

12. ENSURING OPERATIONAL RESILIENCY



12. ENSURING OPERATIONAL RESILIENCY CONTINUED

12.1 OPERATIONAL RESILIENCY AND OPTIMISATION

ISO 17025 Accredited Laboratory Services Assuring Water Quality

Umgeni Water's Laboratory Services is a dynamic centre of excellence comprising three modern ISO/IEC 17025 accredited laboratories with a long established reputation of meeting international standards. Equipped with cutting-edge technology and a team of thirty-eight dedicated scientists and technicians, this "state-of-the-art" facility provides a world-class service 365 days a year, in support of its primary business. The key objectives of our laboratory are:

- Providing assurance that the organisation produces potable water that complies with drinking water standards, assuring that treated effluent complies with wastewater and effluent discharge limits, thereby assuring public health protection from water-borne diseases and water related health impacts.
- Undertaking research and development, generation of scientific data for new infrastructure development, and supporting / auditing water treatment for process selection and optimisation.
- In addition, catchment and river health monitoring is undertaken to assess the status of water resources and raw water supply.

The laboratories form a powerful hub for the analysis of water, in relation to both, water treatment and the associated environment. Water samples from rivers, dams, water and wastewater works are collected by a team of dedicated sampling officers on a daily basis throughout Umgeni Water's operational area and is assessed in terms of its physical, chemical and microbiological characteristics.

The analytical results are produced within specified times to ensure there is timeous response and as part of compliance with a service level agreements with end users. Supported by its Laboratory Information Management System (LIMS), water quality results are captured, validated, stored and reported. In addition, direct access is provided to external users via the Electronic Water Quality Management System (EWQMS), the Blue Drop System (BDS) and the Green Drop System (GDS).

Early warnings and alerts are provided to stakeholders immediately that a breach of quality standards is detected. An incident management protocol is followed, to contain and remedy the breach.

Assurance through robust information and communications technology systems

Investment in ICT systems and infrastructure through the capital expenditure programme has helped ensure Umgeni Water remains resilient to deliver on its mandate. Specialised ICT solutions established within our operational, human resource, engineering and scientific and finance areas of the business, together with organisation-wide systems ensured that we have systems to fit specific organisational needs that enable cost-effective, reliable, and sustainable performance improvements within the organisation.

In the year, progress was made with implementation of the ICT plan for thirteen project components in ICT Operations, Business Systems, Customer Management and Knowledge Management. 95% target milestones were achieved.

Variance and Reason: 5% behind schedule, due to the extension of project scope of two ICT projects, namely, Laboratory System - Labware, due to the incorporation of important additional Blue and Green drop requirements - not part of the original scope, and Water Resource Management System (WRM) - Consultants halted work for a three-week period in order to assist with the development of an emergency application for the North Coast operations, which assisted in automation of meter readings during a water supply crisis.

ICT Plan for 2012/2013: Umgeni Water has commenced the process of updating its ICT strategy, the objectives of which are to:

- Optimise use of information, IT infrastructure, resources and capabilities.
- Respond to business requirements in alignment with the business strategy, integrating applications into business and operational processes.
- Respond to governance requirements in line with board direction.
- Acquire and maintain integrated and standardised application systems.

Research and Innovation

The thrust of Umgeni Water's Innovation, Research and Development Programme is to nurture and encourage research within the organisation.

Internal research investigations are of specific interest to Umgeni Water, notably, water and wastewater treatment operations research and include alternate treatment processes, alternate treatment chemicals, advanced oxidation processes. During the year, worked completed on planned research projects is shown in Table 12.1

Table 12.1 Umgeni Water's major research projects and progress made in 2011/2012.

Research Project	Objectives	Progress 2011/2012
1. Determination of Residual Polymeric Coagulants in Potable Water.	Set up a method for routine testing of residual polymeric coagulants in treated water, which impact on health, and identify optimal dosing.	Work on validation of UV absorbance titration method developed in UW via a WRC-funded project was undertaken.
2. Monitoring of Endocrine Disrupting Compounds (EDC) Levels in Darvill WWW	To determine and optimise an analytical technique for the detection and quantification of endocrine disruptor compounds in Darvill waste water.	Monitoring is on-going and test results are expected. Sample sites have been added to Umgeni Water's routine monitoring programme.
3. Evaluation of High-rate Clarifiers (HRC).	Investigate and demonstrate the use of high-rate clarifiers at Umgeni Water WTW sites. Prepare design guidelines for the optimisation of high-rate clarifier design and construction.	The data collected has assisted in the selection and design of an appropriate clarifier unit for the Hazelmere Water Treatment Works upgrade. The HRC will be relocated Mvoti WTWs and operated at the works from July 2012
4. Evaluation of Direct Up flow Filters (DUF) for Potable Water.	Test the applicability of the Direct Up-flow Filter technology for use at Umgeni Water WTW. Compare cost-effectiveness of the technology from an operations and maintenance perspective.	Plant trials continued for the 12-month period and further trials are planned, following which the plant will be relocated to a suitable rural area (by December 2012).

