

## EXECUTIVE SUMMARY

In 1996 the Water Research Commission (WRC) identified the need to control the level of unaccounted-for water in South Africa and initiated several studies to address various issues associated with leakage from potable water distribution systems. It was clear at the time that this would become a major issue as a result of proposed new legislation governing the supply of potable water through water distribution systems.

One of the studies supported by the WRC was the **“Development of a standardised approach to evaluate burst and background losses in water distribution systems in South Africa”** with the aim of developing a new model based on the “Burst and Background Estimate” (BABE) techniques as applied in the water sector of the UK. The BABE philosophy is currently used in many parts of the world where it is widely recognised as a simple and pragmatic approach to the very complex and often confusing problem of determining leakage from potable water distribution systems.

The resulting SANFLOW model was developed together with Mr Allan Lambert (Bristol Water Consultancy Services) who developed and refined the original BABE concepts. The model does not include all of the features of similar UK models but does incorporate several new features.

The SANFLOW model is designed to help water suppliers to determine the level of leakage in a particular zone metered area (ZMA) from the analysis of recorded minimum night flows. It is a very simple and straightforward model requiring minimal data and will help water suppliers to identify key problem zones quickly and effectively. It is one of several tools that are available to assist water suppliers in managing their systems to reduce unaccounted-for water.

The project report is essentially a User Guide supporting the SANFLOW Model and is presented in six sections, details of which are as follows:

- **Section 1:** Background
- **Section 2:** Purpose of document
- **Section 3:** Introduction to the BABE procedures
- **Section 4:** Background to night flow measurements
- **Section 5:** Using SANFLOW
- **Section 6:** Acknowledgements.

The document effectively provides the background and a comprehensive description of the BABE procedures on which the SANFLOW model is based. It also serves as a user-guide to the SANFLOW model and includes a tutorial section to assist new users in getting started with their first night flow analysis.

While all efforts have been taken to ensure that the model is trustworthy and free from error, neither the developers nor the WRC accept any liability of any kind for losses or damages resulting from the use of the model. Anyone using the model does so entirely at his/her own risk.