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Supported by the International Water Association  
IWA International Water Association

WATER RESEARCH COMMISSION

**City of Cape Town Swift Water Consumption Analysis**

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Participating and supporting organisations :



## Outline

- 🔥 Background
- 🔥 Sources of data
- 🔥 Swift process
- 🔥 Consumption analysis
- 🔥 Swift Reports

## Background

- 🔥 Master Planning skills transfer – monthly swift updates
- 🔥 Swift is a computer program that performs statistical analyses of data in consumer linked meter reading databases
- 🔥 It processes and manipulates data from source into different forms.
- 🔥 Locally developed and designed for SA municipalities

## The benefits of Using SWIFT

- 🔥 Infrastructure planning and upgrade: key input to water and sewer modelling.
- 🔥 Monitors consumption trends and detects faulty meters
- 🔥 Identifies properties with leaks
- 🔥 Assist in carrying out water balances
- 🔥 It processes large quantities of information and generates consumption related reports.
- 🔥 Easily linked to GIS and thus have spatial view of the property.

## The benefits of Using SWIFT (cont.)

- ▲ Swift produces statistics used for:
  - Planning Water Demand Management initiatives e.g. leak detection programmes, pressure management, water wastage interventions
  - Water Audits
  - Calculation of Water Tariffs
  - Intervention program impact analysis
- ▲ Informs development applications processing in terms of master planning
- ▲ Helps lots of research students with accurate and valuable data

## Sources of data input to Swift

- ▲ SAP data
  - Consumption data, consumer and the actual meter reading information
- ▲ GIS data
  - Includes spatial location of a property.
  - Linked to GIS landuse/zoning
- ▲ Bulk Meter Data
  - Data obtained from Bulk Water which reflects the bulk supply into the reticulation system and external customers.



## Summary info with dates of meter reading

The screenshot displays a software window with a menu bar (File, Calc, Unit Details, Land Use/Consumption, Subsets, Internals, FSA Data, Auth/Consumption Zones, Auth Balance Input, Cross Reference, GIS Data, Bulk Meter Details, Bulk Zones, Valves/Nodes, Sewer Manholes, Reports, Query Builder, Finance, Profile) and a toolbar. The main area is divided into several sections:

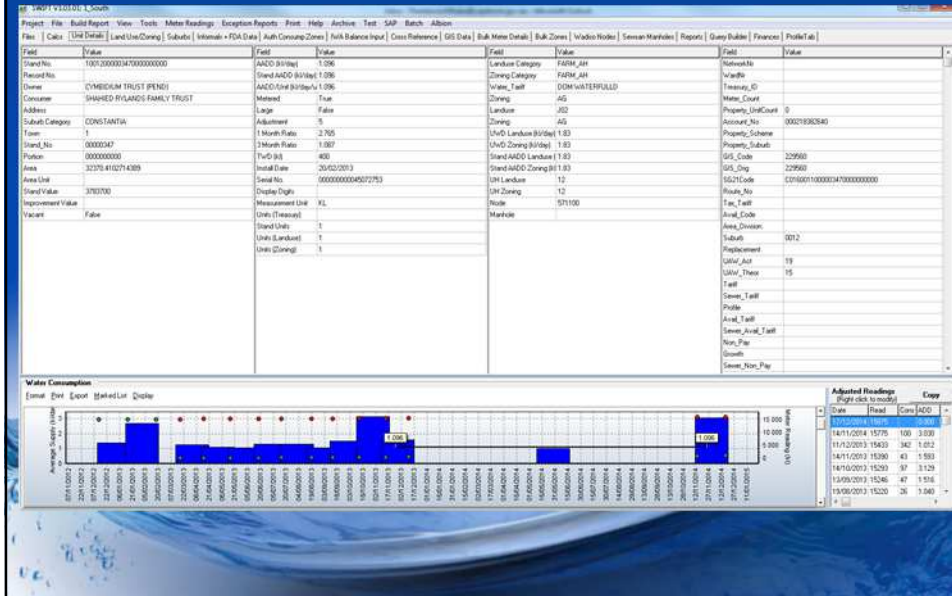
- Field Value Table:** A table with columns 'Field' and 'Value'. It contains various meter and account details such as Meter No (1000XXXX0200000000), Owner (DE VRIES CH 1 HENDRICKS OH), Address (PALM AVENUE 129), and various rates and charges.
- Water Consumption Chart:** A bar chart titled 'Water Consumption' showing 'Average Daily Usage (litres)' on the y-axis (0 to 100) and dates on the x-axis. The bars are blue and show a relatively constant usage level around 10-15 litres per day.
- Meter Readings Table:** A table with columns 'Date', 'Read', 'Consumption', and 'Acc'd'. It lists meter readings from 12/11/2014 to 10/12/2014. A 'Meter Readings' dialog box is overlaid on this table, showing 'Actual Readings' and 'Adjusted Readings' for the selected date (10/12/2014).
- Adjusted Readings Table:** A table with columns 'Date', 'Read', 'Consumption', and 'Acc'd'. It shows adjusted readings for the same period as the actual readings, with values like 3100, 2900, 2800, 2700, 2600, 2500, 2400, 2300, 2200, 2100, 2000, 1900, 1800, 1700, 1600, 1500, 1400, 1300, 1200, 1100, 1000.

## Estimated meter readings

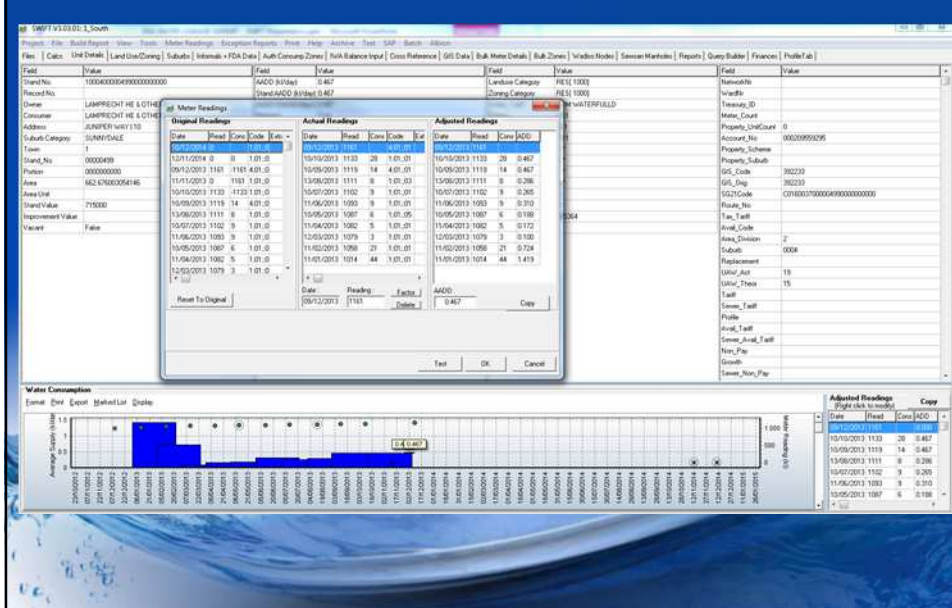
The screenshot displays a software window with a menu bar (Project, File, Build Report, View, Table, Meter Readings, Exception Reports, Print, Help, Archive, Text, SAP, Batch, Admin) and a toolbar. The main area is divided into several sections:

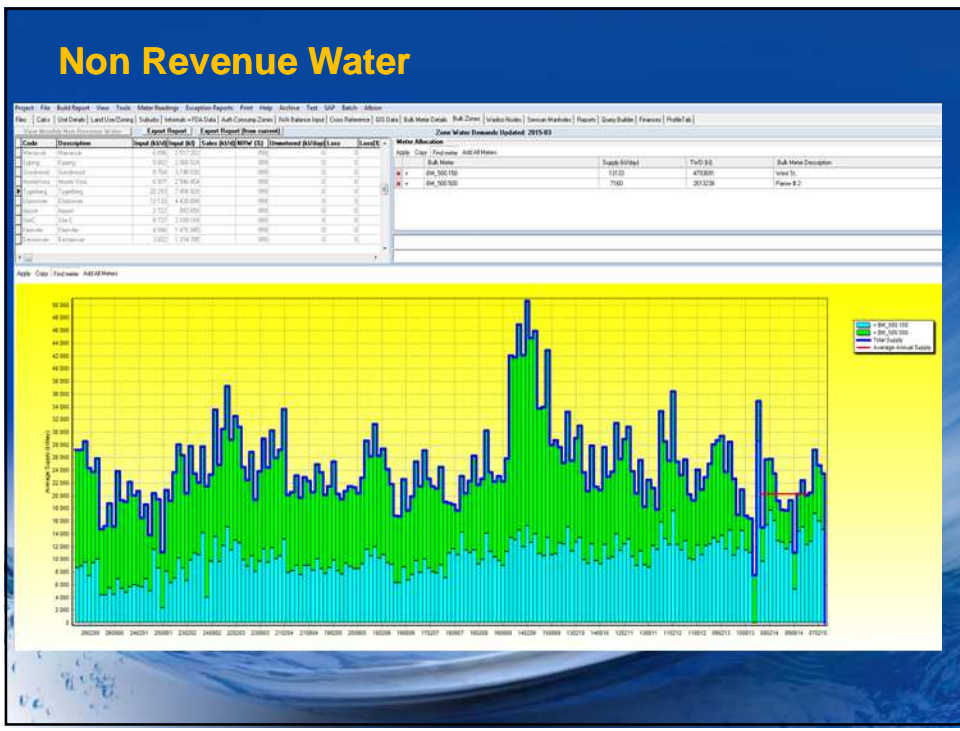
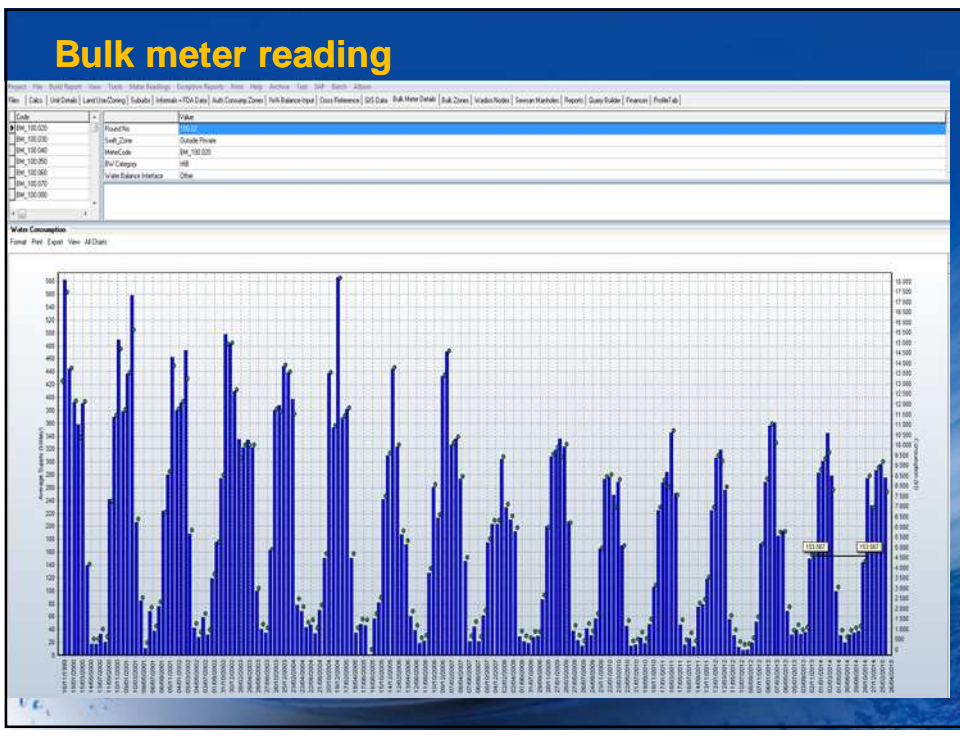
- Field Value Table:** A table with columns 'Field' and 'Value'. It contains details for a different meter, including Meter No (100100001000000000), Owner (SOLE EST TRAIN CENTR PTY LTD), Address (KLARSTENS ROAD 126), and various rates and charges.
- Water Consumption Chart:** A bar chart titled 'Water Consumption' showing 'Average Daily Usage (litres)' on the y-axis (0 to 14) and dates on the x-axis. The bars are blue and show a relatively constant usage level around 10-12 litres per day.
- Adjusted Readings Table:** A table with columns 'Date', 'Read', 'Consumption', and 'Acc'd'. It shows adjusted readings for the period from 11/12/2014 to 10/12/2014. The values range from 11000 down to 8600.

## Swift adjusted meter reading



## User Adjusted reading





## Swift Report - Summary report per suburb

| CATEGORY                                | VALUE   | UNIT       | LAND USE CATEGORIES |         |       |       |         |       |          |       |          |           |       |       |         |           |  |
|---|---------|------------|---------------------|---------|-------|-------|---------|-------|----------|-------|----------|-----------|-------|-------|---------|-----------|--|
|   |         |            | BUS COMM            | CLUSTER | DUMMY | EDU   | FARM AH | FLATS | GOV BUST | IND   | INFORMAL | NO. TREAS | OTHER | PARKS | RESI 11 | RESI 5001 |  |
| <b>BEROVILET</b>                        |         |            |                     |         |       |       |         |       |          |       |          |           |       |       |         |           |  |
| Theoretical Unit Water Demand per Stand |         | UnitaryErf | 2.700               | 2.740   | 0.000 | 6.590 | 0.000   | 5.340 | 0.000    | 0.000 | 0.000    | 0.000     | 1.990 | 1.620 | 0.000   | 0.450     |  |
| Occupied Stands                         | ns.     |            | 8                   | 11      | 0     | 3     | 0       | 4     | 0        | 0     | 0        | 0         | 10    | 4     | 0       | 73        |  |
| Occupied Units                          | ns.     |            | 17                  | 11      | 0     | 8     | 0       | 4     | 0        | 0     | 0        | 0         | 15    | 5     | 0       | 73        |  |
| AAOD Occupied (Land Use)                | Unitary |            | 22                  | 29      | 0     | 20    | 0       | 21    | 0        | 0     | 0        | 0         | 20    | 7     | 0       | 33        |  |
| Special Stands                          | ns.     |            | 0                   | 0       | 0     | 0     | 0       | 0     | 0        | 0     | 0        | 0         | 0     | 0     | 0       | 0         |  |
| Theor. AAOD Occupied (Special)          | Unitary |            | 0                   | 0       | 0     | 0     | 0       | 0     | 0        | 0     | 0        | 0         | 0     | 0     | 0       | 0         |  |
| All Stands                              | ns.     |            | 8                   | 73      | 4     | 6     | 0       | 5     | 0        | 0     | 0        | 0         | 111   | 47    | 0       | 172       |  |
| All Units                               | ns.     |            | 17                  | 76      | 4     | 11    | 0       | 5     | 0        | 0     | 0        | 0         | 116   | 48    | 0       | 172       |  |
| AAOD All Stands(Land Use)               | Unitary |            | 22                  | 201     | 0     | 40    | 0       | 27    | 0        | 0     | 0        | 0         | 221   | 86    | 0       | 77        |  |
| Zoned Stands                            | ns.     |            | 9                   | 73      | 5     | 6     | 0       | 5     | 0        | 0     | 0        | 0         | 109   | 47    | 0       | 172       |  |
| Zoned Units                             | ns.     |            | 18                  | 76      | 5     | 11    | 0       | 5     | 0        | 0     | 0        | 0         | 114   | 48    | 0       | 172       |  |
| AAOD All Stands (Zoning)                | Unitary |            | 24                  | 201     | 0     | 40    | 0       | 27    | 0        | 0     | 0        | 0         | 217   | 96    | 0       | 77        |  |
| Actual AAOD                             | Unitary |            | 32                  | 60      | 0     | 48    | 0       | 34    | 0        | 0     | 0        | 0         | 31    | 3     | 0       | 33        |  |
| <b>BISHOPSCOURT</b>                     |         |            |                     |         |       |       |         |       |          |       |          |           |       |       |         |           |  |
| Theoretical Unit Water Demand per Stand |         | UnitaryErf | 2.700               | 2.640   | 0.000 | 0.000 | 1.830   | 0.000 | 2.350    | 0.000 | 0.000    | 0.000     | 1.990 | 1.620 | 0.000   | 0.830     |  |
| Occupied Stands                         | ns.     |            | 1                   | 6       | 0     | 0     | 1       | 0     | 0        | 0     | 0        | 0         | 3     | 1     | 0       | 93        |  |
| Occupied Units                          | ns.     |            | 1                   | 6       | 0     | 0     | 1       | 0     | 0        | 0     | 0        | 0         | 4     | 1     | 0       | 94        |  |
| AAOD Occupied (Land Use)                | Unitary |            | 3                   | 16      | 0     | 0     | 2       | 0     | 0        | 0     | 0        | 0         | 6     | 2     | 0       | 77        |  |
| Special Stands                          | ns.     |            | 0                   | 0       | 0     | 0     | 0       | 0     | 0        | 0     | 0        | 0         | 0     | 0     | 0       | 0         |  |
| Theor. AAOD Occupied (Special)          | Unitary |            | 0                   | 0       | 0     | 0     | 0       | 0     | 0        | 0     | 0        | 0         | 0     | 0     | 0       | 0         |  |
| All Stands                              | ns.     |            | 1                   | 15      | 2     | 0     | 11      | 0     | 1        | 0     | 0        | 0         | 59    | 14    | 0       | 95        |  |
| All Units                               | ns.     |            | 1                   | 15      | 2     | 0     | 11      | 0     | 1        | 0     | 0        | 0         | 59    | 14    | 0       | 96        |  |
| AAOD All Stands(Land Use)               | Unitary |            | 3                   | 40      | 0     | 0     | 20      | 0     | 2        | 0     | 0        | 0         | 115   | 25    | 0       | 75        |  |
| Zoned Stands                            | ns.     |            | 1                   | 15      | 5     | 0     | 11      | 0     | 1        | 0     | 0        | 0         | 57    | 14    | 0       | 94        |  |
| Zoned Units                             | ns.     |            | 1                   | 15      | 5     | 0     | 11      | 0     | 1        | 0     | 0        | 0         | 58    | 14    | 0       | 95        |  |
| AAOD All Stands (Zoning)                | Unitary |            | 3                   | 40      | 0     | 0     | 20      | 0     | 2        | 0     | 0        | 0         | 113   | 25    | 0       | 76        |  |
| Actual AAOD                             | Unitary |            | 4                   | 16      | 0     | 0     | 14      | 0     | 0        | 0     | 0        | 0         | 11    | 0     | 0       | 83        |  |

- Thank You -