

5th REGIONAL AFRICAN
WATER LEAKAGE SUMMIT
2015
25 & 26 August 2015
DESA Yuleidile Auditorium, Midrand, South Africa

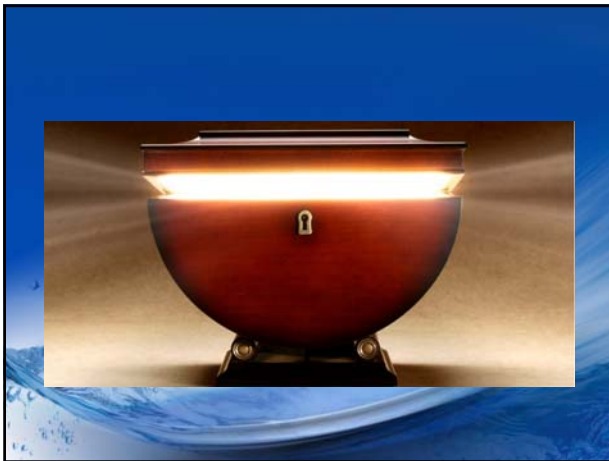
Opening the AL "Pandora Box"

Mthokozisi Ncube
Johannesburg Water

Participating and supporting organisations:

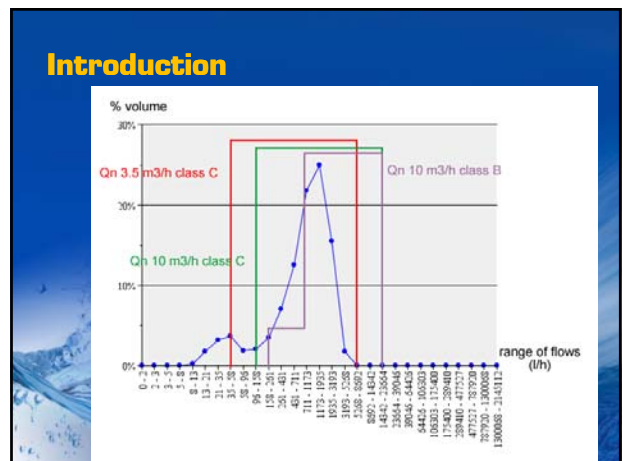
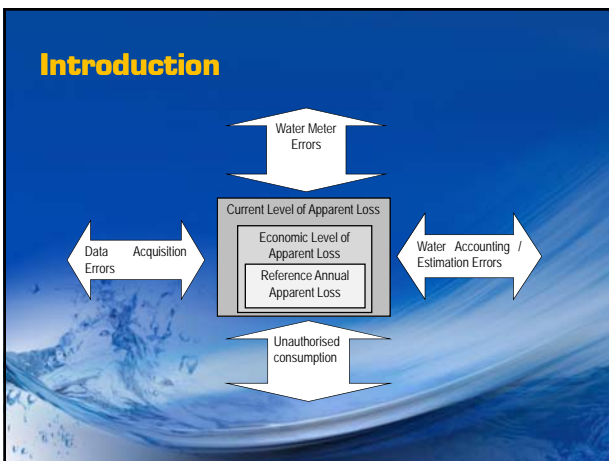
Outline

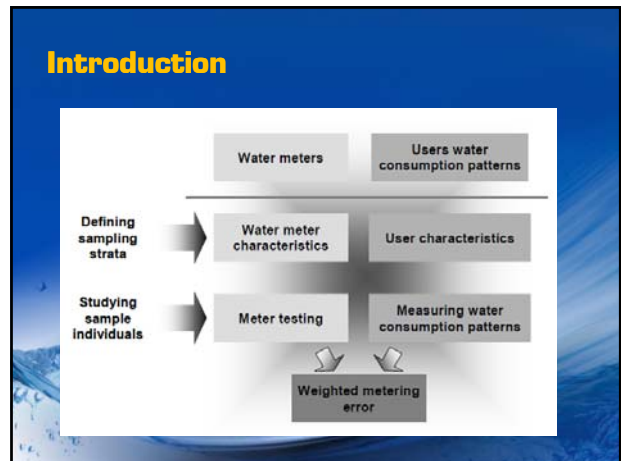
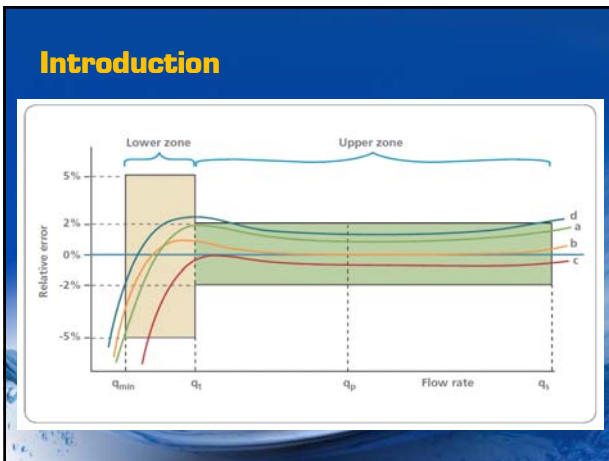
- 🔥 Introduction
- 🔥 Consumption Characterisation
- 🔥 Meter Test Analysis
- 🔥 Meter Change Analysis
- 🔥 Takeaways



Introduction

System Input Volume, m ³ /yr	Authorised Consumption, m ³ /yr	Billed Authorised Consumption	Billed Metered Consumption (including water exported)	Revenue Water, m ³ /yr
	Water Losses, m ³ /yr	Unbilled Authorised Consumption	Billed Unmetered Consumption	Non Revenue Water, m ³ /yr
			Unbilled Metered Consumption	
	Apparent Loss	Real Losses	Unbilled Unmetered Consumption	Leakage on Transmission and/or Distribution Mains
			Unauthorised Consumption	
		Leakage and Overflow at Utility's Storage Tanks	Leakage on Service Connections up to point of Customer metering	





Introduction

SANS 1529-1:2006 Edition 2.3

h) the nominal working pressure
i) the pressure loss (either the

7 Metrological control

The Legal Metrology Department has the metrological control of water meters for trade purposes until it has been transferred to the user.

Annex D (normative) Responsibilities of users of water meters

NOTE: In terms of the Trade Metrology Act, 1973 (Act No. 77 of 1973), all water meters that are used for trade purposes have to be the subject of verification. The users of such water meters are responsible for ensuring that the water meters under their control are subject to that verification. This annex explains the responsibilities of those users.

D.1 Verification

If a water meter is used for trade purposes, the owner or user of the water meter shall ensure that it is verified:

- before installation, and
- at the intervals that may be prescribed by regulation under the Trade Metrology Act.

The owner or user shall ensure that the water meter is kept in a verifiable condition at all times.

D.2 Withdrawal of meters from use

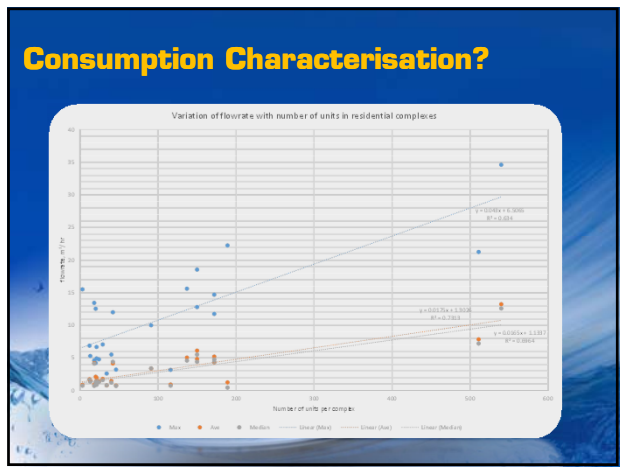
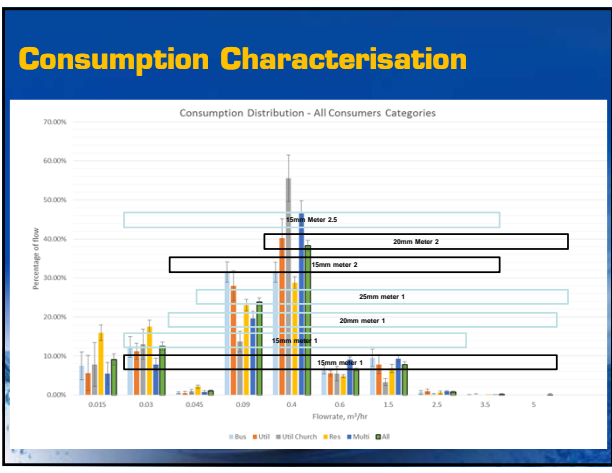
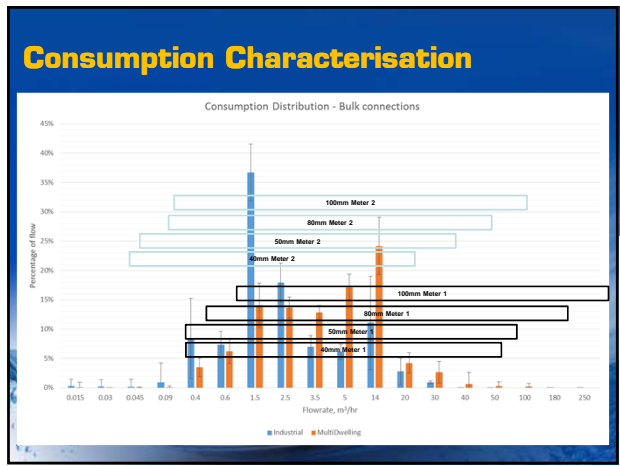
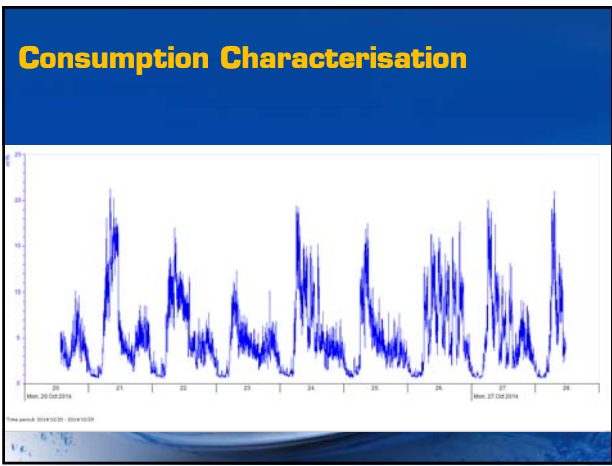
If any water meter becomes defective or its accuracy is not within the tolerances specified in annex B of this part of SANS 1529, it shall immediately be withdrawn from service by its owner or user.

D.3 Class A meters

Class A meters shall only be used for apportioning purposes.

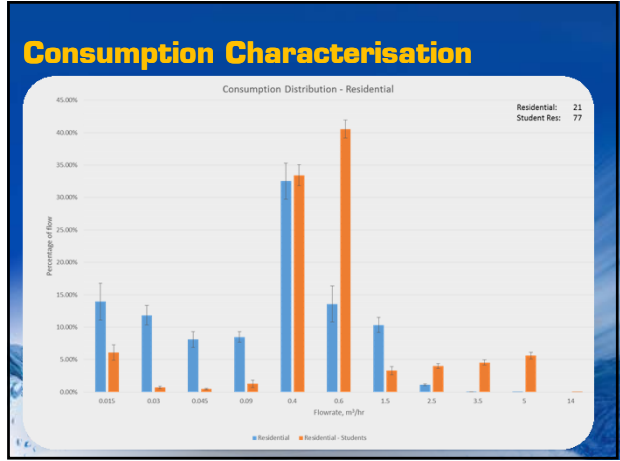
- ### Consumption Characterisation
- ◆ Data logging of ±400 RANDOM properties
 - Almost equal split of Utility, Residential, Business and Multiple Dwelling
 - 95%CI target for city-wide and consumer groups, with ±5% and ±10 error margin respectively
 - ◆ +300 consists of small meters (15 – 25mm)
 - Readings at 1min interval
 - 3.1l/hr min flow rate (compared to 11 in Class D)
 - 1l/hr starting flow rate (compared ±5.7 in Class C)
 - ◆ ±300 properties done to date





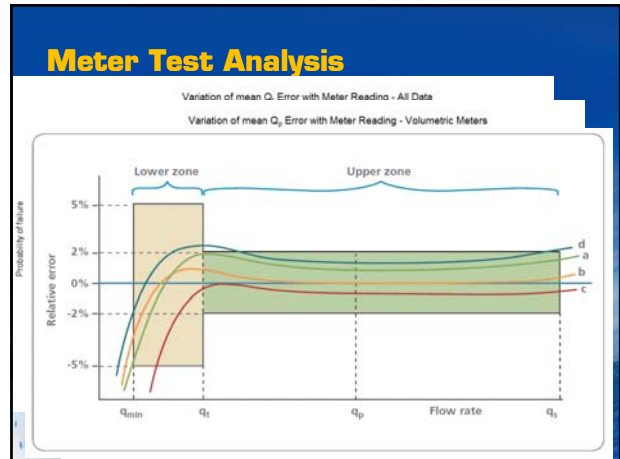
Consumption Characterisation

- 3rd Party Data
 - Residential, retail and business park
 - Johannesburg, Pretoria and Stellenbosch
- ±300 properties
 - Readings at 15sec interval
 - 3.1l/hr min flow rate (compared to 15 in Class C)
 - 1l/hr starting flow rate (compared to ±5.7 in Class C)



Meter Test Analysis

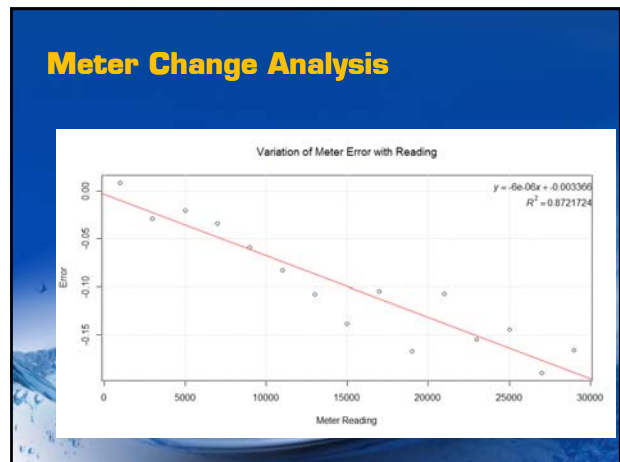
- 3,933 test records from accredited JW lab
 - >3,000 from consumer test request
 - Selected meter replacement projects
- Mostly multi-jet meter and volumetric meters
 - >90% from 1 supplier
- Investigating possible use of on-demand testing data for error degradation





Meter Change Analysis

- 58,000 meter change records from July 2010 – June 2013
 - Very tedious process due to data structure

No. of meter over period	No. of properties	Percentage
2	41,562	91.45%
3	2,921	6.43%
4	582	1.28%
5	144	0.32%
6	69	0.15%
7	29	0.06%
8	25	0.06%
9	8	0.02%
10	8	0.02%
>10	101	0.22%
Total	45,449	100%



Takeaways

Apparent Water Loss Management

- Know your meters!
 - Size ain't nothing but a number, and those fire meters...
 - Technology matters!
 - Do they age gracefully?
 - Who analyses your meter readings?
- Know your consumers!
 - Consumption profiling per user category
 - Intelligent sampling of meter/consumers and audits
 - Who analyses your meter readings?
- Integrated Water Meter Management is fundamental
 - Plan for and use your data!
 - Redeem meter data from the clutches of FINANCE

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The End

Thank You!



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