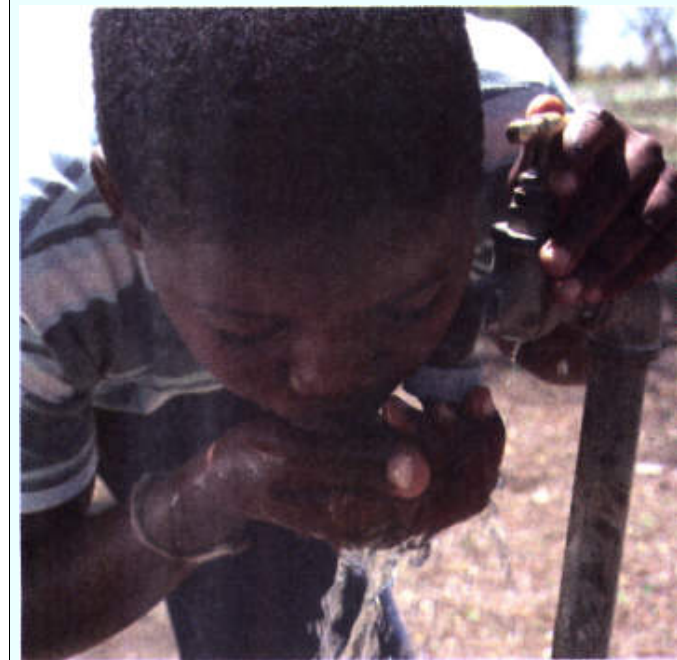


UMGENI WATER

UMGENI WATER ANNUAL WATER AND WASTEWATER PERFORMANCE

ORGANISATIONAL PROFILE

Umgeni Water was established in June 1974 to supply drinking water in bulk to municipalities in its area of operation. Over the years Umgeni Water has grown to become the largest bulk water supplier in KwaZulu-Natal and the second-largest organisation of its kind in South Africa.



The organisation has a supply area of 21,155 square kilometres, and in the Financial Year 2009-2010, it supplied 425 million cubic metres of treated water to its customers: eThekweni Metropolitan Municipality, Msunduzi Local Municipality, and Ilembe, Ugu, uMgungundlovu and Sisonke District Municipalities (see Figure 1). The total volume of drinking water supplied during 2009-2010 equates to an average daily sale of 1 167 million litres (equivalent to 29200 standard pools).

In order to ensure consistent supply to its customers, Umgeni Water requires functioning and cost-efficient assets. Umgeni Water currently owns or manages the following dams, pipelines and water/wastewater works:

- Approximately 632 km of pipelines and 118 km of tunnels,
- Twelve dams,
- Twelve water treatment works, and
- Five wastewater treatment works.
- Five dams managed on behalf of the Department of Water Affairs
- Two dams managed on behalf of the Ugu District Municipality
- Two water treatment works managed on behalf of the Ugu DM, and
- One wastewater treatment works managed on behalf of the uMgungundlovu District Municipality

An additional eighteen water treatment works, seven offsite reservoirs, nineteen boreholes and one water supply scheme are managed on behalf of the iLembe District Municipality.

Umgeni Water operates within the framework of the Water Services Act (Act 108 of 1997), among other legislation, and its Executive Authority is the Minister of Water and Environmental Affairs.

WATER QUALITY PERFORMANCE

It is common knowledge that drinking water quality has received, and continues to receive, widespread public attention in South Africa. Umgeni Water, for its part, aims to ensure that the quality of drinking water it supplies remains safe to consumer health over a life-time of consumption. Water quality at all Umgeni Water's water treatment works and bulk supply points is measured and reported

against the South African National Standard (SANS) Drinking Water specification SANS 241:2006.



Figure 1: Map illustrating Umgeni Water's area of operation, including the location of bulk water works and wastewater works treatment plants

Committed operations and water treatment, coupled with rigorous water quality compliance monitoring, testing and assessment throughout the year, enabled the organisation to provide excellent quality drinking water to its customers. For the 2009-2010 Financial Year, the organisation's compliance with health-related chemical and microbiological constituents was 99.93%. Figure 2 shows the water quality compliance graph for this period, while information per bulk water treatment works is shown in Table 1.

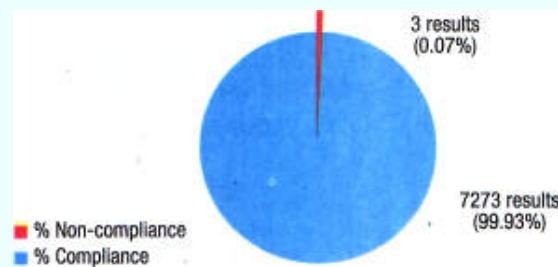


Figure 2: Drinking water quality compliance for Umgeni Water's bulk waterworks during 2009-2010

Table 1: Information per bulk water treatment works is for the period 2009-2010

Water Works	Average daily volume treated (ML/d)	% Total treated volume	% Compliance with SANS 241:2006	
			Chemical	Microbiological
Durban Heights	502.9	43.0	100.0	100.0
Wiggins	263.9	22.7	100.0	100.0
Midmar	227.6	19.5	100.0	100.0
DV Harris	60.0	5.2	100.0	100.0
Hazelmere	40.5	3.5	100.0	100.0
Amanzimtoti	45.1	3.9	100.0	100.0
Umzinto	10.2	0.9	100.0	98.1
Mtwalume	9.0	0.8	100.0	100.0
Ixopo	2.5	0.2	100.0	100.0
Ogunjini	1.0	0.1	100.0	100.0
Mvoti	12.0	0.2	99.1	100.0

The majority of bulk drinking water treatment works achieved 100% compliance for both the chemical and microbiological requirements of SANS 241: 2006 with the exception of Mvoti Water Treatment Works and Umzinto Water Treatment Works. At the Umzinto Treatment Works a single non-compliant microbiological result (*E. coli*, 1 per 100 ml) was recorded due to an operational error during the disinfection process, while at the Mvoti Works, two high turbidity results (5.7 & 7.5 NTU) were recorded, due to filter problems experienced at the site. Measures are being undertaken at Mvoti Works for the refurbishment of the filters to render the final water quality compliant with SANS 241:2006.

BLUE DROP CERTIFICATION

The Blue Drop Certification Programme is an effort by the Department of Water Affairs (DWA) to monitor the status of drinking water management and compliance in South Africa. During the 2010 Blue Drop Assessments, all Umgeni Water bulk drinking water supply systems were assessed. Umgeni Water was once again awarded Blue Drop status with eThekweni Metropolitan Municipality for the Greater Durban area. This means that consumers can have confidence in drinking water quality management and can be assured that the consumption of tap water in the eThekweni area will not cause negative health impacts.



The general observation made by the DWA Drinking Water Quality Regulation Unit regarding Umgeni Water's performance during the 2010 assessments was that the organisation employs very good drinking water quality management practices, and produces safe drinking water at its major water treatment works. Umgeni Water was also recognised for excellence in drinking water data reliability, with Durban Heights Water Treatment Works being recognised as the most presentable large water treatment works during the Blue Drop audits.

WASTEWATER QUALITY PERFORMANCE

Compliance of all wastewater treatment works operated, managed and/or owned by Umgeni Water continued to be assessed, and the treated sewage quality compliance for the period under review was 80.6%. Individual treated sewage compliance figures are shown in Table 2:

Table 2: Individual treated sewage compliance figures for sites managed and/or owned by Umgeni Water

Site	Volume Treated (Cubic metres/day)	Percentage Compliance (%)
Darvill	77.7	78.57
Howick	4.8	86.66
Ixopo	0.53	90.91

Non-compliances at the wastewater treatment works were due to the following:

- At Darvill, treated sewage quality performance has been severely affected by increased sewage concentration/overloading of the treatment capacity, operational problems and industrial effluent issues. Among others, optimising current treatment processes and investigating improved technology upgrades are being undertaken in order to address this. Although limited nutrient enrichment impacts have been noted downstream, the potential threat to fish populations from contaminated waters also noted. Another significant problem is that the sewer network and the sewage works cannot cope with the very high flow volumes that come from Pietermaritzburg at times of high rainfall. This has caused diluted and only partly treated sewage to be discharged into the Msunduzi River on occasions. Consequently, the storm dam at Darvill has stayed full for extended periods, causing odour problems to local residents at times.
- In Howick the sewage works is also receiving relatively high inflows, and this has affected settling and disinfection of the treated sewage. There have also been numerous challenges with keeping the sewage pump stations functioning, and also dealing with severe sewer blockages. Several of these challenges were caused by people discarding large objects into sewers which ultimately resulted in long-term raw sewage discharges. Where possible, mitigation (for example, using the old Mpophomeni Wastewater Works' ponds) was implemented to minimise health and environmental concerns. Planning for a new sewage works at Mpophomeni (which now pumps its sewage to Howick) is at an advanced stage and, when built, will greatly reduce the problems now being experienced at the Howick sewage works.
- After settling and chlorination issues were resolved at Ixopo, occasional disinfection-related problems are no longer an issue. The sewage works' compliance is the best it has been since 2006. Inflows have been highly variable, but have increased significantly since the municipality undertook repairs to the sewer network. Despite the variable and increased inflows, the treatment process is coping and has remained compliant. Upgrades to this plant are being undertaken to ensure adequate future treatment capacity.



UMGENI WATER AMANZI
 310 Burger Street, Pietermaritzburg 3201
 Tel: +27 (33) 341 1111 Toll Free: 0800 331 820 Fax: +27 (33) 341 1167
 E-mail: info@umgeni.co.za / Website: www.umgeni.co.za