project. A Voluntary Remediation Agreement was completed for the Cooks River aqueduct site; Astrolabe Park and Alexandra Canal remain classified as SRoH sites.

9.4.18 Heritage

Sydney Water had 59 items listed on the State Heritage Register, thirty two (32) of which have a Conservation Management Plan (CMP) (up from 20 in 2003/04), although many of the CMPs are in draft form awaiting formal NSW Heritage Council endorsement. One hundred and sixty-three (163) items of local significance also formed part of Sydney Water's Heritage and Conservation Register. Information was not presented for indigenous heritage for 2004/05.

9.4.19 Flora and fauna

This is a new indicator for 2005 – 2010 as information has not been collected to provide a historic base.

9.4.20 Odour

Sydney Water received 830 odour complaints during 2004/05; with 102 from sewage treatment plants (STPs) and 728 from sewage transport systems. Complaints from Coastal STPs have continued to decrease since 1994/95 and complaints from sewage transport are lower than the initial data in 1996/97, although complaints have risen since 1999/00.

9.4.21 Noise

Noise complaints in 2004/05 have decreased compared to 2003/04 (from 108 in 2003/04 to 63 in 2004/05). This also represents a decrease since 2000/01 (78) and 2001/02 (94). Information prior to 2000/01 is not available.

9.5 Discussion

9.5.1 Environmental indicators

The collation and reporting of data for environmental indicators involves extensive effort by Sydney Water. Sydney Water has been required to monitor and report its performance against various indicators: including Environmental Indicators required by Section 14(1)(d) of the Act; ESD Indicators by Clause 9.2 of the Licence; and chemicals in sewage discharges (Schedule 10 substances) required by Section 23 of the Act.

This is the last reporting period that the “Environmental Indicators” are required to be reported as a condition of the Licence. In future years, a streamlined suite of environmental performance indicators will be reported.

9.5.2 Botany Wetlands

Sydney Water continues to apply its resources to implement the Management Plan for the Botany Wetlands, albeit with reduced expenditure in some key programs. The wetlands continue to improve across a number of environment parameters, including ecological stability, carp removal and water quality outcomes.

However, the main issues remain, as in previous years, that the 1997 *Botany Wetlands Plan of Management* needs to be replaced and be incorporated within a broader catchment management context. Steps are being taken to address both these key issues, although progress is slow, that is, Sydney Water waited for over a year to receive a response or approval to its suggested reform program; the brief to develop a new Plan of Management and the re-establishment a new Steering Committee continued to be under development over the 2004/05 year.

9.6 Factors affecting compliance

No extraordinary events or factors affected compliance for environmental indicators, ESD indicators and the Environment Plan or Botany Wetlands. As described in the compliance table, the preparation of a “triple bottom line” Annual Report that includes the performance reporting against the ESD Indicators and Environment Plan for 2003/04 and 2004/05 resulted in a delay to the finalisation and the public release of these reports.

The on-going drought influenced the performance of Sydney Water against specific environmental indicators but this did not significantly affect the level of compliance with the Operating Licence.

9.7 Recommendations

9.7.1 Key recommendations

It is recommended that Sydney Water:

- R9.1 Review and strengthen programs to improve performance in areas where environmental and ESD indicators show low or decreasing performance (especially demand management, effluent re-use, energy use, greenhouse gas emissions) or where progress indicates future targets are unlikely to be met (such as reduced water consumption).
- R9.2 Identify the reasons and take corrective action for major capital works programs that benefit the environment not being delivered on time or undergoing significant changes following the start of implementation.
- R9.3 Develop a new Botany Wetland Plan of Management, to provide direction, actions, desired outcomes and timetables for the Management of the Botany Wetlands over the next five years by December 2006 and provide this Plan to the Minister for approval.
- R9.4 Maintain continuity of Botany Wetlands Plan of Management and restore implementation expenditure levels, pending the adoption of a new Plan.
- R9.5 Establish a reinvigorated Botany Wetlands Environmental Management Steering Committee, *in conjunction with appropriate persons over 2005/06*.

9.7.2 Secondary recommendations

- R9.6 Enhance the format of the publicly available *"Implementation of Botany Wetlands Plan of Management- Summary Report"* by including:
 - ▶ Graphic trends (in for example, water quality, trash removed, carp removed and algae counts) to demonstrate the ecological performance achieved through the implementation of the POM over the life of the Plan; and
 - ▶ Trend line of annual expenditure by Plan of Management programs.
- R9.7 Continue to investigate the trade wastewater source(s) of the substances that are assumed to be causing toxicity and develop trade waste strategies (where applicable), to reduce the potential for toxicity.
- R9.8 Continue to develop programs for trade wastewater customers to reduce water consumption (and hence the volume of trade wastewater).

10. Dispute resolution scheme

10.1 Summary of findings

► Internal dispute resolution

While most areas relating to Internal Dispute Resolution obtained a **Full compliance** rating, the areas which were rated as **High compliance** could be improved through:

- More refinements in the use of customer / complainant feedback to assess the level of compliance with all elements of the Australian Standard (AS4269 – 1995);
- Instigation of a more comprehensive skills assessment and training program for staff in complaint handling and dispute resolution, including face-to-face complaints handling and a formal assessment of the program's effectiveness;
- Development of a unified recording system for the single registration of all complaints; and
- Review of complaints administration processes to rectify the problem of complaints being 'left open' by staff.

► External dispute resolution

The Energy and Water Ombudsman NSW (EWON) continues to be the mechanism adopted by Sydney Water for the independent review of customer complaints, which meets the requirement for External Dispute Resolution. The Auditor was provided with an EWON Customer Survey report that had been received by Sydney Water in 2005. However, the data were collected in 2003 (the report had not been released earlier because it required approval from the EWON Board and Council). Also, an external review of EWON had been conducted in early 2005 and two customer satisfaction surveys were carried out in 2004/05. However, no recent information or correspondence was presented to the Auditor regarding compliance with specific clauses of the Licence, particularly the operational issues (sub-clauses under Clause 12.2.5) relating to efficiency, fairness and informality.

► Complaints to other bodies

Sydney Water indicated that no such complaints had been recorded and, hence, a **No requirement** rating has been recorded. Following some confusion in previous audits as to the scope and nature of complaints to other bodies, Sydney Water and IPART addressed the matter in the End of Term Review of the Operating Licence.

10.2 Summary of requirements

Part 10 (Clause 10.2.1) of the Operating Licence specifically requires the Auditor to report on:

- (o) The effectiveness of Sydney Water's internal dispute resolution scheme;
- (p) The effectiveness of Sydney Water's external dispute resolution scheme; and
- (q) Complaints made to a Court or Tribunal.

These clauses refer to Part 12 of the Licence that sets the requirements for the Dispute Resolution Scheme adopted by Sydney Water. Specifically Part 12 includes the following:



12.1 - Internal dispute resolution process: This clause covers the process used by Sydney Water to receive, respond to, and resolve complaints made by customers against Sydney Water.

12.2 - External dispute resolution process: If customers are unable to resolve complaints made to Sydney Water, then a further process is in place to assist customers. The external dispute resolution scheme is therefore to be at arms length to the operations of Sydney Water.

12.3 - Complaints to other bodies: Customers may also lodge complaints with other bodies and these also need to be reported to the Licence Regulator.



10.3 Details of compliance

Table 10.1 Dispute Resolution Scheme – Part 10 Licence clauses

Clause	Requirement	Compliance	Findings
10.2.1	The Licence Regulator or the person undertaking the Annual Audit must investigate and prepare a report on the following:		
(o)	The effectiveness of Sydney Water's internal dispute resolution scheme under Clause 12.1	No requirement	This clause requires an assessment of “effectiveness” rather than “compliance”. The appropriate reports have been provided and the matter is discussed under the relevant sections of the Licence.
(p)	The effectiveness of Sydney Water's external dispute resolution scheme under Clause 12.2	No requirement	This clause requires an assessment of “effectiveness” rather than “compliance”. The appropriate reports have been provided and the matter is discussed under the relevant sections of the Licence.
(q)	Complaints made against Sydney Water to a court or tribunal under Clause 12.3	No requirement	No such complaints were recorded and the matter is discussed under the relevant sections of the Licence.



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
12.1	Internal Dispute Resolution Process		
12.1.1	Sydney Water must establish internal complaints handling procedures for receiving, responding to and resolving complaints by Customers and Consumers against Sydney Water	Full compliance	Sydney Water presented the “ <i>Customer Complaint Policy</i> ” and the “ <i>Customer Complaint Procedure</i> ” documents which were, respectively, current from December 2001 and December 2004. The only change (made in December 2004) in relation to the previous audit period was the inclusion of materials in the “ <i>Customer Complaint Procedure</i> ” regarding a new customer contact and complaints management system called ‘Customer View’. These reports provided to the Auditor indicate that Sydney Water is receiving, responding to and resolving complaints.
12.1.2	The internal complaints handling procedures of Sydney Water must be based on the Australian Standard AS4269-1995 Complaint Handling	High compliance	<p>Sydney Water introduced a new customer contact and complaints management system called ‘Customer View’ on 1 November 2004. This has replaced the previous use of the Electronic Complaint System (ECS) and some aspects of ACCESS (the account and billing system) for the collection of complaint information. While the new system has the advantage of being integrated with other systems so that complaints handling staff are able to examine the history of any customer, not all complaints are captured in Customer View. ACCESS matters relating to overcharging on bills are not covered by Customer View. The Water Asset Management System (WAMS) continues to be used to record a significant number of complaints. Sydney Water indicated that “<i>eventually</i>” the Customer View system “<i>may</i>” be the front-end system for WAMS. However, at this stage, staff are required to choose a recording system depending on the nature of the complaint; at times, two entries are required.</p> <p>An important measure concerning achievement of the standard for complaints handling is the perceptions of the complainants themselves. The central mechanism that has been used to assess complainant satisfaction is the Emergency Contact Survey which is conducted by an external agency with data being collected on a continuous basis (50 interviews per fortnight) using a sample of complaints.</p> <p>An Emergency Contact Survey summary report was provided which included results for the 2004/05 audit period. While indicators were nominated for nine of the 13 elements of the Australian Standard (AS4269-1995), it was identified that four elements – visibility, assistance, charges and accountability – were not covered by the survey and Sydney Water provided no further information that indicated that these elements could be assessed. As such, the Auditor suggests that the survey instrument be refined to include questions addressing each of the relevant elements of AS4269-1995. This would assist in providing the information</p>



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
			<p>necessary to make an assessment as to whether the complaint handling system fully complies with the Licence.</p> <p>Furthermore, while the Emergency Contact Survey summary report provides valuable information, the Auditor has the following concerns:</p> <ul style="list-style-type: none"> ▮ No information was provided to clarify the source of the complaints sample (that is, whether it was extracted from WAMS and / or Customer View) or the survey response rates. Thus, no conclusions can be drawn about the representativeness of the results; and ▮ A number of results suggest some deterioration in Sydney Water's performance. For example, indicator 2(a) for Fairness, indicator 1(a) for Access (Water) and indicator 5(b) for Responsiveness (and other criteria) have recorded decreases. However, there is no indication as to whether these declines are statistically significant. <p>A Training and Awareness Program for the new Customer View system was conducted in October 2004 and was attended by 475 staff: 234 staff attended the Classroom Training presentations, representing 79% of all staff nominated for this training, while 241 staff attended the Awareness presentations, representing 59% of nominated staff. A list of attendees was provided to the Auditor, as well as a Customer View Learning Guide and User Training Scenarios. A Training Summary Report indicated that feedback was requested from staff regarding the training session (449 completed feedback forms were received). No training for face-to-face complaints handling has been conducted since late 2003. No formal monitoring or audit of the effectiveness of the training and system has been conducted during 2004/05 because Sydney Water was waiting until staff became more experienced with the new system.</p> <p>To obtain full compliance for this clause, Sydney Water would be required to provide evidence of a more formalised and comprehensive training program. This would include an assessment of the effectiveness of the training programs conducted with both Customer Centre staff and for all staff (an example for the latter group would include an investigation of whether staff have read the presentation; how well have they understood it, etc). In the Auditor's view, such evidence has not been provided and, for this reason – in combination with the points made above regarding the Emergency Contacts Survey – the rating has been maintained at High compliance.</p>



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
12.1.3	Sydney Water must make available to Customers and Consumers information concerning its internal complaints handling procedures which explains how to make a complaint and how the procedure works	Full compliance	<p>Pamphlets on the following matters were provided and the procedures were sighted on the Sydney Water website:</p> <ul style="list-style-type: none"> ▶ Our Customer Contract in Brief; and ▶ Sharing your views with Sydney Water.
12.1.4	Sydney Water must provide information of the nature described in Clause 12.1.3 to Customers through their quarterly, or other, bills at least once annually	Full compliance	<p>Pamphlets have been sighted and it was indicated that these were sent out to customers with accounts. The pamphlet <i>"Sharing your views with Sydney Water"</i> was mailed to customers through the bill inserts program with 50% of customers receiving the pamphlet in October 2004 and 50% in January 2005. The <i>"Customer Contract"</i> pamphlet was distributed in July 2004.</p>
12.1.5	The Customer complaint handling, complaint resolution process and Customer redress provided to Customers under the Customer Contract must be reviewed and amended where necessary by Sydney Water to ensure that it is based on the Australian Standard AS4269-1995 Complaint Handling	High compliance	<p>This clause is related to Clause 12.1.2 so those findings are relevant to the level of compliance with this clause. The previous recommendation of a formal evaluation program has not been acted on. As such, the rating has been maintained at a High compliance.</p>
12.1.6	Sydney Water must report each year to the Licence Regulator as part of the Annual Audit on the following details concerning complaints made against Sydney Water which are handled by its internal complaints handling process:		
12.1.6(a)	<p>The number and type of complaints received on a month by month basis, classified by Suburb into one or more of the following categories:</p> <ul style="list-style-type: none"> Water quality including health and aesthetic parameters; Continuity of water supply; Water pressure; Sewage odour; Sewage overflow; 	Full compliance	<p>The Auditor has received the report as required by the Licence and the report addressed all requirements of the Licence.</p>



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
	Stormwater and drainage services; and Billing including availability charges payable under the Act.		
12.1.6(b)	The number and type of complaints resolved or not resolved (on a month by month basis) in sufficient detail and using sufficient classifications to enable the Licence Regulator to gain a reasonable understanding of how and how well those complaints were resolved or why complaints were not resolved, as the case may be;	High compliance	<p>Reports were provided which show the number of complaints resolved and unresolved on a monthly basis. Reports were also provided which indicated the number of unresolved complaints by age and type. As noted in the previous Audit report, while these quantitative reports show the main methods used to resolve complaints, the reports do not address the issue of <i>“how well those were resolved”</i> other than the length of time it takes to respond to a complaint. Complaints are therefore <i>“resolved”</i> or <i>“unresolved”</i> and the success of the resolution is indirectly reported through the Emergency Contact Survey.</p> <p>Despite the introduction of the new Customer View (C-View) System, the Auditor notes that complaints are still being sourced from the Works and Asset Management Services (WAMS) database in addition to the new C-View system. Sydney Water indicated that <i>“eventually”</i> the C-View system <i>“may”</i> be the front end system for WAMS. However, at this stage, staff are required to choose a recording system depending on the nature of the complaint and, at times, two entries may be required. The Auditor strongly recommends that Sydney Water develops a unified recording system for the registration of all complaints.</p> <p>While Sydney Water has indicated that 72% of all complaints had been resolved within 2 days during the 2004/05 Audit period, there appeared to be 123 remaining complaints that were unresolved after 50 days or more. Sydney Water indicated that at least 40% of the unresolved complaints were due to administration problems, specifically that <i>‘no actioning details had been recorded in the system’</i> or <i>‘resolved but not closed in the system’</i>. In other words, individual complaints had been left ‘open’ by Sydney Water staff with intentions of completing the details at a later date. The Auditor repeats the recommendation from the previous audit report that Sydney Water investigates the complaints administration system and processes to rectify this problem.</p> <p>The combination of the above issues has led the Auditor to retain a rating of High compliance.</p>
12.1.6(c)	Any problems of a systemic nature arising from the complaints	Full compliance	A systemic report was provided which meets the requirements of the Licence. The Auditor also noted that the report includes improvement strategies, which suggests that Sydney Water is productively utilising the information collected for planning purposes.



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
12.2	External Dispute Resolution Scheme		
12.2.1	Within 1 month after the Commencement Date, Sydney Water must establish a Dispute Resolution Scheme for the resolution by a Dispute Resolution Body of disputes between Sydney Water and its Customers and between Sydney Water and Consumers of the nature described in 12.2.3	No requirement	Sydney Water achieved Full compliance in the previous audits. Sydney Water has been a member of the EWON scheme since 1 January 2000.
12.2.2	The Dispute Resolution Scheme so established by Sydney Water is subject to the Minister's approval	No requirement	As reported previously, the scheme, and Sydney Water's participation in the scheme, was launched by the Minister.
12.2.3	<p>The Dispute Resolution Body is to hear disputes relating to complaints made by Customers and Consumers in relation to the following issues:</p> <ul style="list-style-type: none"> (a) Water quality, including health and aesthetic parameters; (b) Continuity of water supply; (c) Water pressure; (d) Sewage odour; (e) Sewage overflow; (f) Stormwater and drainage services; and (g) Billing, including availability charges payable under the Act 	Full compliance	Sydney Water provided a report compiled from data provided by EWON that provides the numbers of disputes handled in the specific categories. However, unlike previous years, no details of these complaints were included.



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
12.2.4	The Dispute Resolution Scheme must comply with the minimum standards, so far as applicable, specified in the Benchmarks for Industry-based Consumer Dispute Resolution Schemes released by the Commonwealth Minister for Customs and Consumer Affairs in August 1997	High compliance	The EWON member's manual (Section 1.6) indicates that EWON applies the National Benchmarks for Industry-Based Customer Dispute Resolution Schemes. However, given the lack of recent information from EWON about its compliance with the standards (see Clauses 12.2.5 (c) to (e) and discussion in Section 10.4.2), this rating has been maintained at High rather than Full compliance.
12.2.5	The Dispute Resolution Scheme must have the following features:		
12.2.5(a)	The decision making process of the Dispute Resolution Body and administration of the scheme is to be independent from Sydney Water and subsidiaries of Sydney Water	Full compliance	As reported in the previous audits, the Articles / Constitution of EWON and the associated governance structure provide the necessary independence between Sydney Water and the scheme.
12.2.5(b)	Sydney Water agrees to abide by the decisions of the Dispute Resolution Body in relation to disputes referred to it for resolution	Full compliance	In becoming a member of EWON Ltd, Sydney Water has agreed <i>"to be bound by and observe the terms of the Constitution"</i> (Clause 11.8.2 (a)) and under Clause 6.2 of the Constitution of the scheme, <i>"All decisions by the Ombudsman under paragraph 6.1 shall be automatically binding upon members."</i>
12.2.5(c)	The Dispute Resolution Scheme must adopt informal proceedings which discourage a legalistic adversarial approach	High compliance	<p>The report prepared by Sydney Water describes the process followed to resolve complaints and Sydney Water has indicated that this clause is covered in the EWON Constitution. However, concerns remain whether Sydney Water is sufficiently able to monitor EWON's performance on operational issues such as those covered in Clauses 12.2.5(c), (d) and (e). The Auditor was provided with an EWON Customer Survey report which had been received by Sydney Water in 2005. However, while the EWON Customer Survey report indicates that satisfaction with outcomes was reported by 81% of customers, the data were collected in 2003 (it was indicated that the report had not be released earlier because it required approval from the EWON Board and Council).</p> <p>The report prepared by Sydney Water stated that an external review of EWON was conducted in early 2005 and that two customer satisfaction surveys were carried out in 2004/05 (see page 12 of the report). However, no recent information or correspondence was presented to the Auditor from EWON regarding its compliance with these requirements.</p>



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
			The Auditor has previously noted that Sydney Water cannot delegate responsibility for compliance with a clause of its Operating Licence to another body, nor can it point to that body's Constitution to indicate such compliance. Consequently, as no recent information has been provided by Sydney Water to establish whether the Dispute Resolution Scheme has adopted informal proceedings in conformance with this clause, the compliance rating has been maintained at High compliance.
12.2.5(d)	Decisions of the Dispute Resolution Body should be fair and seen to be fair, by observing the principles of procedural fairness, by making its decisions based upon the information before it and by having specific criteria upon which its decisions are based	High compliance	<p>This clause is related to Clause 12.2.5(c) and so the comments relevant to the level of compliance for that Clause are also relevant for 12.2.5(d).</p> <p>The Auditor has considered the outcome of the independent survey conducted on behalf of EWON in 2003 to assess compliance with this clause. The survey suggests that 71% of the customers/ complainants agreed or strongly agreed with the statement <i>"My complaint was handled fairly and impartially by EWON"</i>. However, this type of information needs to be provided annually to maintain Full compliance with this clause or, at a minimum, annual evidence be supplied that EWON has an ongoing evaluation process to assess compliance with this clause. Hence, given the comments made under 12.2.5(c) and that Sydney Water is reliant on dated information from EWON to assess compliance, the compliance rating has been maintained at High rather than Full.</p>
12.2.5(e)	The Dispute Resolution Scheme is to operate efficiently by keeping track of disputes referred to it, ensuring complaints are dealt with by the appropriate process and by the Dispute Resolution Body regularly reviewing the operation of the Dispute Resolution Scheme	High compliance	<p>This clause is related to Clauses 12.2.5(c) and (d) so the comments relevant to the level of compliance with these clauses are also relevant for 12.2.5(e).</p> <p>Details of finalised contacts are provided to Sydney Water on a quarterly basis. The report prepared by Sydney Water indicates that EWON is able to track and report on the disputes referred to it. The report also indicated that EWON itself was reviewed in early 2005. However, the outcome of this review has not been made available. The Auditor suggests that such external reviews need to be commissioned regularly and that regular and timely customer satisfaction surveys be conducted. Such programs would need to be undertaken within each audit period for Sydney Water to establish Full compliance with this clause.</p>
12.2.5(f)	The Dispute Resolution Scheme is to be free of cost to Customers and Consumers and is to be funded by Sydney Water	Full compliance	Sydney Water contributes to the cost of operation of EWON together with other members of the scheme. The contributions are based upon the number of complaints sourced from a particular member.



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
12.2.6	Sydney Water must prepare a pamphlet that explains how the Dispute Resolution Scheme operates and how it can be accessed	Full compliance	Sydney Water provided a copy of the pamphlet, “ <i>Sharing your views with Sydney Water</i> ” which covers both internal and external complaint handling.
12.2.7	Sydney Water must provide the pamphlet to Customers through their quarterly or other bills, at least once annually	Full compliance	Evidence was provided that the above pamphlet had been circulated to customers with the quarterly bills, with 50% of customers receiving the pamphlet in October 2004 and 50% receiving it in January 2005.
12.2.8	Sydney Water must provide the Licence Regulator with written reports of the determination made by the Dispute Resolution Body based on information reasonably obtained from the Dispute Resolution Body. Where considered appropriate by Sydney Water and the Dispute Resolution Body, confidentiality arrangements are to be made so as not to disclose the Customer or Consumer’s identity in such reports	No requirement	As was the case in previous years, there appears to have been no complaints requiring “ <i>determination</i> ” by EWON and therefore there is no need for a report. (Note: The word “ <i>determination</i> ” has a very specific meaning for EWON and refers to complaints about which a negotiated outcome between Sydney Water and the complainant was not possible and therefore had to be “ <i>determined</i> ” by EWON. It does not refer to all the complaints referred to EWON and the specific outcomes of those complaints.)
12.2.9	Sydney Water must produce a yearly report to the Licence Regulator based on information available to Sydney Water and information reasonably obtained from the Dispute Resolution Body. The report must contain the following information:	See below	Sydney Water has prepared a report with compliance ratings provided for each of the following sub clauses.
12.2.9(a)	How the scheme works	Full compliance	The information is included in the Report.
12.2.9(b)	The number and types of complaints received by the Dispute Resolution Body, classified by Suburb into one or more of the following categories: 1. Water quality including health and aesthetic parameters 2. Continuity of water supply 3. Water pressure	Full compliance	This year’s report provides the number of complaints received by EWON and unresolved at the end of the year (98 according to the table on page 14). All other information is provided for finalised complaints, rather than received complaints.



Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses

Clause	Requirement	Compliance	Findings
	4. Sewage odour 5. Sewage overflow 6. Stormwater and drainage services 7. Customer billing, including availability charges payable under the Act		
12.2.9(c)	The outcome of these complaints	Full compliance	The information is included in the report.
12.2.9(d)	The time taken to resolve complaints	Full compliance	The information is included in the report.
12.2.9(e)	The procedure for resolving complaints	Full compliance	The information is included in the report.
12.2.9(f)	Any problems of a systemic nature arising from the complaints	Full compliance	Sydney Water has provided an assessment of the key categories of complaints and key local government areas for complaints together with a general comment about Sydney Water's response to these concerns.
12.2.9(g)	Any other relevant information required by the Licence Regulator to be included in the report	No requirement	No other information was required.
12.2.10	The report referred to in Clause 12.2.9 is to be made available to the public free of charge	Full compliance	The report is available on the Sydney Water website.
12.3	Complaints to Other Bodies		
12.3	Sydney Water must report to the Licence Regulator by no later than 1 September each year (for consideration and reporting by the Licence Regulator as part of the annual audit) on complaints made against Sydney Water to a court or tribunal, such as the Fair Trading Tribunal, (based on information available from these bodies and Sydney Water itself as a party to the complaint) containing the following details	No requirement	<p>In terms of the 2004/05 audit, Sydney Water provided information from the Consumer, Trader and Tenancy Tribunal (CTTT) which indicates that the CTTT received one claim against Sydney Water during the audit period. The applicant withdrew this claim on 4 August 2004 (prior to the hearing). Further advice from Sydney Water indicated that no civil suits were received by Sydney Water, nor were any matters referred for resolution by a court pertaining to any alleged breach of the Operating Licence or Customer Contract.</p> <p>Previous audits recommended discussion between the Licence Regulator and Sydney Water on the interpretation of this clause. The Auditor notes that the 2005-10 Operating Licence</p>

**Table 10.2 Dispute Resolution Scheme – Part 12 Licence clauses**

Clause	Requirement	Compliance	Findings
			clarifies the intent of this clause.
12.3(a)	The number and types of complaints received by such other bodies	As above	
12.3(b)	The outcome of complaints	As above	
12.3(c)	How the complaints were resolved	As above	
12.3(d)	Any problems of a systemic nature arising from the complaints	As above	
12.3(e)	Any other relevant information required by the Licence Regulator to be included in the annual report	As above	

10.4 Discussion

10.4.1 Internal dispute resolution process

Sydney Water introduced a new customer contact and complaints management system called 'Customer View' on 1 November 2004. ACCESS matters relating to overcharging of bills that have been sent to customers are not covered by Customer View and the Water Asset Management System (WAMS) continues to be used to record a significant number of complaints. It is the view of the Auditor that an integration of systems would be highly beneficial for Sydney Water's performance in the resolution of its internal disputes.

The Operating Licence requires that the dispute resolution scheme needs to be based on the Australian Standard for complaint handling (AS 4269-1995). While Sydney Water has a procedure which covers the key elements of the Standard, a key judge of the system needs to be the customer or complainant. The mechanism used to assess complainant satisfaction is the Emergency Contact Survey which is conducted by an external agency with data being collected on a continuous basis using a sample of complaints. While Sydney Water has improved some aspects of the survey in recent years, the Auditor suggests that the survey instrument be refined to include questions which specifically address all of the relevant elements of AS4269-1995: four elements – visibility, assistance, charges and accountability – are not covered by the current survey and Sydney Water has provided no further information by which these elements could be assessed.

In terms of staff training regarding complaints handling, the Auditor recommends that a more comprehensive skill assessment and training program needs to be undertaken. This would include training on handling face-to-face complaints as well as a formal assessment of the effectiveness of the training program conducted with both Customer Centre staff and all staff. The Auditor also notes the need for improvements in complaints administration training and processes to address the problem of complaints being 'left open' by staff.

10.4.2 External dispute resolution scheme

The Energy and Water Ombudsman NSW (EWON) scheme continues to be the mechanism adopted by Sydney Water through which customers can obtain an independent review of their complaint.

The Auditor continues to rely heavily on the material provided by Sydney Water from EWON to assess compliance. As Sydney Water is reliant on the activities of EWON to ensure compliance with its Licence, Sydney Water may require more regular evaluation and reporting by EWON on a number of issues relevant to specific clauses of the Operating Licence. In particular, three clauses refer to characteristics of the dispute resolution scheme which need to be evaluated annually, that is, Clauses 12.2.5 (c), 12.2.5 (d) and 12.2.5 (e) require some mechanism which allows Sydney Water to demonstrate the scheme continues to comply with its Licence on an annual basis.

The Auditor has previously noted that Sydney Water cannot delegate responsibility for compliance with a clause of its Operating Licence to another body. Consequently, compliance ratings for a number of Clauses relating to external disputes have been maintained at High rather than Full compliance.

10.5 Factors affecting compliance

10.5.1 Internal dispute resolution process

The key issues adversely affecting the compliance ratings for this section were the need for:

- ▶ More refinements in the use of customer / complainant feedback to assess the level of compliance with all elements of the Australian Standard (AS4269 – 1995);
- ▶ Instigation of a more comprehensive skills assessment and training program for staff in complaint handling and dispute resolutions, including face-to-face complaints handling and a formal assessment of the program's effectiveness;
- ▶ Development of a unified recording system for all complaints; and
- ▶ Review of the administration process to rectify the problem of complaints being 'left open' by staff.

10.5.2 External dispute resolution scheme

The key concern regarding external dispute resolution continues to be the attempts by Sydney Water to delegate its responsibility for compliance with the Operating Licence to EWON. While EWON's Constitution is relevant to the evaluation of compliance, it is also necessary to have current evidence from EWON that its performance is meeting the requirements of Sydney Water's Operating Licence.

10.6 Recommendations

10.6.1 Key recommendations

It is recommended that Sydney Water:

- R10.1 Develop a more comprehensive investigation and survey system for complaints including refinement of the Emergency Contact Survey to test all dimensions of AS4269-1995.
- R10.2 Develop an integrated customer contact and complaints recording system.

10.6.2 Secondary Recommendations

- R10.3 Undertake a more formal and comprehensive annual skills assessment and training program on dispute resolution and complaints handling for all relevant staff, including an assessment of the effectiveness of the training.
- R10.4 Ensure that the features of the External Dispute Resolution Scheme specified under Clause 12.2.5 (a) to (f) of the Operating Licence, especially that the Scheme be independent, informal, fair and free of charge, are maintained.



CLIENTS | PEOPLE | PERFORMANCE

Appendix A

Audit brief



INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

I N V I T A T I O N T O T E N D E R

SYDNEY WATER CORPORATION - 2004/05 OPERATIONAL AUDIT

1 BACKGROUND

The Independent Pricing and Regulatory Tribunal of New South Wales (the Tribunal) is seeking suitably qualified consultants to conduct an audit of Sydney Water Corporation's performance against its Operating Licence.

Sydney Water is a State Owned Corporation that provides water, sewerage and some stormwater drainage services to about 4 million people within Sydney, Blue Mountains and Illawarra regions.

In accordance with the *Sydney Water Act 1994*, the NSW Government granted an Operating Licence to Sydney Water in 1995. Recently, amendments to this licence have been proposed to Government. The Tribunal anticipates that the amended licence will come into force in July 2005. A copy of the current Operating Licence can be found at www.sydneywater.com.au. A requirement of the existing Operating Licence is that an annual Operational Audit of the Corporation's performance against its obligations under this Licence be undertaken. The Tribunal is preparing to undertake this audit.

The Audit is used by the Tribunal as the basis for its report on Sydney Water's performance and its recommendations to the Minister for Energy and Utilities (Sydney Water's portfolio Minister).

The Environment Protection Authority, the Department of Infrastructure, Planning and Natural Resources and NSW Health continue to regulate Sydney Water's activities concerning the environment, its use of water resources and public health respectively.

2 OBJECTIVES OF CONSULTANCY

The objective of the consultancy is to assess Sydney Water's performance against its Operating Licence for the period from 1 July 2004 to 30 June 2005. In undertaking this task the auditor must:

1. conduct a detailed examination of those activities of Sydney Water that are regulated by the Operating Licence;
2. assess the level of compliance achieved by the Corporation against each of the requirements of the Operating Licence providing detailed supporting evidence for this assessment and reporting compliance according to the Tribunal's established compliance scoring methodology;

3. assess and report on progress by the Corporation in addressing the comments made by the Minister (Attachment 1), providing supporting evidence for these assessments;
4. for each section of the Operating Licence, identify factors (if any) that have affected Sydney Water's performance for the period from 1 July 2004 to 30 June 2005 and make recommendations to the Tribunal on how Sydney Water can improve its performance in the future, based upon the audit assessment;
5. provide a formal briefing to the Tribunal or the Tribunal's Secretariat comprising an overview of the Corporation's overall performance against the requirements of the Operating Licence and the key findings of this assignment; and
6. prepare a full report on the findings of the assignment, including a summary of the Corporation's overall performance against the requirements of the Operating Licence and detail of its compliance with each requirement of the Operating Licence and any requirements of the Minister in Attachment 1.

The auditor will be responsible for assessing and interpreting the audit requirements in the Operating Licence and the Act and ensuring that the audit process satisfies all statutory requirements. Notwithstanding this, the audit report should reflect the emphasis of the *Sydney Water Act 1994* and the Operating Licence on water quality, system performance, environmental and consumer issues.

As well as these requirements, the Tribunal has identified the following key issues for the 2004/2005 audit:

- Confirmation of the Sydney Catchment Authority's finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low.
- Demand management performance.
- Performance against the System Performance Standards.

Under its Operating Licence, Sydney Water is required to provide the Tribunal with a range of reports to inform the Operational Audit. This package of information will be provided to the successful tenderer.

The Tribunal will advertise this audit process and seek submissions from the public. The audit process should take account of any public submissions received and the views of Sydney Water's regulators (Department of Environment and Conservation, NSW Health and the Department of Infrastructure, Planning and Natural Resources) and other stakeholders including environment, social welfare and public interest groups.

2.1 Outputs

The main outputs from the Audit are:

1. two draft reports and a final written report addressing the objectives of the consultancy relevant to the Operating Licence and the Ministerial requirements.
2. discussions and meetings with the Tribunal and/or the Tribunal Secretariat, and
3. presentations to the Tribunal and/or Tribunal Secretariat which outline the major issues and findings relevant to the objectives.

Four bound copies and 1 loose-leaf copy, as well as electronic copies in Microsoft Word format, should be provided for the draft and final reports referred to in point 1 above.

The auditor should note that the final Operating Licence report will be tabled in Parliament by Sydney Water's portfolio Minister and, as such, will become a public document. Accordingly, the report should be clearly and logically set out and written in plain English, avoiding the use of unnecessary technical language. The Tribunal will also publicly display and make the report available for downloading on its website.

On completion of the audit, the auditor's Operating Licence reports, working papers and advice provided to the Tribunal will become the property of the Tribunal.

2.2 Format of Report

The Tribunal's format for the final report includes:

- a summary of compliance with the requirements of the Operating Licence and Ministerial Requirements and a summary of key recommendations.
- a summary of key audit findings providing a performance overview within the context of the Sydney Water's business, legislated objectives and regulatory environment.
- for each section of the licence and for any Ministerial Requirements:
 - a summary of findings
 - a summary of requirements
 - details of compliance
 - a discussion of any relevant factors affecting compliance
 - a discussion of any other relevant issue
 - recommendations on how performance can be improved in the future.

Further details of the Tribunal's preferred format will be provided to the successful tenderer.

3 CONDITIONS OF TENDER

3.1 Timing

The successful tenderer must be able to meet the following work schedule:

CONTRACT PROGRAM		
Month	Date	Activity
August	Fri 19	Start of contract, Inception meeting with auditor
September	Fri 30	Delivery of first draft Audit Report (First milestone)
October	Wed 5	Discussion of first draft with Tribunal and /or Secretariat
	Fri 28	Delivery of second draft Audit Report (Second milestone)
November	Wed 2*	Discussion of second draft with Tribunal and/or Secretariat
December	Wed 7*	Discussion of final Audit Report with Tribunal and/or Secretariat (if required)
	Fri 16	Delivery of final Audit Report (Third milestone)
		End of Contract

*Indicative dates – subject to negotiation between the Tribunal Secretariat and auditor.

Formal written progress updates will be required from the consultant on a weekly basis. Progress meetings in addition to those in the above program are expected. The detailed consultancy work plan should reflect these.

3.2 Fee

The fee quoted is to be inclusive of all costs including Goods and Services Tax, incidental expenses and disbursements. Payments will be due within 28 days of receiving an invoice as per an agreed payment schedule. The consultant may wish to outline a draft payment schedule.

A detailed breakdown of the consultancy work program is required with the proposal. The proposal should include estimates of the time required for the project, auditors to be involved in the project, their rates, and a total fee estimate. Staff costs should be clearly reconciled to the detailed work plan. The auditor should allow for presentations to the Tribunal, discussion and meetings with the Tribunal Secretariat, and stakeholder meetings as required.

3.3 Proposal

The consultancy proposal should:

- demonstrate an appreciation for the task and describe the intended approach to the audit
- provide a list of personnel to be involved in the audit, together with brief resumes detailing relevant experience
- include a detailed work plan
- outline any potential conflicts of interest
- provide details of previous clients who can be contacted.

3.4 Presentation

Short listed tenderers will be required to make a presentation on their proposal as part of the tender evaluation process.

3.5 Criteria for selection

In selecting the successful consultant the Tribunal will consider the following matters:

- in-depth understanding and expertise in other areas covered by the Operating Licence (water quality, system performance, customer service and environmental measures)
- extent of knowledge about water and sewerage businesses
- experience in similar projects
- understanding of Sydney Water's regulatory framework
- proposed consultancy fee
- proposed audit and quality assurance procedures
- adequate resourcing and ability to provide results within the stated time frame and guaranteed availability of key staff

- demonstrated ability to enlist the agency's cooperation while encouraging an acceptance of the audit outcomes
- any conflict of interest identified
- demonstrated ability to produce quality reports suitable for public distribution.

The successful tenderer will be able to assemble an audit team with specific expertise and experience in each of the core auditable areas (water quality, system performance standards, customer service and environmental measures) and will include in its consultancy proposal details of the audit team structure having regard to these categories. Tenderers may consider forming consortia or contracting specialist consultants to achieve this balance of skills.

3.6 Acceptance of Tender

The Tribunal reserves the right to:

- accept no tender at all
- postpone indefinitely the acceptance of a tender
- call for new tenders
- appoint one or more tenderers to undertake the review
- approve or reject any sub-contractors the tenderer may wish to appoint.

3.7 Disclosure of information on Government Contracts

Potential tenderers should note that Government contracting guidelines may require the routine disclosure of the following information:

- details of contract (description of project to be completed or goods/services to be provided or property to be transferred; commencement date of the contract; the period of the contract)
- the full identity of the successful tenderer including details of cross ownership of relevant companies
- the price payable by the agency and the basis for future changes in this price
- the significant evaluation criteria and the weighting used in tender assessment, and
- provisions for re-negotiation (where applicable).

3.8 Consultancy Contract

The successful tenderer will be obliged to enter into a contract with the Tribunal prior to commencing the Audit. This consultancy contracts will cover issues including, but not limited to:

- consultancy information and documentation
- ownership of intellectual property
- conflicts of interest
- confidentiality
- insurance.

The Tribunal reserve the right to modify contract terms for the final contract as it considers appropriate. A copy of the draft contract is available on request.

4 PARTIES TO THE AUDIT

The party managing and commissioning the Audit is the Independent Pricing and Regulatory Tribunal of New South Wales. The primary contact at the Tribunal is:

Bob Burford	tel:	61-2-9290-8408
	e-mail:	bob_burford@ipart.nsw.gov.au

5 LODGEMENT OF TENDER

Three bound copies and 1 loose-leaf copy of the tender should be lodged in a sealed envelope marked

2004/05 Sydney Water Operational Audit

addressed to:	Ms Meryl McCracken General Manager, Support Services Independent Pricing and Regulatory Tribunal of NSW
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at	PO Box Q290 QVB POST OFFICE NSW 1230
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or	Level 2 44 Market Street SYDNEY NSW 2000
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The tender should be received at the Tribunal's office no later than 5.00 pm Sydney time, on Wednesday 29 June 2005.

ATTACHMENT 1 SUMMARY OF MINISTERIAL REQUIREMENTS AND AUDIT RECOMMENDATIONS FROM THE 2003/2004 OPERATIONAL AUDIT

Issue	Requirement
Drinking water quality	1. <i>"I endorse the Tribunal's recommendation that Sydney Water provide confirmation of the Sydney Catchment Authority's finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low."</i>
System Performance Standards	2. <i>"I support in-principle the Tribunal's recommendation that Sydney Water expedite the program to install regional meters to measure leakage."</i>

ATTACHMENT 2 SYDNEY WATER'S AMENDED SYSTEM PERFORMANCE STANDARDS

Requirement
<p>Water Pressure</p> <p>SPS 1</p> <p>The number of properties connected to Sydney Water's system that are reported as not receiving continuous water pressure at the main tap of at least 15 metres should not exceed 15,000 properties in a report year. The number of reportable properties is to include designated low pressure areas.</p> <p>Accuracy: $\pm 10\%$ with 95% confidence limits</p>
<p>Water Continuity</p> <p>SPS 2a</p> <p><i>Unplanned interruptions</i></p> <p>Sydney Water must ensure that in any report year, the number of properties connected to its water supply system that are reported as affected by an unplanned shut off of water supply exceeding 5 hours does not exceed 35,000.</p> <p>Accuracy: $\pm 5\%$ with 95% confidence limits</p> <p>SPS 2b</p> <p><i>'Planned and warned' interruptions</i></p> <p>Sydney Water must ensure that in any report year, the number of properties connected to its water supply system that are reported as affected by a 'planned and warned' shut off of water supply exceeding 5 hours does not exceed 32,000.</p> <p>Accuracy: $\pm 5\%$ with 95% confidence limits</p>
<p>Sewage overflows</p> <p>SPS 3</p> <p><i>Sewage overflows on private land</i></p> <p>Sydney Water must ensure that in any report year, the number of private properties reported as affected by dry weather uncontrolled sewage overflow incidents does not exceed 25,000.</p> <p>Accuracy: $\pm 5\%$ with 95% confidence limits</p>

Appendix B

Operating Licence

Operating

LICENCE

under the
Sydney Water Act 1994

NEW SOUTH WALES



SYDNEY WATER ACT 1994

**OPERATING LICENCE RENEWED UNDER SECTION 17 AND
AMENDED UNDER SECTION 16 OF THE SYDNEY WATER ACT 1994**

With the advice of the Executive Council, I, the Honourable Gordon Samuels AC, Governor of New South Wales, hereby renew the operating licence of Sydney Water Corporation under section 17 of the Sydney Water Act, and amend the operating licence under 16 of the Sydney Water Act 1994 and clause 10.1 of the operating licence, in the manner set out below.


Governor of New South Wales

Signed at Sydney, this 19th day of October 1999.

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SYDNEY WATER CORPORATION



Operating Licence under the *Sydney Water Act 1994*

- A. The Governor of New South Wales has renewed Sydney Water Corporation's operating licence under section 17 of the *Sydney Water Act 1994*.
- B. This Licence is renewed for a period of 5 years from 1 January 2000.
- C. This Licence is renewed subject to the Act.
- D. The Commencement Date of the Licence is 12 April 2000.

DEFINITIONS & INTERPRETATION

1.1 Definitions

In this Licence:

Act means the *Sydney Water Act 1994* and any regulations in force under it.

Annual audit is defined in clause 10.1.1 as the annual operational audit of Sydney Water.

Area of Operations means the area of operations specified in section 10(1) of the Act, a description of which is in Schedule 2.

[Note: Sydney Water has the same area of operations that Sydney Water Corporation Limited had immediately before it ceased to be a company State Owned Corporation. Section 10(1) requires that an operating licence contain a schedule that details the area of operations to which the operating licence applies.]

ARMCANZ means the Agriculture and Resource Management Council of Australia and New Zealand.

Catchment Authority means the Sydney Catchment Authority constituted under the *Sydney Water Catchment Management Act 1998*.

Commencement Date means the date on which these terms and conditions of licence take effect.

Competition Principles Agreement means the Competition Principles Agreement made on 11 April 1995 between the Commonwealth, States and internal territories, as in force from time to time.

Consumer means any person who consumes or uses the Services and includes, but is not limited to, a resident consumer (such as a tenant) or a non-resident consumer.

Customer means any person who is taken to have entered into a Customer Contract under section 55 of the Act, or to have entered into a contract on terms relating to the imposition of charges under sections 64 or 65 of the Act. Persons within this definition are owners of land:

- (a) connected to a water main, sewer main or re-use main owned by Sydney Water; or

- (b) not connected but having available for connection a water main, sewer main or re-use main owned by Sydney Water and liable for charges by Sydney Water in accordance with the Act; or

- (c) within a declared stormwater drainage area located in Sydney Water's Area of Operations.

Customer Contract means the contract annexed as Schedule 1, as varied from time to time in accordance with section 59 of the Act.

Dispute Resolution Body means a reputable person possessing qualifications and experience in the resolution of disputes by way of mediation or otherwise and includes a person who carries out investigative functions in the nature of an ombudsman.

Drinking water means water intended primarily for human consumption but which has other personal, domestic or household uses such as bathing and showering.

Ecologically Sustainable Development or ESD has the same meaning as in the *Protection of the Environment Administration Act 1991*.

ESD Indicators means indicators of Ecologically Sustainable Development practices and principles.

End of term review means the end of term review of this Licence under clause 2.4.1.

[Note: The End of term review is to commence on or about 1 January 2004.]

Environment Plan means a plan concerning the environment which contains, at a minimum, the details set out in clause 9.3.

EPA means the Environment Protection Authority constituted by the *Protection of the Environment Administration Act 1991*.

IPART means the Independent Pricing and Regulatory Tribunal of NSW constituted by the *Independent Pricing and Regulatory Tribunal Act 1992*.

Licence means this operating licence granted under section 12 of the Act to Sydney Water or any renewal of it, as in force for the time being.

Licence Review Body means IPART or, if the Minister administering the *Independent Pricing and Regulatory Tribunal Act 1992* directs that IPART is not to undertake the Mid-term review or the End of term review (as applicable) following receipt of advice from IPART concerning its workload, a person, (other than the Licence Regulator, Sydney Water or its Subsidiaries), who in the opinion of the Minister has suitable qualifications and experience for undertaking a Mid-term review or an End of term review.

Licence Regulator means a body established under section 30 of the Act.

[Note: The Licence Regulator is a body corporate representing the Crown.]

Memorandum of understanding means a memorandum of understanding to which clause 3.3.1 applies.

Mid-term review means the mid-term review of this Licence under clause 2.3.1.

[Note: The mid-term review is to occur on or about 1 January 2002.]

Minister means the Minister responsible for administering those provisions of the Act relating to this Licence.

National Parks and Wildlife means the National Parks and Wildlife Service constituted by the *National Parks and Wildlife Act 1974*.

NSW Fisheries means the NSW Department of Fisheries.

NSW Health means the NSW Department of Health.

NHMRC means the National Health and Medical Research Council.

Other Grades of water includes Re-use water but not Drinking water.

Property means any real property that is connected to or for which a connection is available to Sydney Water's Water supply system or Sewerage system determined from the point that the services provided by those systems are measured by Sydney Water for billing or other purposes. "Properties" has a corresponding meaning.

Rental Bond Board means the Rental Bond Board constituted by the *Landlord and Tenant (Rental Bonds) Act 1977*.

Re-use water means water derived from sewage treatment plants and untreated effluent extracted from sewers, which upon further treatment is suitable for its intended re-use application.

Services means the following services of Sydney Water permitted by this Licence and any applicable law:

- (a) storing and supplying water;
- (b) providing sewerage services;
- (c) providing stormwater drainage services; and
- (d) disposing of waste water.

Sewage overflow means a discharge of untreated or partially treated sewage from the Sewerage system. These overflows may occur in wet or dry weather.

Sewerage system means the system employed by Sydney Water to provide sewerage services.

SOC Act means the *State Owned Corporations Act 1989*.

Stormwater drainage system means the stormwater drainage system which Sydney Water must provide, operate, manage and maintain, which system was transferred from the Water Board to Sydney Water under Part 3 of the Act, subject to the transfer of any part or the whole of that system to another body where the Minister is satisfied that satisfactory arrangements have been made for the system to be provided by another body in accordance with section 14 of the Act.

Subsidiary has the same meaning as in the SOC Act. "Subsidiaries" has a corresponding meaning.

[Note: Section 3(1) of the State Owned Corporations Act 1989 defines a subsidiary to mean "a body corporate that is a subsidiary of a state owned corporation as determined in accordance with the Companies (New South Wales) Code or any other applicable law, and (in relation to a statutory SOC) includes a body corporate that would be such a subsidiary if the statutory SOC were a company SOC".]

DEFINITIONS & INTERPRETATION CONT.

Suburb means the suburb assigned a geographical name under the *Geographical Names Act 1966*.

Sydney Water means the Sydney Water Corporation constituted as a corporation by the Act.

Systems means the following systems of Sydney Water necessary for it to provide the Services:

- (a) Water Supply system;
- (b) Sewerage system;
- (c) Stormwater drainage system; and
- (d) Waste water system.

Trade Waste water means any Waste water generated from or as a result of an industrial or commercial activity undertaken, other than at domestic or household premises.

Unaccounted water losses means the difference between the amount of bulk water measured entering Sydney Water's supply system from all sources and the amount of water used by Customers, including metered water use and estimated legitimate unmetered usage. Unaccounted water losses includes the water lost, for example through evaporation, leakage from the system or unlawful use.

Waste water means any discarded water of any origin, clean or contaminated, that is discharged into a Sewerage or Stormwater drainage system.

Waste water system means the system employed by Sydney Water to provide waste water services.

Water Board means the body established under the *Water Board Act 1987*.

Water supply system means the system maintained and operated by, or on behalf of, Sydney Water for the purpose of supplying water derived from all sources of supply including water held in storage, groundwater and water made available for supply following chemical or other treatment, filtration or processing.

1.2 Interpretation

1.2.1 In this Licence, unless the contrary intention appears:

- (a) the word person includes an individual, a body corporate, an unincorporated body or other entity and one or more of each of them;
- (b) a reference to a law includes legislation (including the Act) and regulations made under legislation;
- (c) a reference to regulations includes ordinances, codes, licenses, orders, permits and directions;
- (d) a reference to a law, regulations, guidelines, any memorandum of understanding, plan or other strategy, standards, or list of indicators includes consolidations, amendments, variations, re-enactments, or replacements of any of them;
- (e) a reference to a person includes a reference to the person's executors, administrators, successors, substitutes (including, but not limited to, persons taking by novation) and assigns;
- (f) a reference to a year means a calendar year that ends on 31 December. "Yearly" has a corresponding meaning;
- (g) a reference to a financial year means a period of 12 months that ends on 30 June; and
- (h) a reference to a clause or Schedule is to a clause of or Schedule to this Licence.

1.2.2 If this Licence requires that something undergo public consultation, it requires as a minimum that:

- (a) notice of that thing and the nature and timing of the consultation be:
 - (i) advertised in a major daily newspaper circulating in the Area of Operations;
 - (ii) communicated to persons to whom it would reasonably be expected notice should be given; and
 - (iii) given to the Licence Regulator.
- (b) submissions be sought from the public and that these submissions be considered by the person conducting the review.

- 1.2.3 If any part of this Licence is prohibited, void, voidable, illegal or unenforceable, then that part is severed from the Licence but without affecting the continued operation of the remainder of the Licence.
- 1.2.4 A reference in this Licence to any organisation, association, society, group or body shall, in the event of it ceasing to exist or being reconstituted, renamed or replaced or if its powers or functions are transferred to any other entity, body or group, refer respectively to any such entity, body or group, established or constituted in lieu thereof or succeeding to similar powers and functions.
- 1.2.5 If there is disagreement between Sydney Water and the Licence Regulator as to the proper interpretation of any term of this Licence, the matter must be referred to the Minister for resolution by him or a person appointed by him.
- 1.2.6 The italicised explanatory notes in this Licence do not form part of this Licence.
- 1.2.7 Where the Licence Regulator requires some act or thing to be done under this Licence, Sydney Water must provide reasonable assistance to the Licence Regulator, or other person nominated by the Licence Regulator, with the intent of enabling that act or thing to be done.
- 1.2.8 If there is any inconsistency between this Licence and a Memorandum of understanding or between this Licence and a Customer Contract (including any interpretation of any provision), this Licence will prevail to the extent of the inconsistency, in each case.
- 1.2.9 Any clause of this Licence that expressly or impliedly requires Sydney Water to vary the Customer Contract is subject to section 59 of the Act and is of no force or effect unless the variation is approved by the Governor under section 59 of the Act.

INFORMATION ABOUT THIS LICENCE

2.1 Objectives of this Licence

The objective of this Licence is to enable and require Sydney Water to lawfully provide the Services within its Area of Operations. Consistent with this objective, this Licence requires Sydney Water to:

- (a) meet the objectives and other requirements imposed on it in the Act;
- (b) comply with the quality and performance standards in this Licence;
- (c) recognise the rights given to Customers and Consumers;
- (d) be subject to operational audits of compliance with this Licence; and
- (e) establish a dispute resolution scheme.

2.2 Duration of licence

- 2.2.1 This Licence is renewed for a term of 5 years commencing on 1 January 2000.
- 2.2.2 Notwithstanding the expiry of the term, the Governor may renew this Licence in accordance with the Act.

[Note: Section 17 of the Act allows the Governor to renew the licence for a maximum of 5 years at a time.]

2.3 Mid-term Licence Review

- 2.3.1 On or about 1 January 2002, a Mid term review must be undertaken:
 - (a) to determine whether this Licence is fulfilling its objectives; and
 - (b) in relation to any matter required to be reviewed by this Licence.
- 2.3.2 The review is to be undertaken by a Licence Review Body appointed by the Minister.
- 2.3.3 The Licence Review Body must engage in public consultation as part of the review.
- 2.3.4 The Licence Review Body is to report to the Minister within six months of commencing the review on the following:
 - (a) the findings of the review;
 - (b) any recommendations for amendment to this Licence; and

- (c) any recommendations for amendment to any law that adversely impacts on this Licence.

- 2.3.5 The Minister may accept or reject any recommendation made by the Licence Review Body.
- 2.3.6 If any recommendation made by the Licence Review Body and accepted by the Minister requires an amendment to this Licence, the recommendation is of no force or effect unless this Licence is relevantly amended in accordance with section 16 of the Act.
- 2.3.7 Any recommendation made by the Licence Review Body that is not accepted by the Minister is of no force or effect.
- 2.3.8 The Licence Review Body's report must be made available to the public by Sydney Water at the direction of the Minister (which direction must be given within 2 months after the Minister receives the report). Copies are to be made available from Sydney Water's offices on request free of charge and posted on Sydney Water's website on the internet for downloading by any person also free of charge. A reasonable number of copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.

2.4 End of Term Licence Review

- 2.4.1 An End of term review for the purpose of determining the terms of any renewal of this Licence is to commence on or about 1 January 2004.
- 2.4.2 The review is to be undertaken by a Licence Review Body appointed by the Minister.
- 2.4.3 The Licence Review Body is to engage in public consultation as part of the review.
- 2.4.4 The Licence Review Body is to report to the Minister within 12 months of commencing the review on the following:
 - (a) the findings of the review;
 - (b) any recommendations for amendment to this Licence, including any additional terms to be included in any renewal of this Licence; and

- (c) any recommendations for amendment to any law that adversely impacts on this Licence.
- 2.4.5 The Minister may accept or reject any recommendation made by the Licence Review Body.
- 2.4.6 If any recommendation made by the Licence Review Body and accepted by the Minister requires an amendment to this Licence, the recommendation is of no force or effect unless this Licence is relevantly amended in accordance with section 16 of the Act.
- 2.4.7 Any recommendation made by the Licence Review Body that is not accepted by the Minister is of no force or effect.
- 2.4.8 The Licence Review Body's report must be made available to the public by Sydney Water at the direction of the Minister (which direction must be given within 2 months after the Minister receives the report). Copies are to be made available from Sydney Water's offices on request free of charge and posted on Sydney Water's website on the internet for downloading by any person also free of charge. A reasonable number of copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.

2.5 Licence amendment

- 2.5.1 Subject to section 16 of the Act and clause 2.5.2, this Licence may be amended by the Governor by notice in the Government Gazette.

[Note: Section 16 of the Act requires that, in addition to the above procedure, in order for an amendment to this Licence to take effect, written notice of the amendment must be laid before Parliament. 15 sitting days of each House of Parliament must have passed after the proposed amendments were laid before Parliament without a notice of motion being given to disallow the proposed amendment; or if such a notice has been given, it has lapsed, been withdrawn or defeated.]

- 2.5.2 Before notice of the Licence amendment is tabled in Parliament under section 16 of the Act, the Minister must give Sydney Water reasonable

notice of the proposed amendment to enable it to comply with the amendment (if relevant) upon its commencement.

2.6 Contravention of Licence

Sydney Water acknowledges that, if the Minister is of the opinion that Sydney Water has contravened this Licence, the Minister may take action against Sydney Water under section 19 of the Act.

[Note: Section 19 of the Act provides that, where the Minister is of the opinion that Sydney Water contravenes this Licence, the Minister may serve a notice on Sydney Water requiring it to rectify the contravention; or, in addition to or instead of the notice to rectify, the Governor may direct that a letter of reprimand is to be served on Sydney Water, or direct that Sydney Water is to pay a monetary penalty not exceeding \$1 million.]

2.7 Cancellation of Licence

This Licence may be cancelled by the Governor in the circumstances described in section 20 of the Act.

[Note: Section 20 sets out the circumstances in which this Licence may be cancelled by the Governor. These include where Sydney Water ceases without authority or permission to do any of the things referred to in section 14 of the Act; or where Sydney Water is, in the Minister's opinion, in material default in compliance with the Licence and has not rectified such default or shown cause why the Licence should not be cancelled; or where Sydney Water is convicted on more than 3 occasions within a 12 month period of criminal offences punishable by at least \$10,000 fine or 12 months penal servitude or imprisonment if Sydney Water were a natural person.]

SYDNEY WATER'S RESPONSIBILITIES

3.1 Responsibilities of Sydney Water under this Licence and other laws

- 3.1.1 Sydney Water must comply with this Licence and all applicable laws.

[Note: Sydney Water has obligations under a number of laws including:

- Protection of the Environment Operations Act 1997;
- Public Health Act 1991;
- Water Legislation Amendment (Drinking Water and Corporate Structure) Act 1998;
- Water Act 1912; and
- Independent Pricing and Regulatory Tribunal Act 1992.]

3.2 Responsibility of Sydney Water under the Sydney Water Act

- 3.2.1 Sydney Water acknowledges that its principal objectives under section 21 of the Act (each of which is of equal importance) are:

- (a) to be a successful business and to this end operate at least as efficiently as any comparable business, maximise the net worth of the State's investment in Sydney Water, and exhibit a sense of social responsibility by having regard to the interests of the community in which it operates;
- (b) to protect the environment by conducting its operations in compliance with the principles of Ecologically Sustainable Development contained in section 6(2) of the *Protection of the Environment Administration Act 1991*;
- (c) to protect public health by supplying safe drinking water to its customers and other members of the public in compliance with the requirements of this Licence.

- 3.2.2 Sydney Water acknowledges that its special objectives under section 22 of the Act are:

- (a) to reduce risks to human health; and
- (b) to prevent the degradation of the environment.

- 3.2.3 The special objectives are to be interpreted by reference to the objectives referred to in section 6(1)(b) of the *Protection of the Environment Administration Act 1991*, so far as they are relevant to Sydney Water.

3.3 Memorandum of Understanding

- 3.3.1 In accordance with section 35 of the Act, Sydney Water must maintain a Memorandum of understanding with each of the Water Administration Ministerial Corporation, NSW Health, and EPA for the term of this Licence.

[Note: Section 35 of the Act requires Sydney Water to enter into separate memoranda of understanding with certain regulatory agencies, being the Water Administration Ministerial Corporation, the Director-General of NSW Health and EPA. If Sydney Water and those regulatory agencies are not able to agree on a term of the memorandum of understanding, the view of the regulatory agency prevails. Section 36 deals with public exhibition of memoranda of understanding.]

- 3.3.2 The purpose of a Memorandum of understanding is to form the basis for co-operative relationships between the parties to the memorandum. In particular:

- (a) the memorandum with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to drinking water quality standards and the supply of water which is safe to drink; and
- (b) the memorandum with the EPA is to recognise the EPA as the environmental regulator of the State and to commit Sydney Water to environmental improvements;

- 3.3.3 Clause 3.3.1 does not limit the persons with whom Sydney Water may have a memorandum of understanding.

LICENCE AUTHORISATION & AREA OF OPERATIONS

4.1 What the licence authorises and regulates

- 4.1.1 This Licence is granted to enable and require Sydney Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable Systems for providing the Services throughout the Area of Operations.

[Note: The Systems include those systems of Sydney Water necessary to enable it to provide the Services.]

- 4.1.2 Sydney Water must ensure that the Systems comply with the quality and performance standards required in this Licence or required to be developed under this Licence.

4.2 Powers not limited

This Licence does not restrict or affect Sydney Water's power to carry out any functions imposed under any applicable law.

4.3 Area of Operations

The Area of Operations may only be varied under section 10 of the Act.

[Note: The Area of Operations for Sydney Water is listed in Schedule 2 of this Licence. Section 10 of the Act states that subject to certain requirements the Governor may vary the Area of Operations by order published in the NSW Government Gazette. Such order does not take effect until after the notice of the order has been laid before Parliament.]

4.4 Connection of Services

- 4.4.1 Subject to Sydney Water continuing to be in compliance with any applicable law, Sydney Water must ensure that its Services are available for connection on request to any land situated in the Area of Operations.
- 4.4.2 Connection to the Services is subject to any conditions Sydney Water may determine to ensure the safe, reliable and financially viable supply of Services to land in the Area of Operations in accordance with this Licence. Satisfactory

compliance with the conditions of connection is to be taken as forming an essential requirement for gaining Sydney Water's approval for connection of the land to a water main or sewer main under section 56(2) of the Act.

4.5 Non-exclusive licence

This Licence does not prohibit another person from providing services in the Area of Operations that are the same as or similar to the Services, if the person is lawfully entitled to do so.

CUSTOMER & CONSUMER RIGHTS

5.1 Customer contract

- 5.1.1 The Customer Contract may only be varied in accordance with section 59 of the Act.

[Note: The Customer Contract is set out in Schedule 1 of this Licence. Division 7 of Part 6 of the Act contains various provisions in relation to the Customer Contract.]

[Note: Section 59 of the Act requires that a variation of the Customer Contract must be published in a daily newspaper circulating in the Area of Operations at least 6 months before the variation becomes effective, or a shorter period of notice approved by the Minister. A copy of the notice must also be given to the Customer. Section 59 does not apply to an alteration of fees or charges where the alteration is in accordance with an IPART determination.]

- 5.1.2 Subject to section 56 of the Act, the Customer Contract automatically applies to persons specified in section 55(1) of the Act.
- 5.1.3 The Customer Contract sets out the rights and obligations of Customers and Sydney Water in relation to the Services provided through Systems required under this Licence. These rights and obligations are in addition to the rights and obligations conferred by the Act and any other law.
- 5.1.4 A copy of the Customer Contract, and any variations to it must be posted on Sydney Water's website on the internet for downloading free of charge and made available at its premises for access or collection by any member of the public, also free of charge.
- 5.1.5 Unless otherwise required by the Minister, Sydney Water must initiate an independent review of the Customer Contract to be carried out within 12 months of the Commencement Date. The review must have regard to the system performance standards in clause 7.1.1 or as determined by the Minister under clause 7.3 of this Licence.
- 5.1.6 The person undertaking the review must produce a report setting out its findings and recommendations. A copy of the report must be provided to the Minister upon its production.
- 5.1.7 Within 3 months of the completion of the review of the Customer Contract, Sydney Water must take all

steps necessary to issue a new Customer Contract that addresses the recommendations of the review report.

- 5.1.8 Within 3 months of review of the Customer Contract under clause 5.1.5, Sydney Water must prepare a pamphlet that:
- (a) provides a brief explanatory introduction to the Customer Contract;
 - (b) summarises the key rights and obligations of Customers under the Customer Contract; and
 - (c) contains a list of Sydney Water's local offices and emergency contact numbers in its Area of Operators.
- 5.1.9 The pamphlet prepared under clause 5.1.8 must be updated when changes are made to the Customer Contract and must be disseminated by Sydney Water free of charge:
- (a) by placing sufficient copies with the Rental Bond Board for collection by interested persons and where reasonably possible for despatch by the Rental Bond Board in correspondence sent to tenants;
 - (b) to customers, at least once annually with their quarterly or other bills; and
 - (c) to any other person on request.
- 5.1.10 As provided by and subject to section 57 of the Act, Sydney Water may enter into other contracts or arrangements for the supply of Services. The terms of any such contract or arrangement are such as may be negotiated between Sydney Water and any such person.

5.2 Consumers

- 5.2.1 Sydney Water must fulfil its obligations under the Customer Contract relating to complaint handling and complaint resolution procedures as if those obligations also extended to Consumers.

5.3 Code of practice & procedure on debt & disconnection

- 5.3.1 Within 6 months of the Commencement Date, Sydney Water must develop a code of practice and procedure on debt and disconnection.

- 5.3.2 The code of practice and procedure on debt and disconnection must:
- (a) provide for deferred payment or payment by instalment options for consumption bills; and
 - (b) provide for the payment options referred to in (a) to be advised in consumption bills.
- 5.3.3 Sydney Water must include the code of practice and procedure on debt and disconnection in its Customer Contract.
- 5.3.4 Sydney Water must disseminate free of charge information on its code of practice and procedure on debt and disconnection:
- (a) by placing sufficient copies with the Rental Bond Board for collection by interested persons;
 - (b) to Customers at least once annually with their quarterly or other bills; and
 - (c) to any other person on request.
- 5.4 Customer councils**
- 5.4.1 In accordance with section 15 of the Act, Sydney Water must establish and regularly consult with one or more Customer Councils to enable community involvement in issues relevant to the performance of Sydney Water's obligations under this Licence.
- 5.4.2 A Customer Council may be utilised by Sydney Water, among other things, to provide it with high quality advice on the interests of Customers and Consumers of Sydney Water and on the Customer Contract, in accordance with the terms of the relevant Customer Council Charter, and on such other key issues related to Sydney Water's planning and operations as Sydney Water may determine.
- 5.4.3 The first Customer Council under this Licence in respect of the period after the Commencement Date must be established within 3 months of the Commencement Date. However, if Sydney Water has appointed members to its Customer Councils since 1 January 2000 substantially in accordance with clauses 5.4.5 to 5.4.11 (inclusive), Sydney Water will be taken to have complied with this clause 5.4.3.
- 5.4.4 Sydney Water must appoint the members of a Customer Council, consistent with this Licence.
- 5.4.5 At all times, the membership of one or more Customer Councils must between them include a representative from at least each of the following:
- (a) business and consumer groups;
 - (b) low income households;
 - (c) people living in rural and urban fringe areas;
 - (d) residential consumers;
 - (e) environmental groups;
 - (f) local government; and
 - (g) the Ethnic Communities Council.
- 5.4.6 Sydney Water may require a representative under clause 5.4.5 to serve on so many Customer Councils as it considers appropriate to best discharge the tasks assigned to him or her.
- 5.4.7 Subject to clause 5.4.10, the term of a member of a Customer Council will expire 2 years after his or her appointment.
- 5.4.8 Subject to clause 5.4.11, at least half of the persons appointed as members of a Customer Council must be new members. That is, they must not be persons who were members of a Customer Council at any time during the period of 2 years before the date of their appointment.
- 5.4.9 Subject to clause 5.4.11, no person may be appointed as a member of a Customer Council for more than 2 consecutive terms (including, without limitation, any term served as a replacement member under clause 5.4.10).
- 5.4.10 If a member's place becomes vacant before the expiration of his or her term, Sydney Water may appoint a suitable replacement for the remainder of that member's term.
- 5.4.11 If Sydney Water chooses to establish one or more Customer Councils the majority of members of which are not individuals, clauses 5.4.8 and 5.4.9 do not apply to those Customer Councils.

CONSUMER & CUSTOMER RIGHTS CONT.

[Note: For example, Sydney Water might choose to establish a corporate Customer Council, the majority of members of which might be industry peak bodies. In this case, it is not desirable to refuse to reappoint these bodies after they have been members for 2 consecutive terms because Sydney Water would then lose the input of these bodies and the industries they represent. The selection criteria for membership on these Customer Councils must be addressed in the relevant Customer Council's Charter under clause 5.4.12(b).]

- 5.4.12 Subject to clause 5.4.13, within 3 months of establishing the Customer Councils or the Commencement Date (whichever is the later) Sydney Water must develop in consultation with members of the Customer Council, a Customer Council Charter that addresses the following issues:
- (a) the role of the Customer Councils;
 - (b) selection criteria on how members will be appointed;
 - (c) information on how the Customer Council will operate;
 - (d) a description of the type of matters that will be referred to the Customer Council;
 - (e) procedures for the conduct of Customer Council meetings, including the appointment of a chairperson;
 - (f) communicating the outcome of the Customer Council's work to Sydney Water;
 - (g) procedures for tracking issues raised and ensuring appropriate follow-up of those issues; and
 - (h) funding and resourcing of the Customer Council by Sydney Water.
- 5.4.13 If Sydney Water:
- (a) has appointed members to its Customer Councils since 1 January 2000 and is taken to have complied with clause 5.4.3; and
 - (b) has developed in consultation with members of those Customer Councils a Customer Council Charter substantially in accordance with clause 5.4.12,
- Sydney Water will be taken to have complied with clause 5.4.12.
- 5.4.14 There must be a Customer Council Charter for each Customer Council. However a single Customer Council Charter may be expressed to apply to more than one Customer Council.
- 5.4.15 Sydney Water must provide a Customer Council with information within its possession or under its control necessary to enable the Customer Council to discharge the tasks assigned to it, other than information or documents over which Sydney Water or another person claims confidentiality or privilege.
- 5.4.16 A copy of each Customer Council Charter must be posted on Sydney Water's website on the internet for downloading free of charge and made available at its offices for access or collection by any member of the public, also free of charge.
- 5.4.17 As part of the End of term review, the Licence Review Body must evaluate and report on the effectiveness of Customer Councils and compliance with the Customer Council Charter.

WATER QUALITY

6.1 Interpretation

In this Part:

aesthetic guideline values means the concentration or measure of a physical characteristic of water quality (a physical or chemical property) that is associated with good water quality. Some examples include appearance, pH, taste and odour.

health guideline values means the concentration or measure of a physical characteristic of water quality (a physical, chemical, biological or radionuclide property) that, based on present knowledge, does not result in any significant risk to the health of a person over a lifetime of consumption.

Physical characteristics of Drinking water means those physical characteristics of Drinking water specified in the NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996 including dissolved oxygen, hardness, pH, taste and odour, total dissolved solids, true colour and turbidity.

Potable water backflow prevention devices are plumbing cross connections designed, installed and maintained to prevent contamination of drinking water.

6.2 Drinking Water Quality - Standards

6.2.1 Sydney Water must comply with the following relating to Drinking water:

- (a) the NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996 ("1996 Guidelines") relating to health guideline values;
- (b) any amendments updates or supplements of the 1996 Guidelines ("Updated Guidelines") relating to health guideline values specified by NSW Health;
- (c) the aesthetic guideline values of the 1996 Guidelines specified by the NSW Minister for Health following consultation with the Minister; and
- (d) the aesthetic guideline values of the Updated Guidelines specified by the NSW Minister for Health following consultation with the Minister.

[Note: A significant aim of the Drinking water quality standards is to ensure that Sydney Water achieves appropriate public health outcomes.]

6.2.2 In delivering the Services, Sydney Water must have regard to the concepts of risk minimisation practices and system management of public water supplies in the 1996 Guidelines and Updated Guidelines (including in relation to *Cryptosporidium* and *Giardia*).

[Note: In releasing draft guidelines on Cryptosporidium and Giardia, NHMRC has stated that it is not possible to set guideline levels for Cryptosporidium and Giardia in drinking water because there is a lack of a suitable method to identify organisms in drinking water that cause human infection.]

6.2.3 Sydney Water must commission an independent study of the costs and benefits of Sydney Water complying with the aesthetic guideline values of the NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996 and must report to the Licence Review Body on the results of that study by no later than 31 January 2002, to enable the Licence Review Body to report on the matter as part of the Mid-term review. Sydney Water must ensure that the process of conducting the independent study includes public consultation in accordance with clause 1.2.2 on a discussion paper before the study is finalised.

6.3 Drinking Water Quality - Monitoring

6.3.1 Sydney Water must prepare, to the satisfaction of NSW Health, a comprehensive Annual Drinking Water Quality Monitoring Plan for the Water supply system by 30 June 2000 and then by 31 March in each subsequent year, for the duration of this Licence.

6.3.2 The Annual Drinking Water Quality Monitoring Plan for the Water supply system must include system performance monitoring and regular sampling, laboratory testing and processes to ensure quality control. The monitoring of Drinking water quality must include:

- (a) the health guideline values for which compliance is required under clauses 6.2.1 (a) and (b); and

- (b) the aesthetic guideline values for which compliance is required under clauses 6.2.1 (c) and (d).
- 6.3.3 Sydney Water must monitor Drinking water quality for the aesthetic guideline values of the 1996 Guidelines that apply to the Physical characteristics of Drinking water.
- 6.3.4 The Drinking water quality monitoring must assess the quality of Drinking water in Sydney Water's Water supply system. The sampling frequency and the locations chosen for the monitoring should be such that the results are representative of the quality of water supplied to Customers and Consumers.
- 6.3.5 Sydney Water must undertake the Drinking water quality monitoring for the period from the Commencement Date to 30 June 2001 and after that for each subsequent financial year.
- [Note: The requirement for an annual drinking water monitoring plan is also found in the Memorandum of understanding between NSW Health and Sydney Water, July 1999.]*
- ## 6.4 Drinking Water Quality - Reporting
- 6.4.1 Sydney Water's water quality monitoring test results must be placed on its website on the internet for downloading by the public, free of charge and made available at its offices for access or collection by any person, also free of charge.
- 6.4.2 Sydney Water must produce an Annual Drinking Water Quality Report that reports on the Water supply system in relation to:
- (a) the health guideline values for which compliance is required under clauses 6.2.1 (a) and (b);
 - (b) the aesthetic guideline values for which compliance is required under clauses 6.2.1 (c) and (d); and
 - (c) the aesthetic guideline values of the 1996 Guidelines that apply to the Physical characteristics of drinking water.
- 6.4.3 The Annual Drinking Water Quality Report must also include a summary of monitoring information, indicating water quality trends and problems, and a summary of system failures (significant and major water quality incidents) over the previous year and action taken to resolve them and how public health was protected.
- 6.4.4 The Annual Drinking Water Quality Report must be prepared by 30 November each year and must be placed on Sydney Water's website on the internet for downloading by the public free of charge and made available at its offices for access or collection by any person, also free of charge.
- ## 6.5 Drinking Water - Planning
- 6.5.1 Sydney Water must prepare, to the satisfaction of NSW Health, a Five-Year Drinking Water Quality Management Plan within 5 months after the Commencement Date. Sydney Water must release a discussion paper in relation to the Five-Year Drinking Water Quality Management Plan within 2 months after the Commencement Date and must engage in public consultation in accordance with clause 1.2.2 on the discussion paper.
- 6.5.2 The Five-Year Drinking Water Quality Management Plan must include strategies for the comprehensive management of the quality of Drinking water in Sydney Water's Water supply system, the aim of which is to reduce risk to public health and meet any aesthetic guideline values extended to Sydney Water in or by this Licence. It must also include an audit program for Potable water backflow prevention devices.
- [Note: The requirement for a long term water quality management strategy is also found in the Memorandum of understanding between NSW Health and Sydney Water, July 1999.]*
- 6.5.3 Sydney Water must prepare, to the satisfaction of NSW Health, an Annual Drinking Water Quality Improvement Plan for the Water supply system within 1 month after the Commencement Date and after that by 31 March in each year, unless otherwise specified following the review under clause 6.5.5.
- 6.5.4 The Annual Drinking Water Quality Improvement Plan must incorporate system and operational changes needed to address problems identified through drinking water quality monitoring data and through periodic system inspections and evaluations, the aim of which is to reduce risks to public health and meet any aesthetic guideline values extending to Sydney Water in or by this Licence.

- 6.5.5 The Annual Drinking Water Quality Improvement Plan must be reviewed as part of the Mid-term review under clause 2.3.1 to assess its continued effectiveness and whether there is a continued need for the plan each year.

[Note: The requirement for an annual drinking water quality improvement plan is also found in the Memorandum of understanding between NSW Health and Sydney Water, July 1999.]

- 6.5.6 Sydney Water must prepare, to the satisfaction of NSW Health, a Drinking Water Incident Management Plan, within 1 month after the Commencement Date which must remain in place until any new plan is developed in agreement with NSW Health.

- 6.5.7 The Drinking Water Incident Management Plan must contain, or incorporate by reference, procedures and protocols for the coordinated management of Drinking water incidents including media and stakeholder liaison and any notification of public health advice received from NSW Health to Customers.

[Note: The requirement for a comprehensive incident management plan is also found in the Memorandum of understanding between NSW Health and Sydney Water, July 1999.]

6.6 Environmental Water Quality

Sydney Water must meet the environmental water quality requirements for any discharges or water releases required by licences issued to it by the EPA or the Department of Land and Water Conservation.

6.7 Other Grades of Water

- 6.7.1 Other Grades of water supplied by Sydney Water must be supplied according to relevant guidelines and requirements prescribed by EPA, NSW Health, the Department of Land and Water Conservation, the Department of Agriculture, other relevant government agencies and the NSW Recycled Water Coordination Committee.

[Note: The NSW Recycled Water Coordination Committee has produced the NSW Guidelines for Urban and Residential Use of Reclaimed Water, May 1993.]

- 6.7.2 Minimum standards and guidelines to regulate the supply of Other Grades of water must be identified in the Mid-term review. Where the Minister is of the opinion that the minimum standards and guidelines for the supply of Other Grades of water identified in the Mid-term review are appropriate, such standards and guidelines must be observed by Sydney Water as a condition of this Licence.

- 6.7.3 Where there is a conflict between any of the guidelines, requirements or standards applying to Sydney Water under clause 6.7 the Minister's decision will prevail.

7

SYSTEM PERFORMANCE

7.1 Compliance with performance standards

- 7.1.1 Sydney Water must ensure that its Systems comply with the standards for continuity, water pressure and sewage overflows in Schedule 4 or such other standards determined by the Minister under clause 7.3.

7.2 Standards in respect of low pressure areas

- 7.2.1 Within 1 month after the Commencement Date, Sydney Water must develop standards that establish the minimum level of water pressure required for the following low pressure areas in Schedule 4:
- (a) Urban areas adjacent to reservoirs in the Blue Mountains.
 - (b) Non-urban properties in Bayview, West Camden, Llandilo, Berkshire Park, Castlereagh, North Richmond, Oakville, Riverstone, Schofields and the Blue Mountains.
- 7.2.2 Sydney Water must comply with the standards developed under clause 7.2 or such other standards determined by the Minister under clause 7.3.

7.3 Review of performance standards

- 7.3.1 Within 12 months of the Commencement Date, a person nominated by the Minister must consult with Sydney Water and other stakeholders and report to the Minister on whether the standards referred to in clauses 7.1 and 7.2 should be amended, and if so the nature of the amendments.
- 7.3.2 The report under clause 7.3.1 must include an analysis of the benefits and costs of amendments to the performance standards.
- 7.3.3 Following receipt of the report the Minister, or a person appointed by the Minister, may publish a notice which lists the amendments to the performance standards that must be adopted by Sydney Water.
- 7.3.4 Any amendments to the performance standards that must be adopted by Sydney Water under clause 7.3.3 must be incorporated into the Customer Contract as soon as reasonably possible and also considered by any review of the Customer Contract and the Mid-term review of this Licence.

7.4 Keeping of records on discontinuity, low pressure & sewage overflow

- 7.4.1 In this clause:
- Delivery system means the geographical classification used by Sydney Water for its own internal purposes which is based on geographic regions employed as part of the Water supply system or Sewerage system.
- 7.4.2 Sydney Water must keep records of the nature of incidents of discontinuity, low pressure and sewage overflows occurring each year and classified according to Delivery system.
- 7.4.3 From the Commencement Date, Sydney Water's record keeping systems must permit the reporting of incidents by Delivery system and by the commencement of the Mid-term review, also by Suburb.
- 7.4.4 Sydney Water must maintain record systems that are sufficient to enable it to measure compliance with the standards on discontinuity, low pressure and sewage overflows in Schedule 4.
- 7.4.5 Sydney Water's records must include details of any complaints concerning discontinuity, low pressure and sewage overflows regardless of whether they have been received from Customers, Consumers and real estate agents or other persons on behalf of Consumers.
- 7.4.6 Sydney Water must record multiple incidents of discontinuity, low pressure and sewage overflow occurring each year as separate incidents. In particular each incident of discontinuity affecting the one Customer or Consumer is to be recorded as one incident.
- 7.4.7 From the later of the Commencement Date and 1 July 2000, Sydney Water must also record the length of incidents of discontinuity, indicating whether the period of discontinuity has lasted for more than 6 hours, more than 12 hours, or more than 24 hours.
- 7.4.8 Sydney Water must also record the respective number of planned and unplanned interruptions to its Water supply system or to the supply of Drinking water.

7.5 Annual reporting on compliance with performance standards

- 7.5.1 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its compliance with the performance standards required to be compiled under clauses 7.1 and 7.2 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.
- 7.5.2 As part of its report, Sydney Water must provide the Licence Regulator with physical or electronic access to the records kept by Sydney Water under clause 7.4.

WATER CONSERVATION & DEMAND MANAGEMENT

8.1 Water Conservation Target

8.1.1 Sydney Water must take action to reduce the quantity of water (other than Re-use water) it draws from all sources to the following target levels ("water conservation targets"):

- (a) 364 litres per capita per day by 2004/5 (being a reduction of 142 litres per capita per day or 28% from the 1990/1991 baseline);

[Note: The 1990/1991 baseline is 506 litres per capita per day.]

- (b) 329 litres per capita per day by 2010/2011 (being a reduction of 177 litres per capita per day or 35% from the 1990/1991 baseline);
- (c) Such target level for 2014/2015 as determined as part of the Mid-term review of this Licence conducted under clause 2.3.1.

8.1.2 The following principles and parameters must be applied by Sydney Water in assessing compliance with the water conservation targets:

- (a) assessment of performance against water conservation targets is to be adjusted for the effects of weather on water usage; and
- (b) the water conservation targets in clause 8.1.1 are for an average year.

8.1.3 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its progress in complying with the water conservation targets in clause 8.1.1 (which may include any targets for Unaccounted water losses), to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

8.2 Demand Management Strategy

8.2.1 In this clause:

Demand Management Strategy means the 1995 Demand Management Strategy updated from time to time by Sydney Water or as required by the Minister.

[Note: The 1995 Demand Management Strategy was released by Sydney Water in October 1995. Following the 1998 operational audit, the Minister required Sydney Water to produce a revised Demand Management Strategy by 31 December 1999.]

8.2.2 Sydney Water must give priority consideration to demand side management as the basis for planning the future provision of its Services, including addressing Unaccounted water losses.

8.2.3 By no later than 1 September each year, Sydney Water must provide a report (the "Demand Management Strategy Implementation Report") to the Licence Regulator on implementation of Sydney Water's Demand Management Strategy for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

8.2.4 The Demand Management Strategy Implementation Report is to:

- (a) contain an estimate of past, current and projected water uses and distinguish between residential, industrial, commercial and government uses;
- (b) describe the frequency and magnitude of expected supply deficiencies, including those arising as a result of wastage or loss, drought or emergency;
- (c) identify conservation measures currently adopted and being practised;
- (d) describe, cost and evaluate additional conservation measures;
- (e) describe future plans for water reclamation and strategies to alter water use practices, including those relating to the installation of more efficient water appliances and devices by users;
- (f) evaluate these plans in terms of their cost and contrast with the cost of alternative water supplies;
- (g) prioritise and schedule the implementation of courses of action found to be cost effective; and
- (h) identify strategies for reducing Unaccounted water losses.

- 8.2.5 Sydney Water must engage a suitably qualified third party to verify the accuracy and soundness of its mathematical models for projecting future demands for water usage and report the results to the Licence Regulator within 1 month after the Commencement Date.

8.3 Reducing Discharges

- 8.3.1 Sydney Water must take action to re-use, intercept or otherwise prevent from discharge into the ocean, waterways and other waters, sewage or effluent of Customers and Consumers by way of non-potable re-use. Sydney Water is to meet the targets set by the Minister from time to time.

[Note: A re-use target of 58 megalitres per day was gazetted on 30 June 1995 under section 27(2) of the Act. Following the 1998 Operational Audit the Minister has required Sydney Water to develop, by 31 December 1999, a re-use strategy for the next five and ten years.]

- 8.3.2 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its progress in meeting the re-use target required under clause 8.3.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

8.4 Water Conservation Rating and Labelling

- 8.4.1 Sydney Water, through continuing support for the National Water Conservation Rating and Labelling Scheme, is to encourage manufacturers of water appliances to improve the water use efficiency of these appliances where consistent with Sydney Water's objectives.
- 8.4.2 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its performance under clause 8.4.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

ENVIRONMENT — INDICATORS & PLANS

9.1 Environmental Indicators

- 9.1.1 In accordance with section 14(1)(d) of the Act, Sydney Water must monitor and compile data on indicators of the direct impact of its activities on the environment, whether such activities are carried out by or on behalf of Sydney Water.
- 9.1.2 Except for those indicators solely applicable to the Catchment Authority, the environmental indicators used are to accord with those published in the Government Gazette on 15 December 1995.
- 9.1.3 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its performance in relation to the indicators compiled under clause 9.1.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.
- 9.1.4 The yearly report provided by Sydney Water must provide information which enables a year to year comparison in relation to Sydney Water's performance in this area. In particular, Sydney Water is to use the indicators with historical annual values over at least the previous 10 years where comparable data permits such a compilation.
- 9.1.5 The yearly report is to be made available to the public by Sydney Water within 1 month after receipt by the Licence Regulator. Copies are to be made available from Sydney Water's offices on request free of charge and posted on Sydney Water's website on the internet for downloading by any person also free of charge. A reasonable number of copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.
- 9.1.6 The environmental indicators in clause 9.1.2 are to be reviewed as part of the End of term review.

9.2 Ecologically Sustainable Development Indicators

- 9.2.1 Sydney Water must develop measures to indicate the degree to which its activities and Services comply with the principles of Ecologically Sustainable Development or ESD.

- 9.2.2 Sydney Water must develop a draft list of ESD Indicators within 1 month after the Commencement Date. The draft list must have regard to:
 - (a) corporate management (including corporate policy and planning, and corporate asset management);
 - (b) management of the System; and
 - (c) the planning, design and construction of
 - (i) new Systems;
 - (ii) the upgrading of existing Systems; and
 - (iii) depots.
- 9.2.3 The draft list developed by Sydney Water must undergo public consultation where the public have at least 20 days to provide their comments. Specific comments must also be invited from EPA, the Department of Land and Water Conservation, National Parks and Wildlife, NSW Fisheries, SEDA and peak environment non-governmental organisations.
- 9.2.4 Within three months of the close of submissions, following public consultation under clause 9.2.3, Sydney Water must present a final list of ESD Indicators to the Minister for approval and, if approved, for publication in the Gazette.
- 9.2.5 Sydney Water must commence monitoring and compiling data on the ESD Indicators from the later of the Commencement Date and 1 July 2000.
- 9.2.6 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its performance in relation to the ESD Indicators compiled under clause 9.2.4 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.
- 9.2.7 The yearly report provided under clause 9.2.6 is to be made available by Sydney Water to the public within 1 month after receipt by the Licence Regulator. Copies are to be made available from Sydney Water offices and lodged with environmental centres and public libraries in the Area of Operations.
- 9.2.8 The ESD Indicators in clause 9.2.4 are to be reviewed as part of the End of term review.

9.3 Environment Plan

- 9.3.1 Sydney Water must produce a five-year Environment Plan by the later of the Commencement Date and 30 September 2000. After that Sydney Water must produce further five-year Environment Plans every 5 years.
- 9.3.2 Sydney Water must engage in public consultation in developing the Environment Plan.
- 9.3.3 The Environment Plan must:
 - (a) contain details of Sydney Water's water, waste water and stormwater strategies, as well as the environmental aspects of its other activities such as waste minimisation and heritage;
 - (b) endorse ESD principles; and
 - (c) be recognised in Sydney Water's business plans.
- 9.3.4 The Environment Plan must set targets and time tables for compliance by Sydney Water with those targets over the term of the Environment Plan. These targets must utilise the environmental and ESD indicators in clauses 9.1 and 9.2 and also the targets and indicators in clauses 9.6 and 9.7.
- 9.3.5 The Environment Plan must be posted on Sydney Water's website on the internet for downloading free of charge, made available at its premises for access or collection by any member of the public and lodged with environmental centres and public libraries in the Area of Operations, in each case also free of charge.
- 9.3.6 The report detailing Sydney Water's progress in meeting the Environment Plan, and in particular, in complying with the targets and timetables in clause 9.3.4 are to be compiled on an a yearly basis. Within one month of its completion, the report must be posted on Sydney Water's website on the internet for downloading free of charge, made available at its premises for access or collection by any member of the public and lodged with environmental centres and public libraries in the Area of Operations, in each case also free of charge.
- 9.3.7 Amendments may only be made to the Environment Plan following public consultation.

9.4 Energy Management

- 9.4.1 In this clause:

Energy Management Policy means the energy management policy of the NSW Government released by the NSW Department of Energy (now the Ministry of Energy and Utilities) in 1998 and updated from time to time.
- 9.4.2 Sydney Water must adopt the following targets in the Energy Management Policy for energy consumption of buildings:
 - (a) 15% reduction from the 1995 level by 2001;
 - (b) 25% reduction from the 1995 level by 2005; and
 - (c) any subsequent targets set by the Energy Management Policy.
- 9.4.3 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its performance in relation to clause 9.4.2 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

9.5 Botany Wetlands

- 9.5.1 In this clause:

Botany Wetlands Plan means the plan of management for the area known as Botany Wetlands, issued by Sydney Water in December 1997.
- 9.5.2 Sydney Water is to implement the Botany Wetlands Plan in conjunction with other appropriate persons.
- 9.5.3 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its compliance with the Botany Wetlands Plan for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.
- 9.5.4 Prior to commencement of the End of term review, Sydney Water must review the Botany Wetlands Plan in consultation with EPA, the Department of Land and Water Conservation, National Parks and Wildlife, and peak environmental non-governmental organisations for the purpose of advising the Minister whether any amendments are required to the Plan.

ENVIRONMENT — INDICATORS & PLANS CONT.

9.6 Pollution reduction targets

Where pollution reduction targets are set under section 23 of the Act, the results are to be published each year and made available to EPA and members of the public for the purposes of section 23(7) of the Act, and may be included in a report on environmental indicators required to be compiled and published under Part 9.1.

9.7 Trade waste

- 9.7.1 Sydney Water must prepare a trade waste policy and management plan, which must include trade waste water objectives and performance indicators. Sydney Water must ensure that the process of preparing the trade waste policy and management plan includes public consultation in accordance with clause 1.2.2 on a discussion paper before the plan is finalised.
- 9.7.2 By no later than 1 September each year, Sydney Water must report to the Licence Regulator on its progress in satisfying the objectives and indicators under clause 9.7.1 for the previous 12 months, to enable the Licence Regulator to consider and report on the matter as part of the Annual audit.

OPERATIONAL AUDITS OF THIS LICENCE

10.1 Commission of audits

- 10.1.1 The Licence Regulator must initiate an operational audit of Sydney Water as soon as practicable after 30 June each year covering the preceding 12 months, as required by this Part (the "Annual audit"). However the first Annual audit under this Licence will cover the period from 1 January 2000 to 30 June 2001.

[Note: The Licence Regulator is to arrange for the conduct of an operational audit covering the calendar year 1999.]

- 10.1.2 The Annual audit must be conducted by the Licence Regulator or by a person, other than Sydney Water or its Subsidiary, that the Licence Regulator considers is suitably qualified to perform the Annual audit.
- 10.1.3 As part of the Annual audit, the Licence Regulator must invite members of the public to make submissions to it. The Licence Regulator may also undertake any other public consultation it considers appropriate.

10.2 What the audit is to report on

- 10.2.1 The Licence Regulator or the person undertaking the Annual audit must investigate and prepare a report on the following:

- (a) on-going compliance by Sydney Water with its Customer Contract and specific areas of non-compliance;
- (b) Sydney Water's compliance with its code of practice and procedure on debt and disconnection under clause 5.3.2 and any similar initiatives developed by Sydney Water;
- (c) compliance by Sydney Water with its obligations under Part 6 of this Licence;
- (d) compliance by Sydney Water with the performance standards under clauses 7.1 and 7.2;
- (e) compliance by Sydney Water with the water conservation targets under clause 8.1.1;
- (f) Sydney Water's performance in relation to implementation of the demand management strategy under clause 8.2;
- (g) progress by Sydney Water in meeting the re-use target required under clause 8.3.1;
- (h) progress by Sydney Water in relation to the

implementation of the National Water Conservation Rating and Labelling Scheme under clause 8.4.1;

- (i) Sydney Water's performance in relation to the environment indicators under clause 9.1;
- (j) Sydney Water's performance in relation to the ESD Indicators compiled under clause 9.2.5;
- (k) compliance by Sydney Water with the Environment Plan under clause 9.3;
- (l) compliance by Sydney Water with the targets in the Energy Management Policy for energy consumption of buildings in clause 9.4.2;
- (m) compliance by Sydney Water with the Botany Wetlands Plan under clause 9.5;
- (n) compliance by Sydney Water with the trade waste objectives and performance indicators under clause 9.7;
- (o) the effectiveness of Sydney Water's internal dispute resolution scheme under clause 12.1;
- (p) the effectiveness of Sydney Water's external dispute resolution scheme under clause 12.2;
- (q) complaints made against Sydney Water to a court or tribunal under clause 12.3; and
- (r) any other matter required by this Licence or the Act to be assessed or considered as part of the Annual audit.

- 10.2.2 Despite clause 10.2.1, neither the Licence Regulator nor the persons undertaking the Annual audit may investigate a matter under clause 10.2.1 if the investigation of that matter is ordinarily within the regulatory activities of the EPA, NSW Health or the Department of Land and Water Conservation and the relevant agency has undertaken an investigation of the matter. However, the Licence Regulator may, as part of the Annual audit:

- (a) report on Sydney Water's implementation of any Memorandum of Understanding referred to in clause 3.3.1;
- (b) satisfy the requirement in clause 10.2.1 to investigate and report on a matter under clause 10.2.1 by including in its report consideration of the findings, the situation at the end of the licence audit period and Sydney Water's response to the findings, of any investigation of the matter by the EPA, NSW Health or the Department of Land and Water Conservation; and

OPERATIONAL AUDITS OF THIS LICENCE CONT.

- (c) request Sydney Water to provide information relating to an investigation of a matter by the EPA, NSW Health or the Department of Land and Water Conservation which is ordinarily within their regulatory activities, in accordance with clause 10.5.
- 10.2.3 The Licence Regulator must ensure that, subject to clause 10.2.2, the report of the Annual audit addresses the matters in clause 10.2.1 and advises the Minister on the following matters:
 - (a) areas in which Sydney Water's performance under this Licence may be improved;
 - (b) any changes to the Licence and the Customer Contract that the Licence Regulator considers necessary;
 - (c) any penalties or remedial action required as a result of Sydney Water's performance under the Licence;
 - (d) whether the Minister should recommend that Sydney Water's Licence be cancelled by the Governor under section 20 of the Act for reasons identified in the annual audit report; and
 - (e) any other matter relating to the annual audit or the Licence Regulator's functions that it considers appropriate.

10.3 Reporting of audit

- 10.3.1 The Licence Regulator must ensure that the report of the Annual audit is presented to the Minister within 1 month after its receipt of the audit under section 32 of the Act.
- 10.3.2 Where the Annual audit report has identified non-compliance with this Licence, in addition to whatever other action is taken or required to be taken, the Minister may require Sydney Water to promptly advertise publicly and notify Customers and Consumers, of the areas in which its performance has not complied, the reasons why and the measures that will be taken by it to address the non-compliance. Such advertisements and notices are to be in a form reasonably acceptable to the Licence Regulator.

10.4 Additional audits

- 10.4.1 The Licence Regulator must initiate additional audits of Sydney Water if required by the Minister.
- 10.4.2 An additional audit may address one or more of the matters in clause 10.2.1 or any other matter required by the Minister.
- 10.4.3 The provisions of this Part applying to the Annual audit will apply equally to additional audits under clause 10.4.1 (all necessary changes having been made), to the extent that those provisions are relevant.

10.5 Provision of Information

- 10.5.1 Sydney Water must provide the Licence Regulator and the person appointed by the Licence Regulator under clause 10.1.2 with all information within its possession or under its control (subject to clause 10.5.4) necessary to the conduct of the Annual audit or an additional audit, including whatever information is requested by the Licence Regulator or the person appointed by the Licence Regulator.
- 10.5.2 The information sought under clause 10.5.1 must be made available within a reasonable time of it being requested.
- 10.5.3 For the purposes of an audit, Sydney Water must, within a reasonable time of being required by the Licence Regulator or a person appointed by the Licence Regulator, permit the Licence Regulator or the person appointed:
 - (a) to have access to any works, premises or offices occupied by Sydney Water;
 - (b) to carry out inspections, measurements and tests on, or in relation to, any such works, premises or offices;
 - (c) to take on to or into any such premises, works or offices any other persons or equipment as necessary for the purposes of performing the audit;
 - (d) to inspect and make copies of, and take extracts from, any books and records of Sydney Water that are maintained in relation to the performance of Sydney Water's obligations in accordance with this Licence; and
 - (e) to discuss matters relevant to the audit with Sydney Water's employees.

- 10.5.4 For the purpose of an audit, the information to be provided by Sydney Water or a third party under clause 10.5.5 to the Licence Regulator or the person appointed by the Licence Regulator will include information over which Sydney Water, such a third party or other person claims confidentiality or privilege. The Licence Regulator or the person appointed by the Licence Regulator is required to enter into reasonable arrangements with Sydney Water or such third party to ensure that the confidential or privileged information is kept confidential.
- 10.5.5 If Sydney Water contracts out any of its activities to third parties (including a Subsidiary) it must take all reasonable steps to ensure that, if required by the Licence Regulator, any such third parties provide information and do the things specified in this Part that extend to Sydney Water as if that third party were Sydney Water.

PRICING

Sydney Water must set the level of fees, charges, and other amounts payable for its services subject to the terms of this Licence, the Act and the maximum prices and methodologies for Sydney Water's Services determined from time to time by IPART.

[Note: Division 8 of Part 6 of the Act governs the nature of fees and charges which may be imposed by Sydney Water. Under the terms of the Independent Pricing and Regulatory Tribunal Act, Sydney Water is a government agency for which IPART has standing reference to conduct investigations and report on the determination of pricing for services supplied and pricing policies.]

DISPUTE RESOLUTION SCHEME

12.1 Internal Dispute Resolution Process

- 12.1.1 Sydney Water must establish internal complaints handling procedures for receiving, responding to and resolving complaints by Customers and Consumers against Sydney Water.
- 12.1.2 The internal complaints handling procedures of Sydney Water must be based on the Australian Standard AS4269-1995 Complaint Handling.
- 12.1.3 Sydney Water must make available to Customers and Consumers information concerning its internal complaints handling procedures which explains how to make a complaint and how the procedure works.
- 12.1.4 Sydney Water must provide information of the nature described in clause 12.1.3 to Customers through their quarterly, or other, bills at least once annually.
- 12.1.5 The Customer complaint handling, complaint resolution process and Customer redress provided to Customers under the Customer Contract must be reviewed and amended where necessary by Sydney Water to ensure that it is based on the Australian Standard AS4269-1995 Complaint Handling.
- 12.1.6 Sydney Water must report each year to the Licence Regulator as part of the Annual audit on the following details concerning complaints made against Sydney Water which are handled by its internal complaints handling process:
 - (a) the number and types of complaints received on a month by month basis, classified by Suburb into one or more of the following categories:
 - (i) water quality, including health and aesthetic parameters;
 - (ii) continuity of water supply;
 - (iii) water pressure;
 - (iv) sewage odour;
 - (v) sewage overflow;
 - (vi) stormwater and drainage services; and
 - (vii) billing including availability charges payable under the Act.

- (b) the number and type of complaints resolved or not resolved (on a month by month basis) in sufficient detail and using sufficient classifications to enable the Licence Regulator to gain a reasonable understanding of how and how well those complaints were resolved or why complaints were not resolved, as the case may be; and
- (c) any problems of a systemic nature arising from the complaints.

12.2 External Dispute Resolution Scheme

- 12.2.1 Within 1 month after the Commencement Date, Sydney Water must establish a Dispute Resolution Scheme for the resolution by a Dispute Resolution Body of disputes between Sydney Water and its Customers and between Sydney Water and Consumers of the nature described in 12.2.3.
- 12.2.2 The Dispute Resolution Scheme so established by Sydney Water is subject to the Minister's approval.
- 12.2.3 The Dispute Resolution Body is to hear disputes relating to complaints made by Customers and Consumers in relation to the following issues:
 - (a) water quality, including health and aesthetic parameters,
 - (b) continuity of water supply,
 - (c) water pressure,
 - (d) sewage odour,
 - (d) sewage overflow,
 - (e) stormwater and drainage services, and
 - (f) billing, including availability charges payable under the Act.
- 12.2.4 The Dispute Resolution Scheme must comply with the minimum standards, so far as applicable, specified in the Benchmarks for Industry-based Consumer Dispute Resolution Schemes released by the Commonwealth Minister for Customs and Consumer Affairs in August 1997.
- 12.2.5 The Dispute Resolution Scheme must have the following features:
 - (a) the decision-making process of the Dispute Resolution Body and administration of the scheme is to be

	<p>independent from Sydney Water and Subsidiaries of Sydney Water;</p> <p>(b) Sydney Water agrees to abide by the decisions of the Dispute Resolution Body in relation to disputes referred to it for resolution;</p> <p>(c) the Dispute Resolution Scheme must adopt informal proceedings which discourage a legalistic adversarial approach;</p> <p>(d) decisions of the Dispute Resolution Body should be fair and be seen to be fair, by observing the principles of procedural fairness, by making its decisions based upon the information before it, and by having specific criteria upon which its decisions are based;</p> <p>(e) the Dispute Resolution Scheme is to operate efficiently by keeping track of disputes referred to it, ensuring complaints are dealt with by the appropriate process and by the Dispute Resolution Body regularly reviewing the operation of the Dispute Resolution Scheme; and</p> <p>(f) the Dispute Resolution Scheme is to be free of cost to Customers and Consumers and is to be funded by Sydney Water.</p> <p>12.2.6 Sydney Water must prepare a pamphlet that explains how the Dispute Resolution Scheme operates and how it can be accessed.</p> <p>12.2.7 Sydney Water must provide the pamphlet to Customers through their quarterly or other bills, at least once annually.</p> <p>12.2.8 Sydney Water must provide the Licence Regulator with written reports of the determinations made by the Dispute Resolution Body based on information available to Sydney Water and information reasonably obtained from the Dispute Resolution Body. Where considered appropriate by Sydney Water and the Dispute Resolution Body, confidentiality arrangements are to be made so as not to disclose the Customer or Consumer's identity in such reports.</p> <p>12.2.9 Sydney Water must produce a yearly report to the Licence Regulator based on information available to Sydney Water and information reasonably obtained from the Dispute Resolution Body. The report must contain the following information:</p> <p>(a) how the scheme works,</p> <p>(b) the number and types of complaints received by the Dispute Resolution Body, classified by Suburb into one or more of the following categories:</p> <p>(i) water quality including health and aesthetic parameters;</p> <p>(ii) continuity of water supply;</p> <p>(iii) water pressure;</p> <p>(iv) sewage odour;</p> <p>(v) sewage overflow;</p> <p>(vi) stormwater and drainage services; and</p> <p>(vii) customer billing, including availability charges payable under the Act</p> <p>(c) the outcome of those complaints,</p> <p>(d) the time taken to resolve complaints,</p> <p>(e) the procedure for resolving complaints,</p> <p>(f) any problems of a systemic nature arising from the complaints,</p> <p>(g) any other relevant information required by the Licence Regulator to be included in the report.</p> <p>12.2.10 The report referred in clause 12.2.9 is to be made available to the public free of charge.</p>
	<p>12.3 Complaints to other bodies</p> <p>Sydney Water must report to the Licence Regulator by no later than 1 September each year (for consideration and reporting by the Licence Regulator as part of the Annual audit) on complaints made against Sydney Water to a court or tribunal, such as the Fair Trading Tribunal, (based on information available from these bodies and Sydney Water itself as a party to the complaint) containing the following details:</p> <p>(a) the number and types of complaints received by such other bodies,</p> <p>(b) the outcome of complaints,</p> <p>(c) how the complaints were resolved,</p> <p>(d) any problems of a systemic nature arising from the complaints, and</p> <p>(e) any other relevant information required by the Licence Regulator to be included in the annual report.</p> <p><i>[Note: Section 58 provides that the jurisdiction of the Fair Trading Tribunal under the Consumer Claims Act 1998 extends to the hearing and determination of a consumer claim within the meaning of that Act relating to a service supplied by Sydney Water under a Customer Contract. The Consumer Claims Act provides that any consumer (which would include any Customer) may apply to the Tribunal for determination of a consumer claim.]</i></p>

LIABILITY ISSUES

13.1 Contracting out

- 13.1.1 Sydney Water may contract out the provision, construction, operation, management or maintenance of any of the Systems and Services that are the subject of this Licence in accordance with section 91 of the Act.

[Note: Section 91 of the Act permits Sydney Water to enter into contracts or arrangements with any person for such purposes.]

- 13.1.2 Contracting out under clause 13.1.1 does not relieve Sydney Water of its responsibility to comply with its obligations under this Licence.

13.2 Damage and Compensation to Persons

Sydney Water is required by section 41 of the Act to do as little damage as practicable in exercising its functions under Division 4 of Part 6 of the Act, and in circumstances specified in that provision, to compensate persons who suffer damage by the exercise of those functions.

13.3 Competitive Neutrality

- 13.3.1 Subject to the Act, the SOC Act and any applicable law, Sydney Water must comply, and must ensure that its Subsidiaries comply, with the competitive neutrality policies and guidelines adopted by New South Wales under clause 3 of the Competition Principles Agreement.

- 13.3.2 This Part is in addition to any obligations of Sydney Water under the *Trade Practices Act 1974* and the *Competition Code* of NSW and other States and Territories as applicable.

[Note: For example Section 46 of the Trade Practices Act 1974 prohibits a corporation that has a substantial degree of power in a market from taking advantage of that power for the purpose of:

- (a) eliminating or substantially damaging a competitor of the corporation or of a body corporate that is related to the corporation in that or any other market;*
- (b) preventing the entry of a person into that or any other market; or*
- (c) deterring or preventing a person from engaging in competitive conduct in that or any other market.]*

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NOTICES

Any notice or other communication given under this Licence is to be made in writing addressed to the intended recipient at the address shown in Schedule 3, or the last address notified by the recipient.

CUSTOMER CONTRACT

The Customer Contract is published as a separate document.

AREA OF OPERATIONS

Areas of Operations means the local government areas specified below, the islands in Sydney Harbour, the deemed areas described below, any special area or deemed special area under section 21 of the *Water Board Act 1987* deemed to be a controlled area by section 88(3) of the Act or any special area, deemed special area or controlled area which continues in force by virtue of Part 2, Schedule 9 of the Act, as well as areas declared from time to time to be controlled in accordance with section 88 of the Act and any variation to the Area of Operations made by the Governor in accordance with section 10 of the Act.

Local Government Areas

Ashfield	Liverpool (City)
Auburn	Manly
Bankstown (City)	Marrickville
Baulkham Hills	Mosman
Blacktown (City)	North Sydney
Blue Mountains (City)	Parramatta (City)
Botany	Penrith (City)
Burwood	Pittwater
Camden	Randwick
Campbelltown (City)	Rockdale
Canterbury	Ryde
Concord	Shellharbour
Drummoyne	South Sydney (City)
Fairfield (City)	Sutherland
Hawkesbury (City)	Strathfield
Holroyd	Sydney (City)
Hornsby	Warringah
Hunter's Hill	Waverley
Hurstville (City)	Willoughby
Kiama	Wingecarribee (Part)
Kogarah	Wollondilly
Ku-ring-gai	Wollongong (City)
Lane Cove	Woollahra
Leichhardt	

Deemed Areas

Any land under the waters of Port Jackson and adjoining the boundaries of the City of Sydney upon which there is erected any wharf, pier, jetty, building, or other structure shall be deemed to be within the Area of Operations of Sydney Water.

[Note: Under section 10(1) of the Act, the Area of Operations for Sydney Water is the same as the area current for the Water Board as at the date of corporatisation. The Area of Operations for the Water Board was identical in extent to the Area of Operations proclaimed under the Metropolitan Water Sewerage & Drainage Board Act 1924.]

ADDRESS FOR NOTICES

Sydney Water Corporation

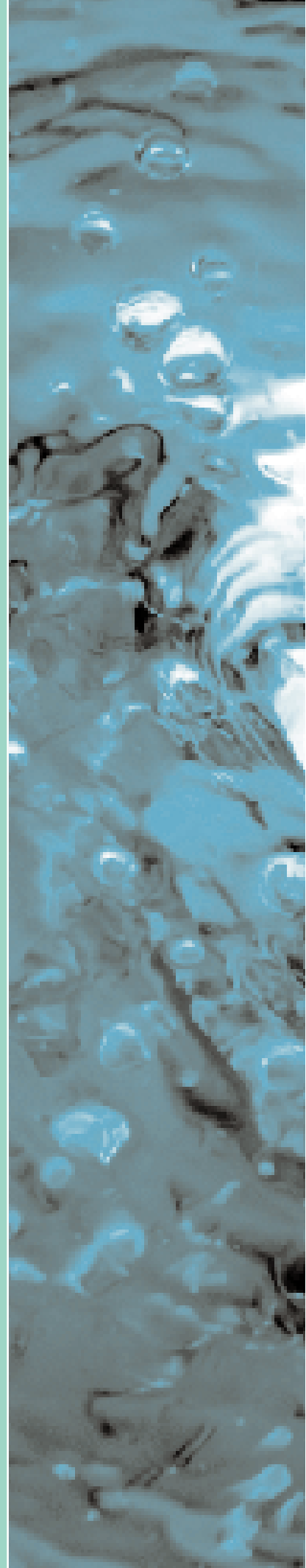
Managing Director
Sydney Water Corporation
115-123 Bathurst St
Sydney NSW 2000

Licence Regulator

The Licence Regulator
Level 6, 29-57 Christie St
St Leonards NSW 2065

SYSTEM PERFORMANCE STANDARDS

Section 1 Licence reference	Section 2 Levels of service	Section 3 Standard	Section 4 How standard is measured
Clause 7.1.1	Drinking Water – continuity	Sydney Water must ensure that, on an annual basis, 95% of all properties connected to its Water supply system will not have that connection affected by an interruption of water supply exceeding 6 hours.	<p>The number of interruptions exceeding 6 + 10 hours divided by total number of properties expressed as a percentage and then subtracted from 100.</p> <p>Where an interruption occurs again in the reporting period, each property is to be counted each time it experiences an interruption, regardless of the number of times the service is so affected.</p> <p>The duration of the interruption is to be measured from the time Sydney Water is advised and ends when the supply to the property is reinstated.</p>
Clause 7.1.1	Drinking water – pressure	<p>Sydney Water must ensure that, on an annual basis, 98% of all properties connected to its Water supply system will have water pressure at the main tap in excess of 15 metres head except in the following low pressure areas:</p> <ul style="list-style-type: none"> • Urban areas adjacent to reservoirs in the Blue Mountains • Non-urban properties in Bayview, West Camden, Llandilo, Berkshire Park, Castlereagh, North Richmond, Oakville, Riverstone, Schofields and the Blue Mountains 	<p>The number of instances where pressure is less than 15 metres head (excluding exemptions) divided by total number of properties expressed as a percentage and then subtracted from 100.</p> <p>Where pressure of less than 15 metres head occurs again in the reporting period, each property is to be counted each time, regardless of the number of times the pressure service is so affected.</p>
Clause 7.1.1	Sewage Overflows	Sydney Water must ensure that, on an annual basis, 96% of all properties connected to its Sewerage system will not have their land affected by a sewage overflow on their land from, or as a result of a sewer owned or operated by Sydney Water.	<p>Number of properties affected by a sewage overflow divided by total number of properties, expressed as a percentage and then subtracted from 100.</p> <p>Where a sewage overflow occurs again in the reporting period, the property is to be counted each time it experiences an overflow regardless of the number of times any property is so affected.</p>



Appendix C

Ministerial requirements



NEW SOUTH WALES

MINISTER FOR ENERGY AND UTILITIES
MINISTER FOR SCIENCE AND MEDICAL RESEARCH
MINISTER ASSISTING THE MINISTER FOR HEALTH (CANCER)
MINISTER ASSISTING THE PREMIER ON THE ARTS

Mrs Gabrielle Kibble
Chairman
Sydney Water Corporation
115-123 Bathurst Street
SYDNEY NSW 2000

- ① Copy to Chair on return*
② Gavin Morrison to
co ordinate responses and
provide no paragraph
to notify Board

25/11

Dear Mrs Kibble

Operational Audit of Sydney Water Corporation 2003-2004

I am writing to you in relation to the Operational Audit Report for Sydney Water Corporation covering the period 1 July 2003 to 30 June 2004. As the Minister responsible for overseeing the Corporation's performance against the requirements of the Operating Licence, I have considered the advice given by the Independent Pricing and Regulatory Tribunal (the Tribunal) on the Audit findings along with supplementary information supplied by Sydney Water and the Tribunal. I will table the Audit report in Parliament.

I am pleased to note that overall, the Audit revealed that Sydney Water performed strongly against the Operating Licence requirements, achieving full or high compliance with the majority of conditions. On the basis of the audit report and advice from the Tribunal, I have decided that no penalties will be imposed on the Corporation. However, I note that there is room for improvement with respect to certain matters and I make the following comment.

Drinking Water Quality

The auditor has found that Sydney Water continued to supply excellent quality water throughout 2003-2004, and I note that Sydney Water, in co-operation with the Sydney Catchment Authority and NSW Health, is actively seeking to identify and minimise risks associated with changes to bulk water quality that can result from events such as drought breaking rains, bushfire or activity in the catchment.

Given that this is an ongoing area of work, I endorse the Tribunal's recommendation that Sydney Water provide confirmation of the Sydney Catchment Authority's finding that the residual treated water quality risks associated with variations in bulk water quality are acceptably low. I require Sydney Water to report to me on this matter by June 2005.

Water Conservation

The current drought increases the imperative for water conservation and demand management and adequate reporting of progress in these areas. Accordingly, I support the principle of transparency and acknowledge the benefit of improving the way information is reported by Sydney Water about progress in water conservation and efficient use.

I note that the Operating License is the principal instrument for the issuance of requirements to Sydney Water and that the format and content of the reporting schedule will be developed by IPART with input from Sydney Water within the drafting of the 2005/2009 Operating License. I will not impose additional requirements at this time, however, this matter should be appropriately addressed in the final content of the Operating Licence which I will determine.

System Performance Standards

I note the auditor's finding that progress has been made in leakage reduction and that Sydney Water has strategies in place for reducing unaccounted for water loss. In particular I note that water losses in 2003 -2004 were reduced by 23.9 per cent and that the auditor has suggested that potential for further reductions may be realised by improving zone size and flow measurement.

I support in-principle the Tribunal's recommendation that Sydney Water expedite the program to install regional meters to measure leakage and require Sydney Water to report to me by April 2005 on the impacts and feasibility of reducing pressure zones.

I will not impose additional requirements at this time, but stress that I regard water conservation generally, and the leakage reduction programme in particular, as being of utmost importance and I intend that the next Operating Licence will contain tighter standards in respect of these.

Please pass on my appreciation for Sydney Water's efforts over the past year. I thank you for the cooperation Sydney Water has given the auditors and IPART in the conduct of the Audit.

Yours sincerely



Frank Sartor

Appendix D

MOUs



MEMORANDUM OF UNDERSTANDING

Between

SYDNEY WATER CORPORATION

and

ENVIRONMENT PROTECTION AUTHORITY

October 2002

October 2002

MEMORANDUM OF UNDERSTANDING

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Introduction

This Memorandum of Understanding provides the foundations for a co-operative relationship between the Environment Protection Authority and Sydney Water Corporation. In doing so, it reflects the requirements of section 35 of the *Sydney Water Act 1994* as well as the *Sydney Water Operating Licence 2000 – 2005*.

Under the *Protection of the Environment Administration Act 1991*, the Environment Protection Authority is established as the primary organisation responsible for protecting the environment of NSW. The Environment Protection Authority's regulatory role, on behalf of the environment and community, is reflected in the *Protection of the Environment Administration Act 1991* and *Protection of the Environment Operations Act 1997*, as well as in various other acts and regulations, which the organisation administers.

Sydney Water Corporation's responsibilities are for the provision of drinking water, and wastewater services and some stormwater services to Sydney, the Blue Mountains and the Illawarra communities. The Environment Protection Authority constitutes Sydney Water Corporation's environmental regulator in carrying out such activities. More specifically, under the *Protection of the Environment Operations Act 1997*, the Environment Protection Authority regulates those Sydney Water activities that are scheduled under this Act, and is the appropriate regulatory authority for Sydney Water's other activities. The twenty-seven licences for Sydney Water's sewage treatment systems are primary examples of such regulation. Furthermore, the importance of Sydney Water Corporation's broad environmental responsibilities, and the relationship between these and the requirements of the *Protection of the Environment Administration Act 1991*, is directly reflected in Sydney Water's principal and special objectives.

In addition to recognising the respective roles of the Environment Protection Authority and Sydney Water Corporation, this Memorandum of Understanding outlines co-operative structures and processes between the Environment Protection Authority and Sydney Water Corporation, including the Strategic Liaison Group and the Operational Policy Committee. These structures and processes allow for joint consideration of strategic, operational and regulatory issues as well as joint deliberation on progress and alignment of Sydney Water's commitments to ongoing environmental improvements with the EPA's broader environmental protection charter.

The Environment Protection Authority and Sydney Water Corporation will work co-operatively through the Strategic Liaison Group, the Operational Policy Committee and other mechanisms to achieve the objectives of both organisations. In doing so, the Environment Protection Authority expects Sydney Water Corporation to meet environmental requirements, and will regulate Sydney Water Corporation in a manner consistent with its regulation of other organisations.

1 Parties to this Memorandum

This Memorandum of Understanding (MOU) is entered into by the Sydney Water Corporation (Sydney Water) and the Environment Protection Authority (EPA), in conformance with section 35 of the *Sydney Water Act 1994*.

2 Functions and Objectives of the Parties

Sydney Water Corporation

2.1 Functions of Sydney Water

Subject to one or more types of operating licences, the principal functions of Sydney Water are, in its area of operations, to provide, construct, operate, manage or maintain systems or services for:

- a. storing or supplying water; or
- b. providing sewerage services; or
- c. providing stormwater drainage services; or
- d. disposing of wastewater.

Sydney Water may provide facilities or services that are necessary, ancillary or incidental to its principal functions, and conduct any business activity (whether or not related to its principal functions) that it considers will further its objectives. These objectives are described below.

2.2 Principal Objectives of Sydney Water

The equally important principal objectives of Sydney Water are:

- a. to be a successful business and, to this end:
 - (i) to operate at least as efficiently as any comparable business;
 - (ii) to maximise the net worth of the state's investment in Sydney Water;
 - (iii) to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates; and
- b. to protect the environment by conducting its operations in compliance with the principles of ecologically sustainable development contained in section 6(2) of the *Protection of the Environment Administration Act 1991*; and
- c. to protect public health by supplying safe drinking water to its customers and other members of the public in compliance with the requirements of any operating licence.

2.3 Special Objectives of Sydney Water

In implementing its principal objectives, Sydney Water has the following special objectives:

- a. to reduce risks to human health; and
- b. to prevent the degradation of the environment.

These special objectives are to be interpreted by reference to the objectives referred to in section 6(1)(b) of the *Protection of the Environment Administration Act 1991*, so far as they are relevant to Sydney Water.

Environment Protection Authority

2.4 Functions of the EPA

Established in 1992 under the *Protection of the Environment Administration Act 1991*, the EPA works with business, industry, government and community organisations to achieve and maintain a healthy environment. In addition to its regulatory functions the EPA is active in environmental education, environmental economics, environmental research and monitoring, and regular reporting on the state of the environment of NSW.

2.5 Objectives of the EPA

The EPA has two main objectives:

- a. to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development; and
- b. to reduce the risks to human health and prevent the degradation of the environment.

The EPA legislation expands on the means by which these objectives can be reached, which include:

- i. promoting pollution prevention;
- ii. adopting the principle of reducing to harmless levels the discharge into the air, water or land of substances likely to cause harm to the environment;
- iii. minimising the creation of waste by the use of appropriate technology;
- iv. regulating the transportation, collection, treatment, storage and disposal of waste;
- v. encouraging the reduction of the use of materials;
- vi. encouraging the reuse and recycling of materials;
- vii. encouraging material recovery;
- viii. adopting minimal environmental standards prescribed by complementary Commonwealth and State legislation, and advising the Government to prescribe more stringent standards;
- ix. where appropriate setting mandatory targets for environmental improvement;
- x. promoting community involvement in decisions about environmental matters;

- xi. ensuring the community has access to relevant information about hazardous substances arising from, stored, used or sold by any industry or public authority; and
- xii. conducting public education and awareness programs about environmental matters.

3 Principles

- 3.1 There is significant alignment of the principle and special objectives of Sydney Water and the objectives of the EPA, especially in regard to the principles of ecologically sustainable development, the prevention of environmental degradation, and the minimisation of human health risks. This alignment of objectives provides a strong basis for a co-operative relationship and shall be recognised through facilitation of the structures and processes established by this MOU.
- 3.2 The parties recognise the alignment of Sydney Water's and the EPA's objectives with Sydney Water's specific objectives and outcomes for environmental improvements as detailed in the current Environment Plan for Sydney Water. Liaison on issues associated with Sydney Water's commitments to environmental improvement will be facilitated through the structures and processes established by this MOU.
- 3.3 The parties shall recognise the important role of the community and of other stakeholders, especially the Sydney Catchment Authority and the Department of Health, in management of the urban water cycle in the catchments supplying water in Sydney Water's area of operations.
- 3.4 The parties shall recognise the need to apply innovation and full integration of water services in the pursuit of ecologically sustainable development. Interactions between the parties will be founded on the recognised need to maximise such opportunities for innovation and for a co-ordinated government approach to urban water cycle planning.

4 Term

- 4.1 This MOU commences on the date of endorsement by the respective parties and remains in force until amended or replaced.

5 Structures and Processes

5.1 Chief Executive Officer (CEO) Meetings

- 5.1.1 The CEO of Sydney Water and the CEO of the Environment Protection Authority, or respective deputies, shall meet to discuss matters of mutual concern and any matters referred by the Strategic Liaison Group or the Operational Policy Group.
- 5.1.2 CEO meetings will be on a regular basis but not less than once per financial year.
- 5.1.3 Either party shall initiate CEO meetings as required.

5.2 Strategic Liaison Group (SLG)

- 5.2.1 The EPA and Sydney Water will continue to operate the Strategic Liaison Group.
- 5.2.2 The role of the SLG will be to consider those issues determined by members of the group to be relevant, but may include:
- long-term joint strategic issues and policies arising from the functions of the parties given in sections 2.1 and 2.4 of this MOU, including future directions for water cycle management, sewage treatment system management and regulation;
 - the implications of the EPA's objectives for Sydney Water, as stated in section 2.5 of this MOU;
 - strategic issues of a scientific nature; and
 - areas for co-operative research and joint initiatives.
- 5.2.3 The SLG members shall report to their respective CEOs on significant issues that relate to the functions of the parties as detailed in 2.1 and 2.4 of this MOU.
- 5.2.4 The membership of the SLG will include CEOs and relevant members of their executive team. Specific membership will be as agreed between the parties from time to time. The chairperson of the SLG will rotate annually.
- 5.2.5 The SLG shall meet at least three (3) times per year. The SLG shall determine the specific frequency and procedure for calling meetings and the manner in which business is to be conducted at, and in relation to, those meetings.

5.3 Operational Policy Committee (OPC)

- 5.3.1 The EPA and Sydney Water will continue to operate the Operational Policy Committee.
- 5.3.2 The role of the OPC will be to consider those issues set by the strategic agenda of the SLG as well as issues determined by members of the group to be relevant. Issues considered may include:
- operational issues and regulatory issues;
 - issues relating to approaches to and progress of Sydney Water's commitments to environmental improvements;
 - unresolved matters of significance to Sydney Water's operations; and
 - requirements of the sewage treatment system (STS) licences.
- 5.3.3 The OPC members shall report to the SLG on significant issues that relate to the functions of the parties as detailed in 2.1 and 2.4 of this MOU.
- 5.3.4 The membership of the OPC will be as agreed between the parties from time to time.

- 5.3.5 The OPC shall meet at least four (4) times per year. The OPC shall determine the specific frequency and procedure for calling meetings and the manner in which business is to be conducted at, and in relation to, those meetings.
- 5.3.6 The OPC shall develop an annual work program to form the basis of OPC, and provide this to the SLG for endorsement following the first meeting for the financial year.

5.4 Joint Forums, Programs and Initiatives

- 5.4.1 Joint forums will be convened where appropriate with the Sydney Catchment Authority and other stakeholders on issues relevant to supplying water in Sydney Water's area of operations and sewerage and stormwater services.
- 5.4.2 Sydney Water and the EPA will consider developing joint programs and initiatives and undertaking research to meet the stated objectives of both organisations that are party to this MOU, as detailed in sections 2.2, 2.3 and 2.5 of this MOU.

5.5 Exchange of Information and Data

- 5.5.1 In recognition of the spirit of co-operation embodied in this MOU and to enable both parties to more effectively carry out their statutory functions given in 2.1 and 2.4 of this MOU, each party will share or supply relevant data and information and provide updated information where necessary. This agreement should not constrain the regulatory responsibilities of the EPA.
- 5.5.2 Data and information shared or supplied openly and honestly by the parties under this MOU shall be on such terms as agreed between the parties. The intention is to avoid either party being 'blindsided', that is where relevant information is not made available.

6 Dispute Resolution

- 6.1 Any difference or dispute that arises between the parties under this MOU will be addressed at the lowest management level possible. Either party will refer issues that cannot be resolved at a local level to more senior officers or the SLG for consideration and resolution.
- 6.2 The SLG will strive to resolve all disputes, but should there be unresolved issues, these will be referred to the CEOs of the two parties.


7 Amendments to this MOU

- 7.1 Upon either party to this MOU giving notice to the other of its desire to see the MOU reviewed, amended or replaced, this MOU must be reviewed, and amended or replaced accordingly.
- 7.2 Both parties must agree to the timeframe for any process of review, amendment or replacement of this MOU at the commencement of that process.
- 7.3 Any amendment to or replacement of this MOU shall be exhibited in accordance with the requirements of section 36 of the Sydney Water Act 1994.

Sydney Water-EPA Memorandum of Understanding

This Memorandum of Understanding is made between the Environment Protection Authority and the Sydney Water Corporation on the 16 day of October 2002.

SIGNED for and on behalf of the Environment Protection Authority


.....

Lisa Corbyn, Director General


.....

Witness to the above signature

Sonya Pike
.....

(Print name)

EPA
59-61 GOULBURN ST.
.....

SYDNEY NSW 2000
.....

(Address)

SIGNED for and on behalf of the Sydney Water Corporation


.....

Alex Walker, Managing Director

J. North
.....

Witness to the above signature

JENNIFER NORTH
.....

(Print name)

Sydney Water Corporation
.....

115-123 Bathurst St. Sydney
.....

(Address)

Memorandum of Understanding

Between **Sydney Water Corporation** and

The Water Administration Ministerial Corporation

(NSW Department of Land and Water Conservation)

June 2002

ISBN 0 7347 5255 5

Published by the NSW Department of Land and Water Conservation

Sydney July 2002

Introduction

In accordance with the requirements of *Sydney Water Operating Licence 2000 - 2005*, the purpose of this MOU is to form the basis for co-operative relations between the Water Administration Ministerial Corporation and Sydney Water Corporation.

Under the *Water Act 1912*, the *Sydney Water Act 1994* and the *Water Management Act 2000* the Ministerial Corporation (through the Department of Land and Water Conservation) has certain powers to regulate Sydney Water's operations. These include water extraction (including drought management), operation of works, activities on waterfront land, and water use (including demand management).

Section 372(3) of the *Water Management Act 2000* provides that the Ministerial Corporation may exercise any of its functions, and otherwise act, in the name of the Department of Land and Water Conservation.

Sydney Water is, therefore, a major stakeholder in the exercise of the Department's functions in the catchments supplying water to Sydney Water and in Sydney Water's area of operations. Specific Sydney Water facilities include North Richmond Filtration Plant, Manly Dam and the Botany Wetlands.

The MOU outlines a framework for achieving a co-operative relationship between the Department of Land and Water Conservation as the Ministerial Corporation's manager of water sources for the State of New South Wales, and Sydney Water as the supplier of water, stormwater and sewerage services to the people of Sydney, Illawarra and the Blue Mountains.

The MOU also recognises the relevance of the objectives of the Sydney Catchment Authority to the successful achievement of the functions and objectives of the parties in much of the Hawkesbury-Nepean catchment. The Authority's objectives are to ensure that the catchment areas and catchment infrastructure works are managed and protected so as to promote water quality, the protection of public health and public safety, and protection of the environment. The Authority is also obliged to manage its infrastructure works efficiently and economically, and in accordance with sound commercial principles and in conformity with the principles of ecologically sustainable development. In complying with its objectives, the Authority must comply with its Act, its Operating Licence and its water management licence.

1. Parties to the Memorandum

This Memorandum of Understanding (MOU) is entered into by the Sydney Water Corporation (Sydney Water) and the Water Administration Ministerial Corporation under Section 35 of the *Sydney Water Act 1994*.

2. Functions and Objectives

Sydney Water

2.1 Functions of Sydney Water

Subject to one or more operating licences, the principal functions of Sydney Water are, in the area of operations, to provide, construct, operate, manage or maintain systems or services for:

- (a) storing or supplying water, or
- (b) providing sewerage services, or
- (c) providing stormwater drainage services, or

- (d) disposing of waste water.

Sydney Water may provide facilities or services that are necessary, ancillary or incidental to its principal functions, and conduct any business activity (whether or not related to its principal functions) that it considers will further its objectives.

2.2 Principal Objectives of Sydney Water

The equally important principal objectives of Sydney Water are:

- (a) to be a successful business and, to this end:
 - (i) to operate at least as efficiently as any comparable businesses;
 - (ii) to maximise the net worth of the of the state's investment in Sydney Water;
 - (iii) to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates; and
- (b) to protect the environment by conducting its operations in compliance with the principles of ecologically sustainable development contained in section 6(2) of the *Protection of the Environment Administration Act 1991*; and
- (c) to protect public health by supplying safe drinking water to its customers and other members of the public in compliance with the requirements of any operating licence.

2.3 Special Objectives of Sydney Water

In implementing the principal objectives set out in section 21 of the *Sydney Water Act 1994*, Sydney Water has the following special objectives:

- (a) to reduce risks to human health,
- (b) to prevent the degradation of the environment

Those special objectives are to be interpreted by reference to the objectives referred to in section 6(1)(b) of the *Protection of the Environment Administration Act 1991*, so far as they are relevant to Sydney Water.

Department of Land and Water Conservation

2.4 Functions of the Department

The Department has the following functions:

- (a) developing and implementing policies on natural resource management and use;
- (b) managing the planning and sharing of water across the State, including demand management and drought management;
- (c) maintaining databases on the condition of the State's land, soil, water, coasts and vegetation;
- (d) managing assets such as Crown lands, dams and fishing ports;
- (e) providing expertise and financial support to local councils and communities for the management of the coast, estuaries, flood risk, soils and vegetation; and
- (f) managing the Country Towns Water Supply and Sewerage Program.

2.5 Objects of the Department

The objects of the Department are generally to provide for the sustainable and integrated management of the water sources, crown land and native vegetation of the state for the benefit of both present and future generations and, in particular:

- (a) to apply the principles of ecologically sustainable development;
- (b) to protect, enhance and restore water sources and native vegetation, their associated ecosystems, ecological processes and biological diversity;
- (c) to recognise and foster the significant social and economic benefits to the State that result from the sustainable and efficient use of water, the proper development and conservation of Crown land, and the conservation and management of native vegetation;
- (d) to recognise the role of the community, as a partner with government, in resolving issues relating to the management of water sources, Crown land and native vegetation; and
- (e) to integrate the management of water sources, Crown land and native vegetation with the management of other aspects of the environment, including the built environment, soil and native fauna.

3. Principles

- 3.1 The significant overlap between the principal and special objectives of Sydney Water and the objects of the Department should be recognised, especially in regard to the principles of ecologically sustainable development as these relate to urban water use and sustainable management of an integrated urban water cycle.
- 3.2 The parties will recognise the role of the community and of other stakeholders, especially the Sydney Catchment Authority, the Environment Protection Authority and the Department of Health in management of the urban water cycle in the catchments supplying water to Sydney Water and in Sydney Water's area of operations.
- 3.3 All agreements entered into between Sydney Water and the Department will be in the public domain.

4. Term

- 4.1 This MOU commences on the date of endorsement by the respective parties and remains in force until amended or replaced.
- 4.2 This MOU must be reviewed, and amended or replaced upon either party to this MOU giving notice to the other of its desire to see the MOU reviewed, replaced or amended.
- 4.3 The process to review, and amend or replace this MOU must be undertaken within a timeframe agreed to by both parties at the commencement of that process. Any amendments to this MOU shall be exhibited in accordance with the requirements of Division 3 of the *Sydney Water Act 1994*

5. Structures and Processes

5.1 Chief Executive Officer (CEO) Meetings

- 5.1.1 The CEO of Sydney Water, or a deputy, and the CEO of the Department of Land and Water Conservation, or a deputy, shall meet to discuss matters of mutual concern and any matters referred by the Strategic Liaison Group. This will be on a regular basis but not less than once per financial year
- 5.1.2 CEO meetings may be initiated by either party as required.

5.2 Strategic Liaison Group (SLG)

- 5.2.1 The Department and Sydney Water will, as soon as practicable after the execution of this MOU, establish a Strategic Liaison Group.
- 5.2.2 The role of the SLG will be to consider those issues determined by members of the group to be relevant, but may include:
- long-term strategic issues and policies arising from the functions of the parties given in 2.1 and 2.4 above; including access licensing, the location and operation of works, and activity and use approvals;
 - issues arising from operation of catchment management boards and other natural resources management committees in the area of operations of Sydney Water;
 - the implications of the objects of DLWC in 2.5 above for Sydney Water; including water quality, effluent management, salinity, groundwater management, wetlands, and aquatic biodiversity; and
 - areas for co-operative research and joint initiatives.
- 5.2.3 The SLG members shall report to their respective CEOs on significant issues that relate to the functions of the parties given in 2.1 and 2.4 above.
- 5.2.4 The membership of the SLG will be as agreed between the parties from time to time.
- 5.2.5 The SLG shall determine the frequency and procedure for calling meetings and the manner in which business is to be conducted at those meetings.

5.3 Joint forums

- 5.3.1 Joint forums will be convened where appropriate with other authorities, agencies or peak community groups on issues relevant to integrated urban water cycle management in the catchments in Sydney Water's area of operations.

5.4. Exchange of Information and Data

- 5.4.1 In recognition of the spirit of co-operation embodied in this MOU and to enable both parties to more effectively carry out their statutory functions given in 2.1 and 2.4 above, each party must share or supply relevant data and information and provide updated information where necessary.
- 5.4.2 Data and information shared or supplied by the parties under this MOU shall be on such terms as agreed between the parties.

5.5. Joint Programmes And Initiatives

- 5.5.1 Sydney Water and the Department will consider developing joint programmes and initiatives and undertaking research to meet the principal and special objectives of Sydney Water given in 2.2 and 2.3 above and the objects of the Department given in 2.5 above.

6. Dispute Resolution

- 6.1 Any difference or dispute which arises between the parties under this MOU will be addressed at the lowest management level possible. Issues that cannot be resolved at a local level will be referred by either party to the SLG for consideration and resolution.
- 6.2 The SLG will strive to resolve all disputes, but should there be unresolved issues, these will be referred to the Chief Executive Officers of the two parties.
- 6.3 Ultimate arbitration will be by relevant Ministers.

This Memorandum of Understanding is made between the Water Administration Ministerial Corporation and the Sydney Water Corporation on the 28th day of ~~May~~ June 2002.

SIGNED for and on behalf of the **Water Administration Ministerial Corporation**
Bob Smith, Director-General, Department of Land and Water Conservation

Bob Smith

Witness to the above signature

P. Lynch JP

(signature)

Brendley Lynch

(name)

9-23-33 BRIDGE ST

Sydney 2000

(address)

SIGNED for and on behalf of the Sydney Water Corporation
Alex Walker, Managing Director

Alex Walker

Witness to the above signature

J. North

(signature)

JENNIFER NORTH

(name)

Sydney Water

(address)

MEMORANDUM OF UNDERSTANDING BETWEEN

**NSW HEALTH AND SYDNEY
WATER CORPORATION**

***Memorandum of Understanding between
NSW Health and Sydney Water Corporation***

NSW HEALTH DEPARTMENT

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For more information and further copies, please contact:

Water Unit
Administration Building
Gladesville Hospital
Victoria Road
Tel. (02) 9816 0589

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March 2001

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Introduction

This is the Memorandum of Understanding (MOU) which was executed by the NSW Health Department and the Sydney Water Corporation on 11 November 1997, incorporating the amendments made to that MOU by agreement between those agencies signed 21 November 2000.





Memorandum of understanding

Memorandum of Understanding between the NSW Health Department (the Department) of the one part and the Sydney Water Corporation (the Corporation) of the other part.

This Memorandum was entered into on the 21 day of November 1997, and incorporates amendments made to that MOU by agreement between the NSW Health Department and the Sydney Water Corporation dated 21 November 2000.

Context

- A.** The Corporation is a statutory state owned corporation (SOC) under the *State Owned Corporations Act 1989*. The Corporation has a responsibility to supply safe drinking water to its customers in accordance with its Operating Licence granted under the *Sydney Water Act 1994*.
- B.** The Department has a role in providing advice to the Government on standards in relation to drinking water quality and to commit the Corporation to supplying water which is safe to drink having regard to public health.
- C.** The Minister for Health and the Director-General of the Department have certain responsibilities in relation to the protection of public health under the *Public Health Act 1991* and other relevant legislation. The Department's roles and responsibilities as outlined in this Memorandum are in addition to any functions conferred upon the Department, the Director-General of the Department, the Chief Health Officer of the Department or the Minister for Health under the *Public Health Act 1991*.
- D.** The objective of this Memorandum is to formally set out the terms of a cooperative relationship between the parties, establish their respective roles, facilitate fulfilment of each party's function in relation to the protection of public health, and to fulfil the requirements of section 35 of the *Act* and the Corporation's Operating Licence.
- E.** It is recognised that the Independent Pricing and Regulatory Tribunal has a role as the Operating Licence regulator for Sydney Water and in setting the Corporation's prices for services which takes into account community preferences including their willingness to pay or accept risk.

1. Interpretation

- 1.1 Unless otherwise specified, terms in this Memorandum shall have the same meaning as provided by the *Act* or the Operating Licence.
- 1.2 '*Act*' means the *Sydney Water Act 1994*.
- 1.3 'Water supply system' includes all the infrastructure, from the Sydney Catchment Authority's delivery point to the Corporation to the consumer's point of connection and utilised by the Corporation to supply drinking water in the Licence Area.
- 1.4 'Guideline exceedances' means water quality monitoring results which exceed the *NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996*.
- 1.5 'Significant and major incidents' means those incidents which are required to be reported to the Department through the Corporation's incident management plans.
- 1.6 Headings and numbering are for convenience only and do not affect the interpretation of this Memorandum.

2. Regulatory agency

- 2.1 The Director-General of the Department is specified as a 'regulatory agency' under section 34 of the *Act*. The *Corporation's Act* and Operating Licence requires it to enter into a Memorandum of Understanding with the Department. For clarification, it is agreed that the Department will fulfil the Director-General's responsibilities under the *Act* and the Department shall act as the regulatory agency in accordance with this Memorandum.
- 2.2 The Department's public water supply regulatory program will consist of the requirements contained within this MOU.

3. Term

- 3.1 The term of this Memorandum shall be for the period commencing on the date of execution hereof and remaining in force for the term of the Corporation's Operating Licence.

4. Liaison between the Corporation and the Department

- 4.1 A Strategic Liaison Group consisting of the Director-General of the Department and the Managing Director of the Corporation and senior officers nominated by them shall meet regularly to discuss the broad principles, directions and policies underlying the roles and responsibilities of the parties under this Memorandum and to:
 - annually review progress on the implementation of this Memorandum.
 - consider long term strategic issues and policies and to define and implement processes for the interchange of strategic planning information.
- 4.2 A Joint Operational Group shall meet regularly to:
 - coordinate implementation of this Memorandum.
 - establish data sharing programs.
 - establish programs of investigations, feasibility studies and economic analyses to be undertaken by the Corporation to meet changing public health objectives in relation to drinking water.
 - make recommendations to the Strategic Liaison Group regarding the updating of this Memorandum.
 - facilitate coordination of the collection of data on water quality for use by all relevant agencies.

The Joint Operational Group may establish ad hoc joint working parties to investigate and formulate recommendations on specific and technical issues, as required.

- 4.3 The Membership of the Joint Operational Group (unless otherwise agreed between the parties) will be as follows:

Corporation

- Regulatory management representative
- Water quality management representative
- Water operational management representative
- Corporate representative

Department

- Manager, Water Unit
- Policy Advisers, Water Unit

The Corporation and Department may invite other officers to attend in support of specific issues.

5. Dispute resolution

- 5.1** Where a dispute between the parties cannot be resolved by the Joint Operational Group, or the Strategic Liaison Group, then it should be referred to the Chief Executive Officers for resolution. In the event that the dispute cannot be resolved by the Chief Executive Officers, the view of the Department shall prevail.

6. Amendment

- 6.1** This Memorandum can be amended at any time upon agreement between the parties and in accordance with section 36 of the *Act*. Where agreement is not reached, the view of the Department is to prevail in accordance with section 35(3) of the *Act*.
- 6.2** Where the Corporation's Operating Licence is amended and the effect of the amendment is to create a conflict between the Licence and the Memorandum, then the parties shall meet to discuss the implications of the amendment and steps that can be taken by the Corporation to resolve any public health issues that may arise.

7. Corporation's roles and responsibilities

- 7.1** The Corporation shall ensure that all drinking water it supplies is safe to drink having regard to the health of the public and that it is supplied in accordance with its Operating Licence.
- 7.2** The Corporation's Operating Licence requires it to comply with the following relating to drinking water:
- (a) the *NHMRC and ARMCANZ Australian Drinking Water Guidelines 1996* ('1996 Guidelines') relating to health guideline values
 - (b) any amendments, updates or supplements of the *1996 Guidelines* ('updated Guidelines') relating to health guideline values specified by NSW Health

- (c) the aesthetic guideline values of the *1996 Guidelines* specified by the NSW Minister for Health following consultation with the Minister responsible for the Corporation
- (d) the aesthetic guideline values of any updated Guidelines specified by the NSW Minister for Health following consultation with the Minister responsible for the Corporation.

- 7.2.2** The Corporation's Operating Licence requires that other grades of water supplied by Sydney Water must be supplied according to relevant guidelines and requirements prescribed by EPA, NSW Health, the Department of Land and Water Conservation, the Department of Agriculture, other relevant government agencies and the NSW Recycled Water Coordination Committee.

- 7.2.3** Sydney Water is to have regard to the concepts of risk minimisation practices and system management of public water supplies referred to in the *1996 Guidelines* and any updated Guidelines, when conducting its water supply system activities.

- 7.3** The Corporation shall establish and use an internal complaints handling procedure for receiving, responding to, investigating and resolving customer complaints regarding water quality.

- 7.4** The Corporation shall consult with the Department in relation to planning issues that arise from changes in the *NHMRC and ARMCANZ Australian Drinking Water Guidelines* from time to time.

- 7.5** The Corporation shall prepare, to the satisfaction of the Department, a comprehensive Annual Drinking Water Quality Monitoring Plan for the water supply system by 31 March each year. The Corporation shall submit this Plan to the Department for review and approval no later than 31st January each year. The Department shall determine its approval no later than 28th February each year. The monitoring plan shall:

- a) include the health and aesthetic parameters for which compliance is required under clause 7.2 of this MOU.

- b) monitor drinking water quality for the aesthetic parameters as required in clause 7.2 of this MOU.
- c) be based on a statistically valid sampling program which meets the intent of the *1996 Guidelines* and any updated Guidelines.
- d) include monitoring locations such that the sampling results are representative of water supplied to Customers and Consumers.
- e) require that samples be tested in accordance with the testing requirements of the 20th edition of *Standard Methods for the Examination of Water and Wastewater* published by the American Public Health Association or other established methods as appropriate.

The Corporation shall carry out a monitoring program in accordance with the monitoring plan. Initially, the Corporation must undertake drinking water quality monitoring for the period 1 January 2000 to 30 June 2001 and after that for each subsequent financial year.

- 7.6** The Corporation shall maintain an effective system of quality assurance for monitoring, sampling, testing, reporting and other processes in relation to the water supply system in consultation with the Department.
- 7.7** The Corporation shall submit to the Department:
- a) on a quarterly basis, monitoring results as agreed in the monitoring plan together with an evaluation of the results on an exception basis.
 - b) on a financial-year basis and by 30 November each year:
 - the results of the health and aesthetic parameters for which compliance is required under clause 7.2 of this MOU.
 - the results of the aesthetic guideline values of the *1996 Guidelines* that apply to the physical characteristics of drinking water.
 - the results should be accompanied by the Corporation's analysis of conditions relevant to the interpretation of data or system descriptions indicating potential health-related problems, together with an evaluation of the results on an exception basis.

- a summary of monitoring information (including guideline exceedances), indicating water quality trends and problems, and a summary of significant and major water quality incidents required to be reported to the Department through the Corporation's Drinking Water Quality Incident Management Plan provided under 10.3. The summary is to include action taken to resolve those exceedances with the potential to impact on public health, and information as to how public health was protected during those exceedances.

- c) the fourth quarterly report required in 7.7(a) can be included as a part of the annual report provided under 7.7(b).
- d) by 31 March in each year, unless otherwise specified following the Mid-term review of Sydney Water's Operating Licence, the Corporation must prepare, to the satisfaction of the Department, an Annual Water Quality Improvement Plan for the water supply system. This Plan is to incorporate system and operational changes needed to address problems identified through water quality monitoring data and through periodic system inspections and evaluations.

- 7.8** The Corporation will develop a system to provide on line access to test results for regulatory agencies during incidents.
- 7.9** The Corporation or its authorised agent shall fluoridate all drinking water supplies as required by the *Fluoridation of Public Water Supplies Act 1957*. Fluoride shall be sampled and reported in accordance with the requirements of the *Fluoridation of Public Water Supplies Act 1957*.
- 7.10** The Corporation shall review with the Department its strategies for the comprehensive management of public health issues no less frequently than every five years, or whenever changes occur that substantially alter the basis of the existing strategies. Strategies to be submitted for review include:
- a) The Five-Year Drinking Water Quality Management Plan
 - b) The 20 year Water Strategy
 - c) Wastewater disposal and reuse strategy.

7.11 The Corporation shall provide the Department with all data and all information on the planning, design, maintenance, operation and administration of the Corporation's activities that the Department reasonably requires to make informed judgements regarding matters relating to the protection of public health.

7.12 The Corporation's responsibilities under this Memorandum apply to the whole of the Corporation's operations (including the whole of its water supply system), including those operations which are performed on behalf of the Corporation by a third party. Protocols are to be established between the Corporation and third parties to ensure the effective operation of the requirements of this Memorandum of Understanding. Such protocols are to include, but not be limited to, joint procedures and training for the identification and notification of information and events of public health significance and the responses described in Clause 10.

7.13 The Corporation shall allow officers of the Department to enter any premises under its care and control, including facilities performing water supply, wastewater reticulation, treatment and disposal systems and wastewater reclamation and reuse systems for the purposes of carrying out any inspections or viewing any records which the Department reasonably requires to make informed judgements regarding matters relating to the protection of public health.

7.14 The Corporation, as a service provider, has a role in ensuring public health protection. This role must be recognised in any conflict or matters of mutual concern to both public health and environmental protection approaches, and will require consultation between the Corporation, the NSW Environment Protection Authority and the Department. The Corporation must meet the environmental water quality requirements for any discharges or water releases required by licences issued to it by the EPA or the Department of Land and Water Conservation.

8. Department's role and responsibilities

8.1 The Department shall provide advice to the Corporation on matters regarding the supply of water which is safe to drink and on other public health issues in regard to water which relate to the Corporation's activities.

8.2 The Department shall provide advice to the Corporation on wastewater management activities that impact on public health, where appropriate.

8.3 The Department shall make independent judgements on public health matters related to the Corporation's activities and exercising its powers and functions under the *Public Health Act 1991*.

8.4 Where any drinking water supplied by the Corporation is failing to meet the Drinking Water Guidelines which the Corporation is required by clause 7.2 to meet, or where the provision of drinking water, or the reclamation, reuse, disposal, or treatment of wastewater takes place in such a manner that a hazard to public health may arise, the Corporation shall be responsible for assessing the problem and proposing rectification action. If the Department is of the opinion that it is appropriate to do so, it may provide advice on rectification action that may be taken by the Corporation. Where the Department gives any advice to the Corporation under this clause, it shall be entirely the responsibility of the Corporation to take appropriate rectification action to ensure that: the drinking water it supplies is safe to drink and meets the requirements of the Corporation's Operating Licence and clause 7.2 and that other activities are conducted in a manner that do not pose a potential hazard to public health. For the purposes of this exercise, the Department will use the *1996 Guidelines* or any updated Guidelines in providing such advice in relation to drinking water.

- 8.5** The Department shall report to IPART upon the Corporation's compliance with the provisions of this Memorandum and upon any public health matters related to the Corporation's operations, as required by IPART or as considered appropriate by the Department, to enable IPART to carry out its functions under the *Act*.

9. Emerging public health issues related to water

- 9.1** The parties shall cooperatively exchange information and the Corporation shall participate in appropriate research and development on emerging public health issues related to drinking water so as to enable them to make well informed judgements regarding action to be taken in relation to the Corporation's water supply system to maintain the protection of public health.
- 9.2** The parties shall independently provide input to public discussion and debate on future revisions of the *1996 Australian Drinking Water Guidelines*, and on guidelines for other grades of water.

10. Events of public health significance

- 10.1** The Corporation shall immediately report to the Department any information or event within its drinking water supply system, or within its wastewater reclamation and reuse and wastewater reticulation, treatment and disposal operations which may have significant implications for public health.
- 10.2** The report of information by the Corporation will include maps depicting geographical locations and systems in addition to tables or text if required by the Department.
- 10.3** The Corporation shall, in consultation with the Department and other Government agencies where appropriate, maintain and update the Corporation's Drinking Water Quality Incident Management Plan.

- 10.4** The Corporation shall, in consultation with the Department and other Government agencies where appropriate, develop and deploy incident management plans/protocols covering the Corporation's activities relating to waste water management.

- 10.5** The parties shall nominate a 24 hour incident management contact point for the coordination of responses to any event of public health significance. That contact point will be an officer of each organisation who has been trained in the plans and incident management procedures and protocols thereunder. The incident management plans shall contain or incorporate by reference, procedures and protocols for the coordinated management of incidents including media and stakeholder liaison and any notification of public health advice from the Department.

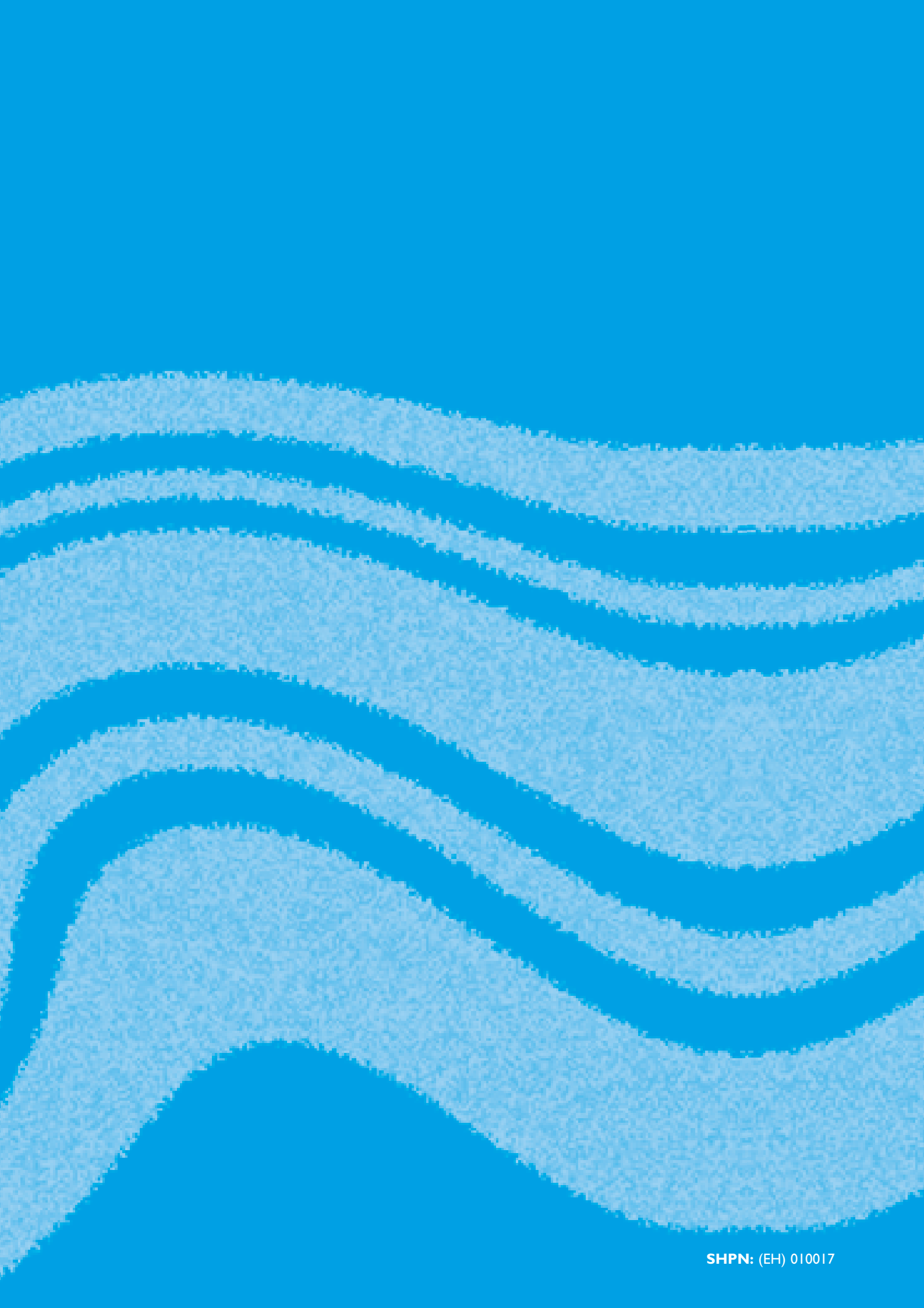
- 10.6** The parties shall ensure that all relevant personnel in their respective organisations are trained to respond to and execute the incident management plans and that appropriate training exercises are jointly developed and conducted.

11. Data exchange

- 11.1** The Department will provide the Corporation with reports and studies it undertakes which are relevant to those activities of the Corporation which impact on public health.
- 11.2** The Corporation will provide reports and studies undertaken by the Corporation as part of its business which are relevant to public health.

12. Public education and information

- 12.1** The Department and the Corporation shall jointly undertake a public education program relating to the health aspects of drinking water.
- 12.2** The Corporation shall report to the public in accordance with section 6.4 of its Operating Licence.



Appendix E

MOU compliance tables

**Table E.1 Appendix E – MOU EPA compliance**

Clause	Requirement	Comment
"Introduction"	The current Sydney Water – EPA MOU was executed on 16 October 2002 to provide a foundation for “ <i>cooperative relationships</i> ” between the organisations. The “Introduction” sets out the environmental protection role and legislation of EPA, including its regulatory and licensing role of Sydney Water. It outlines the structures and process for this cooperation (that is the: Strategic Liaison Group and Operational Policy Committee) and Sydney Water commitment to ongoing environmental improvements. It includes Sydney Water’s role in the provision of drinking water, wastewater and some stormwater services.	<p>As indicated in the two previous year’s audit reports, the significant organisational reform since 2003, which saw the EPA become part of a new Department of Environment and Conservation (DEC), needs to be reflected in the MOU. This need has been formally recognised by the Strategic Liaison Committee (SLG Minutes 7 November 2003). The current MOU continues to not reflect the current roles and responsibilities of DEC, incorporating EPA, including, for example:</p> <ul style="list-style-type: none">▶ Regulatory role for pollution control;▶ Input to Sydney Water Capital Works programs (and thus price path review) such as overflow abatement (wet weather);▶ Monitoring programs; and▶ NPWS component of DEC with which Sydney Water has an access protocol for pipeline and pump maintenance. <p>Efforts were undertaken to redress the structural changes and the matters emanating from this change. A draft revised MOU was prepared by Sydney Water although it was provided to the DEC after the 2004/05 audit period (11 July 2005 covering email sighted).</p> <p>Although the MOU does not cover the issues listed above, such issues were discussed and negotiated by Sydney Water and the EPA (now DEC) during the Licence period.</p>

**Table E.1 Appendix E – MOU EPA compliance**

Clause	Requirement	Comment
1. Parties to this memorandum	The Memorandum is in conformance with Section 35 of the <i>Sydney Water Act 1994</i> .	<p>No requirement.</p> <p>The MOU carries the signatures of the Director General of EPA and the Chief Executive Sydney Water, as well as witnesses, and is dated 16 October 2002.</p> <p>The MOU needs to be updated to reflect the role of DEC. The draft MOU (see “Introduction” above) does not recognise, nor refer to, the SCA being a part of DEC. Recognising the intrinsic link between the SCA and Sydney Water in managing water quality “<i>from catchment to tap</i>”, formal enunciation of the Sydney Water and SCA relationship (through the DEC MOU) is recommended. Further, the SCA is participating in the Joint Operational Group under the Health MOU as opposed to working under the DEC (EPA) MOU.</p> <p>(Note: SCA’s participation in this case relates to SCA’s MOU with Health and not the Sydney Water MOU).</p> <p>Sydney Water has expressed the view that the MOU with DEC should not cover the SCA for reasons such as it being managed as a “<i>separate organisation to the rest of DEC</i>”. The Auditor does not share this view and the reliance on an unspecified agreement within the MOU with a different organisation (NSW Health) to ensure Sydney Water and SCA form a “<i>cooperative relationship</i>”, is not considered a preferred model. It is also noted that the Sydney Water – NSW Health MOU makes no reference, or formal link, with the SCA.</p>
2. Functions and objectives of the parties		No requirement, although the MOU needs to be updated to reflect the role of the DEC.
2.1. Functions of Sydney Water.	Relating to the supply of water, sewerage, and storm water drainage services as well as the disposal of wastewater.	No requirement.



Table E.1 Appendix E – MOU EPA compliance

Clause	Requirement	Comment
2.2. Principal Objectives of Sydney Water	<p>Principle objectives of Sydney Water being:</p> <ul style="list-style-type: none"> to be a successful business; to protect the environment; and to protect public health by supplying safe drinking water. 	No requirement.
2.3. Special Objectives of Sydney Water	<p>Special Objective of Sydney Water being to:</p> <ul style="list-style-type: none"> to reduce the risk to human health; and prevent degradation of the environment. 	No requirement.
2.4. Functions of the EPA	<p>Functions of the EPA are to <i>work with business, industry, government and community organisations to achieve and maintain a healthy environment.</i></p>	No requirement. Needs to be updated to reflect the role of the DEC.
2.5. Objectives of the EPA.	<p>Objectives of the EPA:</p> <ul style="list-style-type: none"> <i>to protect, restore and enhance the quality of the environment in NSW in regard to the needs to maintain ecological or sustainable development; and</i> <i>to reduce the risk to human health and the degradation of the environment.</i> 	No requirement. Needs to be updated to reflect the role of the DEC.



Table E.1 Appendix E – MOU EPA compliance

Clause	Requirement	Comment
3. Principles	It is acknowledged as a significant alignment in objectives between the EPA and Sydney Water, which provides a strong basis for a cooperative relationship. This relationship is reflected in the “Environment Plan” for Sydney Water and the MOU will assist in facilitating environmental improvement. Further, the parties recognised the role of alternate stakeholders and the need to apply innovation and full integration of water services.	No requirement. Needs to be updated to reflect the role of DEC.
4. Term	MOU is to run from the date of commencement and remain in force until amended or replaced.	An amended MOU is needed to reflect the role of the DEC (including roles, regulation, structures, communication and access protocols) and pre-existing “Strategic Relationship Agreement” with NPWS (now part of the DEC).
5. Structures and Processes		
5.1. Chief Executive Officer (CEO) Meetings.	Chief Executive Officer (CEO) Meetings will take place on a regular basis not less than once per financial year and may be initiated by either party.	<p>No formal CEO meetings were held under the MOU. However, the CEOs meet on wider government initiatives, for example, Metropolitan Water Senior Executives Committee (16 March 2005, minutes sighted) and Water CEO’s Meetings (Minutes 27 October, 2005 sighted, although Sydney Water’s CEO was noted as an apology).</p> <p>No issues (from SLG or the Operational Policy Committee (OPC) – see Clauses 5.2 and 5.3 below) were elevated for CEO resolution.</p>
5.2. Strategic Liaison Group (SLG).	Strategic Liaison Group (SLG) is to meet at least three times per year and to consider issues particularly in regard to long-term strategic issues and policy, implementation of EPA’s objectives for Sydney Water, strategic issues of a scientific nature and areas for cooperative research and joint ventures.	The SLG met on four (4) occasions being 9 August 2004, 26 November 2004, 16 March 2005 and 16 June 2005. Sydney Water advised the matters considered included the IPART Operating Licence and price path reviews, long-term targets for sewer overflow abatement, and the Pollution Reduction Program.



Table E.1 Appendix E – MOU EPA compliance

Clause	Requirement	Comment
5.3. Operational Policy Committee (OPC).	<p>Operational Policy Committee (OPC) will continue to consider issues set by the strategic agenda of the SLG including:</p> <ul style="list-style-type: none"> Operational and Regulatory issues; Sydney Water's commitment to environmental improvement; Unresolved Sydney Water operation matters; and Requirement of the sewerage treatment system licence. <p>OPC reports to the SLG, has an agreed membership, meets at least 4 times per year and is driven by an "annual work program".</p>	<p>The OPC met on 3 occasions (4 specified in MOU) being: 7 December 2004, 16 March 2005 and 16 June 2005. Meeting Minutes were provided, and Sydney Water advised that OPC work programs were agreed for 2004 and 2005 and included capital works program, Sydney Water annual reporting and licence returns, licence review, ocean sediment program, choke and leakage management and ocean reference stations.</p>
5.4. Joint Forums	<p>Joint forums would be convened by Sydney Catchment Authority or other stakeholders and Sydney Water and EPA would consider developing joint programs and initiatives in regard to research of the respective organisations.</p>	<p>Sydney Water advised that discussions were held during SLG meetings on joint research (for example, a pilot study on macrophyte growth in the Hawkesbury Nepean) and agreement to a 10 year research program via the Scientific Working Group (meeting held 22 October 2004 minutes sighted).</p>
5.5. Exchange of Information and Data	<p>EPA and Sydney Water would share or supply relevant data or information in regard to their statutory functions though this exchange should not constrain the regulatory responsibility of EPA. Further, data and information should be on such basis agreed by the parties to ensure an open and honest exchange of information.</p>	<p>Sydney Water demonstrated information sharing through negotiations with respect to the Environmental Indicators Monitoring Program. The Scientific Working Group (last meeting held 22 October 2004) and the scientific management officers (last meeting 10 March 2005) of the EPA and Sydney Water have met to discuss changes to the Environmental Indicators Monitoring Program and the estuarine monitoring program.</p>

**Table E.1 Appendix E – MOU EPA compliance**

Clause	Requirement	Comment
6. Dispute Resolution	Any disputes arising between the parties be addressed at the lowest management level and referred to more senior officers for consideration and resolution. Further matters unresolved at the SLG would be referred to the CEOs of the two parties.	Sydney Water indicated that all significant matters were discussed at OPC and/or SLG meetings, which included discussions regarding the monitoring, and capitol works requirements arising from the Sydney Water environment protection licences provided by the DEC. No matters were required to be referred to the CEOs.
7. Amendment of the MOU	Is available by giving notice of the need to review amend or replace the MOU, gaining an agreement to the timeframes for any process of review or amendment and finally any amendment or replacement should be exhibited in accordance with Section 36 of the Sydney Water Act 1994.	Sydney Water advised that the need to update the MOU was raised at the SLG meeting 2 May 2005. EPA agreed to this.



Table E.2 Appendix E – MOU NSW Health compliance

Clause	Requirement	Comment
Context	This section outlines the particular responsibilities of the Department of Health, the Director General of Health, the Sydney Water Corporation, the role of IPART and establishes the objective of the memorandum (to set out the terms for a cooperative relationship between the parties, establish the roles, facilitate fulfilment of each party's functions in relation to the protection of public health and fulfil the requirements of Section 35 of the Act and the Corporation's Operating Licence).	No requirement.
1	Interpretation, which sets out the meanings of specific terms under the Act or Operating Licence.	No requirement.
2	The Director General of the Department is specified as a regulatory agency.	The Water Legislation Amendment (Drinking Water and Corporate Structure) Bill 1998 amended the <i>Sydney Water Act</i> and the Health Act to effectively strengthen and clarify NSW Health's powers concerning the safety of drinking water and establishing Sydney Water as a Statutory State Owned Corporation.
3.1	The term of this MOU will be from the date of execution (21 November 1997) and remain in force for the term of the Operating Licence.	Performance requirement met. Current MOU signed by Sydney Water and NSW Health on 21 November 2000 continued until 01/07/05.
4.1	<p>A Strategic Liaison Group shall meet regularly to discuss broad principles of directions and policy underlying the roles and responsibilities of the party and to:</p> <ul style="list-style-type: none"> annually review progress on the implementation of this Memorandum; consider long term strategic issues and policies in defined implemented processes for the interchange of strategic planning information. 	<p>Evidence was provided to confirm that the SLG met on two occasions in 2004/05 (Minutes 1 June 2005 sighted and referred to a 21 February 2005 meeting), compared to five times in 2003/04.</p> <p>Also unlike previous years the SLG Minutes (June 2005) did not contain a <i>Strategic Issues Agenda for 2005</i>. The Minutes indicate that like previous years, the SLG is providing an active forum to systematically identify and coordinate strategic public health issues, including those of catchment management through the participation of the SCA.</p> <p>Minutes included consideration of long-term strategic issues.</p>



Table E.2 Appendix E – MOU NSW Health compliance

Clause	Requirement	Comment
4.2	A Joint Operational Group shall meet regularly to discuss implementation of MOU, data sharing programs, feasibility studies and economic analyses, make recommendations to the SLG and facilitate coordination of water quality data.	<p>The Joint Operational Group (JOG) met in the audit period. Minutes 2 May 2005 were sighted, reviewed and indicated meetings were also held on four occasions namely, 26 July 2004, 18 October 2004, 31 January 2005 and 2 May 2005, compared to five meetings in 2003/04.</p> <p>A systematic process of issue identification, investigation, reporting and tracking is applied by both SLG and JOG to coordinate water quality data.</p>
4.3	Membership of the joint operational committees should include Sydney Water (Regulatory Manager, Water Quality Manager, Water Operations Manager, Corporate Representatives) and Departmental (Manager Water Quality Unit and Policy Advisor Water Quality Unit) members.	<p>Membership of Committee noted.</p> <p>Sydney Water: (Titles of SLG members has changed over the audit period) and included:</p> <ul style="list-style-type: none"> ▶ Manager, Strategic Operations (South West); ▶ Manager, Treatment Operations; ▶ Manager, Treatment Operations (South West); and ▶ Water Quality Leader.
5.1	Disputes between the parties not resolved by the Joint Operational Group or the Strategic Liaison Group should be referred to the CEOs for resolution and if this is unsuccessful the views of the Department shall prevail.	<p>No requirement.</p> <p>No disputes recorded.</p>
6.1	The MOU can be amended at any time upon agreement of the parties. Where agreement is not reached the Department's view shall prevail.	<p>No requirement.</p> <p>No amendments were made.</p>
6.2	Where the Sydney Water's Operating Licence is amended and creates a conflict between the Operating Licence and the MOU then the parties should meet to discuss the implications and steps to resolve any public health issue.	<p>No requirement.</p> <p>No conflicts identified in current audit period, and none indicated in Minutes sighted.</p>
7.1	Sydney Water must ensure all drinking water it supplies is safe for drinking having regard to public health and supplied in accordance with its Operating Licence.	<p>Sydney Water pursues via its business plans, strategies such as <i>Water Product Quality Management System</i> Refer to "Part 6 – Water Quality" for discussion.</p>



Table E.2 Appendix E – MOU NSW Health compliance

Clause	Requirement	Comment
7.2.1	The Corporation's Operating Licence requires it to comply with nominated drinking standards.	Performance addressed through <i>Annual Drinking Water Quality Monitoring Plan</i> . Refer to "Part 6 – Water Quality" for discussion.
7.2.2	The Corporation's Operating Licence requires that other grades of water supplied by Sydney Water must be supplied in accordance with relevant guidelines and requirements as prescribed.	Performance addressed through <i>Annual Drinking Water Quality Monitoring Plan</i> . Refer to "Part 6 – Water Quality" for discussion.
7.3	The Corporation shall establish internal complaints handling procedures for resolving customer complaints regarding water quality.	Refer to "Part 12 – Dispute Resolution" for discussion.
7.4	Sydney Water will consult with the Department in relation to planning issues arising from changes to NHMRC and ARMCANZ Australian Drinking Water Guidelines from time to time.	Performance requirement met. Sydney Water consulted with Health on draft Guideline changes (SLG/JOG Minutes).
7.5	<p>The Corporation shall prepare, to the satisfaction of the Department, a comprehensive Annual Drinking Water Quality Monitoring Plan for the water supply system by 31 March each year. The Corporation shall submit this plan to NSW Health for review and approval no later than 31 January each year. NSW Health shall determine it's approval no later than 28 February each year. The monitoring plan shall:</p> <ul style="list-style-type: none"> ▶ include Health and aesthetic parameters ▶ Monitor drinking water quality for aesthetic parameters ▶ Be based on a statistically valid sampling ▶ Include monitoring locations such that the sampling results are representative of water supplied ▶ Require samples be tested in accordance with testing requirements. <p>Sydney Water shall carry out a monitoring program in accordance with the monitoring plan for the period 1 January 2000 to 30 January 2001 and after that for each subsequent financial year.</p>	<p>Sydney Water indicated it has met this performance requirement though no evidence was provided to confirm forwarding the plan by the due dates.</p> <p>(See also, audit findings detailed in Table 6.4 (Clauses 6.3.1, 6.3.3, 6.3.4 and 6.3.5) of this report).</p>

**Table E.2 Appendix E – MOU NSW Health compliance**

Clause	Requirement	Comment
7.6	Corporation shall maintain an effective system of quality assurance for monitoring, sampling, testing and reporting and other processes in relation to water quality system in consultation with the Department.	Refer to “Part 6 – Water Quality, Clause 6.3.2” for discussion.
7.7a	Sydney Water shall submit to the Department on a quarterly basis monitoring results as agreed in the monitoring plan together with an evaluation of the results on an exceptions basis.	Sydney Water indicated it provided drinking water quality monitoring reports to NSW Health for each quarter though no evidence was provided to confirm the forwarding of the results by the due dates.
7.7b	<p>On a Financial year basis and by the 30 November submit to the Department:</p> <ul style="list-style-type: none">• results relating to health and aesthetic parameters;• guideline values applying to drinking water;• the Corporation's analysis of conditions relevant to interpretation of data or systems indicating potential health problems and an evaluation of results on an exceptions basis;• a summary of monitoring information indicating water quality trends, problems and significant and major water quality incidents (reported through the Corporation's Drinking Water Quality Incident Management Plan); and a summary of actions to be resolved with respect to exceedences with a potential to impact public health.	As per 7.7a.
7.7c	The fourth quarterly reports required in 7.7a can be included as part of the annual report provided under 7.7b	<p>As per 7.7a.</p> <p>Audit findings are detailed in Table 6.4 Clause 6.4 of this report.</p>



Table E.2 Appendix E – MOU NSW Health compliance

Clause	Requirement	Comment
7.7d	By the 31 March each year, unless otherwise specified following the Mid Term Review of Sydney Water's Operating Licence, Sydney Water must prepare an Annual Water Quality Improvement Plan for the water supply system to the satisfaction of the Department and to incorporate systems and operational changes to address problems identified through the water quality monitoring data and periodic system inspection and evaluations.	As per 7.7a. The audit findings, are detailed in Table 6.2, Clauses 6.5.3 and 6.5.4.
7.8	Sydney Water will develop a system to provide on-line access to test results for regulatory agencies during incidents.	Sydney Water indicated it continued to provide such a system though no evidence was provided to confirm.
7.9	Sydney Water will fluoridate all drinking water supplies as well as sample and report upon such fluoridation in regard to the <i>Fluoridation of Public Water Supply Act 1957</i> .	Sydney Water advised it reports the results of the fluoridation monitoring on a monthly basis to NSW Health. Audit findings are detailed in Table 6.4 Clause 6.4 of this report.
7.10	Sydney Water shall review with the Department its strategy for comprehensive management of public health issues no less frequently than every five (5) years or whenever substantial change exists. Strategy to be submitted for review include: <ul style="list-style-type: none"> • Five (5) year drinking water quality management plan • Twenty (20) year water strategy • Waste water disposal and reuse 	Sydney Water advised it was in the process of developing a new five year Drinking Water Quality Plan.
7.11	Sydney Water shall provide to the Department all information on the planning, design, maintenance, operations and administration of the Corporation activities that the Department reasonably requires to make a judgement regarding matters relating to the protection of public health.	Information transfer mostly occurs through SLG and JOG. NSW Health has on-line access to monitoring results during incidents and monthly reports. (Also see MOU Clause 7.8, above).

**Table E.2 Appendix E – MOU NSW Health compliance**

Clause	Requirement	Comment
7.12	Sydney Water's responsibilities under this MOU apply to the whole of the Corporation's operations (including the whole of its water supply system), including those which are performed on behalf of the Corporation by a third party. Protocols are to be established between the Corporation and third parties to ensure the effective operation of the requirements of the MOU. Such protocols are to include joint procedures and training for the identification and notification of information and events of public health significance as described in Clause 10.	Insufficient evidence to assess.
7.13	Sydney Water must allow NSW Health officers entry into any premises for the purpose of carrying out inspections or viewing records to enable judgements regarding matters relating to the protection of public health to be made.	Insufficient evidence to assess.
7.14	Corporation has a role to ensure public health protection. This role must be recognised in any conflict or matters of mutual concern to both public health and environmental protection approaches and will require consultation with the EPA and the Department of Health. The Corporation must meet the environmental water quality requirements for any discharges or water releases required by licence issued to it by the EPA or the DLWC (now DIPNR).	Insufficient evidence to assess.
8.1	NSW Health to provide advice to Sydney Water on matters regarding the supply of water which is safe to drink and other public health issues.	Insufficient evidence to assess, although SLG and JOG minutes indicate a generally free exchange of information.
8.2	NSW Health shall provide advice to Sydney Water on waste water management activities impacting public health.	See 8.1.
8.3	NSW Health shall make independent judgement on public health matters and exercise its powers and functions under the <i>Public Health Act 1991</i> .	See 8.1.

**Table E.2 Appendix E – MOU NSW Health compliance**

Clause	Requirement	Comment
8.4	Where Sydney Water fails to meet Drinking Water Guidelines or where the provisions of drinking water, or the reclamation, reuse, disposal or treatment of wastewater takes place in such a manner that a hazard to public health may arise, Sydney Water is responsible for assessing the problem and proposing rectification action. NSW Health may provide advice on the rectification action although Sydney Water shall be entirely responsible to take appropriate rectification action, ensuring the supply of drinking water is safe and meets the requirements of the Sydney Water's Operating Licence and Clause 7.2 and that other activities do not pose potential health hazard to public health.	See 8.1.
8.5	NSW Health to report to IPART on Sydney Water's compliance with the MOU, upon any public health matter or as considered appropriate.	See 8.1.
9.1	The parties shall cooperatively exchange information and the Corporation shall participate in appropriate research and development on emerging public health issues related to drinking water so as to enable them to make well informed judgements regarding action to be taken in relation to the Corporation's water supply system to maintain the protection of public health.	See 8.1.
9.2	Sydney Water shall make independent input to public discussion debate on revisions of the <i>1996 Australian Drinking Water Guidelines</i> or other grades of water	Insufficient evidence to assess.
10.1	Sydney Water shall immediately report to NSW Health any information or event within drinking water supply system or wastewater reclamation and reuse and wastewater reticulation, treatment and disposal operations which may have significant implications for public health.	Insufficient evidence to assess, however Sydney Water advised it updated its Drinking Water Quality Incident Management System in 2005 and this was endorsed by NSW Health.
10.2	Sydney Water report of information will include maps depicting the geographical location and systems in addition to tables or text if required by NSW Health.	See 10.1.

**Table E.2 Appendix E – MOU NSW Health compliance**

Clause	Requirement	Comment
10.3	Sydney Water, in consultation with NSW Health and other agencies shall maintain and update its Drinking Water Quality Incident Management Plan.	See 10.1
10.4	Sydney Water, in consultation with NSW Health or other government agencies shall, where appropriate, develop and deploy incident management plans / protocols covering Sydney Water's activities relating to waste water management.	See 10.1
10.5	NSW Health and Sydney Water shall nominate a 24hr incident management contact point for coordinating responses to events of public health significance. The contact point will be an officer of each organisation who is appropriately trained. The incident management plan shall contain references, procedures and protocols for coordination of incident management including media and stakeholder liaison and notification of some NSW Health of public health advice.	See 10.1
10.6	NSW Health and Sydney Water shall ensure all relevant personnel are trained to respond and execute the incident management plan and the appropriate training exercise are jointly developed and conducted.	See 10.1
11.1	NSW Health will provide Sydney Water with reports and studies, which are relevant to those activities of Sydney Water impacting on public health.	Insufficient evidence to assess.
11.2	The Sydney Water will provide reports and studies to NSW Health undertaken as part of it's business relevant to public health	See 11.1.
12.1	Sydney Water and NSW Health shall jointly undertake public education programs relating to health aspects of drinking water.	Insufficient evidence to assess.
12.2	Sydney Water shall report to the public in accordance with Section 6.4 of its Operating Licence.	See 12.1.



Table E.3 Appendix E – MOU WAMC compliance

Clause	Requirement	Comment
"Introduction"	<p>A new Sydney Water - Water Administration Ministerial Corporation (WAMC) – MOU was executed on 28 June 2002 to provide a foundation for a cooperative relationship between the organisations. The "Introduction" sets out the water extraction, operation of works, activities on waterfront lands, water use (including demand management) role of WAMC and the role of Sydney Water and specifically Sydney Water's facilities including the North Richmond Water Filtration Plant, Manly Dam and Botany Wetlands.</p> <p>The MOU also recognises the relevance and objectives, and role of the SCA, namely to ensure the catchment areas and catchment infrastructure works are managed to protect and promote water quality, public health and the protection of the environment.</p>	<p>No requirement. WAMC is managed within DIPNR.</p> <p>Under the Operating Licence, Sydney Water is required to enter into a MOU with WAMC to meet the obligations of the Sydney Water Act 1994.</p> <p>In 2002/03 it was advised that the MOU had not been actively implemented. This was in part due to the broad interaction between Sydney Water and DIPNR, through joint involvement in issues of mutual concern such as: Hawkesbury Nepean management; development of a Drought Response Protocol; and Water CEO activities.</p> <p>Over 2003/04 similar joint issues, for example the Metropolitan Water Plan, applied.</p> <p>Further, with key issues facing Sydney Water and DIPNR, such as the balance between meeting the need for urban growth compared to water sharing for environmental outcomes, it could be anticipated that the MOU should provide the necessary basis for information exchange and decision making. However, the MOU does not form such a basis.</p> <p>A further reason for the low level of activity under the MOU has been the structural changes within DIPNR, which reduced its involvement with MOU activities. Also Sydney Water advised that the MOU activities were not seen by DIPNR as a priority or a need.</p>
1. Parties to the Memorandum		No requirement.
2. Functions and objectives		



Table E.3 Appendix E – MOU WAMC compliance

Clause	Requirement	Comment
2.1 Functions of Sydney Water	<p>The functions of Sydney Water are identified as, “in the areas of operations, to provide, construct, operate, manage or maintain systems or services for:</p> <ul style="list-style-type: none"> the supply of water, or; providing sewerage services, or; providing stormwater drainage services, or; disposing of waste water. 	No requirement.
2.2 Principal Objectives of Sydney Water	<p>Being to:</p> <ul style="list-style-type: none"> be a successful business; protect the environment; protect public health by supplying safe drinking water. 	No requirement.
2.3 Special Objectives of Sydney Water	<p>Includes:</p> <ul style="list-style-type: none"> reduce risk to human health; and prevent the degradation of the environment. 	No requirement.
2.4 Functions of the Department of Land and Water Conservation.	Including policy development, planning, databases, asset management, financial and technical support and management of the town and country water supply and sewerage programs.	The Department of Land and Water Conservation (DLWC) no longer exists. Rather DLWC formed part of DIPNR. The MOU was not updated during 2004/05 and continues to refer to a predecessor agency, DLWC.
2.5 Objects Of The Department	Are listed which are directed to provide the sustainability and integrated management of the water sources, crown land and native vegetation.	<p>No requirement.</p> <p>DLWC was a part of DIPNR, which has been split into the Department of Planning and the Department of Natural Resources after the audit period. The MOU requires updating.</p>
3. Principles		



Table E.3 Appendix E – MOU WAMC compliance

Clause	Requirement	Comment
	<p>Include:</p> <ul style="list-style-type: none"> ▶ The principles of ecologically sustainable development, relating to urban water use and integrated urban water cycle; ▶ Recognition of the role of community and stakeholders; and ▶ Agreements between the organisations will be in the public domain. 	Requires review to ensure the 'principles' reflect the new Department (DIPNR). DIPNR itself has recently been reformed (after the audit period). It has now been split into the Department of Planning and the Department of Natural Resources. The MOU should be updated to reflect the new host (for WAMC) department.
4. Term		
	The term of the MOU is from 28 June 2002 until it remains in force until amended or replaced.	Insufficient information to assess.
5. Structures and Processes		
5.1 Chief Executive Officer (CEO) Meetings	The CEOs or respective deputies shall meet to discuss matters of mutual concern and those referred to it by the Strategic Liaison Group (SLG) on a regular basis, but not less than one per financial year. The meeting initiated by either party.	<p>No formal meeting of CEOs or their deputies under the MOU took place over 2004/05, although the CEOs did meet in broader forums: Water CEO's Metro Water Senior Executives (Agenda 16 March 2005 sighted) and Drought Executives Committees.</p> <p>No matters were referred by the SLG to a CEO's meeting.</p>

**Table E.3 Appendix E – MOU WAMC compliance**

Clause	Requirement	Comment
5.2 Strategic Liaison Group (SLG)	<p>The MOU requires:</p> <ul style="list-style-type: none">• establishment of the SLG;• consideration of issues to be determined by the group, including:• long-term strategic issues and policies;• issues arising from the operation of catchment management boards etc.;• implication of DLWC objectives including water quality etc.;• areas for co-operative research and joint initiatives. <p>SLG will:</p> <ul style="list-style-type: none">• report to the CEOs;• have a membership agreed between the parties; and• agreed meeting frequency.	No Strategic Liaison Group meetings were held over 2004/05.
5.3 Joint Forums	The clause notes stakeholders will convene joint forums on issues relevant to integrated urban water cycle in the catchment of Sydney Water's area of operation.	No joint forums were held under the MOU although both Sydney Water and DIPNR participated in external joint meetings (for example, Metropolitan Water Plan and Metropolitan Strategy, Recycled Water (Agenda 5 May 2005 sighted) and Sydney Metropolitan Water Sharing Plan, although these were not driven by the MOU.
5.4 Exchange of Information and Data.	Each party would supply and share relevant data and information as necessary and to do so on terms as agreed between the parties.	Similar to comments under 5.3, the exchange of information and data over 2004/05 was not driven by the MOU and no formal agreement exists for data exchange. Rather, data is transferred if, and when, needed.

**Table E.3 Appendix E – MOU WAMC compliance**

Clause	Requirement	Comment
5.5 Joint Programmes and Initiatives.	Joint programs and initiatives will be developed including the undertaking of research.	No specific joint programs were developed under the MOU, although both organisations participated in broad programs (see also comments under Clause 5.3)
6. Dispute resolution	Any disputes between the parties would be resolved at the lowest level or alternately the SLG and if still unresolved to the CEOs. Finally, ultimate arbitration will be with the relevant ministers.	No disputes were raised at SLG or Ministerial levels. Numerous issues were resolved at CEO level, through for example, the Water CEO's meeting, although such matters were external to the MOU.

Appendix F

Customer Contract compliance table



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
1	Introduction	No requirement	
2	What is a Customer Contract and who is covered by it?	No requirement	Clause provides background information, a definition of the Customer Contract and who is covered.
3	What service does Sydney Water provide?		
3.1	Water supply services	Full compliance	Sydney Water is required to provide customers with drinking water within the terms of Clause 3.1, which includes consideration of water quality, water pressure, supply of recycled water and health or special needs. While the physical characteristics of the water are reviewed in detail elsewhere, the results of the annual residential customer survey and the Operating Licence Compliance Report (OLCR) were used as indicators of compliance. Water continuity information is provided for planned and unplanned events. During the audit period, there were 19,214 properties affected by 329 unplanned events which exceeded 5 hours. The standard requires that no more than 35,000 properties are impacted for over 5 hours, so Sydney Water has achieved the standard. It was noted there was an increase in the number of properties affected when compared to the previous year (16,345). Conversely the number of properties affected by planned interruptions (exceeding 5 hours) fell from 16,064 in 2003/04 to 8,527 in 2004/05.
	3.1.1 Supply of drinking water		Overall there were 4,934 unplanned events (OLCR page 35) which affected water continuity. This is a decline from 6,358 reported in 2003/04.
			Of those customers reporting a problem in the customer survey (only 8% said they experienced a problem), 12% indicated interruption to flow as the problem, an increase from 6% in the previous year.
	3.1.2 Drinking water quality	Full compliance	Sydney Water reports on page 19 of the OLCR that it “ <i>is complying with the health related guideline values in the Australian Drinking Water Guidelines</i> ” and “ <i>is complying with the aesthetic guideline values in the Australian Drinking Water Guidelines, specified by NSW Health and the Minister</i> ”. The level of customer satisfaction with tap water recorded through the annual residential customer survey indicates that 91% of customers were “ <i>very satisfied</i> ” or “ <i>quite satisfied</i> ” which is similar to the past 2 years and a significant increase from 2002.
	3.1.3 Drinking water pressure	High compliance	In 2004/05 there were 2,860 properties (361 were reported in 2003/04) that did not receive continuous water pressure at the main tap of at least 15 metres head as a result of abnormal operations and 2,498 properties (814 were reported in 2003/04) where the pressure was less than 15 metres head at the main tap more than once during the audit year. Of those customers

**Table F.1 Appendix F – Customer contract compliance table**

Clause	Requirement	Compliance	Findings
			reporting a problem through the household survey (only 8% reported experiencing a problem), 14% indicated they had experienced water pressure problems which is a slight increase from the previous audit period of 9%. Note that the performance standard required for Clause 7.1.1 is different to that required by the customer contract.
	3.1.4 Supply of recycled water	Full compliance	Recycled water pressure and water continuity results are reported in the OLCR and are mainly relevant to the Rouse Hill Development Area. There were no properties affected by water pressure problems, with 7 unplanned and 31 planned events impacting water continuity. The largest number of properties, 919, were affected by unplanned events between 1-5 hours, down from the previous year of 1,442 unplanned events.
	3.1.5 Health or special needs	Full compliance	Sydney Water discusses special needs with customers. Sydney Water indicated that it informs relevant customers and institutions in a similar way to other customers regarding planned interruptions. Sydney Water advised that hospitals notify it of any dialysis patients and these patients are then recorded in Sydney Water's system.
3.2	Sewerage services		
	3.2.1 Supply of sewerage services	High compliance	No evidence was sighted that Sydney Water had refused to provide sewerage services to customers who were entitled to receive such services. Sydney Water reported that it connected 10 customers to the system who did not have the financial resources to undertake the connection. The customer survey asked people to rate their satisfaction with Sydney's sewerage system. Only 11% of customers – similar to previous years – said they were " <i>Not very satisfied</i> " or " <i>Not at all satisfied</i> ". Net pollution/surcharge/odours, specifically waterways pollution (including that of beaches, rivers and the harbour) as well as a dislike of ocean outfalls continue to be the most common reasons given for dissatisfaction with Sydney's sewerage system.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
	3.2.2 Sewage overflow	Full compliance	The OLCR reports sewage overflows as part of the performance indicators. The number of dry weather uncontrolled sewage overflow events attributed to chokes which were Sydney Water's responsibility was reported as 19,065 (OLCR page 35) compared to 16,765 in the previous audit. However, during the year Sydney Water received 19,588 complaints about sewage overflow which were regarded as Sydney Water's responsibility. This is an increase from 17,256 last year but is similar to the numbers reported in 2002/03 (19,876). The response time to high priority sewer incidents was also reported in the OLCR. Sewer overflow generated the highest number of complaints during the audit period, accounting for approximately 60% of all complaints, an increase from 50% in the previous period. The Emergency Contacts survey (conducted between January and June 2005) contains further information, including that 81% of customers had their expectations met, or exceeded, with respect to Sydney Water's approach to dealing with wastewater problems.
	3.2.3 Blockage of sewer system	High compliance	The community survey shows that the incidence of householders citing "too many overflows / surcharges" has continued to decrease from 22% in 2003, to 13% in 2004 and 11% in 2005.
	3.2.4 Trade waste	Full compliance	Sydney Water has provided copies of its trade waste agreement - available on its website - along with information provided to customers (refer to Part 9.7).
3.3	Stormwater drainage services	High compliance	Maps are available at Sydney Water which show the properties that are serviced by Sydney Water because they are in a declared stormwater drainage area. Further declaration of stormwater areas is unlikely to occur and none has taken place during the audit period. Sydney Water advised that presently 5-10% of stormwater drainage is the responsibility of Sydney Water.
3.4	Factors affecting service		
	3.4.1 Repairs and maintenance	High compliance	The Emergency Contacts survey shows the satisfaction of customers with repair work undertaken at their property. Asked to rate their level of agreement with statements regarding repair work undertaken, 83% of contacts agreed with the statement " <i>the service people left the area clean and tidy</i> " for both water and wastewater respectively. With regard to the statement " <i>Sydney Water did all it could to fix the problem</i> ", 84% of customers had a high level of agreement if it was a water related issue, while 81% of customers had this level of agreement for waste water repairs. With regard to the statement " <i>the problem was fixed quickly</i> ", wastewater customers were more likely to have a high level of agreement (78%) compared with water customers (71%).



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
	3.4.2 Unplanned interruptions	Full compliance	<p>A 24 hours emergency telephone service is available and is clearly advertised through the 24 hour emergency number section in the front of the White Pages telephone book.</p> <p>The OLCR provides information on system performance concerning unplanned interruptions. 19,214 properties had unplanned interruptions to water supply exceeding 5 hours which is less than the system performance standard of 35,000. A further 198,915 properties were affected for less than 5 hours.</p>
	3.4.3 Planned interruptions	Full compliance	<p>A copy of the notice issued to households in the case of a planned interruption to water supply and sewerage services was sighted. This notice provides for indication of the time and duration of any interruption.</p> <p>The OLCR indicates that 8,527 properties had a planned and warned shutdown of water supply exceeding 5 hours, which is below the maximum allowance of 32,000 properties.</p>
	3.4.4 Restrictions in drought	Full compliance	<p>Mandatory water restrictions are in force with Level 2 restrictions imposed in October 2004 and Level 3 announced in June 2005 but not imposed until 1 July 2005. The Auditor noted a sample copy of a customer account which informs the customer about water restrictions together with the advertising schedule communicating the restrictions. The Auditor also noted that the restrictions are listed on the Sydney Water website.</p>
4	What you pay		
4.1	Responsibility to pay account	No requirement	Responsibility of customer.
4.2	Publication of charges	Full compliance	<p>The information concerning charges are noted on the bill, advertised through the newspaper, published on the Sydney Water website and available through request to the Sydney Water call centre.</p>
4.3	Concessions	Full compliance	<p>The pensioner rebate information is provided as part of the pamphlet “<i>Experiencing Financial Hardship</i>” which was sighted and is also available through the Sydney Water website. Information is also provided on accounts.</p> <p>Sydney Water advised that information on concessions are provided in languages other than English when people contact Sydney Water and request such information.</p>



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
4.4	Your account	Full compliance	There are a number of sub sections to this clause which include when the account will be sent, what is on the account, how the accounts are to be sent, how payments can be made and the consequences of overdue account balances. Example accounts were sighted and the relevant information was listed on the account.
4.5	Undercharging	High compliance	Provisions are made for Sydney Water to recoup any instances of undercharging. However, no instances were sighted by the Auditor, although accounts and billing generated the second largest number of complaints (see below).
4.6	Overcharging	High compliance	There were 4,758 complaints for the year about accounts/rating /billing which represents the second highest complaint category (approximately 14.7% of all complaints). Compared to previous years, this category has now been split into two categories to identify the number of complaints associated with meter misreads.
4.7	Account disputes	Full compliance	An action is placed in the system to stop billing on the disputed amount. In situations of an account dispute, there was no evidence that Sydney Water sought the amount from the customer prior to the matter being resolved in its favour.
4.8	How prices are determined	Full compliance	Customers are informed about how prices are determined. Pamphlets were sighted and a description is also on Sydney Water's website.
4.9	Notification of price variations	Full compliance	Customers are notified through their accounts of any changes to prices.
4.10	Other costs and charges	Full compliance	Publication of charges was sighted including ancillary service charges and can be found on Sydney Water's website.
5	What can I do if I am unable to pay my account		
5.1	Payment difficulties	Full compliance	The pamphlet titled " <i>Experiencing financial hardship?</i> " was sighted. Information is also located on the account sent to customers. This was sent to all customers in the April 2005 billing period. During the audit period, 12,326 payment assistance vouchers were issued with a total value of \$308,141 which is a significant decrease from the previous audit. This is a 26% decline in vouchers issued.
5.2	Account relief	Full compliance	As above.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
6	Disconnection or restriction of water and sewerage Services		Much of the evidence used to evaluate this section relates to Clause 5.3 of the Operating Licence (Code of practice and procedure on debt and disconnection).
6.1	Disconnection or restriction of supply for non-payment	Full compliance	There were no indications that supply had been restricted without providing notices under Clause 6.2 of the Customer Contract. The OLCR indicates 2 properties were disconnected for non-payment (up from 1 last year) and 917 had flow restrictions implemented for non-payment in the audit period (down from 3,256 last year). There were a total of 1,690,821 debt recovery actions during the period (also a reduction from the previous year from 1,833,558).
6.2	Notice of disconnection or restriction of supply of water	Full compliance	Sample notices as stipulated in this clause were sighted.
6.3	Disconnection or restriction for other reasons	No requirement	No figures showing the number of properties disconnected for other reasons were sighted.
6.4	Minimum flow rate during restriction	No requirement	Information provided to the customer. There were no complaints to this effect, that is, that community health was impacted.
6.5	Limitations on disconnection or restriction	Full compliance	No evidence was identified to suggest that these conditions were not observed by Sydney Water.
6.6	Disconnection by a customer	Full compliance	Sydney Water provides information which shows whether water or sewer has been disconnected from Sydney Water's system. There is no evidence to suggest that customers have not been able to disconnect if they so wish. Sydney Water records the number of customers who have access to water and sewer but are presently not connected.
6.7	Restoration of supply after restriction or disconnection	High compliance	It is noted that 917 properties had flow restrictions placed on them during the year. The Auditor was provided with a listing of property numbers that indicated the date of the last restriction and the date of the last reconnection for August 2005 (outside the audit period), as well as information indicating the amount of time the restrictions were in place. Further information was provided which shows dates of arrangements made (where relevant) and dates of last restriction and reconnection. The majority of cases appear to have been restored as required.
7	Redress		
7.1	Notification	High compliance	Sydney Water reports that it provides a substantive response to 95.3% of customer complaints within 10 days. This level continues to be within 0.5% of the levels achieved in the previous two years. Sydney Water also indicated that it provided a resolution to 93.3% of customer complaints within 10 days.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
7.2	Rebates	Full compliance	The OLCR indicates the number and dollar value of rebates issued. Information on rebates related to water continuity is provided with further breakdown for recycled water. For the 12 months ending 30 June 2005, 256,345 rebates were paid compared to 179,326 in the previous year, which was an increase of 43%. Further sub-categories and breakdown of rebates was provided for water pressure, sewer overflows, dirty water and boil water alerts, which are all detailed in the Customer Contract. A total of \$3,334,859 (compared with \$2,361,705 last year) has been paid as rebates in the 12 months ending 30 June 2005 with an average amount of \$13.01 being paid per customer. The average amount per customer is similar to last year's figure.
7.3	Rebates for recurring sewerage service disruption or internal overflows	Full compliance	There were a total of 22,869 rebates paid for sewer overflows valued at \$706,330 during the audit period. While the overall number and value has increased compared to last year the average value per rebate paid out has declined slightly from \$31.16 to \$30.88.
7.4	Redress	Full compliance	Sydney Water reported that all these options have been considered/implemented when required.
7.5	Claim for damages	High compliance	There were 19 liability claims identified as the responsibility of Sydney Water for the period listed in the OLCR. This is a significant increase from the previous year of 5 claims. A high proportion of the 1500 notifications that are received by Sydney Water's Risk and Insurance area, are notifications of incidents that may give rise to a claim. These are generally received following a hydraulic incident such as a water main break or a failure in the wastewater system. In circumstances where the customer's property has been affected, Sydney Water's "Incident Response Plan" is enacted. The Auditor sighted a number of letters seeking damages from Sydney Water. While these letters were generally responded to within the required time periods, the letters did not give details about how the claim would be investigated.
7.6	Limitation of liability	No requirement	No evidence has been sighted that is relevant to this clause.
8	Responsibilities for maintenance		A number of these areas are investigated through the system asset management audit.
8.1	Water pipes	No requirement	Primarily for the information of customers.
8.2	Your sewer system	No requirement	Primarily for the information of customers.
8.3	Joint private water or sewer system	No requirement	As above.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
8.4	Conserving water	Full compliance	Information is provided through the Sydney Water website and brochures on mechanisms to be adopted to conserve water.
8.5	Defective work	Full compliance	Sydney Water has issued approximately 35 letters of notice to customers during 2004/05 informing them to correct a defective private service.
8.6	Giving notice of system failure	No requirement	Primarily for the information of customers although it should be noted that many customers notifying of system failures have these recorded as complaints.
8.7	Building work	No requirement	Primarily information for the customer.
8.8	Altering and unauthorised connection or use	No requirement	As above.
8.9	Removal of trees	No requirement	As above.
9	Entry onto a customer's property for maintenance		
9.1	Access to Sydney Water's system	No requirement	Primarily information for the customer.
9.2	Identification	Full compliance	On the notification of interruption to service it clearly indicates "Sydney Water employees are required to wear identification".
9.3	Notice of access	High compliance	As reported last year, the <i>Emergency Contact Survey</i> continues to report that only a small proportion of the customers who did not see the work crew received a calling card. Only 17% of the customers with a wastewater or water problem who did not see or speak to the work crew said they received a calling card. While the policy of Sydney Water is to inform customers about access to their properties, it would appear that a significant number of the notices sent to customers are not reaching the customers.
9.4	Impact on customer's property	High compliance	<p>The Emergency Contacts survey indicated 81% of customers were highly satisfied if their wastewater problem had been fixed or partially fixed while 78% of customers with a water problem were highly satisfied. This evaluation continues to be an important source of information on the performance of Sydney Water in relation to its customers following repair work.</p> <p>Only 5% of customers with a water problem who gave an 8 or less satisfaction rating indicated that Sydney Water needed to "clean up afterwards/restoration work" while 9% of those with a</p>



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
			wastewater problem and a similar satisfaction rating needed clean up/restoration work.
10	Water meter installation, testing and maintenance		
10.1	Measuring water supplied	Full compliance	Sydney Water reports only 0.0006% of metered accounts receive a bill which is not based on a meter reading.
10.2	Water meter installation and maintenance	High compliance	Meters are provided. Sydney Water reported 196 complaints about meters, compared with 60 such complaints in 2003/04.
10.3	Meter testing	Full compliance	As testing is expensive and this cost needs to be met by the customer (if the meter is not faulty), effort is made to negotiate with the customer prior to sending the meter for testing. If testing is the course of action taken, the meter will be replaced (to send the meter for testing). If the meter is found to be faulty Sydney Water will refund the money for the test via an adjustment in the account.
10.4	Access to the water meter	No requirement	Primarily for the information of the customer.
10.5	Meter replacement	Full compliance	Sydney Water continues to maintain a meter replacement program.
11	Who can I speak to if I have any questions or want to make enquiries?		
11.1	Telephone enquiries	Full compliance	Enquiries are responded to immediately in that they are answered and directed to the relevant section. The customer is informed of any action taken. The contact number is advertised as indicated.
11.2	Written enquiries	Full compliance	It is understood that an interim written response or phone call is provided within 5 days of receipt of a written enquiry. There is no indication of non compliance with this requirement in the Contract. The response time for a customer complaint is 2 working days for a face-to-face or telephone contact and 5 working days for a written contact. Sydney Water advises that 99.9% of complaints were responded to in the required time period.
11.3	Emergency enquiries	Full compliance	The appropriate phone numbers have been sighted in the phone book, pamphlet and on the account.
11.4	Interpreter and TTY service	Full compliance	These services are listed on Sydney Water's account.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
12	If I am unhappy with the service provided by Sydney Water what can I do?		Detailed analysis of compliance concerning complaints is covered in Chapter 10 Dispute Resolution.
12.1	Customer complaints	Full compliance	Sydney Water reports, as part of the OLCR, that 99.9% of complaints were responded to within the required time frame and approximately 80.7% of customer complaints received a “substantive” response within 2 days and 84.0% within 5 days.
12.2	Complaints review	Full compliance	There is a procedure for the escalation of complaints to a manager and this is documented electronically. The process for dealing with and escalating complaints for external review is discussed in detail under Chapter 10.
12.3	Resolution of disputes	No requirement	Primarily for the information of customers. Internal dispute resolution is reviewed in Chapter 10.
12.4	External dispute resolution	No requirement	Primarily for the information of customers. External dispute resolution is reviewed in Chapter 10.
13	Consultation, information and privacy		
13.1	Involving customers in service planning	High compliance	Customer Councils are discussed under the review of Clause 5.4.
13.2	Provision of information	High compliance	There were 48 new Freedom of Information (FOI) requests, with 18 carried forward from the previous year. Of these, 50 were processed and 10 were withdrawn. A total of 6 requests were unresolved at the end of the audit period. Sydney Water provided no information on the length of time these 18 requests had been in the system and, thus, no assessment can be made regarding whether these FOI requests have been dealt with in a timely manner.
13.3	Privacy	High compliance	The Auditor was provided with information published by Sydney Water on its web site which says “From 1 April 2002, Sydney Water Corporation (“Sydney Water”) has voluntarily committed to complying with the NSW Privacy and Personal Information Protection Act 1998 (the Act). This commitment is stated in the Customer contract and requires Sydney Water to protect the privacy of its customers, business contacts and employees.” However it is the understanding of the auditor that the formal Sydney Water Privacy Policy was still to be finalised. A draft of the privacy policy for customer data was sighted.
14	When does my customer contract with Sydney Water terminate?	No requirement	Primarily for the information of customers.



Table F.1 Appendix F – Customer contract compliance table

Clause	Requirement	Compliance	Findings
15	Dictionary and interpretation	No requirement	Primarily for the information of customers.

Appendix G

Comments from Government agencies

Ms Sue Trahair
Lead Auditor
GHD Pty Ltd
Locked Bag 2727
ST LEONARDS NSW 1590

Dear Ms Trahair

I refer to your letter to the Director-General, Ms Robyn Kruk, regarding the audit of the Sydney Water Corporation Operating Licence. The Director-General has asked that I respond on her behalf. Thank you for the opportunity to provide input to the audit process.

The NSW Department of Health meets regularly with Sydney Water at officer and strategic levels. The Department is satisfied that Sydney Water has met its public health obligations under the Operating Licence and Memorandum of Understanding.

During the audit period, the NSW Government endorsed the *Australian Drinking Water Guidelines, 2004* (a publication of the National Health and Medical Research Council and the Natural Resource Management Ministerial Council) as best practice for drinking water quality management in NSW. The Guidelines encompass a risk based management approach through the Framework for the Management of Drinking Water Quality. Sydney Water has worked with the Department and the Sydney Catchment Authority to implement this approach by reviewing and addressing risks to drinking water quality that may not be controlled in the catchment.

The Department is continuing to work with Sydney Water to review responses and communication arrangements in the event of a contamination threat or incident. Also during the audit period the Department worked with Sydney Water Corporation to revise the *Cryptosporidium* and *Giardia* monitoring program and review the methods for detection of *Cryptosporidium* and *Giardia*.

I trust that this information will assist with the audit process. Should you require further information, please contact Leslie Brodlo on 9816 0521.

Yours sincerely



Dr Michael Staff
Director Environmental Health



Department of
Environment and Conservation (NSW)

Your reference : 21/13990/DEC letter SWC
Our reference : SR689: HOF60354
Contact : Michael Crowley ☎ 9995 6804

Ms S Trahair
Lead Auditor 2004-05 Operational Audit
GHD Pty Ltd
Locked Bag 2727
ST LEONARDS NSW 1590

Dear Ms Trahair

**RE: SYDNEY WATER CORPORATION
OPERATIONAL AUDIT 1 JULY 2004 TO 30 JUNE 2005**

I refer to your letter dated 19 September 2005 inviting comment from the Department of Environment and Conservation (DEC) in regard to Sydney Water's auditable obligations to the DEC under the 2000-2005 Operating Licence for the period 1 July 2004 to 30 June 2005. I apologise for the delay in replying.

Your letter requests comments on Sydney Water's performance against specific sections of Sydney Water's 2000-2005 Operating Licence, as identified in Attachment 1 to your letter. The DEC's comments are presented in the attachment to this letter, under the headings specified in your letter.

For clarification of any matters covered in the DEC's response, please contact Michael Crowley, Manager Metropolitan Infrastructure, on 9995 6804.

Yours sincerely

 17/11/05
ROSS CARTER
Director Metropolitan
Environment Protection and Regulation Division

Attachment



Department of Natural Resources

Fax 9462 4710

Contact: Scott Tinsley
Phone: 4722 1124
Fax: 4722 6463
Email: Scott.Tinsley@dipnr.nsw.gov.au
Our ref: SWCL 7
Your ref: 21/13990/DIPNR letter SWC 2005
File: 2005 operational audit comments.doc

Sue Trahair
Lead Auditor - 2004/05 Operational Audit
GHD Pty Ltd
Locked Bag 2727
St Leonards NSW 1590

19
11 October 2005

FAXED
19/10

Dear Ms Trahair

Subject: Sydney Water Corporation Operational Audit 2004-2005

I refer to your letter of 19 September 2005 inviting comments from the Department of Natural Resources (DNR) on the audit of Sydney Water Corporation's (SWC) Operating Licence for the period 1 July 2004 to 30 June 2005.

In the absence of the SWC's Annual Report covering the period of the audit, the Department provides the following comments based on the general knowledge and impressions gathered from internal sources and dealings with the SWC over the audit period.

Part 3.3 - MoU

The MoU between the Department and SWC was signed in June 2002 but there has only been one meeting of the Strategic Liaison Group in October 2002. Nonetheless there have been constant and positive interactions between the SWC and Metro Water Directorate (DIPNR) on the preparation of Metropolitan Water Plan during the audit period. DNR (formerly DIPNR) is satisfied with the cooperation received from SWC over the audit period. In light of the recent restructure of Govt agencies, some function of the Metro Water Directorate (DIPNR) have been transferred to DNR. The clause 3.3 of the Operating Licence and the MoU should be amended to reflect the recent changes. The MoU will be a key instrument to reinvigorate the relationships between SWC and the newly established DNR. DNR will write to SWC informing of the changes and the representation from DNR on the Strategic Liaison Group in near future.

Part 6 Water Quality, Clause 6.6 - Environmental Water Quality

This clause is not relevant to the DNR. Any water quality requirement under the Water Management Licence will be administered by DNR independent of the Operating Licence. Reference to DNR should be removed from this clause.

Part 6 Water Quality, Clause 6.7 - Other Grades of Water

The clause 6.7 should be amended to replace DIPNR with DNR. A review of the Recycled Water Quality Guidelines is over due and must now be undertaken in light of the proposed increase in use of recycled water for a range of usage.

On a related matter, SWC's Annual Reports (ie Environmental Report) does not include any reference to the quality of recycled water from Rouse Hill and other recycled water schemes. Quality of the recycled water should be reported to all recycled water customers same as the drinking water quality is being reported with the bills and also in the annual report. The recycled

water quality data should be analysed to assess the performance of the scheme/s and to increase public confidence in the water being supplied.

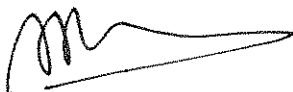
General Comments

The SWC's Water Management Licence requires SWC to report on progress in the rehabilitation of Botany Wetlands each year. A site inspection of Botany Wetlands was conducted in early 2004 and DNR is satisfied with the rehabilitation works.

If the purpose of the audit is to assist IPART with a proper assessment of the SWC's performance against the Operating Licence requirements, it is suggested that the future audits be conducted following availability of the SWC's Annual Report (ie Environmental, Social and Economic Performance).

Please contact Mr Scott Tinsley of the Department's Penrith Office on (02) 4722 1124 or email Scott.Tinsley@dipnr.nsw.gov.au for any further enquires you may have in respect of this matter.

Yours sincerely



Salim Vhora
Manager, Corporate Licence Development
South Coast Region

ATTACHMENT

2004-2005 AUDIT OF SYDNEY WATER CORPORATION OPERATING LICENCE

PART 3 SYDNEY WATER'S RESPONSIBILITIES

Clause 3.3 Memorandum of Understanding

Compliance with requirements:

A revised and updated Memorandum of Understanding (MOU) between the EPA and SWC came into effect in 2002, and is continuing to work satisfactorily. The parties recognised that a further update is required as a result of the creation of the Department of Environment and Conservation out of the EPA, National Parks and Wildlife Service and other agencies. The outcome is reportable in the 2005-2006 audit year. Consultative mechanisms required by the MOU, including Chief Executive Officer meetings, Strategic Liaison Group (SLG) and Operational Policy Committee (OPC) meetings, enable strategic and operational issues to be discussed. During 2004-2005, the SLG met four times and the OPC met three times.

Progress to meeting requirements: Satisfactory

Adequacy of actions being taken: Not applicable

Adequacy of the requirements of the MOU: Adequate

PART 6 WATER QUALITY

Clause 6.6 Environmental Water Quality

Compliance with requirements:

(a) Sewage Treatment Systems: Treatment Plants

During 2004-2005, Sydney Water's coastal and inland sewage treatment plants (STPs) generally complied with licence limit requirements. A small number of exceedances of pollutant load and concentration limits occurred at three STPs. DEC has concluded that none of the reported non-compliances with licence conditions warrant investigation with a view to regulatory action in terms of fines or prosecution for breaches of licence conditions, other than where already initiated. The DEC is working with Sydney Water on appropriate actions to prevent continued non-compliance with the concentration of iron in the effluent from West Camden STP.

An incident where high ammonia concentrations were discharged in the effluent from the West Hornsby STP during June 2005, and which was not reported as a non-compliance, is currently under investigation. The outcome will be reportable in the 2005/06 licence year.

Sydney Water also reported that routine monitoring requirements were not fully complied with at a number of STPs on individual days. The DEC in its review of Sydney Water Annual Returns for its environment protection licences also detected some data entry errors in reported monitoring results. The DEC considers these non-compliances to be minor. Sydney Water undertook prompt and appropriate action to ensure that problems caused by samples not being taken strictly as required will not recur.

The DEC examined data on STP effluent quality and overflow performance reported over the past four licence years. No major trends in nutrient concentrations, nutrient loads, disinfection effectiveness (faecal coliform densities), chemical concentrations in effluent, or STP overflow frequency were identified. The DEC is generally satisfied with STP performance in these circumstances.

(b) Sewage Treatment Systems: Reticulation Systems

Sydney Water reported non-compliances relating to individual dry weather overflows in its reticulation systems (resulting mainly from tree root and debris blockages and broken mains). The DEC does not take action on every overflow. It has accepted Sydney Water's explanation that the extended drought in Sydney was responsible for a large number of tree root blockages, and notes that the annual number of dry weather overflows has generally increased across Sydney Water's reticulation systems as a result. DEC also notes Sydney Water's explanation that increased response times to some sewer overflow incidents were the result of priority generally being given to response to water main breaks.

The DEC continues to progress improvements in overall sewer system performance through the Pollution Reduction Programs in the licences. The DEC also investigates selected overflows that may have caused significant environmental harm, and checks whether all measures were taken to minimise harm including cleanup, and whether the appropriate notifications were given to third parties as required by the environment protection licences. As a result of its investigations in 2004-2005, the DEC issued a penalty infringement notice for pollution of waters by an overflow from a sewage pumping station into Bunbury Curran Creek near its confluence with the Georges River at Macquarie Fields.

Condition O5.1 in the licences requires no deterioration and ongoing improvement in system environmental performance, when compared to agreed baseline performance indicators. The DEC notes that the number of sewage treatment systems (STS) that did not comply with wet weather performance requirements has reduced slightly, from 10 in 2003-2004 to eight in 2004-2005.

The DEC will arrange discussions with Sydney Water as soon as practicable about timeframes for works and activities to return all sewer systems to compliant levels of wet weather performance, in parallel with progress towards meeting 2010 wet weather overflow targets set by the sewage treatment system licences.

Sydney Water complied with Pollution Reduction Program (PRP) requirements in 2004-2005. The DEC negotiated and added new PRP requirements to the STS licences requiring specified reductions, by 2010, in the frequency of dry weather overflows reaching waters (PRP201), and the provision of an investigations report to enable the DEC to consider optimal wet weather overflow limits for the STSs (PRP301). These new PRPs apply from 1 July 2005.

(c) Water Filtration Plants

Sydney Water generally complied with licence conditions at its water filtration plants during the period 2004-2005. However, an incident involving a discharge of acid to the Hawkesbury River from the North Richmond plant in December 2004 which may have breached the plant's environment protection licence is currently under investigation.

Progress to meeting requirements: Satisfactory

Adequacy of actions being taken: Adequate

Adequacy of the requirements of the licence: Adequate

Clause 6.7 Other Grades of Water

Compliance with requirements:

Sydney Water supplies suitably treated effluent for domestic use, commercial irrigation and industrial purposes. Recycled water is provided to the Rouse Hill development area for non-potable uses such as flushing toilets and watering gardens. The Picton STP and the Gerringong - Gerroa sewerage schemes both provide recycled water for local agricultural use. Several STPs supply treated effluent to local golf courses and playing fields. A number of STS licences have conditions allowing Sydney Water to provide suitably treated effluent by tanker

to Sydney Water customers on demand in accordance with government guidelines. The licences for the STSs supplying recycled water include conditions that control the quality of the effluent. Sydney Water complied with these licence conditions in 2004-2005.

Progress on the Illawarra Wastewater Strategy continued during the year. Dry weather sewage flows from Bellambi and Port Kembla STPs have been redirected to Wollongong STP for treatment, and a 20ML/day reverse osmosis water treatment plant has been completed and commissioned at the Wollongong STP. The water treatment plant will provide water for reuse at the BlueScope Steel facility at Port Kembla and is expected to result in the conservation of 20 percent of the region's water sourced from Avon Dam. The DEC understands that most of the remaining work on the Strategy will be completed in late 2005.

Sydney Water is continuing to implement the Upper Georges River Wastewater Strategy. This Strategy involves the upgrading of the Liverpool, Glenfield and Fairfield STPs to take account of increased wastewater flows from projected growth in the Southern Suburbs sewage treatment system. It will provide wet weather overflow abatement at the STPs. The new urban development at Hoxton Park will have a dual water system to enable provision of treated effluent from Liverpool STP for non-potable uses. The balance of flows will continue to be discharged to the ocean via the deepwater outfall at Malabar.

Progress to meeting requirements: Satisfactory

Adequacy of actions being taken: Adequate

Adequacy of the requirements of the licence: Adequate

PART 9 ENVIRONMENT - INDICATORS AND PLANS

Clause 9.6 Pollution Reduction Targets

Compliance with requirements:

The Pollution Reduction Target program was phased out in the 2003-2004 reporting year, and replaced by whole-of-effluent toxicity and specific chemical limits effective from April 2004. The new approach focuses on effluent quality issues of most environmental concern, permits enforceability of chemical and toxicity requirements, and is expected to also reduce Sydney Water's monitoring and reporting requirements. The DEC will review the limits over time, as appropriate, to ensure that Sydney Water is meeting best practice. A small number of reported non-compliances with specific chemical limits in 2004-2005 have been addressed in Part 6.6 above. The DEC has no role in any consequential changes to the SWC Act arising from this significant scientific advance in effluent quality assessment and regulation.

Progress to meeting requirements: Satisfactory

Adequacy of actions being taken: Satisfactory

Adequacy of the requirements of the licence: Adequate

Appendix H

Environmental indicators compliance table



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Sewage Effluent Discharges to Ocean					
<i>Discharge Quality</i>					
Effluent Quality including schedule 10 chemicals	✓	<p>Schedule 10 chemicals were monitored for the ocean STPs up to April 2004.</p> <p>Glenfield, Fairfield and Liverpool STPs (which discharge in dry weather to Malabar STP) monitoring commenced for some schedule 10 chemicals in 2000/01 and ceased monitoring Schedule 10 chemicals in April 2004.</p>	<p>Generally the tables in section 2 of Volume 2 of the EICR provide data for the previous 10 years, that is, data from 1995/96 – 2004/05, with 10 or more years of data provided for some Schedule 10 chemicals.</p> <p>Data for Fairfield, Glenfield and Liverpool is for the previous five years (from 2000/01).</p>	<p>Discharge quality is reported for the 13 ocean STPs for 2004/05.</p> <p>Glenfield, Liverpool and Fairfield monitored the following schedule 10 chemicals: aluminium, ammonia, chromium, copper, diazinon, un-ionised hydrogen sulphide, zinc.</p> <p>This is not the entire schedule 10 chemical list.</p>	Performance is discussed in Volume 1, section 2.



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Nutrients, grease, suspended solids	Monitoring of oil and grease and nutrients is not recorded for Fairfield, Glenfield and Liverpool.	Data are compiled year to year.	<p>1995/96 – 2004/05 (10 years).</p> <p>Random samples were chosen by the Auditor to determine compliance with this indicator. For example, suspended solids results for Cronulla are presented for 1995/96 to 2004/05 (10 years), Warriewood 1995/96 (10 years) and Wollongong 1995/96 (10 years).</p> <p>Oil and grease were monitored from 1995/96 – 2004/05 (10 years) for Bellambi, Bondi, Cronulla, Malabar, North Head and Port Kembla STPs. Wollongong, Warriewood and Shell Harbour STPs have been monitored for 2 to 3 years.</p> <p>Oil and grease have only been reported for 1996/97, 1997/98 and 2004/05 for Shellharbour and Wollongong and 1996/97 and 1997/98 for Warriewood.</p> <p>Nutrients, total nitrogen and phosphorus are mostly presented from 1995/96 – 2004/05 (10 years).</p>	<p>Volume 1 of the EICR, Table 2.2 tabulates oil and grease and suspended solids loads discharged from 1999/00 to 2004/05.</p> <p>There was no oil and grease data presented for Bombo.</p>	<p>Table 2.2 of the EICR 2005 shows a 0.3% decrease in suspended solids discharged since the 2003/04 audit period.</p> <p>Oil and grease discharges have decreased by 6.0% since 2003/04.</p> <p>Effluent toxicity is also recorded in Volume 1, Section 2 of the EICR.</p> <p>Performance is not discussed for individual STPs and is reported in Volume 2.</p>



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
STP discharge volume	✓	Presented in Figure 2.1 and 2.2 of Volume 1 of the EICR 2005.	Discharge volumes are shown for all 10 ocean outfalls for 1995/96 – 2004/05 (10 years).	For Warriewood, North Head, Bondi, Malabar, Cronulla, Bellambi, Wollongong, Port Kembla, Shellharbour and Bombo for 2004/05.	A total of 389,941 ML of treated sewage was discharged to the ocean in 2004/05. The volumes discharged from the different ocean outfalls were equal to or less than volumes in 1994/95, except in the case of Wollongong.
<i>Water quality</i>					
Water quality - concentrations of schedule 10 chemicals, nutrients, grease, suspended solids based on effluent measurements and measured/modelled dilution rates	✓ Receiving water quality is monitored.	In previous years, the receiving water quality has been presented in numerical form in section 2 of Volume 3. This was not reported in the 2004/05 period.	In April 2004, testing for effluent toxicity became a requirement of DEC licences. The toxicity test involves using sea urchin sperm and eggs to test the effect of STP effluent on fertilisation. This replaced monitoring of Schedule 10 substances.	No longer measured.	
Beach water quality including faecal coliforms and enterococci bacteria at Sydney beaches (by DEC Beachwatch) and Illawarra beaches (by Sydney Water)	✓	✓ From 1995/96 to 2004/05. Performance is reported in Table 2.4 to Table 2.8, which shows the <i>percentage of time suitable for swimming at Sydney beaches according to faecal coliform criteria</i> (summer and winter). Faecal coliforms are used as a primary indicator and enterococci as a secondary indicator.	The EICR 2005 provides data for all sites for the previous 10 years including Illawarra beaches. Enterococci and faecal coliform compliance for winter and summer from 1995/96 to 2004/05 are presented.	✓	The number of days suitable for swimming has generally increased over the last 10 years. Some beaches that did not comply include South Steyne, Bronte, Clovelly, Coogee, Malabar, Maroubra and Boat Harbour.



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
<i>Biota</i>					
For shoreline discharges summarise and report on existing data as basis for ongoing monitoring	No requirement				
For ocean outfall discharges, evaluate results of NSW DEC investigation of biota as basis for ongoing monitoring.	✓	Ocean sediment program has measured biota in ocean sediments near the ocean outfalls from 1999 to 2005.	Data has been collected since early 1990s.		Ocean sediment program indicates no measurable impact from Sydney Water's deep ocean outfalls.
<i>Sediment</i>					
Schedule 10 chemicals	No	The ocean sediment program samples a selection of schedule 10 chemicals according to the NSW EPA program requirements of every three years.	Data have been collected for ocean sediment from 1990/01.	There were no changes to the concentration of trace metals, organochlorine pesticides, organic carbon or sedimentary fines.	<p>Ocean sediment program indicates no measurable impact from Sydney Water's ocean outfalls.</p> <p>The highest levels of chemicals were measured at sites close to urbanised estuaries and there were significant differences in benthic macrofauna communities and sediment chemicals observed over time at Malabar. Additionally, there were no spatial gradients in chemical concentrations or levels of impact on benthic macrofauna communities observed at Malabar outfall.</p>



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Sewerage effluent discharges to rivers and streams					
<i>Discharge Quality</i>					
Effluent quality including Schedule 10 chemicals	✓	✓	<p>Effluent quality is presented from 1995/96 to 2004/05</p> <p>Schedule 10 chemicals were monitored from 1995/96 – 2003/04 (previous 9 years) for most STPs, with 10 or more years of data provided for some Schedule 10 chemicals.</p> <p>Schedule 10 chemicals ceased to be monitored in April 2004.</p>	<p>✓</p> <p>Effluent quality for inland STPs is provided in Volume 2 Section 1 of the EICR and is discussed in Volume 1 for nutrient levels.</p>	<p>Toxicity was monitored for one full year (monthly from July 2004 to June 2005). The licence limit of EC50, median effect concentration was met for all inland STPs. All chemical limits were met with the exception of the 90th percentile for iron at the West Camden STP.</p> <p>Interpretation of data for effluent quality and quantity for 17 STPs is reported in Volume 1 of the EICR.</p>
Nutrients, grease, suspended solids, faecal coliforms	✓ except oil and grease	Random samples were checked by the auditor. Data for the Hawkesbury Nepean STPs recorded for phosphorus from 1997/98 to 2004/05 (with the exception of Picton); total nitrogen from 1997/98 to 2004/05; faecal coliforms to 2004/05.	1995/1996 – 2004/05 (previous 10 years).	Oil and grease was not reported for 2004/05.	<p>Since 1998/99 there has been a 42.9% reduction in nitrogen levels and a 74.5% reduction in phosphorus levels in nutrient loads discharged into inland waterways.</p> <p>There was a 0.9% decrease in nitrogen loads and a 32.9% increase in phosphorus loads in nutrient loads discharged to inland waterways in 2004/05.</p>



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
STP discharge volume	✓	✓	<ul style="list-style-type: none"> For 16 STPs data provided from 1997/98 to 2004/05 (previous 8 years). Picton for 2000/01 to 2004/05. 	✓	Volume 1 of the EICR reports on the values and percentage contribution of each STP for discharge volumes.
<i>Water Quality</i>					
Nutrients	✓	✓	Graphs are provided to track changes from 1995/96 to 2004/05.	✓	Nutrients, chlorophyll-a, and faecal coliforms are discussed in Volume 1 of the EICR 2005.
Chlorophyll a	✓	✓			
Faecal coliforms	✓	✓			
Enterococci bacteria	✓	✓			
Oxygen	✓	✓			
pH	✓	✓			
Light intensity	✓	✓			
Conductivity	✓	✓			



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Schedule 10 chemicals	No	No	1994/95.	No	<p>No monitoring conducted.</p> <p>Sydney Water advised that some of the indicators were not monitored during this audit period as a consequence of the monitoring review processes guided by the 'Environmental Indicators Monitoring Program' (EIMP).</p> <p>The review recommended against monitoring all indicators each year. It is noted that these outcomes were not included in the current Operating Licence issued in April 2000, hence Sydney Water is in breach of its Licence.</p>
<i>Biota</i>					
Macroinvertebrate surveys	✓	✓	Macroinvertebrate data have been collected from 1995/96 to 2004/05 for inland STPs.	✓	Algal blooms and freshwater macroinvertebrate data are illustrated and discussed in Figure 2.12 of Volume 1 of the EICR 2005.
Algal species identification					



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
<i>Sediment</i>					
Schedule 10 chemicals, nutrients	No	No	1995/96.	No.	<p>Schedule 10 chemicals were recorded in 1995/96 as part of the Ecological and Human Health Risk Assessment of chemicals discharged in sewage treatment plant effluent into the Hawkesbury Nepean. Monitoring of Schedule 10 chemicals has ceased.</p> <p>Sydney Water advised that some of the indicators were not monitored during this audit period as a consequence of the monitoring review processes guided by the "Environmental Indicators Monitoring Program" (EIMP).</p> <p>It is noted that these outcomes were not included in the current Operating Licence issued in April 2000, hence Sydney Water is in breach of its Licence.</p>



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Sewerage Reticulation System					
<i>Discharge Quality</i>					
Discharge Quality including:		1-2 years	1993 and 1996.	✓	
▶ Schedule 10 chemicals	No				
▶ nutrients	✓				
▶ faecal coliforms	✓ for dry weather				
▶ enterococci bacteria at representative sites	No				
▶ discharge volume	No				
<i>Water Quality</i>					
Nutrients, chlorophyll a, faecal coliforms, enterococci bacteria, oxygen, pH, temperature, conductivity, light intensity	Most parameters measured at specific sites	✓	Volume 2, Section 5 presents data for 2004/05 period and trend plots for the previous 10 years.	✓	
Characterise Schedule 10 chemicals	Yes	Yes		Yes	
<i>Biota</i>					
Complete current studies on settlement panels and intertidal rock platform communities as a basis for ongoing monitoring	✓	✓		No requirement.	Estuarine and freshwater biota are reported for some discharge points.



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
<i>Sediment</i>					
Schedule 10 chemicals, nutrients in sediments at representative sewer overflow sites			1995/96.	No	No monitoring has been conducted since 1996. See notes above in relation to Schedule 10 chemicals monitoring.
Air and Land Impacts - Odour and Emissions from Sewage Treatment Process					
<i>Odour and emissions for sewage treatment process</i>					
Emission quality of chemical scrubbers for compounds such as hydrogen sulphide, chlorine and amines	For plants that have chemical scrubbers.	✓	From 1995/96 to 2004/05 for Malabar and North Head and 1996/97 to 2004/05 for Bondi and Shellharbour and since 2001/02 for Glenfield and Liverpool.	✓	Emissions of hydrogen sulphide and chlorine from STPs with chemical scrubbers are reported in Volume 1 of the EICR and were below Clean Air Regulation levels.
Odour complaints lodged with NSW EPA	✓	✓	1995/96 to 2004/05.	✓	Section 4, Volume 1, of the EICR 2005 includes complaints (made to both Sydney Water and DEC). There was a 26% increase in the number of odour complaints received from STPs. There was a significant increase (42%) in the number of complaints received for the Warriewood STP.



Table H.1 Appendix H - Compliance with monitoring requirements for environmental indicators*

Environmental indicator	Monitored	Compiled year to year	Number of years of data	2004/05	Performance reported
Disposal volume and re-use percentage of water treatment sludges	✓	✓	1997/98 to 2004/05. Quantities of residuals and the proportion beneficially reused are reported from 1997/98 to 2004/05.	✓	100% of biosolids were beneficially reused or stored for future use.
<i>Land application of biosolids</i>					
Reporting of volume applied, compliance with EPA code of practice and application location.	✓ Volume and location.	✓ (Volume and purpose of re-use)	Volume data recorded for 10 years. Location data for 2004/05. Purpose of re-use from 1994/95 to 2004/05.	✓ Reporting of volumes produced and volumes beneficially reused. Reporting of biosolids use by industry 'type'. Location of application of biosolids is presented for 2004/05.	100% of biosolids were beneficially reused.

* Source: Sydney Water *Environmental Indicators Compliance Report 2005*



Appendix I

Environment Plan compliance table



CLIENTS | PEOPLE | PERFORMANCE



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
1. Conserve water supplies and prevent the need for new dams.	1.1 Finalise Water Strategy component of Water Plan 21.	Water Strategy component of WaterPlan 21 to be finalised by December 2001.	Moderate compliance	<p>This target was not met by the due date.</p> <p>The water strategy was released in October 2004 under the title "Meeting the challenges – Securing Sydney's water future".</p>
	1.1.1 Implement Demand Management Program.	Reduction of the quantity of water drawn from all sources to 364 litres per capita per day by 2004/05. This represents a reduction of 142 litres per capita per day or 28% from the 1990/91 baseline.	Low compliance	<p>Per capita consumption was 342 litres per person per day (12 months to 30 June 2005), which is a 7.3% decrease from 369 litres per person per day for the same period in 2004. (It is noted that this is a significant reduction from 506 litres in 1991/92). While progress has been made under Sydney Water's Demand Management Program, the decrease in demand during 2004/05 was primarily a result of mandatory water restrictions and would not be sustained if restrictions are lifted, as demand would increase to an estimated 403 litres per person per day.</p> <p>Water losses are about 11.8% of total water supplied (or 62,727 ML) which includes leakages of 10%. To address the loss of water through leakage, Sydney Water continues to implement the Leakage Reduction Program as part of the Demand Management Program. This involves using acoustic devices to scan for and repair leaks in the water reticulation system.</p>
	1.1.2 Implement Recycled Water Strategy.	Increase of between 4 and 59 ML/day in the projected amount of effluent reused, intercepted or otherwise prevented from discharge by 30 June 2005.	Moderate compliance	<p>There are several water recycling schemes in place with several more in various stages of planning or development. Some 34.9 ML/day was reused or intercepted in 2004/05, an increase of 7.8 ML/day since 2000. Approx 77% was associated with recycling in STPs. Reuse at STPs does not result in prevention of the discharge as required by the target.</p> <p>An additional 10 ML/day (approximate) was recycled for urban and irrigation use in 2004/05 compared to 2000/01.</p> <p>The Water Recycling Strategy was developed in December 1999 to manage demand and reuse wastewater whenever it is beneficial to the community and when it has environmental and economic advantages.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		Effluent reuse schemes to be implemented for St Mary's, Rouse Hill & West Camden STPs by end of 2003.	Moderate compliance	Sydney Water has implemented reuse schemes for St Mary's and Rouse Hill (August 2001) but the reuse scheme for West Camden is now due for completion by 2007.
		Majority of effluent to be re-used by irrigation in the Gerringong Gerroa and Picton Sewerage Schemes by mid 2002.	Full compliance	<p>The Gerringong Gerroa scheme continued to operate during 2004/05 after meeting the target of the majority of effluent reused by irrigation in the scheme by mid 2002.</p> <p>For Picton, 100% dry weather flows are irrigated and excess wet weather flows are stored for later use or discharged to receiving waters under exceptional circumstances.</p>
2. Provide beneficial and environmentally acceptable management of effluent.	2.1 Undertake Overflow Abatement Program in accordance with licence requirements (agreed priorities with DEC):	<p>a) Reduction in both wet and dry weather overflows from Sydney Water sewage systems.</p> <p>b) Reduction in the number of odour complaints* lodged with DEC and Sydney Water.</p> <p><i>*validated as coming from Sydney Water's infrastructure.</i></p>	<p>Non compliance</p> <p>Full compliance</p>	<p>Sewer overflows in dry weather increased from approximately 16,798 in 2003/04 to approximately 19,075 in 2004/05, representing a 13.6% increase.</p> <p>The increase is attributed to the continuing dry conditions throughout Sydney Water's area of operations; this results in tree roots blocking pipes and causing chokes and overflows. During July to September 2004, there was a 45% increase in the level of chokes above the 10 year seasonal average for the same period.</p> <p>Sydney Water does not measure total number of wet weather sewer overflows.</p> <p>The total number of odour complaints decreased from 907 in 2003/04 to 830 in 2004/05 (a decrease of 8.5%). Odour complaints from the sewage transport system made up 88% of complaints, up from 54.5% in 2003/04; the remaining complaints relate to STPs. Tree roots choking the sewer and the malfunction of surface fittings are the cause of the majority of these complaints.</p> <p>Complaints relating to STPs increased during 2004/05 as a result of increased complaints about Warriewood STP. Sydney Water could not identify any abnormal conditions that could explain the increase.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		c) On an annual basis 96% of customers connected to Sydney Water's sewerage systems will not experience an overflow on their land from a sewer owned or operated by Sydney Water.	Full compliance	In 2004/05, 99.8% of customer's properties were not affected by sewage overflows. This is above the minimum level of 96%.
	2.1.1 Implement pipe repairs under SewerFix.		Full compliance	SewerFix resulted in the relining of 91 km (up from 65 km 2003/04) of sewer mains, and cleaning of tree roots and silt from 465 km of sewer (down from 518 km in 2003/04).
	2.1.2 Implement Sewage Pumping Station (SPS) Overflow Risk Reduction Program.		Full compliance	Sydney Water operates 662 SPSs. More than 300 have been upgraded over the last four years. Telemetry upgrades were undertaken in 2004/05.
	2.1.3 Implement Sydney Harbour Wastewater Planning.	Northside Storage Tunnel to be operational by end of 2000.	No requirement	This target was met during the 2002/03 Audit period. The tunnel was completed in September 2001 and became fully operational in July 2002. The operation of the Tunnel has continued to significantly reduce the volume of sewage overflows from four key overflow points that discharge to Sydney Harbour. During 2004/05 the tunnel operated 16 times and captured over 4.4 billion litres of dilute sewage. There was one overflow event to the environment in 2004/05 resulting in 80 ML overflowing. The tunnel vents operated three times for a total of 76 hours.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	2.2 Improve wastewater treatment in accordance with Wastewater Strategy:	a) Compliance with all Pollution Reduction Programs (PRP) and licence conditions for STP discharges.	High compliance	<p>Sydney Water was on track for meeting all but one (Illawarra Waste Water Strategy Stage 1) of the STP related PRP requirements for 2004/05.</p> <p>During 2004/05, the discharge limits for pollutants in 28 Sewage Treatment System Environment Protection Licences were exceeded at the following STPs:</p> <p><i>Picton</i>: suspended solids, faecal coliforms and total phosphorus limits were exceeded during a precautionary discharge to Stonequarry Creek.</p> <p><i>Mt Victoria</i>: Three Day Geometric Mean was exceeded for suspended solids on one occasion.</p> <p><i>Fairfield</i>: maximum limit exceeded for BOD on two occasions.</p> <p><i>West Camden</i>: the chemical limit for iron was exceeded.</p> <p>None of these exceedences was found by Sydney Water to have adversely affected the quality of receiving waters.</p>
		b) Compliance with Pollution Reduction Targets (PRT) set by DEC.	No requirement	In 2003/04, the PRTs in the Sewage Treatment System Environment Protection Licences were replaced with effluent toxicity and specific chemical limits for effluent.
	2.2.1 Improve wastewater treatment at minor ocean plants.	a) Upgrade of Cronulla STP to tertiary treatment including disinfection to be completed by October 2001.	No requirement	Upgrade of Cronulla STP to tertiary treatment including disinfection was completed in 2002. It achieves a 98% reduction in solids through the provision of full tertiary treatment including filtration and UV disinfection.
		b) Shellharbour STP upgrade to be completed by end 2004.	Non compliance	Interim work completed June 2003. Sydney Water is proposing to finish the upgrade of the Shellharbour STP by late 2006; the target was 2005 at the previous audit.

**Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005**

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	2.2.2 Implement Illawarra Wastewater Strategy.	Consolidate flows from Bellambi, Port Kembla and Wollongong STPs and upgrade to tertiary treatment at Wollongong STP by June 2004.	Moderate compliance	<p>The delivery of the Illawarra Wastewater Strategy was programmed for mid-2004 and is expected to reduce suspended solids loads discharged from ocean STPs.</p> <p>Stage 1 commenced in late 2004 and is due to be completed in early 2006. It will involve the upgrade of the Wollongong STP from secondary to full tertiary treatment. The transfer of flows from Bellambi and Port Kembla STPs to the Wollongong STP is complete.</p>
	2.2.3 Upgrade of Hawkesbury-Nepean sewage treatment plants.	Reduce nutrients discharged from Hawkesbury-Nepean STPs by end of 2003.	Full compliance	<p>Since 1995, phosphorus and nitrogen discharges from Sydney Water STPs have been reduced significantly. Phosphorus loads have dropped continuously since 1997 and nitrogen loads have shown a steady decline. A 78% reduction in phosphorus discharged since 1997/98 and a 45% reduction in nitrogen discharged since 1995/96 has been achieved.</p> <p>However, there was an increase of 33% in phosphorus discharged from 6.3 tonnes in 2003/04 to 8.4 tonnes in 2004/05. Sydney Water attributes the increase to increased effluent flows and reduced recycling of effluent from Richmond STP.</p> <p>A 1% reduction in nitrogen discharged was achieved for the 2004/05 period (414 tonnes in 2003/04 compared to 410 tonnes in 2004/05).</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	2.2.4 Develop a strategy to encourage re-use, address population growth and reduce sewer overflows in the Georges River area and reduce flows from the Georges River STPs to Malabar STP.	Upper Georges River Wastewater Strategy developed, to be implemented by 2005.	Non compliance	<p>During 2004/05 Sydney Water made progress on the implementation of the Georges River Strategy, although there have been significant changes to the Strategy since the EIS was exhibited.</p> <p>Stage 1 of the program was due to be completed by the end of June 2005, however due to contractor problems, this has been delayed, although it is 97% completed.</p> <p>The South Western Sydney Sewerage Scheme resulted from a review of the Georges River Strategy and its various components will be delivered from early 2006 to mid 2008.</p> <p>The Ashfield – Liverpool pipeline EIA has been placed on public exhibition and is due to be completed by mid 2008.</p> <p>The transfer of sewage flows from Holsworthy STP to Liverpool STP is due to be completed in 2006.</p>
	2.3 Provide sewerage services to currently unsewered areas in accordance with agreed government priorities and funding arrangements.	Sewerage services to be provided to the twelve high priority areas on the Priority Sewage Program by end of 2004.	Moderate compliance	<p>Twelve (12) townships within Sydney Water's area of operations have received, or are in the process of receiving, improved sewer services.</p> <p>Not all schemes were completed by the due date but action is underway on all schemes and many are in the process of implementation. Completion target has been revised to June 2009.</p>
	2.4 Consider opportunities to manage effluent for environmental flow purposes.	Effluent management plans for the South Creek (via an Interdepartmental Working Group to be set up by another Agency), Richmond and West Camden STPs developed.	Full compliance	Effluent Management Plans for West Camden and Richmond STPs have been prepared. Strategies for Penrith, St Mary's, Quakers Hill and Riverstone STPs have been completed.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
3. Maximise beneficial reuse of by-products from Sydney Water's treatment processes	3.1 Implement Long term Biosolids Management Strategy.	Strategy for the transport and handling of biosolids from the major coastal STPs to be resolved by January 2001 (pending advice from DIPNR).	High compliance	This Strategy was being implemented during the audit period. The Strategy was submitted to PlanningNSW in August 2000. A Legislative Council Inquiry on the strategy reported to Parliament in November 2001. The recommendations made by the inquiry have been considered in the project to improve the North Head Sewage Treatment Plant. The strategy was reviewed in 2004 and sludge digestion and cogeneration was approved and is expected to be completed by the end 2006.
	3.2 Maximise beneficial reuse of water treatment residuals.	Report annually on where water treatment residuals are disposed and on beneficial reuse component.	Full compliance	Sydney Water has recycled (65%) or temporarily stored for later use (35%) all water treatment residuals from nine water filtration plants. Residuals are mixed with or applied to soil for horticultural or agricultural purposes. A list of reuse sites is included in the Environmental Indicators Compliance Report.
	3.3 Investigate opportunities and technologies to recover energy value (including methane) from sewage treatment processes.	No target set	Full compliance	Sydney Water and its energy partners completed a business case in 2005 for a portfolio of renewable energy projects, which includes 6 cogeneration plants and 5 hydro generators. A study into opportunities to recover energy from biosolids found limited opportunities. A cogeneration plant is to be constructed at North Head STP and a study into a hydro generator at North Head has been completed.
4. Manage stormwater systems under Sydney Water's control to minimise pollution	4.1 Implement Sydney Water's responsibilities under Stormwater Management Plans as adopted in the SEIP 2000 – 2005.	a) Stormwater Environment Improvement Program to be delivered to schedule.	Moderate compliance	In March 2001, Sydney Water's Stormwater Environment Improvement Program (SEIP) was submitted to the EPA and subsequently approved. DEC has approved a new list of projects and a contract is being negotiated to facilitate delivery. The original schedule of June 2005 was not met and the program is now expected to be delivered by June 2006.
		b) GPTs and trash racks to be maintained as per schedule.	Full compliance	All traps were inspected and cleaned as per schedule. 1,859 cubic metres of rubbish and 2,060 tonnes of sediment were removed from GPTs in 2004/05.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		c) Water quality improvements within the Alexandra Canal sub-catchment of the Cooks River catchment to be delivered as determined by Project Management Committee.	Moderate compliance	A plan for sediment control and contaminant removal has been completed and will be implemented in 2005/06. A communications plan was finalised during 2004/05 and is being implemented.
		d) Maintenance practices such as land management, noxious weed control, cleaning of pollution control devices & stormwater channels to be reviewed by June 2001.	No requirement	Review completed in June 2002.
		e) Botany Wetlands Plan of Management to be implemented.	High compliance	Botany Wetlands Environmental Management Plan was completed in 1997. Actions under the plan have been progressively implemented. Some 57 of the 69 actions originally included in the Plan of Management have been implemented or are ongoing. Some actions completed in 2004/05 include the removal of carp and goldfish resulting in the re-establishment of native fish, removal of 137 tonnes of sediment and 177 cubic meters of rubbish and a limited survey of reptiles and frogs showing a significant improvement of biodiversity in the area.
		f) Plan of Management for Trunk Drainage lands in Rouse Hill Development Area to be prepared and implemented.	Full compliance	Plans of Management have been completed and are being implemented. A Plan of Operation was developed in 2004/05 and is being implemented. The Plan includes weed management, protection of Aboriginal sites, monitoring of soil and water, and monitoring of stormwater infrastructure.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	4.2 Develop stormwater strategy component of WaterPlan 21	Contribution to integrated stormwater management.	Moderate compliance	<p>Sydney Water's Stormwater Environment Improvement Program collates and prioritises actions relating to stormwater assets and is Sydney Water's mechanism for integrating stormwater management into WaterPlan 21.</p> <p>The Stormwater Strategy was not prepared. Sydney Water is coordinating with the Sydney Metropolitan CMA and other stakeholders to develop a vision and goal for stormwater management. This will help determine the future strategy and role of Sydney Water in managing stormwater.</p>
5. Encourage waste minimisation and cleaner production in the commercial and industrial sectors	5.1 Implement Trade Waste Policy and Management Plan:	a) Quality specifications (with respect to trade waste contaminants) for achievement of Sydney Water targets for biosolids reuse to be met.	Full compliance	<p>A Trade Waste Program, which includes a Trade Waste Policy has been implemented.</p> <p>100% of captured biosolids were suitable for re-use in 2004/05.</p>
		b) Quality requirements (with respect to trade waste contaminants) for implemented recycled water schemes to be satisfied.	Full compliance	<p>Quality requirements for substances are being met in the Rouse Hill catchment.</p>
	5.1.1 Implement Source Control Education Program.		Full compliance	<p>Education initiatives in 2004/05 focused on the food service and motor vehicle industries, which make up 74% of all trade waste customers, as well as plumbers.</p> <p>Overall trade waste quality improved during the year. Most contaminant loads have fallen from 2002/03. Heavy metal loads have decreased significantly over the last 10 years, with the exception of zinc which has decreased approx 30%.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	5.1.2 Implement Trade Waste Agreements.		Full compliance	The total number of commercial and industrial agreements in 2004/05 was 17,253, up from 16,571 in 2003/04. More than 16,409 commercial customers have agreements and 844 industrial customers have agreements.
	5.2 Assist Sydney Water to meet relevant environmental regulations.	a) Compliance with Pollution Reduction Targets (PRT) for trade waste pollutants (following setting of targets by the EPA).	Full compliance	All PRT and licence conditions with respect to trade waste were met. New Environment Protection Licences issued in early 2004 require toxicity testing of effluent; all annual toxicity limits were met.
		b) Compliance with DEC licences with respect to contaminants from trade waste sources.	Full compliance	All licence conditions with respect to trade waste were met. The trade waste mass model helps Sydney Water meet Environment Protection Licence requirements and protect water quality.
6. Minimise waste and maximise re-use, recovery and recycling waste products	6.1 Implement the Waste Minimisation Strategic Plan through the development and implementation of Annual Waste Minimisation Plans.	a) Mechanism for minimisation of construction and demolition waste to be included in all capital works projects by end of 2005.	Full compliance	Contract clauses are the mechanism for enforcing waste minimisation in all capital works projects. There has been progress in addressing C&D waste. Some initiatives implemented in 2004/05 include developing Spoil Management Guidelines, avoiding the generation of 4,500 tonnes of spoil by using pipe bursting and other low waste technologies, and incorporating waste minimisation requirements into external capital works contracts. The recycling rate for C&D waste in 2004/05 was 80% for Sydney Water teams but lower for contract teams where there is still room for improvement.
		b) Recycling rate for paper of 80% for Head Office by January 2001	Full compliance	Paper recycling rate of 85% was achieved in 2004/05.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		c) Waste minimisation awareness program to be completed in Head Office by January 2001 and to be completed across Sydney Water by July 2005.	High compliance	<p>The Waste Minimisation Communications Plan aimed to ensure that all Sydney Water employees are aware of waste minimisation and their responsibilities.</p> <p>There was significant progress in this area with talks delivered to the staff at over 90% of targeted sites, surveys to assess knowledge of in-house waste management program and working to develop zero-waste policies for office relocations.</p>
		d) Program for incorporating waste minimisation into purchasing for major products and services to be developed by January 2001.	No requirement	<p>A procurement program has been developed which is consistent with the NSW Government's Waste Reduction, Recycling and Purchasing Policy (WRAPP). The program addresses waste minimisation and supplier's environmental performance. The program requirements continued to be implemented during 2004/05.</p>
		e) Commence setting quantitative targets for waste and recycling from July 2001.	High compliance	<ul style="list-style-type: none"> Recycling rate for paper in Head Office of 80% by January 2001 – achieved 85% in 2004/05. 90% of water filtration residuals removed from onsite storage are to be beneficially reused – this target was met in 2000/01, 2001/02, and 2002/03, 2003/04 and 2004/05. A general recycling target of 55% of all waste for Head Office was established; this target was met in 2004/05 with 55% of head office waste being recycled. In March 2003, an interim target was set for 70% of excavation waste to be recycled, to be included in the new waste management contract for Water Services Division. This target was met in 2004/05 with over 80% of excavated materials being recycled.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
7. Responsibly manage all Sydney Water's land and water assets.	7.1 Develop, maintain and implement policies for responsible management of the natural and cultural heritage values of Sydney Water assets.	a) E-Guide policies to be appropriately scoped and maintained.	Full compliance	<p>Environment policies contained in the internal E-guide have been converted into EMS procedures and supercede all previous environmental policies. The EMS procedures are regularly reviewed and the EMS system achieved ISO 14001 certification in 2004/05.</p> <p>Any policies that were not captured by the EMS procedures are detailed in the Natural Resources Environment Management Plan.</p>
		b) Policy to be established for Movable Heritage.	No requirement	<p>The Moveable Heritage Policy and Procedures Manual were completed in 2002/03 and were available through ConnectNet.</p> <p>The Movable Heritage Project has been completed with over 85% of State heritage sites assessed for movable items. These items have also been tagged to ensure tracking.</p> <p>The Heritage Management Procedure was reviewed in December 2004 and was available to staff through ConnectNet and Lotus Notes.</p>
		c) Policy to be established for Aboriginal Heritage by 2001.	No requirement	<p>The Aboriginal Heritage Guidelines were completed in November 2001.</p> <p>The Heritage Management Procedure was completed in 2004/05 for heritage surveys.</p> <p>Sydney Water has also incorporated the new Aboriginal heritage consultation guidelines into the EMS.</p>
	7.2 Develop and maintain natural and cultural heritage inventories to inform Sydney Water's planning, asset management, maintenance and construction activities.	a) Heritage and Conservation Register (s170) to be established by January 2001.	High compliance	<p>Sydney Water's Heritage and Conservation Register was completed and endorsed by the Heritage Council in June 2002.</p> <p>Fifty-nine (59) items are listed on the State Heritage Register and 161 items of local significance are now part of the Heritage and Conservation Register and the register is continuing to be populated.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		b) Natural Resources Inventory to be developed with entry of existing assessments and data by June 2001.	Moderate compliance	A Natural Resources Inventory has been established and is being updated. This is an on-line tool and is available through ConnectNet. The NRI contains comprehensive data for 95 high priority sites.
		c) Assessments of all sites completed and entered into inventory by December 2001.	Low compliance	EIA records for 200 sites were entered by June 2002. Entry of natural resources data has continued. The NRI currently includes 1,318 of a possible 3,112 individual lots owned by Sydney Water.
		d) Manage State Heritage Register items in accordance with gazetted Heritage Council guidelines.	High compliance	The Heritage Council State Agency guidelines were issued on 31 January 2005. The guidelines cover State heritage items and have been approved by the NSW Heritage Council. The new guidelines will be used to manage all of Sydney Water's heritage items of State and local significance. Of Sydney Water sites on the State Heritage Register, 54% are covered by Conservation Management Plans.
	7.3 Contaminated Land Management Plan implemented.	All land acquisitions and disposals to be investigated for contamination risks.	Full compliance	All properties for acquisition or disposal in 2004/05 were assessed for potential contamination issues. None of the sites were identified as posing a 'significant risk of harm'.
	7.4 Implement and review Botany Wetlands Plan		High compliance	A Plan of Management is progressively being implemented. See Clause 9.5.2.



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
8. Minimise the environmental impact of Sydney Water's use of energy.	8.1 Increase generation of renewable energy resources.	A minimum of 2.5% of total electricity consumption to be purchased as Green Power.	Full compliance	<p>Sydney Water purchased 2.6% of total electricity consumption as Green Power in 2004/05.</p> <p>Sydney Water generated 3.6% of its energy consumption from its own facilities in 2004/05.</p> <p>The majority of renewable energy was produced at the Malabar STP facility. The Cronulla cogeneration plant produced 1,144,069 kWh of electricity, an increase of 183%. Despite this, maintenance on the cogeneration plants meant that there was a 14% reduction in electricity generated by Sydney Water operations.</p>
		a) Subsequent reduction targets set by the NSW Government Energy Management Policy to be adopted.	No requirement	<p>No additional targets have been set by the Government.</p> <p>Sydney Water has adopted an Energy Management Plan. Staff have been involved in this program by identifying energy saving initiatives and have been trained in collecting and entering energy data.</p>
	8.2 Implement the objectives of Sydney Water's Energy Management Plan to reduce energy use.	b) Co-generation plant at Cronulla STP to be commissioned by 2002.	No requirement	<p>The Cronulla cogeneration plant began operation in 2001/02 and last year contributed 1,144,069 kWh of electricity.</p>
		<p>c) Reduce the energy consumption of Sydney Water's buildings, where cost effectively feasible, by:</p> <p>15% of the 1995 level by 2001</p> <p>25% of the 1995 level by 2005</p>	Full compliance	<p>Energy consumption for buildings is now 39% below the 1995/96 level.</p> <p>(Buildings represent only 5% of total energy use. The savings in energy were assisted by the closure of a number of offices. The relocation of staff has increased the per employee electricity use in the head office.)</p> <p>Refer to Clause 9.4.2</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		d) Review fleet operational procedures to ensure provision of fuel reduction incentives.	Full compliance	Sydney Water fleet travel was 7% less than in 2003/04. This and an 8% reduction in the number of vehicles reduced total fuel consumed by 6% compared to 2003/04.
9. Continue to improve environmental management practices in Sydney Water.	9.1 Develop a Sydney Water-wide Environmental Management System complying with ISO 14001.	a) Sydney Water EMS developed in accordance with ISO 14001 by June 2001.	Full compliance	<p>Sydney Water EMS was developed in 2000/01 in accordance with ISO 14001. The EMS achieved third party accreditation in May 2005.</p> <p>Implementation commenced with awareness and procedures training for targeted staff from September to December 2001.</p> <p>One of the outputs of the Sydney Water EMS is an overall assessment of progress against the 10 environmental objectives in the Environment Plan.</p>
		b) Program to provide training, advice and regular information to staff on environment management and ESD to be developed	Full compliance	<p>The ESD Awareness Program was launched in October 2001. The program raises staff awareness in understanding issues relating to ESD. This is mandatory for all staff.</p> <p>During 2004/05 an additional 63 staff members received ESD awareness training. By the end of June 2005, 2,444 employees completed the two types of ESD awareness program.</p> <p>Related training programs and information were available to staff.</p>
	9.2 Review internal planning and EIA process to achieve better environmental and community outcomes.	a) EIA process to be reviewed by June 2001	No requirement	<p>Sydney Water completed a review of its EIA process in December 2001.</p> <p>Outcomes from the review such as the development of EIA procedures for the options and approval phases of major projects have been applied.</p> <p>This is now incorporated into the Sydney Water EMS, which identified opportunities for improvements under the "Plan-Do-Check-Act" process.</p> <p>During 2004/05, Sydney Water continued to implement the Environmental Assessment Procedure, which was accompanied by communication sessions. An audit of implementation was undertaken in late 2004 and a review of the procedure was commenced in 2005.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
		b) Incorporate the principles of ESD into decisions and planning.	Full compliance	<p>During 2004/05, Sydney Water continued implementation of the recommendations of the 2001 EIA process review, including the adoption of the EIA Process model. The model was adopted as part of an enhanced procedure for capital investment that will facilitate integrated decision making across disciplines and phases of the project. Other means of incorporating ESD into decisions and planning include contracts with standard clauses regarding environmental obligations; environmental management plans; Environmental Management Representatives (EMR); and environmental audits.</p> <p>Sydney Water is developing a sustainability score card to include as part of the decision making process. It has also adopted a more holistic approach to decision making involving input from a range of disciplines.</p>
	9.3 Implement Environmental Audit Program.	Implement Environmental Audit Program.	Full compliance	<p>Scheduled and random audits are undertaken for construction and maintenance activities as part of this program.</p> <p>System compliance audits were undertaken for 12 major capital works projects. Inspection audits were undertaken at 167 sites for major capital projects.</p>
	9.4 Develop and implement environmental due diligence requirements for contractors.	Environmental due diligence requirements for contractors to be implemented.	Full compliance	<p>EIA, contract shells, disclosure of contractor's prior environmental performance, EMPs, EMRs, environmental auditing, specific actions for major capital works projects, contractor performance database and regulatory compliance are mechanisms in place to ensure environmental due diligence.</p> <p>Random audits were undertaken to ensure compliance with EMPs. Site inspection audits were undertaken every two to four weeks on major capital works projects.</p> <p>The risk management procedures also include environmental risks.</p>



Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
	9.5 Ensure compliance with environmental regulatory requirements.	a) Compliance with Protection of the Environment Operations Act 1997.	High compliance	No Tier 1 or 2 prosecutions were incurred in 2004/05, however the EPA issued two Penalty Infringement Notices (Tier 3) for the amount of \$400 and \$1,500 under the <i>Protection of Environment Operations Act</i> for pollution of the environment. One of the infringement notices was for a smoky vehicle, which belonged to Sydney Water, and the other was for a sewage overflow at Fairfield.
		b) Compliance with all Environment Protection Licence discharge conditions.	High compliance	Sydney Water met all Licence conditions for discharges from its systems except for nine incidents that resulted in no impact on receiving water quality. See 2.2 a.
		c) Environment Management Plans and conditions of approval in EIA to be complied with.	High compliance	The environmental audit program identified a number of instances where the requirements of EMPs and the conditions of approval were not met. As a result, 86 corrective action requests were issued identifying improvement opportunities. Sydney Water is using this information to focus contractor education programs.
		d) Reduction in the number of noise complaints validated as coming from Sydney Water's activities.	Full compliance	Noise complaints dropped from 108 in 2003/04 to 63 in 2004/05. Noise complaints have reduced as a result of staff undertaking an education program and the implementation of improved codes of conduct and work practices. Complaints related to asset operations have reduced despite a number of major capital works projects at STPs.

**Table I.1 Appendix I – Compliance with Targets in the Environment Plan for 2005**

Objective	Actions	Target	Compliance with targets in Audit Period	Findings
10. Contribute to collaborative research to improve the environmental performance of assets.	10.1 Implement Research & Development Strategy.	Programs to be developed under Research and Development Strategy over five year timeframe	Full compliance	<p>The research and development program includes a range of projects from improving process control at STPs to community based urban water cycle management. Sydney Water is a member of, and funds, several cooperative research organisations. A strategic driver for R&D is the improved environmental performance of assets. Sydney Water aims to measure benefits of R&D portfolio over the long term.</p> <p>Research projects during 2004/05 included:</p> <ul style="list-style-type: none">▶ Development of a sustainability reporting tool;▶ Stormwater treatment using sand filters;▶ Grit and screenings re-use; and▶ Enhancing biological denitrification in STPs.