



VANGARD PROJECTS

PROCESS CONTROL SOLUTIONS

PRESENTERS

Ayanda Nomatye



Thuli Mvelasi



Reynder van der Bank



HOUSEHOLD WATER BACKLOG... pg65

- One of the key challenges of the municipality is **eradicating household water backlog**... while at the same time, ensuring that **sufficient water** is made available for **expansion of economic activities**.



HOUSEHOLD WATER BACKLOG... pg65

- To achieve this, three strategic programmes have been identified. These include ensuring effective
 - **water resource management;**
 - **increasing water infrastructure capacity;**
 - **and promoting awareness for water efficiency.**



UGU BLUE DROP STATUS... pg63

- The minimum score for Blue Drop Certification is 95% and 90% for Green Drop Certification.
- Ugu District Municipality is currently ranked at the 7th place in the KwaZulu Natal provincial log in terms of Blue Drop and holds a municipal score of 92.55%(Blue Drop Report 2012) with the following plants holding the Blue Drop Awards:



UGU BLUE DROP STATUS ... pg63

- the following plants holding the Blue Drop Awards:
 - Southbroom to Port Edward and Inland areas (**Umthamvuna WTW**) at 95%
 - Umzinto, Pennington to Scottburgh (**Umzinto WTW**) at 95.22%
 - Mathulini, Mthwalume and Qoloqolo (**Umthwalume WTW**) at 96.27%



Non-Revenue water challenges

- The municipality needs to improve: Page126
 - non-revenue water access
 - revenue collection and,
 - accuracy in the billing system.
- Ugu NRW water losses is now seating at 30%, one of lowest in country... According to Water Research Commission - National NRW Assessment, 2012... Ugu was 40%
- But How do we improve billing, and reduce NRW?



UGU STRATEGY PROGRAMMES



During the 2016/17 financial year, the Municipality embarked on a rigorous ICT Turnaround strategy... pg113

This turnaround strategy targeted and prioritised the following areas within ICT:

- **Priority 1: Power supply stabilisation during and after load shedding**
- Priority 2: Key personnel GAP identification and contract engagement
- Priority 3: Network stability and ongoing daily preventative maintenance
- **Priority 4: Daily, weekly, and monthly Backups of critical data**
- **Priority 5: Telemetry support**
- Priority 6: Voice quality at Bazley, Park Rynie, Marburg and Harding offices
- Priority 7: Documentation of various business processes



UGU BLUE AND GREEN DROP STATUS AND TECHNOLOGY... pg63

- **Technology in the modern day is an excellent enabler towards delivery of effective service, the municipality starting from 2015/2016 financial year will implement a continuous upgrade of its telemetry system as a means to swift response to remote infrastructure breakdown.**



UGU STRATEGY PROGRAMMES





Everybody wants information... How do you get it to the right person, right format, right time?



INFORMATION FLOW





Newspapers are forever finding problems...

Solutions to the problems is what we offer...

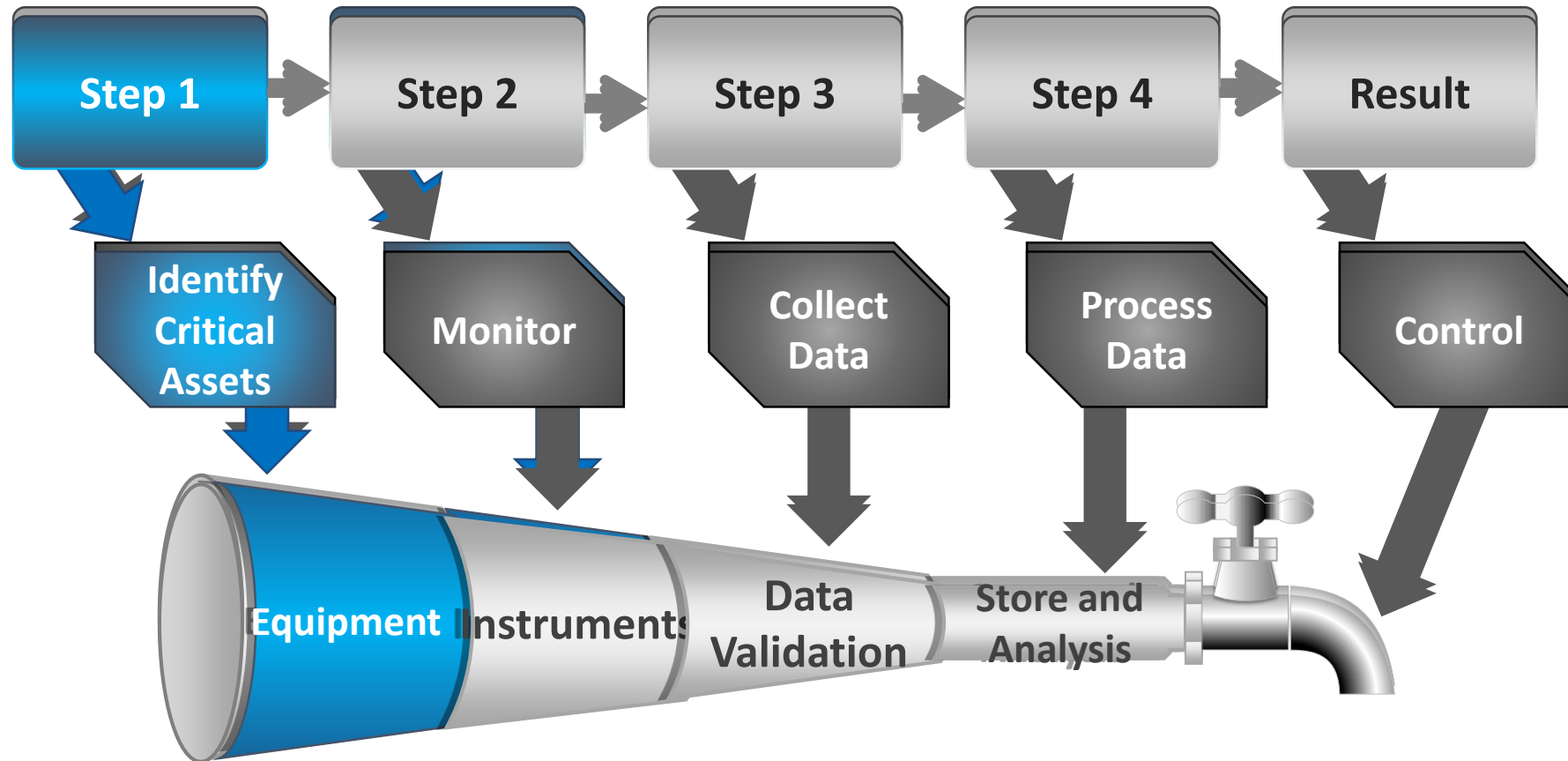
- Disgruntled workers cause water cuts on KZN South Coast
[IOL NEWS](#) / 4 NOVEMBER 2017, 10:15AM / TANYA WATERWORTH
- Thirsty South Coasters seek support for possible mass action against Ugu... January 4, 2018
- Ugu implements new water billing system... January 26, 2018
- Ugu District Municipality promises to sort out water account issues... April 9, 2018



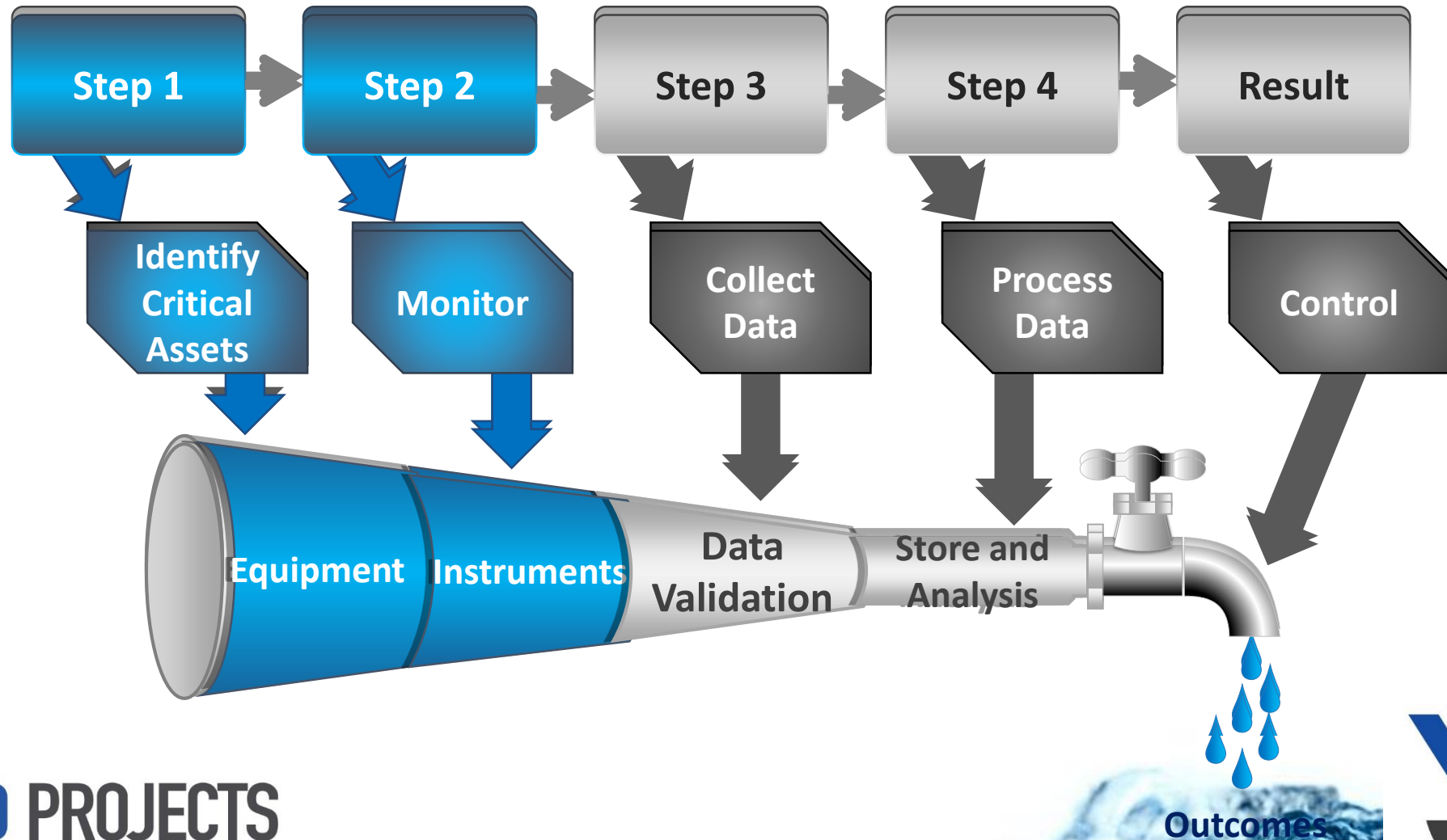
WATER AND WASTE WATER TECHNOLOGY SOLUTIONS



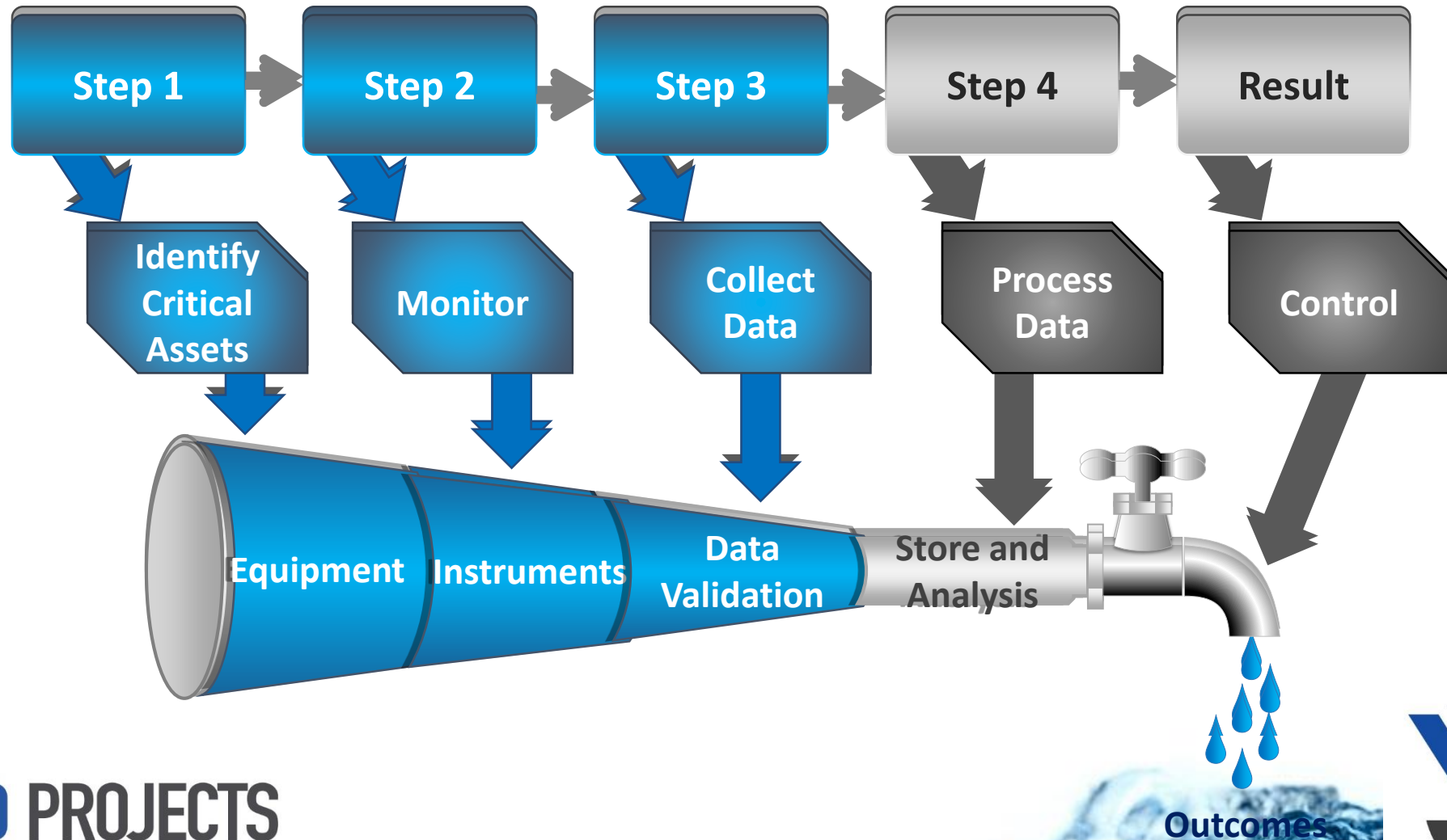
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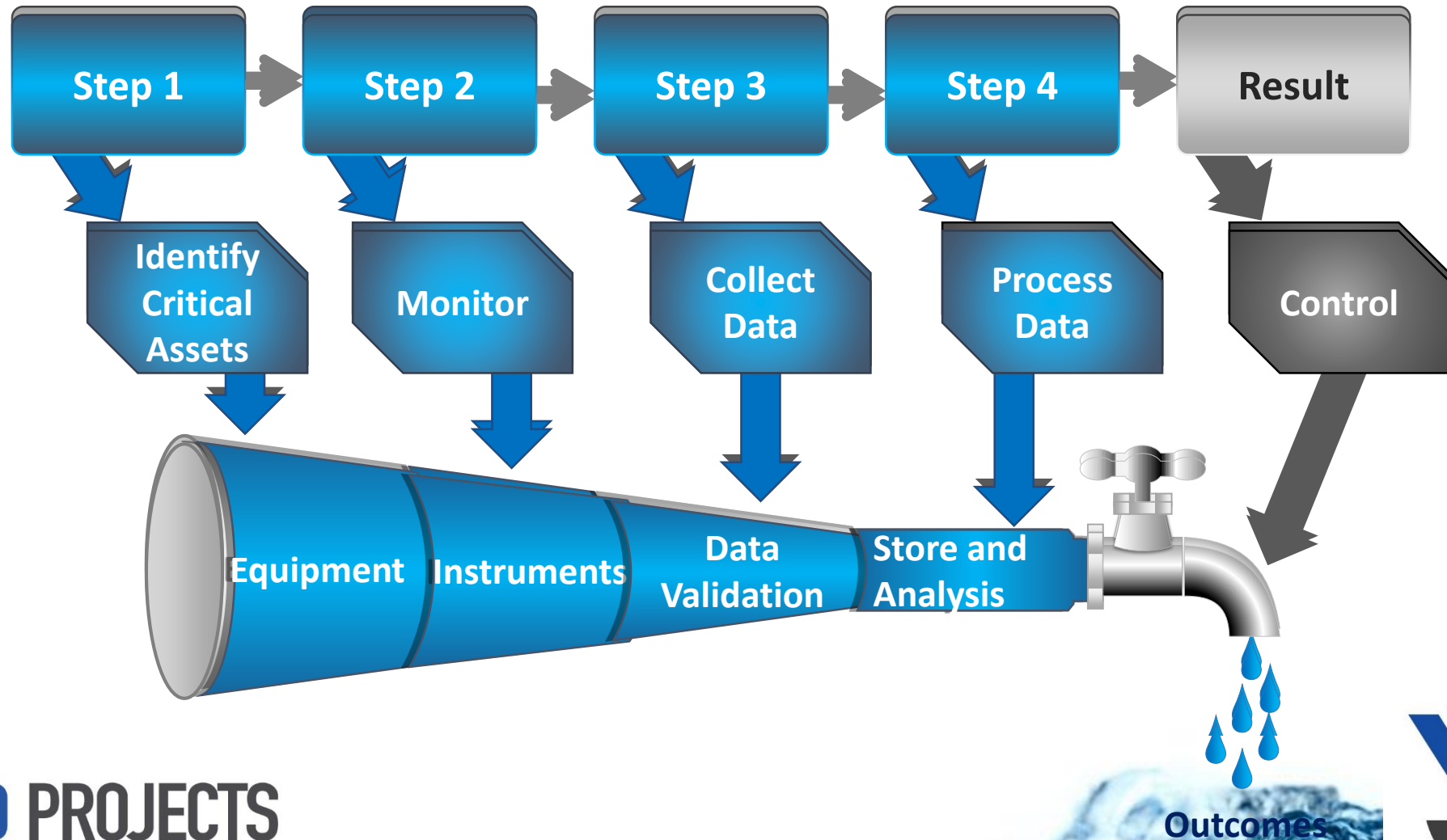
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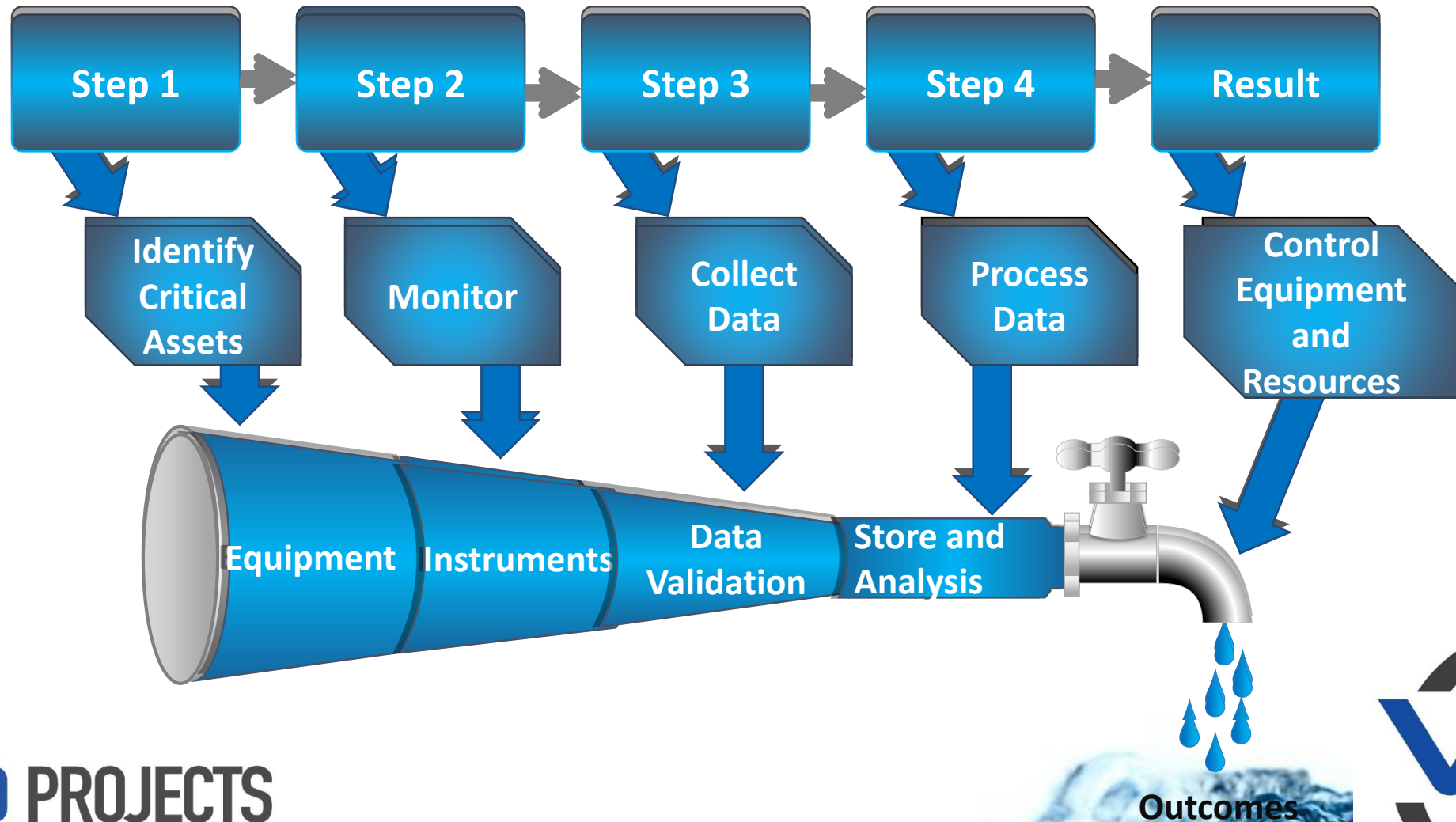
WATER AND WASTE WATER TECHNOLOGY SOLUTIONS



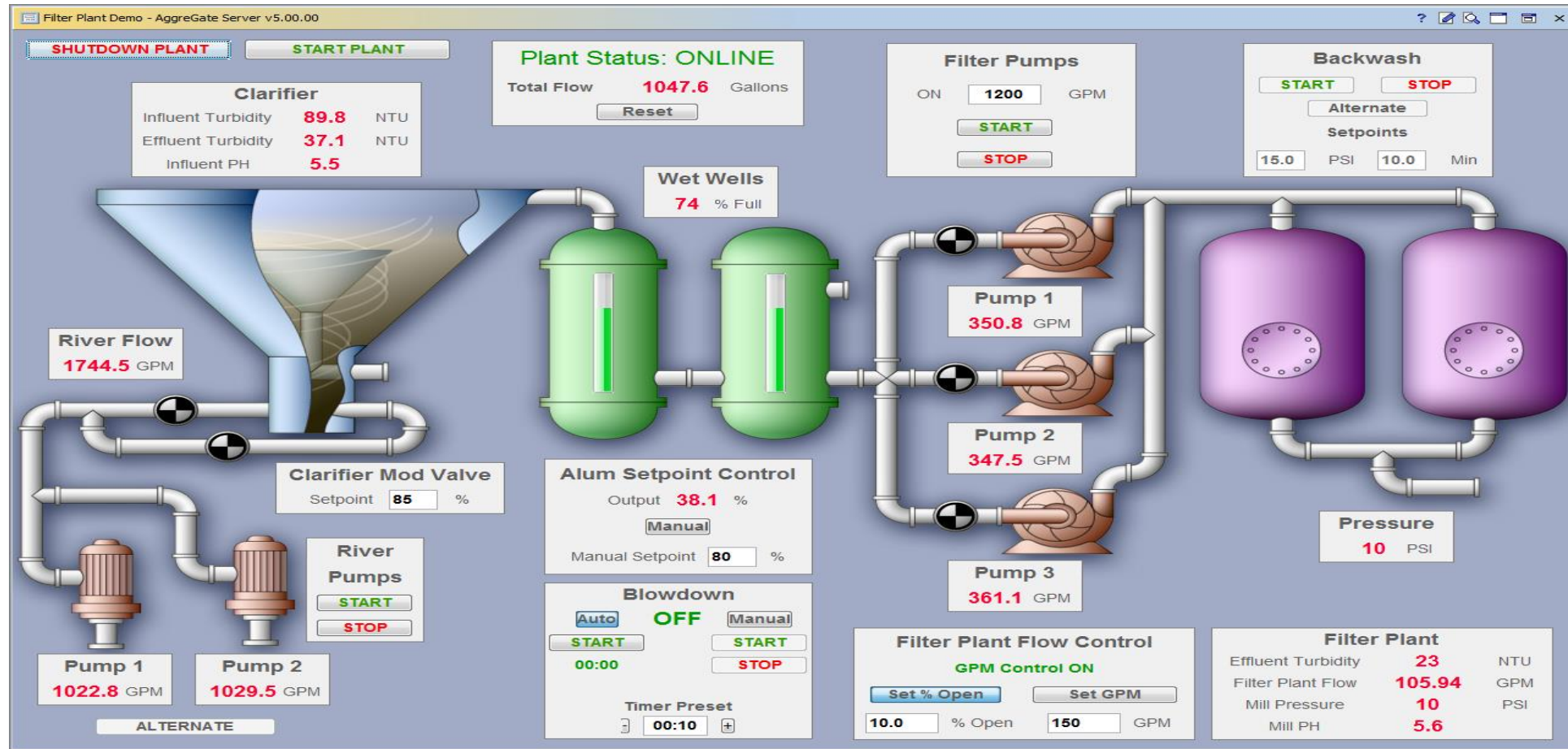
WATER AND WASTE WATER TECHNOLOGY SOLUTIONS



WATER AND WASTE WATER TECHNOLOGY SOLUTIONS



TELEMETRY AND SCADA SYSTEMS



INSTRUMENTS

- **Level & pressure**
- **Chemical and water quality analysis**
- **Power usage & power quality monitoring**
- **Temperature, vibration & weight**
- **Flow & water loss measurement**



Benefits of Data Systems

1

**Manage Workers
better, improve
efficiency in
operations and
maintenance**

3

Manage Clients
better, Billing is
improved and
more accurate

5

Improved
Decision Making
in Capital Project
planning and
execution

2

Manage
Equipment
better, improve
planned
maintenance

4

Manage/ Reduce
Non-Revenue
Water

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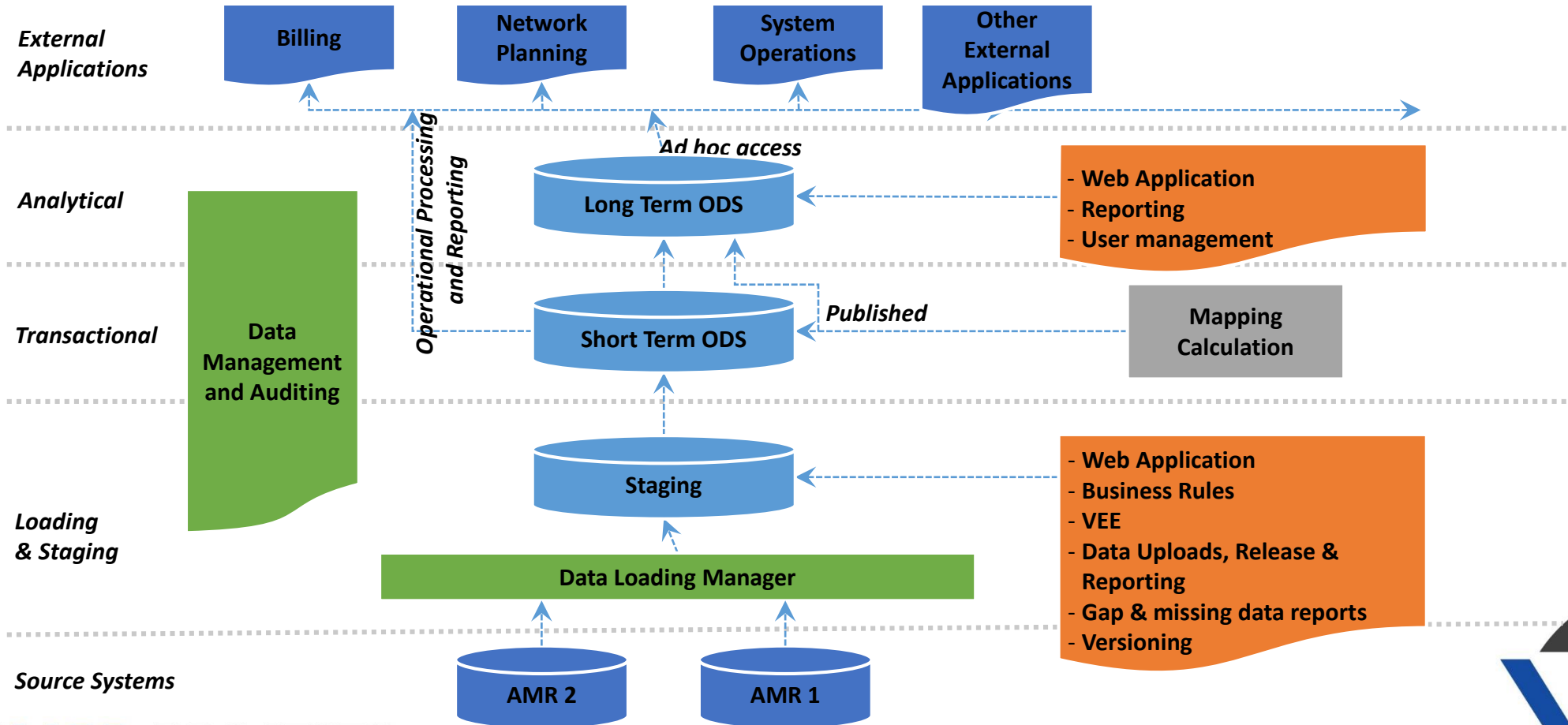
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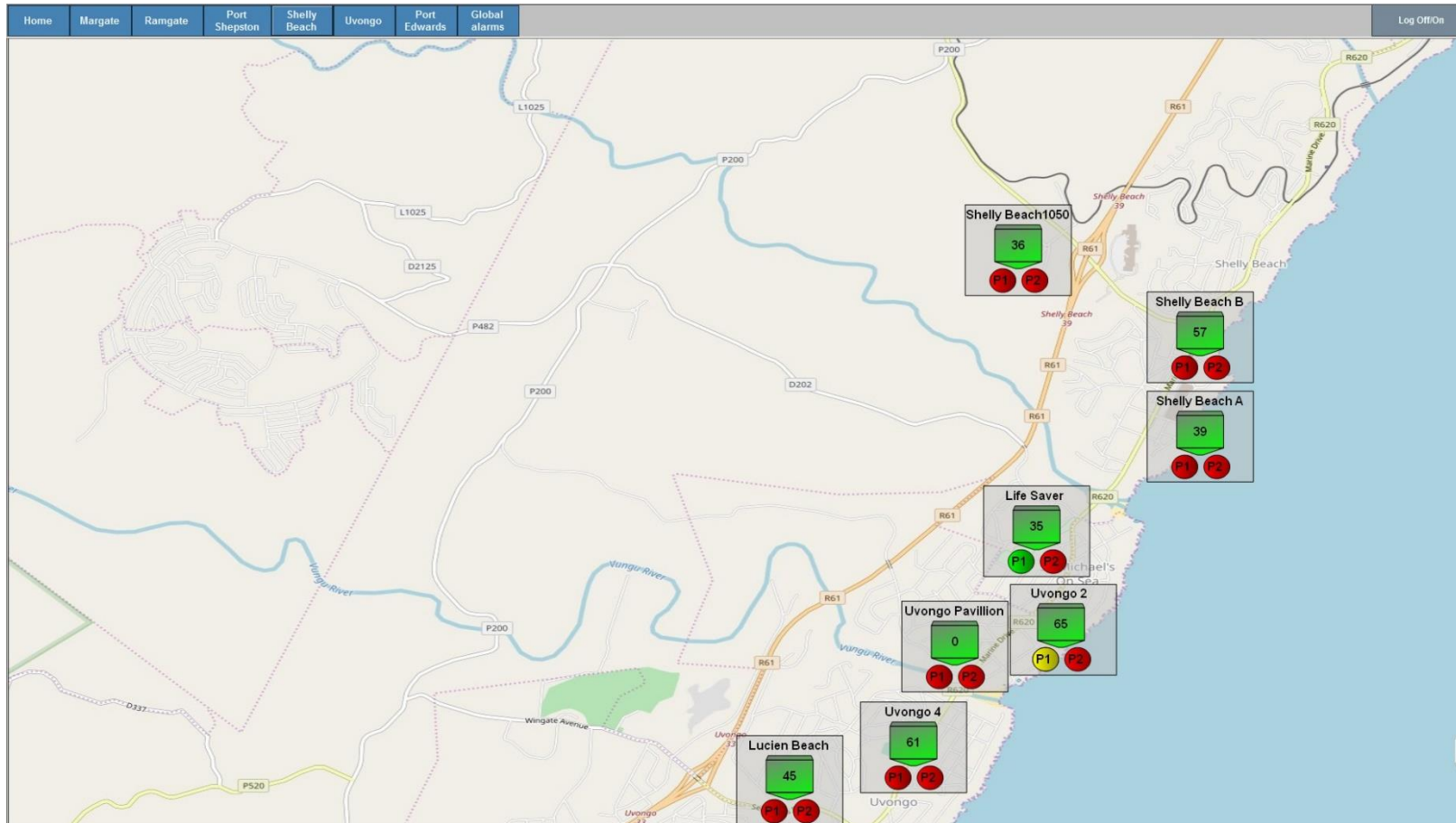
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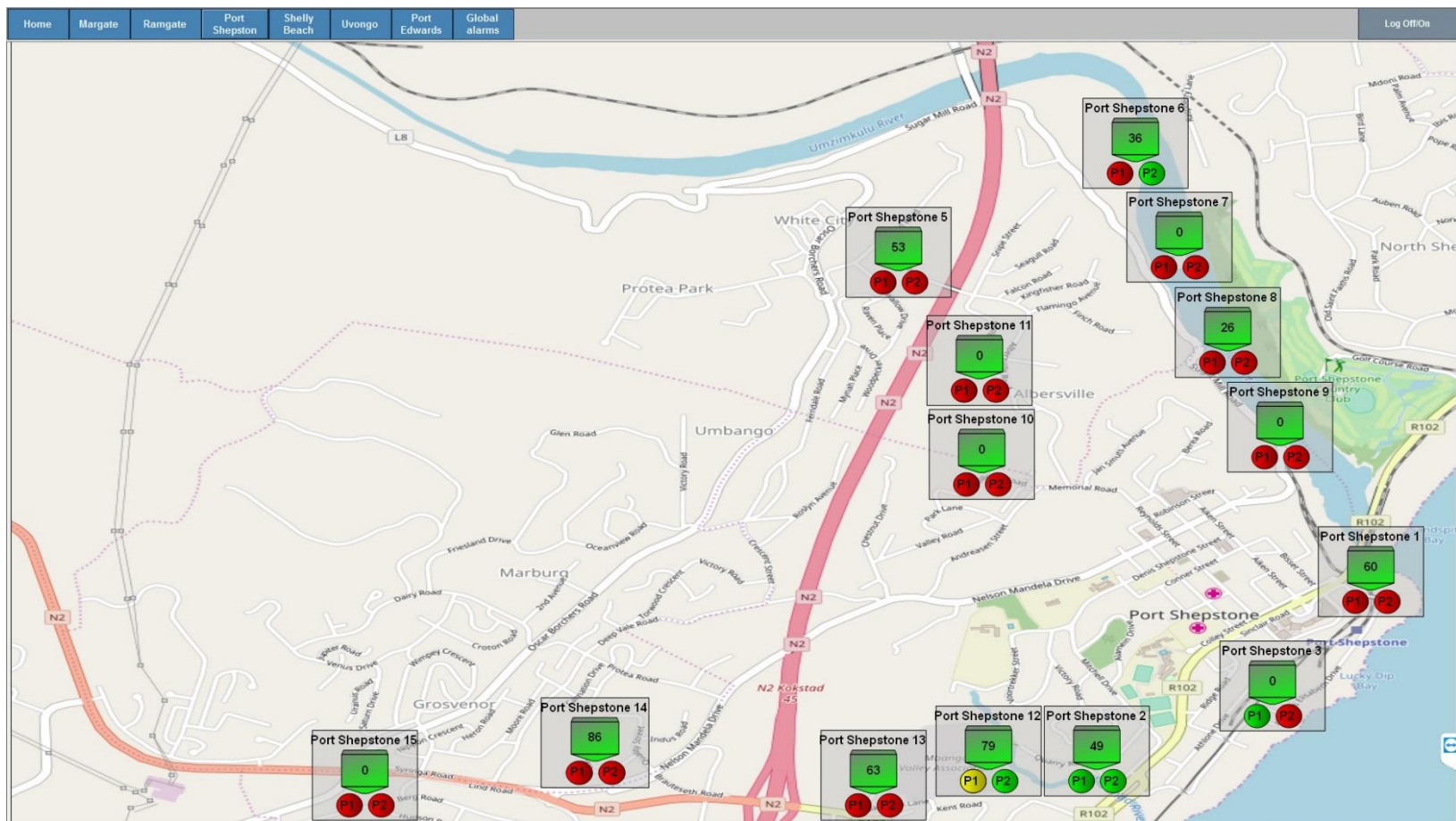
Data Management: Field Instruments and Systems



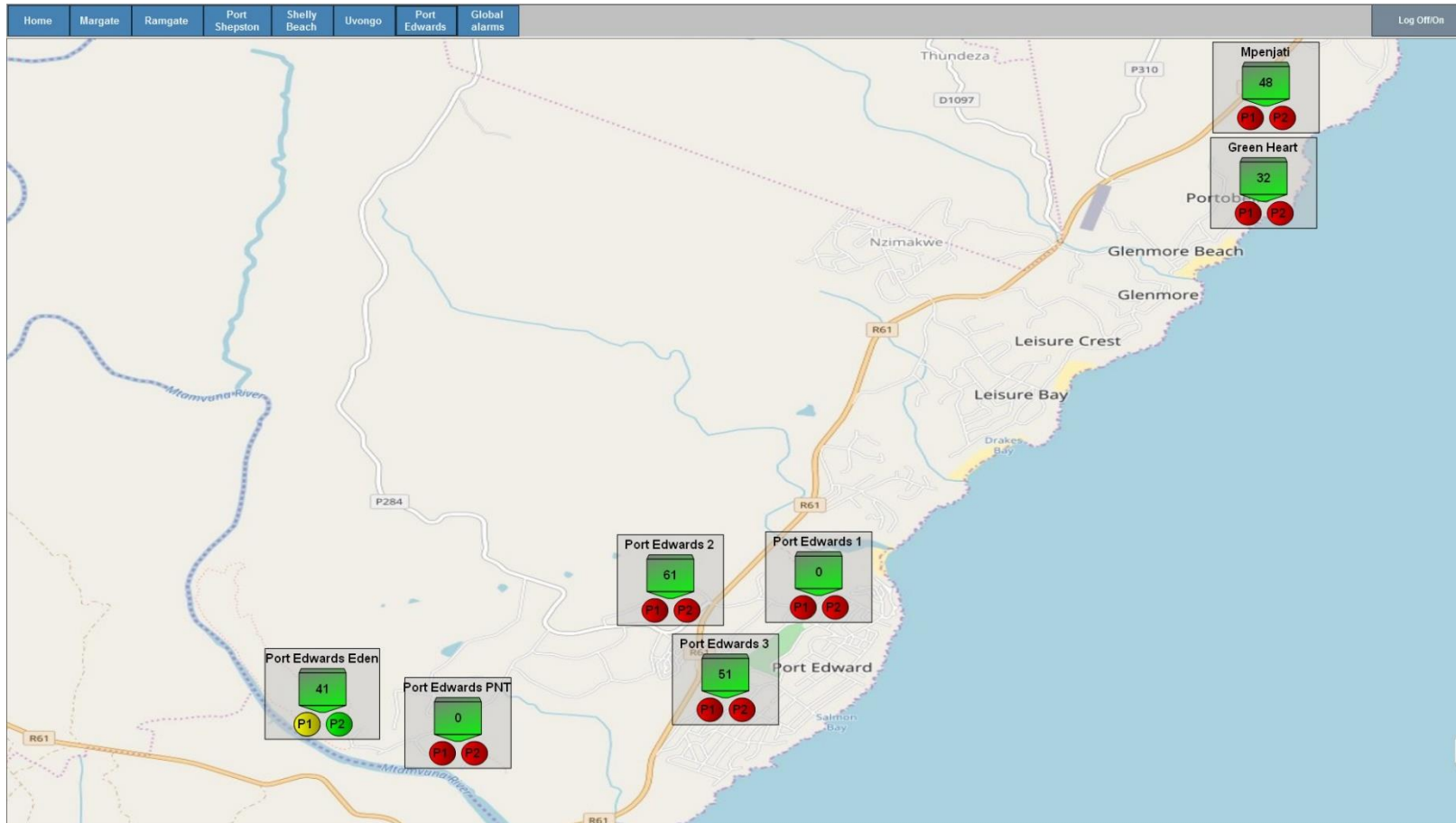
TELEMETRY AND SCADA SYSTEMS



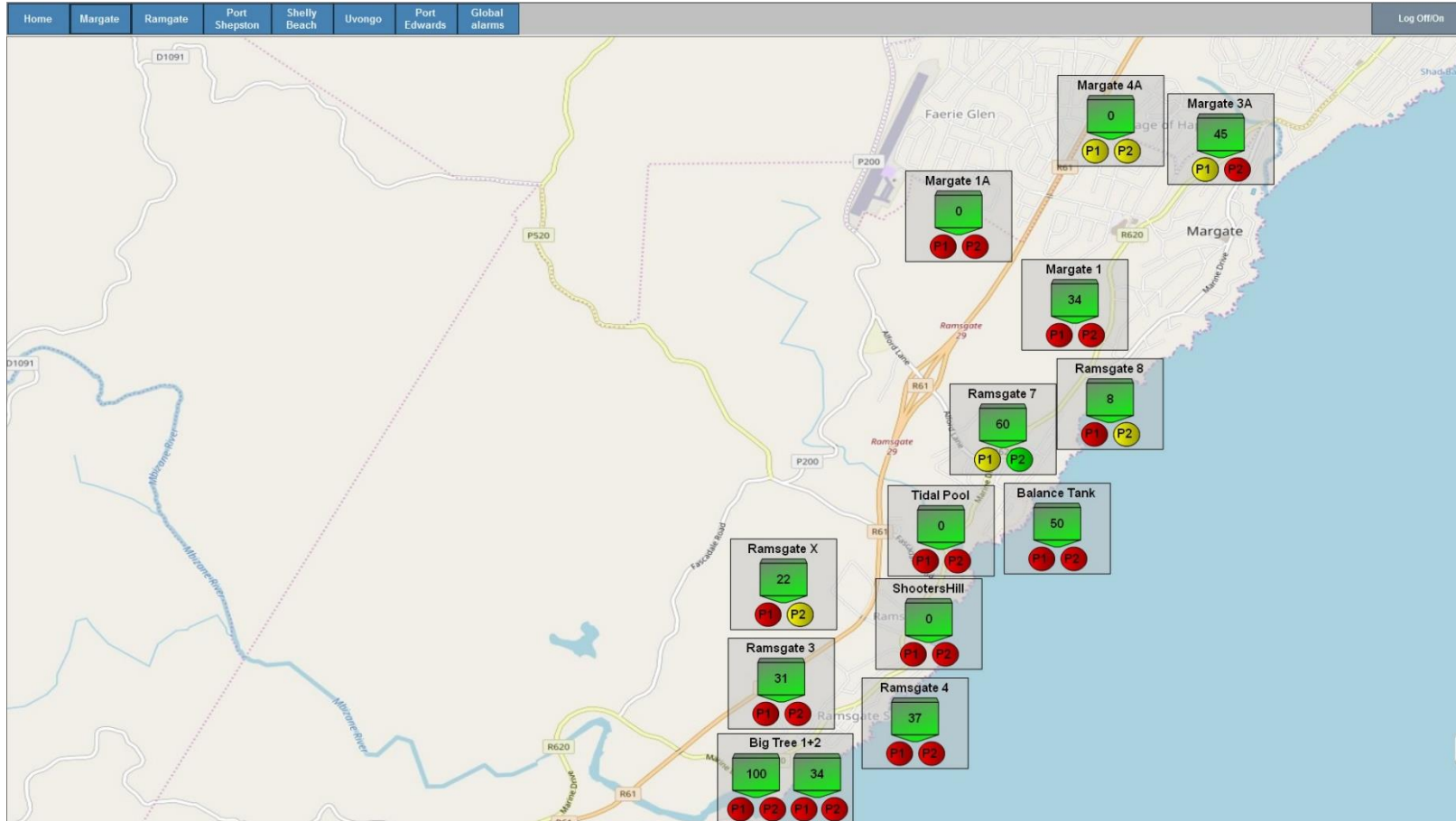
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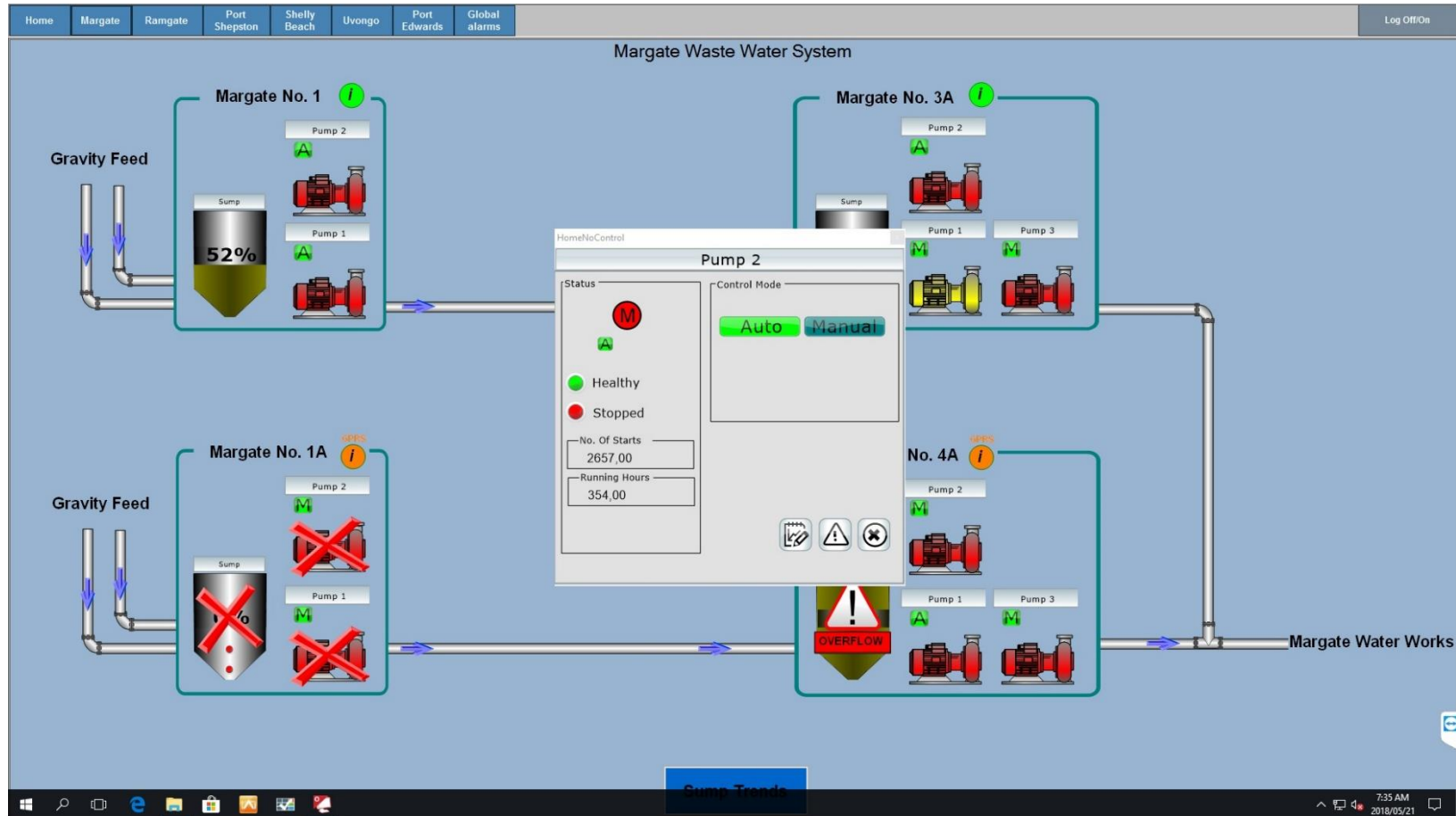
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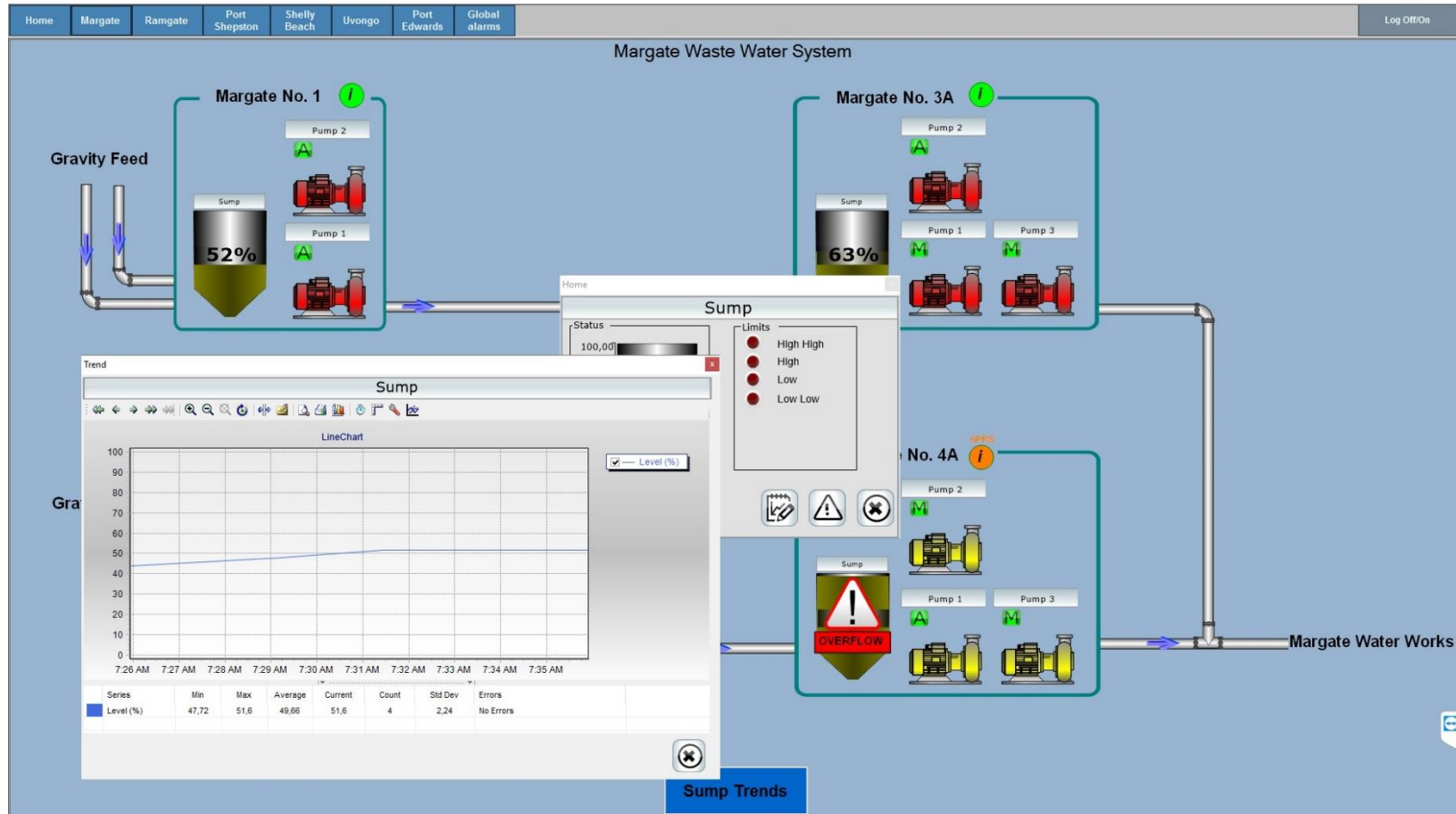
TELEMETRY AND SCADA SYSTEMS



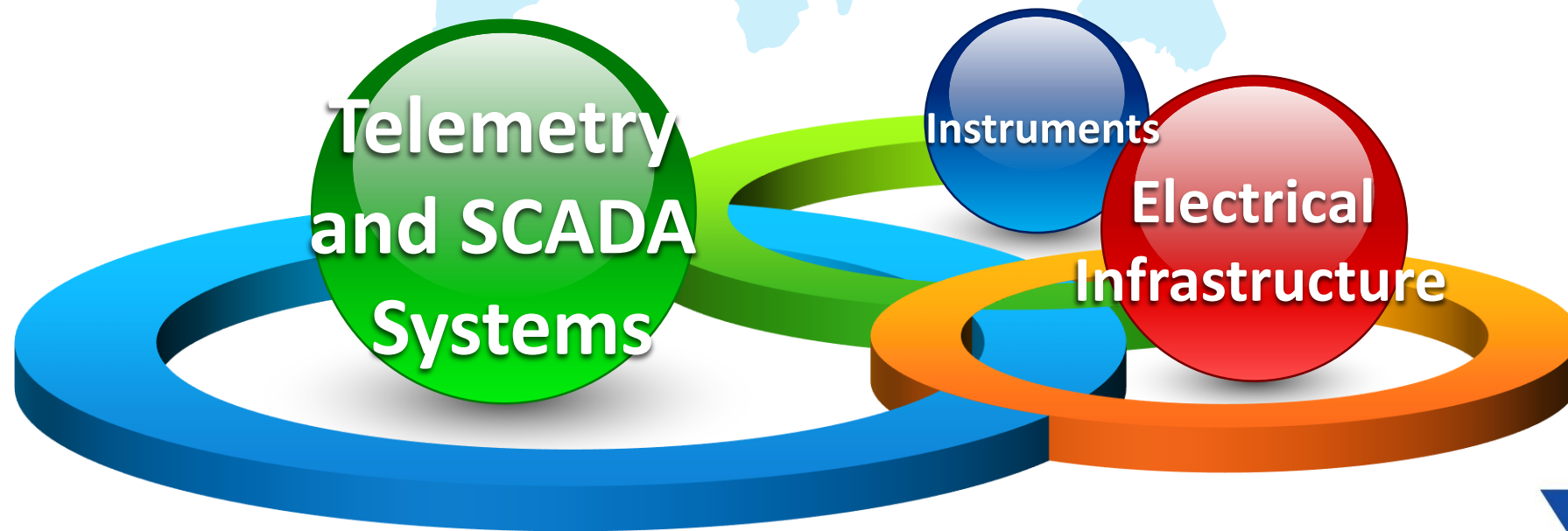
TELEMETRY AND SCADA SYSTEMS



TELEMETRY AND SCADA SYSTEMS



Basic Water Solutions

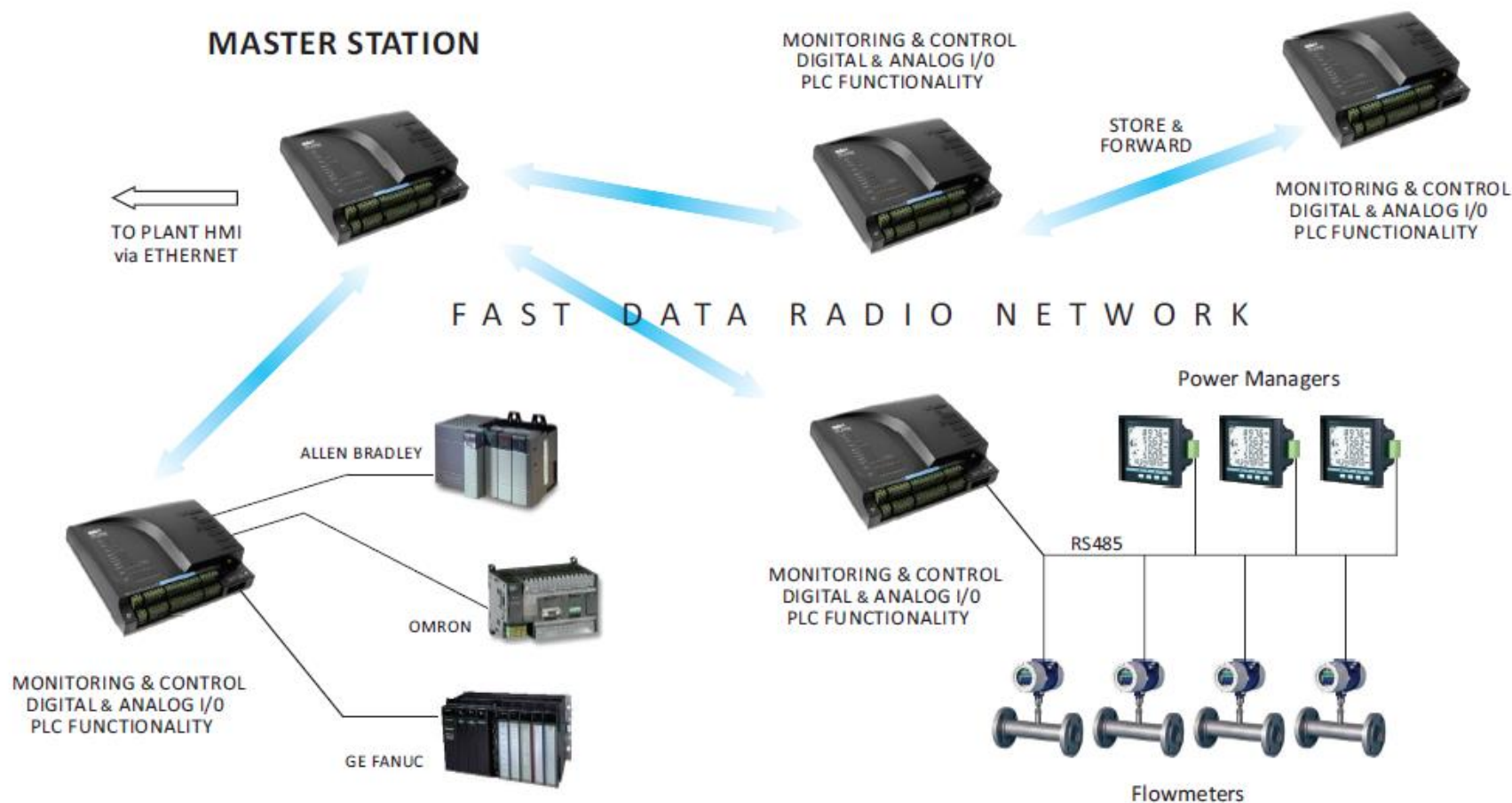


Miri AD2006 Series Telemetry products



- SCADA, Monitoring & Control
- On board data radio or GPRS modem as standard
- Multiple communications options
- Multi-session Ethernet capability
- IEC Ladder Diagram with PID
- Multiple RS232 & RS485 ports
- DNP3, Modbus and other PLC protocols standard
- USB programming port
- Data logging
- Windows 10 compatible

Typical Miri Telemetry network



Miri AD3000/4000 low power rtu

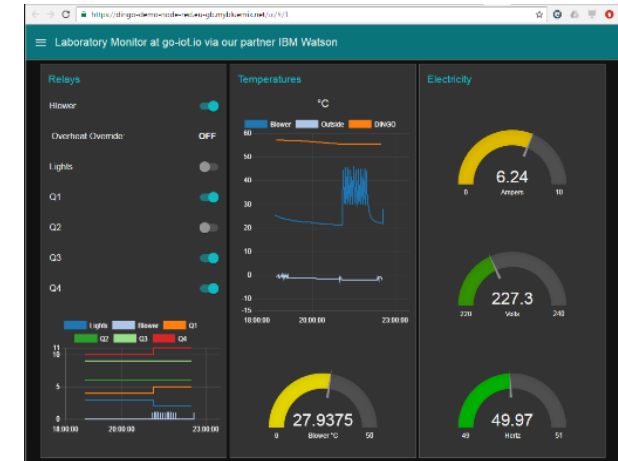
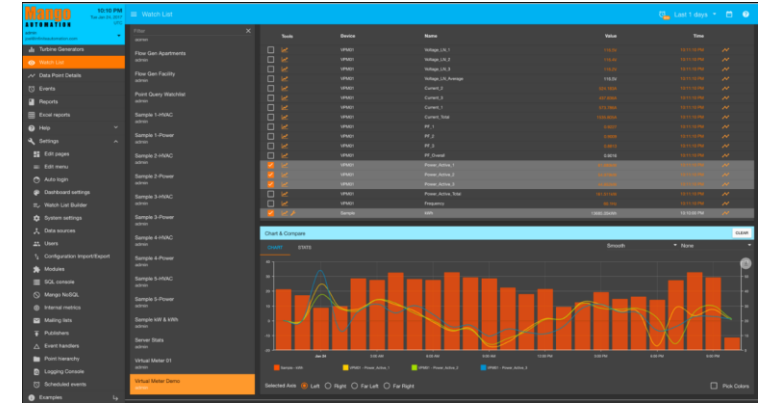


- SCADA, Monitoring & Control
- On board data radio or GPRS modem as standard
- 4 x Digital Inputs, 2 x Digital Outputs, 4 x Analog Inputs
- 60µA power consumption
- IEC Ladder Diagram with PID
- External RS232 & RS485 port
- DNP3, Modbus, OPC Server and other PLC protocols
- USB programming port
- Data logging
- Windows 10 compatible

Online SCADA Business Intelligence



- Real time monitoring & Data Acquisition
- 100% Web compatible
- Graphic dashboards
- High performance NoSQL database
- Excellent trend and reporting tools
- Cross platform – Windows, Linux or Mac
- Multiple protocols
- Logic & automation
- Automated email and SMS alarming & reports
- IoT and building management



NON-REVENUE (NO DROP) WATER REPORTING

Data Source

- ☐ Select All
- ☐ GSM - N&Z Instrumentation
- ☐ MANUAL - Daily Volume
- ☐ SCADA - Vanguard Projects

Alert Type

- ☐ Select All
- ☐ 1. DATA IMPORT FAILURE
- ☐ 2. ZERO VOLUME RECORDED
- ☐ 3. VOLUME SPIKE
- ☐ 9. NO CURRENT ALERT

Alert Status

INSTALLATION	DATA IMPORT FAILURE (No. of Days)	ZERO VOLUME LOGGED (No. of Days)	VOLUME SPIKE (last 2 days)	KL/DAY (last 7 days)	KL/DAY (last 2 days)
BUFFALO FLATS: 4 WAYS KIEL KIEL OFFTAKE					
BUFFALO FLATS: ANNIEVILLE RESERVOIR OUTLET			105%	451.4	924.0
BUFFALO FLATS: ANNIEVILLE RESERVOIR OUTLET TO NELLIE VALLEY TANK					
BUFFALO FLATS: ANNINDALE TANK INLET		2			
BUFFALO FLATS: ANNINDALE TANK OUTLET			128%	3.3	7.5
BUFFALO FLATS: BLACKBANK TANK INLET					
BUFFALO FLATS: BLACKBANK TANK OUTLET					
BUFFALO FLATS: CHESTER TANK INLET					
BUFFALO FLATS: CHESTER TANK OUTLET					
BUFFALO FLATS: CLONEEN TANK INLET					
BUFFALO FLATS: CLONEEN TANK OUTLET					
BUFFALO FLATS: DORSET TANK INLET		2			
BUFFALO FLATS: DORSET TANK OUTLET		2			
BUFFALO FLATS: GREENOCK TANK INLET		116			
BUFFALO FLATS: GREENOCK TANK OUTLET		116			
BUFFALO FLATS: IRONSIDE BRAE TANK INLET					

Installation Locations

1 of 4

INSTALLATION: BUFFALO FLATS: DORSET TANK OUTLET

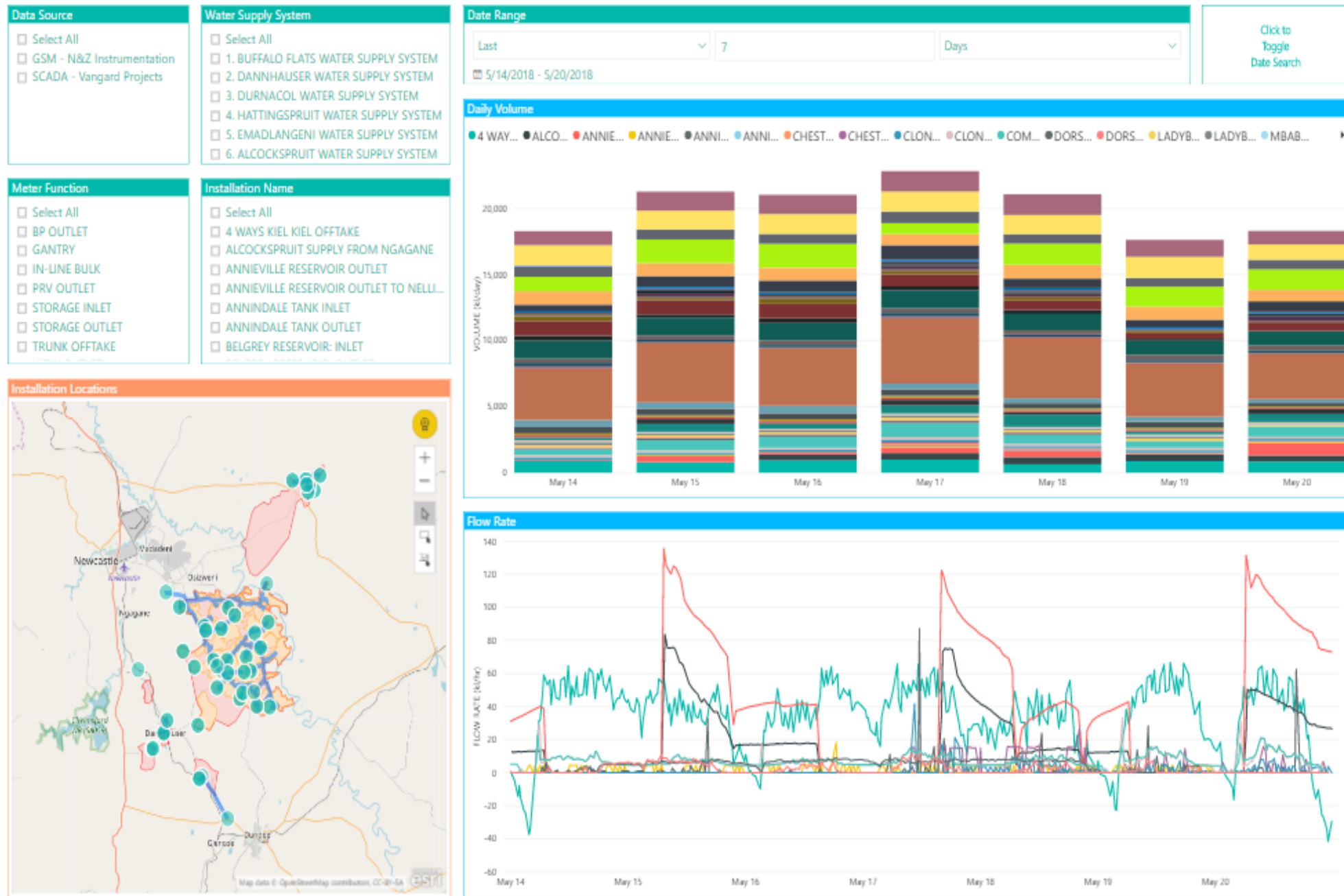
LATITUDE: -27.88

LONGITUDE: 38.23

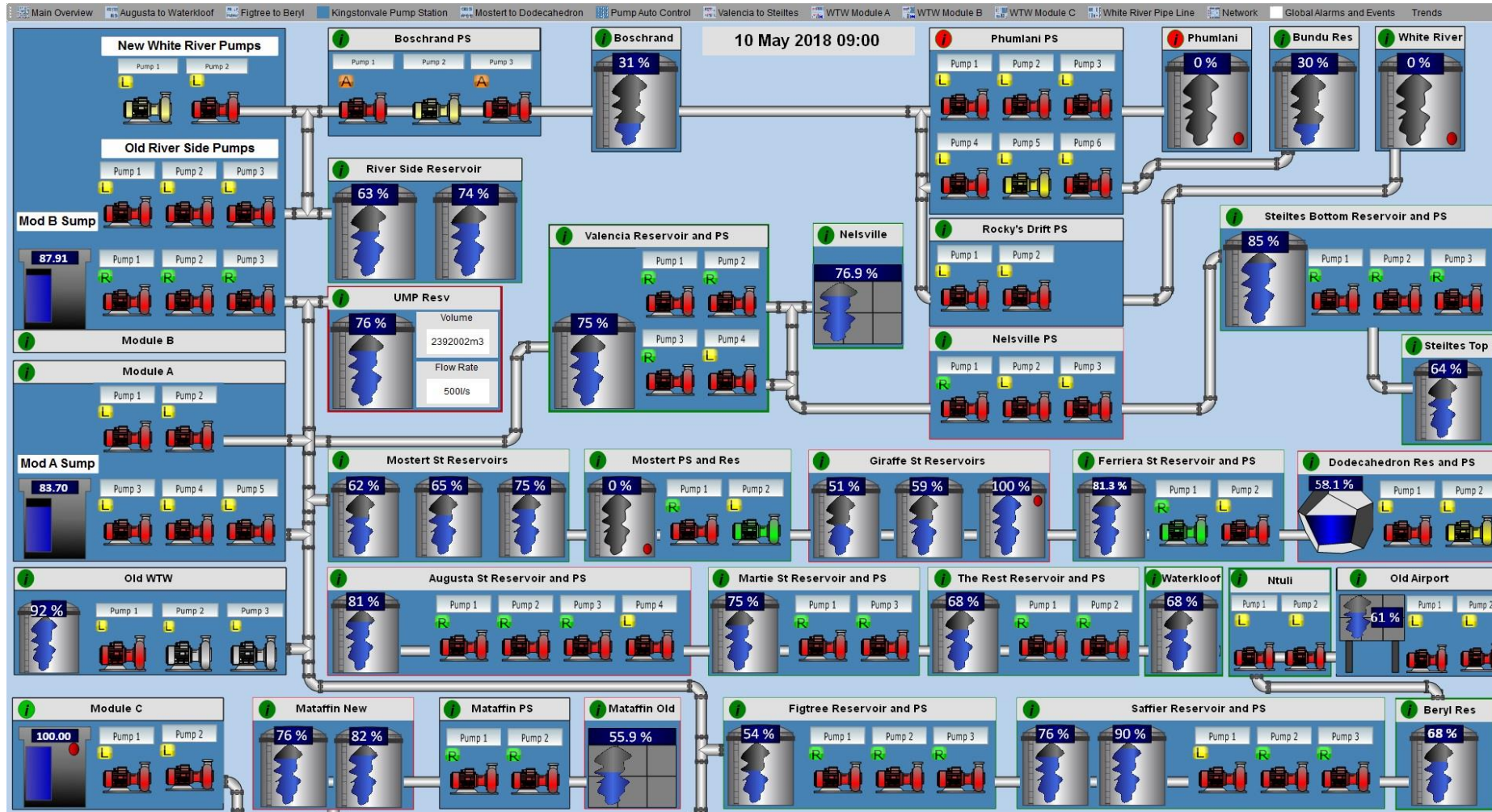
ALERT DESCRIPTION: 2. ZERO VOLUME RECORDED

Alerts & Notifications History

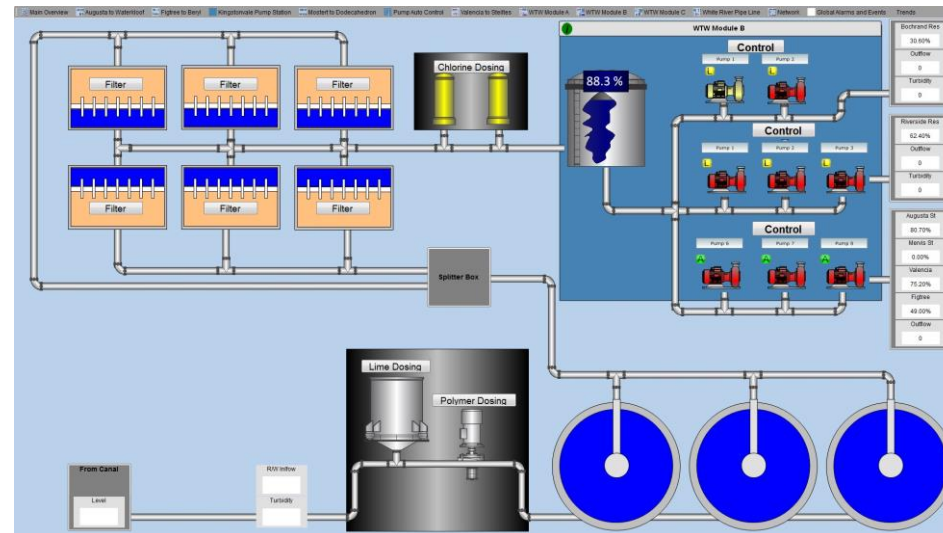
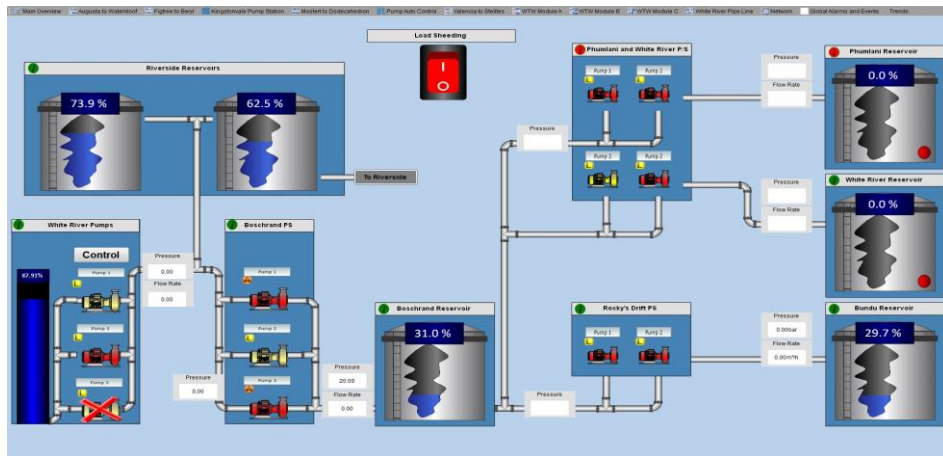
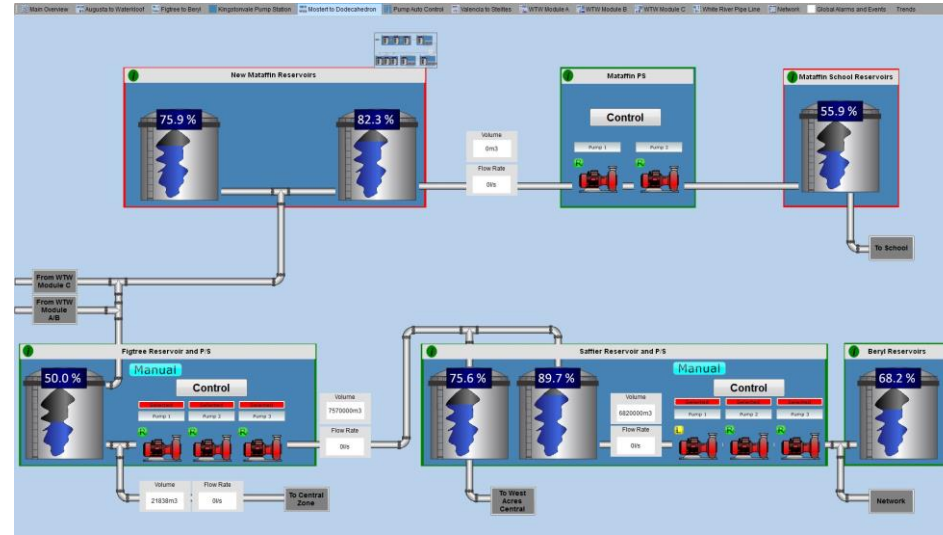
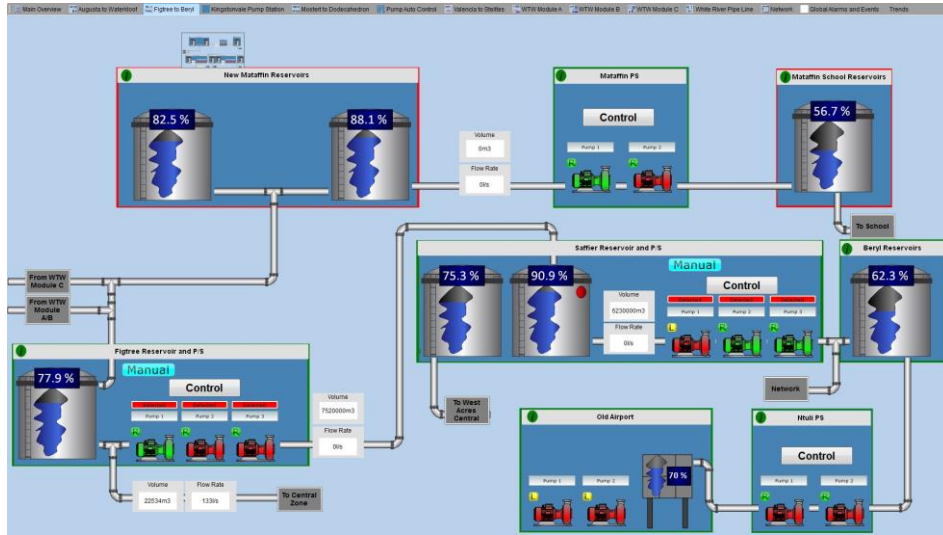
DATE	INSTALLATION	ALERT DESCRIPTION	ACTION	COMMENT	VALUE	UNIT	SENDER	RECIPIENT
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Typical water overview screen



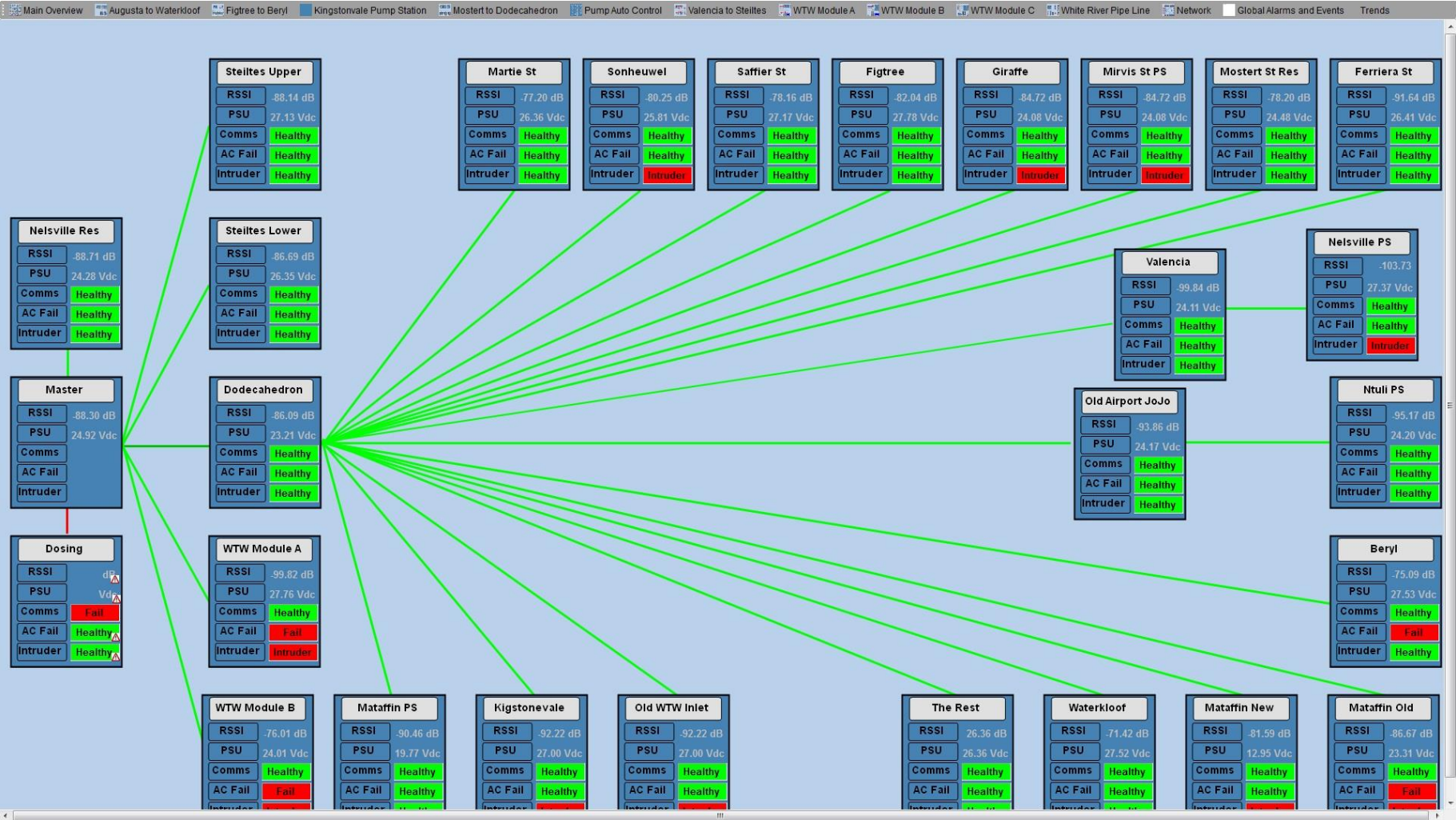
Typical detailed water mimics



SCADA Auto Pump Control Setup



Radio network monitoring screen



Inhouse mcc assembly



Technological Solutions

1

Telemetry and SCADA Systems

2

Electrical Infrastructure

3

Instrumentation

4

Integration into Billing Systems and Workflow Management System

5

Analysis of Data, Store and Reporting





Thank you!

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