

Wastes

Waste management is fundamental to our company's operations.

As a service to our customers we manage the treatment of wastewater, which enters the sewerage network from over four million homes and commercial sources in our region. This treated wastewater is returned to the environment via the sea or rivers.

Our business operation inevitably produces waste matter. We reuse, recycle or dispose of this waste. For example, biosolids are one of the by-products of wastewater treatment that we recycle. We put biosolids through a series of treatment processes after which the product is used on agricultural land as a soil conditioner and fertiliser. Our treatment processes for biosolids also produce a flammable gas (known as biogas). We use biogas as a fuel.



Wastewater treatment – at the final settlement stage, any remaining debris settles out in tanks leaving a clear liquid that is safely returned to the environment

Key Performance

- We provided Water Resources Act sanitary-compliant wastewater treatment to 99.9% of our serviced population. Sanitary compliance is measured against quality limits for suspended solids, biochemical oxygen demand and ammonia.
- We reduced flooding incidents due to overloaded sewers to 15.

Case Study

Focussing on Compliance

The Water Resources Act and the European Union Urban Waste Water Treatment Directive are particularly important to our operations. This is evident in the initiatives forming our compliance plan, developed by our compliance focus group. This group continued to meet regularly over 2004-2005. The initiatives within our plan cover performance management, performance reporting, maintenance and training.

During 2004 we provided operations process training as one of these initiatives. Delivered through 19 technical modules, we held courses weekly

in three locations across our region. The courses included learning about discharge consents, treatment types and specific pieces of plant on site such as those involved in odour or sludge. This training was designed to increase the knowledge and understanding of operational staff and will assist them to maintain compliance of works they support. Operators, maintenance, instrumentation control and automation employees all undertook this training. The courses were well attended.

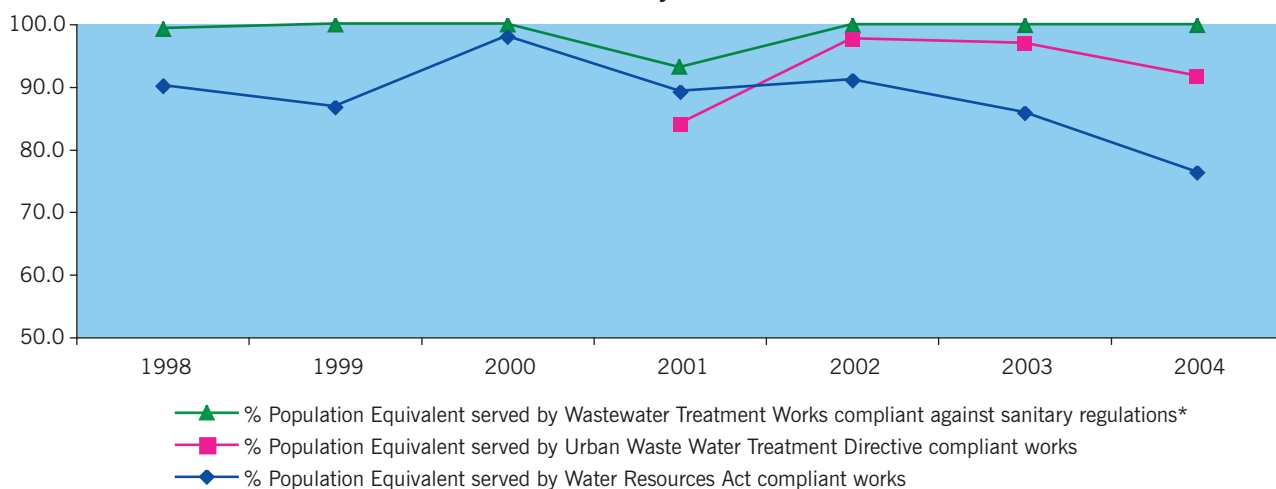
We maintain 366 wastewater treatment works

A population of 4,523,750 is connected to our sewerage system

Our sewerage system extends to 21,313km

Our wastewater treatment sites return about 830 million litres of treated wastewater to the environment every day

Wastewater Quality to 2004



* Sanitary compliance calculated in accordance with Ofwat (to represent look-up table consent conditions). Population figures are from June Return Ofwat data for 2004.

Links: www.environment-agency.gov.uk | www.ofwat.gov.uk | www.water.org.uk
www.southernwater/wastewaterTreatment | www.watervoice.org.uk

We treat wastewater from our customers at wastewater treatment works fed by sewerage systems. These systems comprise both gravity flow and pumped sewers. We employ different levels of treatment (primary, secondary and tertiary) at our works. Over 2004-2005, the number of works with secondary treatment and above increased.

Wastewater Quality

Wastewater treatment is regulated by the Environment Agency (EA) against certain criteria for quality. The EA uses discharge consents to specify these quality limits. It undertakes regular quality sampling at our wastewater treatment works to enforce these limits. These limits and consents are enforced under the Water Resources Act.

We monitor our compliance with the Water Resources Act against quality limits for suspended solids, biochemical oxygen demand and ammonia. These are indicators of the sanitary quality of final treated effluent resulting from the wastewater treatment process. Our performance against this set of indicators was strong again last year, and consistent with previous years.

We also monitor our compliance against limits set for non-sanitary substances, such as metals.

Limits for non-sanitary substances like metals are absolute, i.e. where one limit is exceeded once at any wastewater treatment works, we categorise, in our calculation of performance for the whole year, the population served by that works as receiving non-compliant treatment. These calculations show a much lower level of performance.

Typically, metals in wastewater originate from industrial sources. A business discharging over five cubic metres of wastewater a day from their processes requires our consent. Through this consent we limit the level of substances legally entering our sewage network and potentially discharging to our environment. We bring enforcement action against traders who breach their consents. We also work with businesses in our region to help them resolve any problems in meeting agreed trade effluent consent limits.

In last year's report, we case highlighted a trial investigation into total levels of dissolved chromium metal in wastewater from the Ashford catchment area in Kent. We installed monitoring equipment in an attempt to identify the likely source of any dissolved chromium found. Unfortunately this study did not yield successful results.

In 2004-2005 we undertook a series of new initiatives to identify sources of non-sanitary substances.

These included increased sampling within wastewater catchments and investigating possible unconsented discharges in areas of concern. We also checked traders already known to us, but who may have changed their processes to include the discharge of dangerous substances.

Primary treatment involves passing incoming flows of wastewater to our treatment works through grid-like screens that remove debris such as paper and grit. We then use a settlement tank to remove sediment

Secondary or biological treatment significantly reduces organic matter and pollutants such as bacteria in wastewater

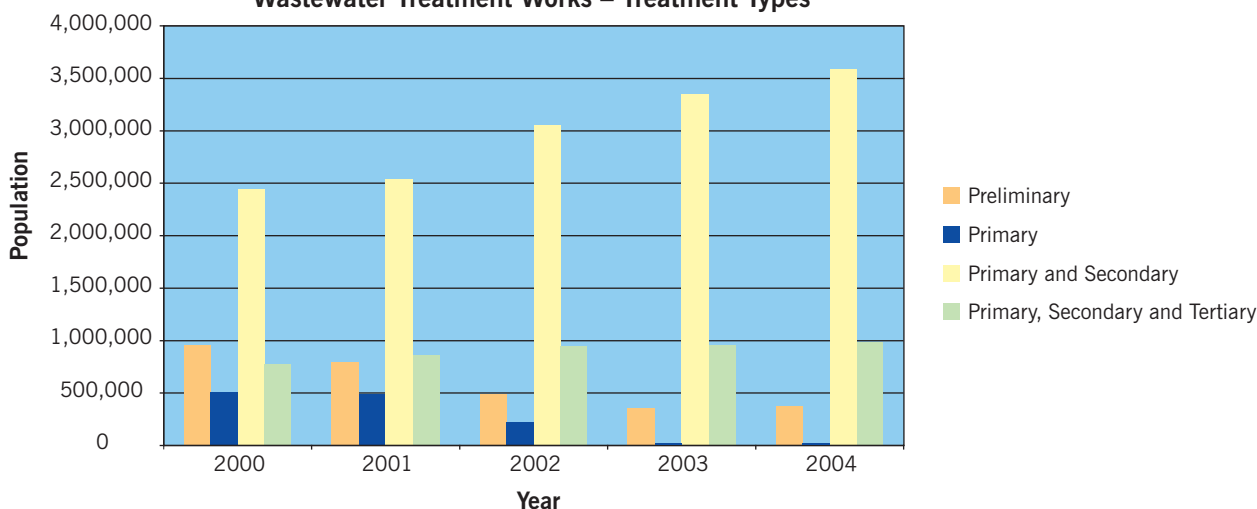
Tertiary treatment includes ultra violet disinfection and phosphate removal

Ultra violet treatment reduces the level of bacteria and viruses in wastewater

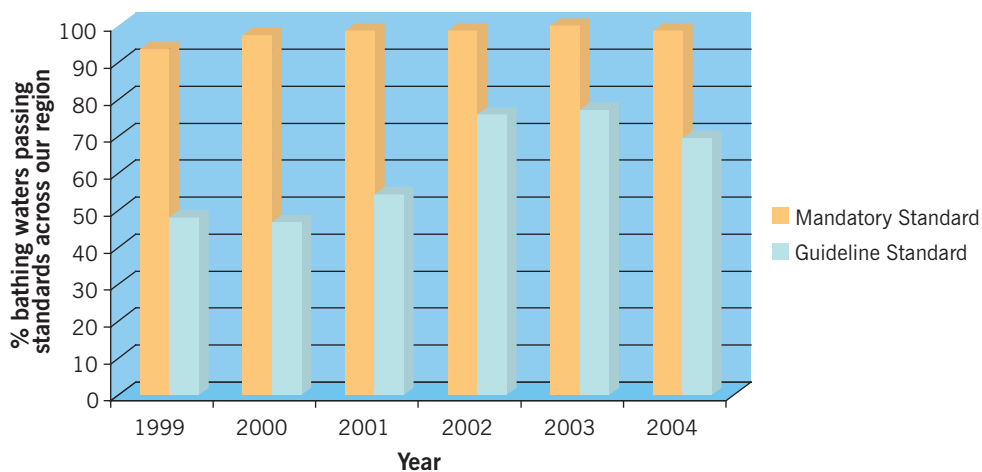
Phosphate removal helps to reduce excessive plant growth (which would be detrimental to fish) in watercourses into which we discharge final effluent

The final liquid product from our wastewater treatment processes is called final effluent

Wastewater Treatment Works – Treatment Types



Bathing Water Quality



In the United Kingdom, 98% of all bathing waters met mandatory standards for quality

Additional water quality improvements will be required to meet more stringent mandatory water quality standards in a future revised European Union Bathing Water Directive and the Water Framework Directive

WaterVoice is an organisation representing customers in England and Wales. (Known as the Consumer Council for Water from 1 October 2005)

The Office of Water Services (Ofwat) is the key regulator for the water industry (Known as the Water Services Regulation Authority from 1 April 2006)

We receive quantities of wastewater from tanker discharges directly into our wastewater treatment works. At our Ham Hill Wastewater Treatment Works in Kent, we installed a trial sampling system which automatically samples each tanker making a discharge.

We have gradually increased our investment in maintaining wastewater treatment works over the last 10 years. Despite this, our performance monitoring demonstrated that overall performance is not yet stable as defined by Ofwat. Our site inspections and modelling techniques demonstrated that we could achieve desired improvements if we significantly increase levels of asset replacement and refurbishment. We plan to invest in the refurbishment of 97 treatment works over 2005-2010. Levels of refurbishment will vary from one works to another, from replacing end-of-life assets plant and equipment through to providing additional treatment capacity.

We are currently moving forward with plans to build two wastewater treatment works in compliance with the European Union Urban Waste Water Treatment Directive obligations:

- Our wastewater treatment works planned to serve Margate and Broadstairs is intended to be complete by the end of October 2007. The project involves a new works alongside our existing works at Weatherlees in Kent. This will treat the wastewater generated by the 96,000 residents and visitors to Margate and Broadstairs.
- Our wastewater treatment scheme for the Brighton and Hove area is in the planning stage, with a revised planning application submitted in April 2005 for a new treatment works at Peacehaven. We are treating the timely delivery of this scheme as our highest priority. We will explore every avenue to achieve our timescales, including completion in 2010.

Damon Elliott, Project Manager, said:

“Since the plans to extend the existing Portobello treatment works were refused in March 2001, we have gone through an exhaustive process to find a site on which to build the modern wastewater treatment facilities this area desperately needs.”

“This was not a quick or easy task. Following a review of 66 locations across East and West Sussex in consultation with the local authorities, we identified a shortlist of eight sites for further detailed investigation. We then carried out widespread public consultation on those shortlisted sites, during which we received over 2,000 responses.”

“After consideration of outcomes from this process, we selected the Peacehaven site as the preferred location for the new works as, in our view, that is the Best Practicable Environmental Option.”

We identified foul flooding priorities in our business plan using a system approved by WaterVoice. WaterVoice is the organisation responsible for representing water company customers in England and Wales. Ofwat has allowed us £86 million principally to deal with 50% of the properties that are at frequent risk of flooding due to storm conditions.

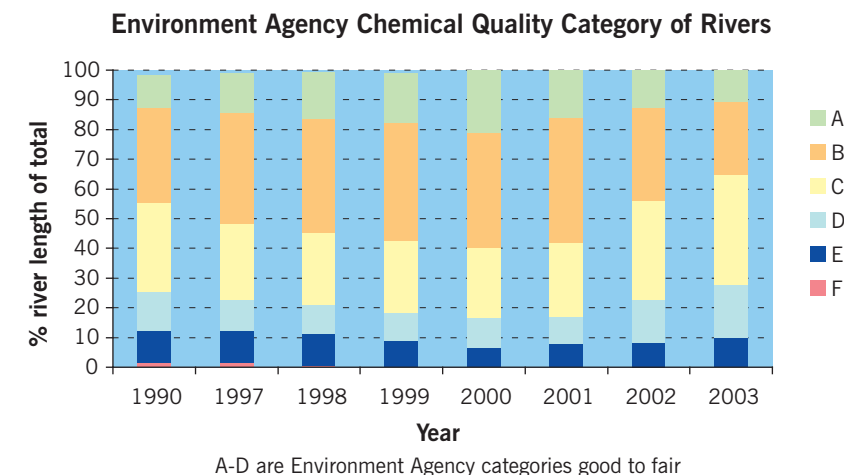
In addition to work to upgrade or maintain wastewater treatment works, investment is also required to improve storm discharges. We have gained funding for the 2005-2010 investment period to make improvements to 56 Combined Sewer Overflows.

The biological and chemical quality of rivers in our region has improved since 1990, although our discharges are not the only factor influencing river quality.

Sustainable Urban Drainage Systems (SUDS) promote the use of techniques that minimise adverse impacts of surface water (rainwater) drainage from new developments. Over 2004-2005, we continued to be involved with research projects into SUDS. We were also involved in a SUDS adoption steering group for a new development scheme in Waterlooville in Hampshire. We worked with other agencies to help implement SUDS within this scheme.

The water industry supports the concept of SUDS. The National SUDS Working Group issued new guidance, the Interim Code of Practice for SUDS, in August 2004. This guidance specified the responsibilities for the adoption and maintenance of SUDS systems.

We were also involved with the Government consultation, Making Space for Water. This included topics such as SUDS, foul flooding and coastal erosion. One key issue covered in this consultation was how to reduce the risk of internal foul flooding. Government housing policy significantly affects us in the South East. This policy forecasts a 50% increase in new house building over the next ten years. We secured



£57 million to cover us against the costs of providing additional sewerage networks and services to this growth. However, this is only the first step and the total required expenditure to cater for growth over the ten-year period to 2015 is closer to £180 million. Our response to the consultation on internal foul flooding was that if major developments are to take place, we must have access to adequate funding for strategic infrastructure in advance of development. Without this, services to both existing and new customers may suffer.

| 2004 Target | 2004 Progress | 2005 Target |
|--|---|------------------|
| Wastewater Quality | | |
| 95% population equivalent served by Water Resources Act compliant works. | 99% (look up table sanitary substances only). | Maintain target. |
| | 76.4% (look up table sanitary substances, including Upper Tier sanitary and non sanitary substances). | |
| 95% population equivalent served by European Union (EU) Urban Waste Water Treatment Directive compliant works. | 91.7% | Maintain target. |
| 95% Bathing waters compliant with mandatory standard of EU Bathing Waters Directive. | 98.7% Defra report 99% for the Southern region and 98% for the UK. | Maintain target. |

| 2004-2005 Target | 2004-2005 Progress | 2005-2006 Target |
|--|---|--|
| Install flow monitoring devices on 355 wastewater treatment works by April 2005. | 351 completed to the end of March 2005. | 93.2% intermittent discharges satisfactory (protecting river and bathing water quality). |
| | | Reduce Category 1 and 2 pollution incidents by 10%. |

KEY: Target met In progress Target not met Not applicable

We either recycle or landfill the majority of waste from our business operations. In our constant search for new ways to manage our waste we set up a seven-year integrated waste framework agreement in 2004. This agreement covers approximately 85% of the waste that we produce.

Key Performance

In 2004-2005, we achieved the following improvements on 2003-2004 performance:

- We reduced the amount of biosolids sent to landfill by 2,774 tonnes dry solids (TDS)
- We reduced the amount of non-biosolids waste sent to landfill by 13,120 tonnes

- We recycled 39% of our non-biosolids waste compared to 32% in 2003-2004
- In total we recycled 77% of our waste compared to 64% in 2003-2004

Waste Management

We successfully entered into a seven-year waste management and recycling contract which commenced in September 2004. The contract includes the following services:

- Recycling of biosolids
- Disposal of waste in skips (such as sludge from water supply works, grit, screenings and general waste)
- Disposal of fly-tipped waste (waste that has been illegally dumped on our land)
- Disposal of special (or hazardous) waste
- Provision of road tankers to move liquid waste

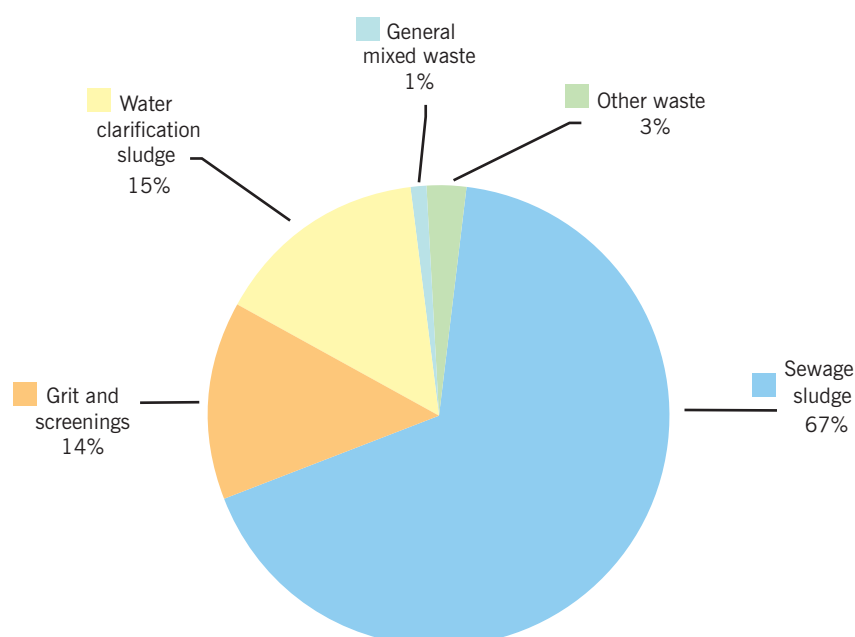
The contract has safeguards in the form of incentives, disincentives and performance measures that commit the contractor to the following:

- Providing a record of every load of waste handled
- A monthly performance and activity report that gives details of recycling
- Contractual disincentives for statutory non-compliance
- Working in accordance with an Environmental Management System

Our main categories of waste in 2004- 2005 were as follows:

- *Waste (sewage sludge) derived from the solid matter that we produce when we treat wastewater*
- *Grit and screened matter from sewers*
- *Sludge derived from water clarification when we treat water for human consumption*
- *General mixed waste from offices*

Waste Produced in 2004-2005

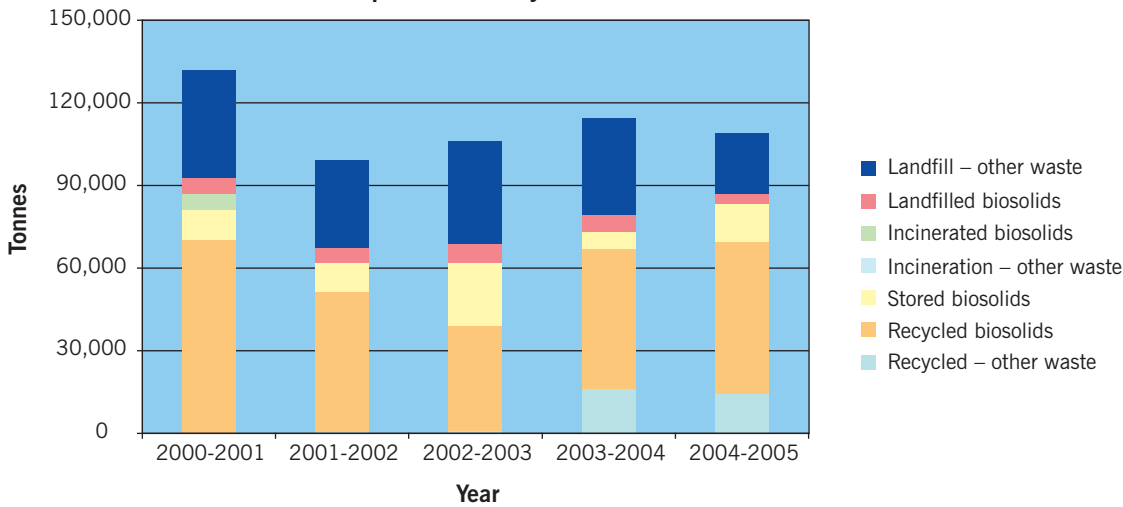


After treatment sewage sludge is known as biosolids

Biosolids contain plant nutrients. Our treatment processes and our standards for applying biosolids to land combine to make the product a safe and sustainable fertiliser

Grit and screened matter are not normally suitable for recycling

Disposal Route by Tonnes



In 2004-2005 we produced 107,520 TDS of sewage sludge that was suitable for processing into biosolids at our wastewater treatment works. Our treatment processes reduce this quantity by 40%. The quantity of biosolids that we recycle is therefore much less than we receive at our treatment works. In 2004-2005 we recycled 96.7% of our sludge and successfully achieved our aim of recycling at least 95% of our total sludge production. In the previous year, we recycled 94.5% and in 2002-2003 93% of our total sludge production.

Sludge from water supply works accounted for 45% of our non-biosolid waste in 2004-2005 (compared to 32% in 2003-2004). We have made annual improvements in the proportion of this sludge that we recycle as follows:

- 2002-2003: none recycled
- 2003-2004: 66% recycled
- 2004-2005: 74% recycled



Bestway granules – a recycled by-product of the wastewater treatment process used on agricultural land as a soil conditioner and fertiliser

| 2004-2005 Target | 2004-2005 Progress | 2005-2006 Target |
|------------------|--------------------|------------------|
|------------------|--------------------|------------------|

| Waste Management | | |
|---|---|--|
| Develop integrated waste framework agreement for efficient management of waste streams. | Target met. | Implement an integrated waste data recording system. |
| 95% sewage sludge produced as biosolids recycled to land (agriculture). | Target met. | Maintain target. |
| Zero prosecutions for waste management offences. | One prosecution for failing to prevent the escape of controlled waste.* | Maintain target. |

* For more information, see the Managing our Future section of the Performance Summary at www.southernwater.co.uk/sustainability

KEY: Target met In progress Target not met