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Townsville Hospital Case Study – Legionella risk management in potable water systems.

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Agenda

- Introduction
- Townsville : Capital of the new “Thurstonland”
- Water quality considerations
- Onsite storage tanks
- Addressing the challenge
- Risks of adding chlorine to water
- Closing article

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Introduction

- Queensland Hospitals are a focal point for Legionella investigations
- THHS to this very seriously and developed a WQRMP
- The actions from the WQRMP were implemented
- Issued a tender for chlorine dosing control and related systems
- Veolia was successful in winning this tender.

Townsville – new capital for “Thurstonland”

- 600 Bed major facility with two other smaller facilities identified as major risks
  - Other facilities in district requiring attention.
- Significant redevelopment – high risk patients
  - Cancer treatment
  - Increased birthing suites

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Water Quality considerations

- THHS only 1km from treatment plant
- Treatment plant uses chlorine only not chloramine (as in Brisbane)
- Testing of incoming water showed significant variation - 0.5-1ppm FAC
- Guideline requires 2ppm and 0.5ppm at distil point
- Discussions with administering authority were unfruitful to have level increased.

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Onsite Storage Tanks

- Holding capacity for 2 x 260kL of water on site. Tanks hooked up in parallel
- Enough to supply 1.5 days capacity
- Chlorine fluctuation most likely due to storage tank related losses
    - Volatility
    - Reaction with walls of tank
    - Natural degradation of chlorine.

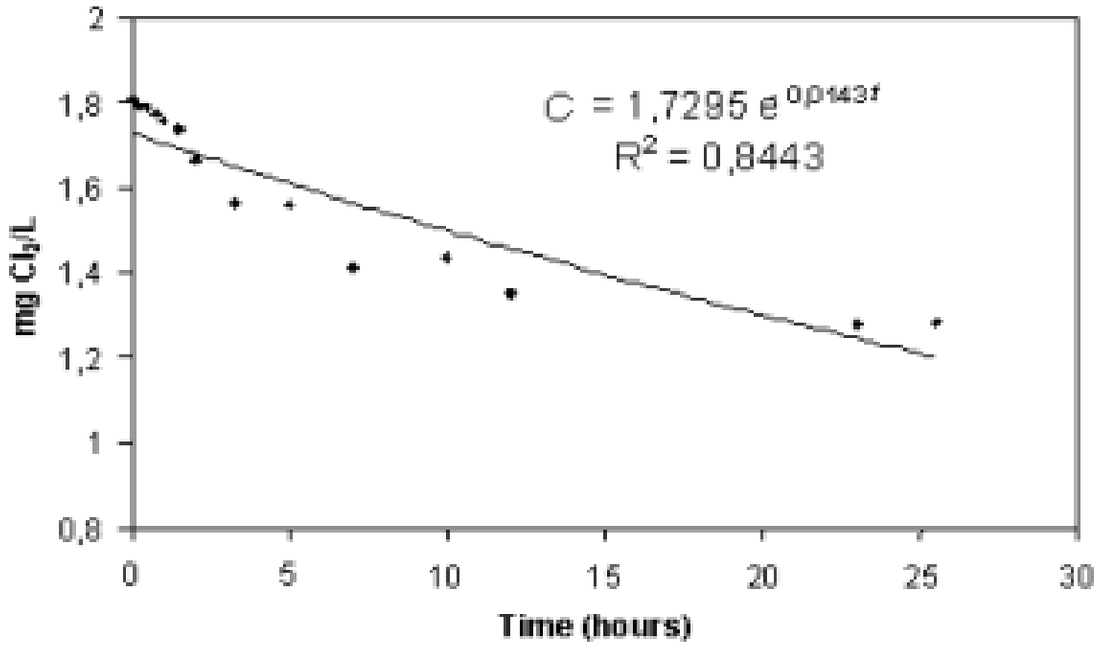

Fig. 3 – Chlorine decay at bulk fluid and respective first order adjustment.

We have determined that the value of K_b is **-0.0143 hour^{-1}**, which corresponds to **-0.3432 day^{-1}**.

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Twin Storage Tanks at Townsville Hospital

Addressing the Challenge

- Using the HL-02-CL-XT monitoring systems designed and supplied by Veolia
  - Free chlorine by multiple probes and DPD
  - Corrosion measurement
  - Turbidity
  - Temperature
  - Conductivity, ORP, pH, chemical level sensing.

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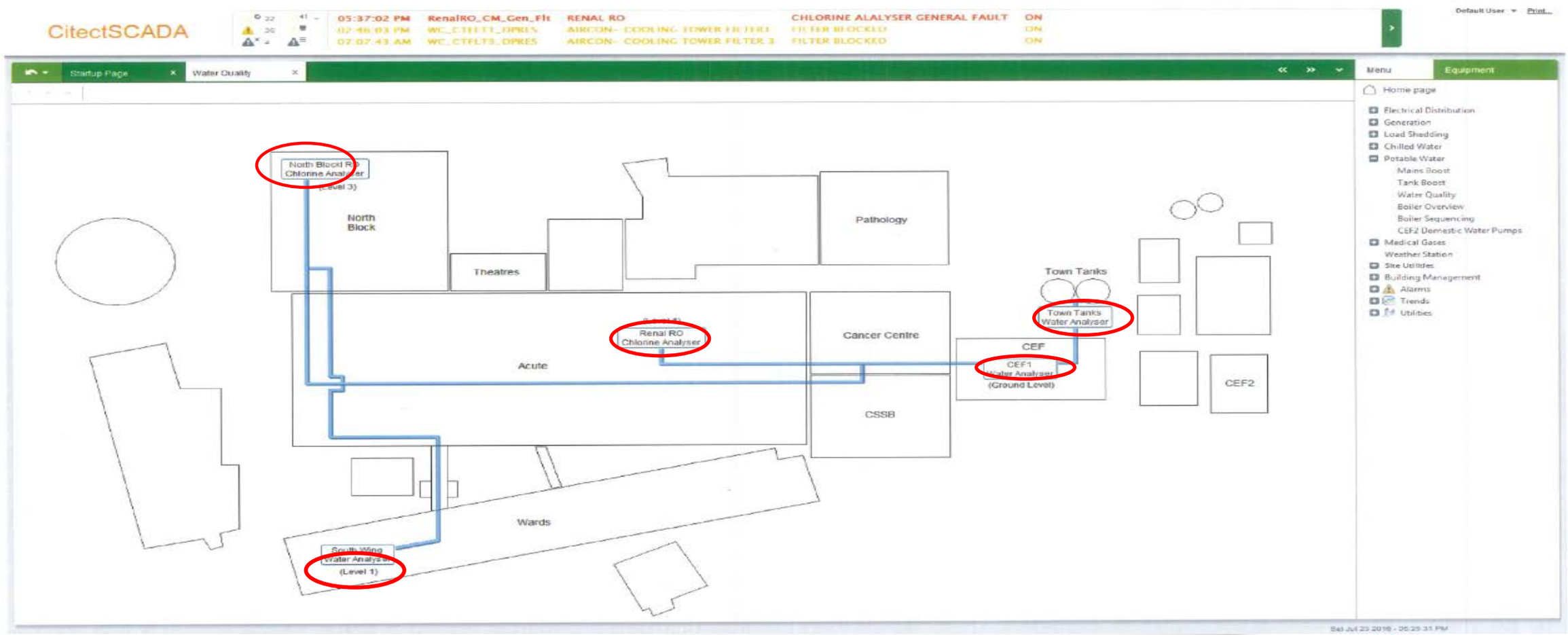
Risks of adding chlorine to water

- Risk of adding any chemical to a water system.
- Multiple layers of measurement – multiple interlocks – multiple analysers



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Communications – addressing the risk

- BMS communications on all systems – training to interpret data.
- Web based communications including Veolia 247 (call centre for alarm processing).

Membrane probe measurements

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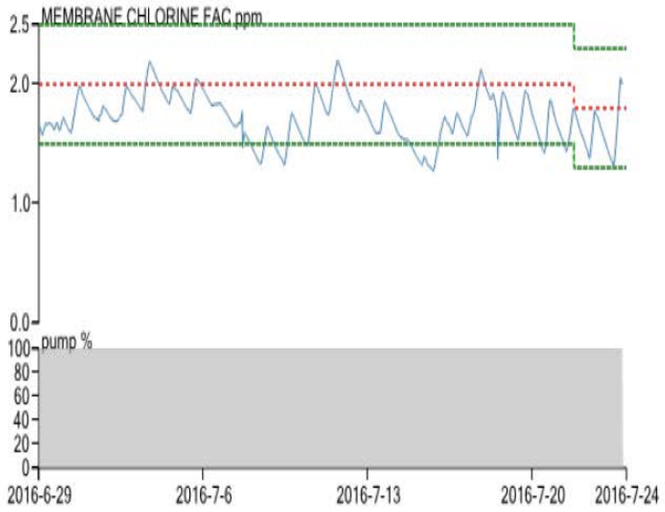
System ID : TGHS Potable System Tanks
Serial No : 600276



DPD measurements

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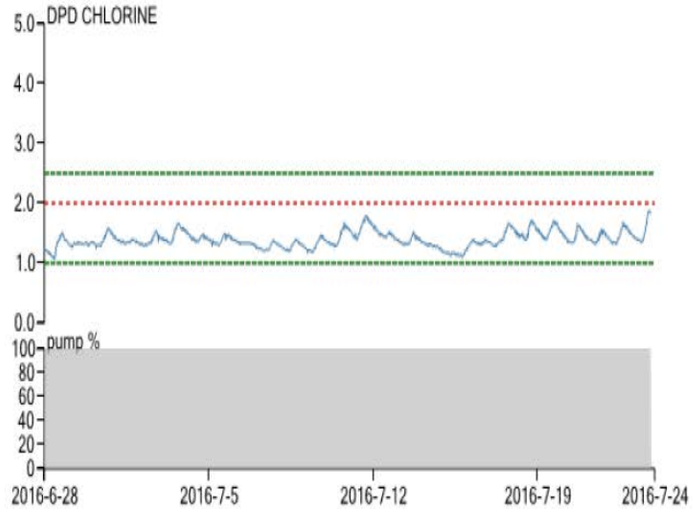

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Thank you

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