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# Water Management and Loss Control Policy

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## 1. DEFINITIONS

*“Council”* means a municipal Council established in section 18 of the Municipal Structures Act and referred to in section 157(1) of the Constitution.

*“municipality”* means the Drakenstein Municipality established in terms of section 155 of the Constitution.

*“accounting officer”* means the City Manager of the Drakenstein Municipality

*“senior manager”* means a manager referred to in section 56 of the Municipal Systems Act, Act 32 of 2000 in other words managers appointed by Drakenstein Council and who is directly accountable to the Municipal Manager.

*“official”* means an employee of the Drakenstein Municipality or person seconded to the municipality or person contracted by the municipality to work as a member of staff of the Drakenstein Municipality.

## 2. INTRODUCTION.

Everyone has the right to have access to sufficient water in accordance with the Bill of Rights, Constitution of South Africa, Section 27 (1) (b). South Africa is a dry country, with a low average rainfall. Water is fundamental for all life - without water, no person, plant, animal or living organism can survive. It is therefore of the utmost importance that the water resources must be effectively manage.

Furthermore, the National Development Plan (NDP) makes reference to the need for vigorous Water Conservation and Water Demand Management (WC/WDM) programmes to ensure that the national and regional water loss reduction targets are met in view of the water scarcity challenges facing the country. This can only be **achieved through** a proper understanding of the system input volume, authorised consumption, water losses and non-revenue water of all urban and rural potable water distribution systems and preparation of a **water balance analysis**.

The municipality values water as a key critical resource. The municipality further considers its water infrastructure systems to be a strategic asset and the effective and integrated management of water resources and systems as a key component of its business strategy. One of the objective of the municipality is to minimize water losses, as these losses can have a material financial impact due to the fact that the municipality have to pay for water that cannot be billed to consumers.

As a result of the above, this policy was compiled to provide a framework within which the municipality will prevent, limit or reduce unnecessary losses. It also serves as a basis for the development of loss control strategies and plans.

### 3. LEGISLATIVE FRAMEWORK

In accordance with section 62 and 78 of the Municipal Finance Management Act, Act 56 of 2013, the Accounting Officer, senior managers and other officials are required to take all reasonable steps to ensure that resources of the municipality are effectively, efficiently and economically utilised and that losses are prevented. Furthermore, in accordance with section 125(2)(d) of the mentioned act, the notes to the financial statements of a municipality must include particulars of any material losses that occurred during the financial year, and whether these are recoverable, any criminal or disciplinary steps taken as a result of such losses; and any material losses recovered or written off;

The National Water Act, Act 36 of 1998, provides the legal framework for the effective and sustainable management of our water resources. The Act is guided by principles of sustainability and equity in the protection, use, development, conservation, management and control of water resources.

The Water Services Act, Act 108 of 1997 requires all spheres of Government to ensure water services are provided in an efficient, equitable and sustainable manner which is sufficient for subsistence and sustainable economic activities. Furthermore, clause 11 of the Regulations relating to Compulsory National Standards and Measures to Conserve Water (R509 of 2001) under the Water Services Act states that a water services institution must **prepare a water and effluent balance analysis** and determine their water losses by comparing the measured quantity of water provided to each supply zone with the total measured quantity of water provided to all user connections within that supply zone.

### 4. OBJECTIVES OF THE POLICY

The objectives of the policy are to:

- 4.1 provide a guideline to identify the types of non-revenue water, quantify these types of non-revenue water cases, determine the root causes for the identified non-revenue water cases to implement corrective steps if necessary and properly disclose the losses, where applicable, in the Annual Financial Statements (AFS)
- 4.2 assist officials to create a climate that is conducive to internal control, risk management and prevention of losses and to contribute towards creating respect for the resources entrusted to the municipality for use in the best way possible.
- 4.3 institute uniform reporting procedures that will not only ensure that the record of losses is kept more efficiently and effectively, but will also contribute to the promotion of greater efficiency in the management of losses and the establishment of an effective risk prevention strategy.
- 4.4 encourage officials to perform their duties in a responsible manner and to avoid unlawful conduct that may result in unnecessary losses and to hold all officials including management accountable for losses in their respective area of responsibility.

## 5. CONCEPT OF WATER BALANCE

The water balance analysis gives a clear indication of the water supply and demand of a system. The supply is the volume of potable water supplied to the system while the demand is the volume authorised consumption which could either be metered or unmetered and billed or unbilled. The difference between the supply and demand provides **an indication of non-revenue water that includes water losses** of a water distribution system.

As autonomous institutions, municipalities are required to be self-sustaining and to operate on firm business principles whilst making provision for poor and vulnerable communities. The institutionalisation, measurement and standardisation of Non-Revenue Water (NRW) management is therefore aimed at helping to achieve the overall objective of self-sufficient municipalities which have the financial, technical and resource capacity to provide good quality water services.

All meter readings and water balance calculations **must be performed** on a **monthly basis** to ensure that discrepancies are immediately resolved. It is accepted that the metered consumption could fluctuate depending on seasonal changes, meter reading problems, interim estimates, meter corrections, etc. to the extent that the demand could exceed the supply in some months. To allow for these changes, it is recommended that the water balance analysis is prepared on a 12-month rolling basis. The water balance should therefore always be based on the last 12 months of data.

Free basic water is considered billed metered or unmetered consumption, billed at a zero rate, and forms part of the billed consumption. The number of yard and public standpipe connections should be obtained from the engineering section and audited during field investigations. Although these connections receive free basic water and form part of billed metered or unmetered consumption (billed at a zero rate), it is accepted that the municipality will not send out bills for zero rand.

## 6. CLASSIFICATION OF NON-REVENUE WATER (NRW)

Non-revenue water is the volume of water for which the water utility (municipality) receives no income. Non-revenue water consists of unbilled authorised consumption and water losses.

6.1 Unbilled **authorised** consumption is broken down in unbilled metered consumption and unbilled unmetered consumption.

### 6.1.1 Unbilled metered consumption

The unbilled metered consumption volume is the volume of water which the consumer is authorised to use, supplied through a metered connection which is read or estimated on a monthly basis but consumers do not receive a bill. These consumers typically include the municipality's own use such as parks, buildings and swimming pools.

### 6.1.2 Unbilled unmetered consumption

Unbilled unmetered consumption typically includes fire-fighting and training, flushing of mains and sewers, street cleaning, watering of municipal gardens, public fountains, building water, etc. Unbilled unmetered consumption should therefore form a very small portion of the overall water balance as all water supplied should preferably be billed or metered

- 6.2 Water losses are calculated as the difference between the system input volume and the authorised consumption. Water losses are broken down into commercial or apparent and physical or real losses. Commercial losses are not visible, except for unauthorised use, and are usually as a result of poor or lack of metering. Physical losses are visible losses and are usually as a result of burst pipes, overflowing reservoirs and leaking connections.

To mitigate the need for water tariff increases, municipalities must put in place an appropriate strategy to limit water losses to acceptable levels.

#### 6.2.1 Commercial or apparent losses

Commercial or apparent losses are made up of unauthorised connections (theft), unauthorised consumption, plus all technical and administrative inaccuracies associated with customer metering and billing. If commercial losses are reduced, generally more revenue will be generated by and for the water services institution (municipality).

##### *(a) Unauthorised connections (theft)*

An unauthorised connection is defined as a water connection to a consumer which was not installed by the water utility (municipality) or a water connection which has deliberately been tampered with to reduce or eradicate the metered consumption.

##### *(b) Meter error and under registration*

Metering inaccuracies differ significantly from municipality to municipality and depend on the water quality, class of meter, type of meter, meter sizing, installation requirements and air surges.

##### *(c) Data transfer and management errors*

Data transfer and management errors are the difference between the actual metered consumption and the metered consumption billed. Data transfer and management errors typically occur as a result of data entry errors, estimated

readings, meters not captured on the billing system, meter factor errors and financial billing corrections without volume corrections.

#### 6.2.2 Current Annual Physical or Real Losses (CARL)

Physical or real losses are the physical water losses from the pressurised system, up to the point of measurement of customer use. Real losses include leaking mains, reticulation pipes, connection pipes, overflowing reservoirs and bursts. Although not shown explicitly in the water balance analysis, the Unavoidable Annual Real Losses (UARL) is the accepted minimum level of physical losses from the water distribution system. The leakage from a water distribution system can never be zero.

Physical losses are calculated as the difference between the total losses and commercial losses. If real losses are reduced, more water will be available for distribution to customers or the total system input volume will reduce.

### 7. CONTROLLING AND MONITORING OF NON-REVENUE WATER

With the monthly balance analysis, the non-revenue water especially the water losses should be monitored and where necessary detail should be obtained as proof of the water losses in order to institute controls to minimize the losses.

The following controls/measures must be in place or instituted to mitigate unbilled authorised metered/unmetered consumption and water losses:

#### (a) Unbilled authorised metered/unmetered consumptions

- (i) Installation of meters, where practically possible, for all water consumption to be metered.
- (ii) Monthly billing of municipal accounts and clearing to expenses of the applicable departments must take place. (In this regard the municipality, must ensure that water used for its own operations, is charged to the relevant service and not simply attributed to the water losses)

#### (b) Water losses

- (i) Approval of all new applications for water connections and finance to be notified to update the billing system in respect of all new meters installed.
- (ii) Water meters to be read each month and to keep estimates as low as possible.
- (iii) Pre- determined monthly route lists for water meter readers to be read must be available to ensure all installed meters are read and billed on a monthly basis.

- (iv) Exception reports must be available and reviewed on a monthly basis to identify possible incorrect readings, no readings and unusual monthly consumptions (high and low) in order to implement the necessary corrective steps as quickly as possible.
- (v) Perform regular checks to identify and investigate properties where other services such as electricity, sewerage and refuse removal are charged but not water and if necessary to implement corrective steps.
- (vi) Timely testing of identified faulty meters.
- (vii) Institute mechanisms through which staff of the municipality should be informed of pipe bursts, leaks and illegal connections for quick responses to fix the problem.
- (viii) Maintaining water supply infrastructure assets
- (ix) Timely follow-up of any other complaints in this regard.
- (x) Replacement programme or critical list for the replacement of high demand commercial and industrial meters.
- (xi) Replacement programme or critical list for the replacement of domestic meters where high consumption is prevalent or where water quality can influence the accuracy of a meter.
- (xii) Effective law enforcement for driving customer compliance and prevent/detect unauthorised connections. In this regard also refer to paragraph 18, Offences and Penalties, of the Customer Care, Credit Control, Debt Collection and Indigent Support By-law that came into effect on 1 July 2013.

## **8. QUANTIFICATION AND ACCOUNTING OF NON-REVENUE WATER**

With the monthly water balance analysis, detail in respect of the quantification of the non-revenue water should be available. Non-revenue water must be accounted for as per the examples included in Annexure B of MFMA Circular 70 of which a copy is attached.

## **9. REPORTING IN ANNUAL FINANCIAL STATEMENTS (AFS)**

The total losses that a municipality may incur for water must be made public in the annual financial statements of the municipality in accordance with section 125 (2)(d)(i) of the MFMA

## **10. REVIEW**

This policy will be reviewed annually to ensure that it complies with changes in applicable legislation and the operating requirements of the municipality.

## **11. SHORT TITLE**

This policy shall be called the Water Management and Loss Control Policy of Drakenstein Municipality.