

# CHRC Water Utilities

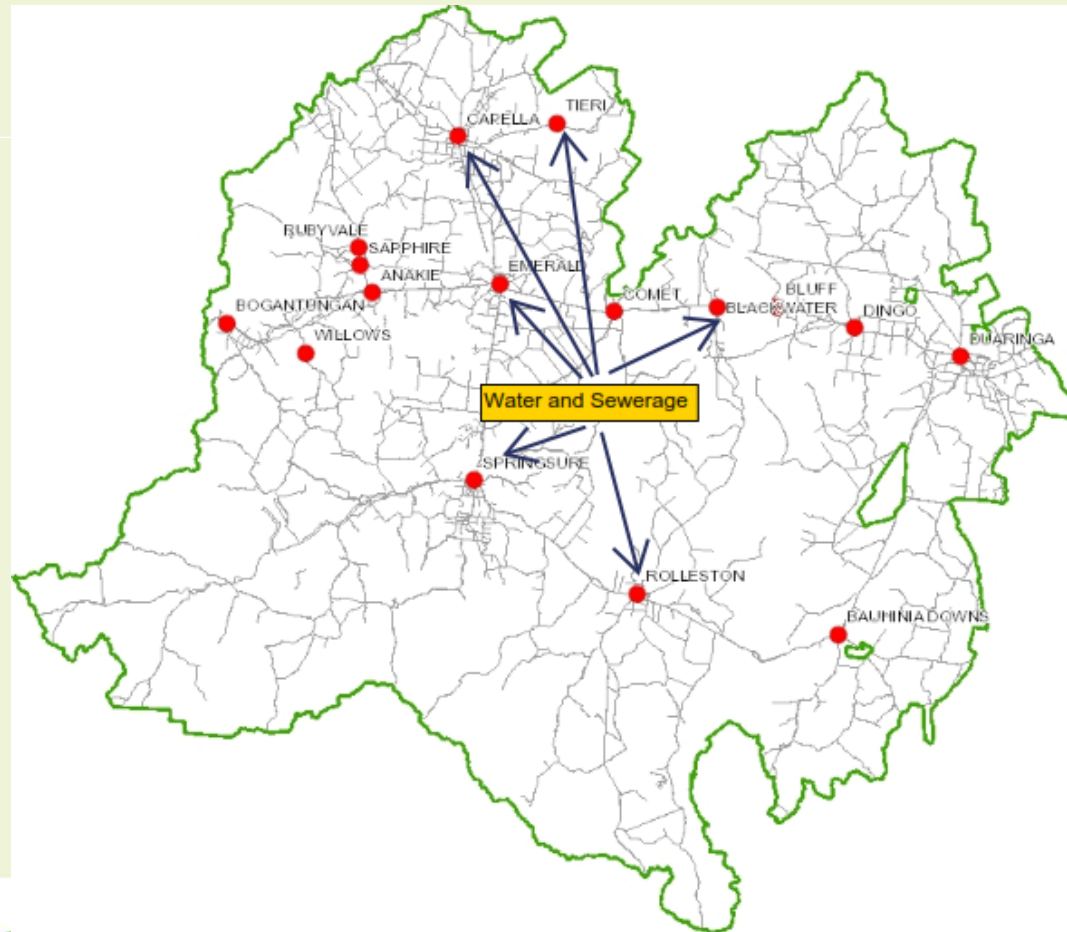
Summary for qldwater CQ  
conference



# CHRC water and sewerage operations

- Water service to 14 townships (12 schemes)
- Sewerage service to 6 townships
- Towns are distributed throughout the Council area which has land area similar to Tasmania (furthest town approx. 2 ½ hr drive from Emerald).
- Approximately 50 staff
- Annual budgeted revenue of \$24M
- The number of connections puts CHRC into the “large” service provider category for state KPI reporting – and we are now required to do national reporting

# CHRC Area



# Variety of water schemes

- Towns range in population size:
  - Emerald – 14,800
  - Blackwater – 5,100
  - Tieri – 1,700
  - Sapphire/Rubyvale – 1,200
  - Springsure & Capella – 950 each
  - Dingo, Duaringa, Rolleston & Bluff – 200 to 380
  - Anakie & Comet – 100 to 150
  - Bauhinia Downs - 25

- Water sources
  - River extraction from Nogoa-Mackenzie and Dawson schemes (Sunwater allocations)
    - Emerald, Blackwater, Duaringa,
    - Tieri (mine allocation)
  - River extraction under water licence/allocation (non-Sunwater)
    - Comet
  - Water harvesting
    - Capella, Rolleston, Dingo
  - Bores
    - Gemfields, Springsure, Rolleston



- Water treatment plants are a range of ages and technologies
- Largest is 19 ML/d, smallest is 100 kL/d



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- Surface water schemes
  - All have coagulation / sedimentation / filtration
  - Disinfection (chlorine gas / liquid hypochlorite)
  - Powdered activated carbon (PAC) dosing for organics (taste / odour / herbicides / pesticides / blue-green algal toxins) – (most)
  - Potassium permanganate or chlorine dosing for manganese removal (two)
  - Fluoridation (three schemes)
- Bore schemes
  - Typically just disinfection (chlorine gas/liquid/tablets)
  - Fluoridation (one scheme)

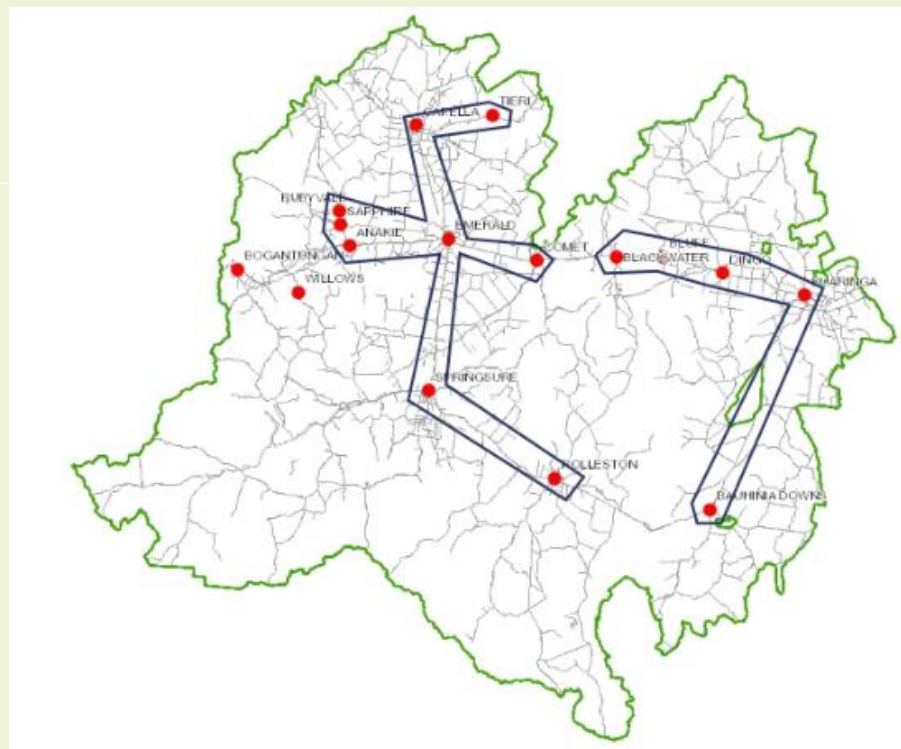
# Sewerage schemes

- Seven STPs in six towns (range from 300 EP to 11,000 EP)
  - Six STPs are “zero discharge” plants
    - Five to irrigation
  - One STP is creek discharge
- Currently have three plants under Transitional Environmental Programs
  - Park Ave STP – disinfection & inlet works upgrades
  - Black Gully STP – expansion from 4,000 to 10,000 EP
  - Blackwater STP – expansion of irrigation areas



# Some of our challenges

- Size of area to service
  - Network teams based in Emerald and Blackwater covering eastern and western areas
  - Need to transport equipment over large areas
  - Treatment teams are similar
    - Eastern from Blackwater
    - Emerald and south
    - Emerald/central
    - Northern at Capella
- Staffing – difficulty in attracting qualified operators to regional areas
  - Have put operators through Cert III training
  - Funding for trainees

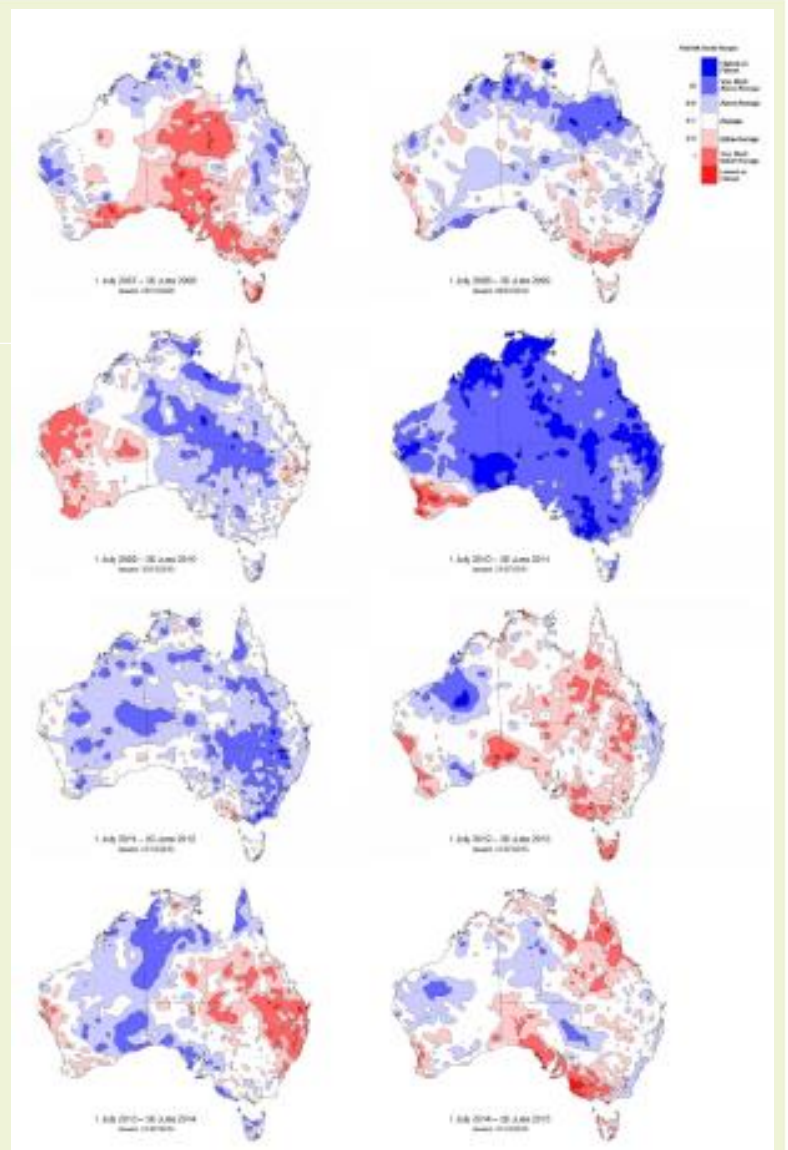
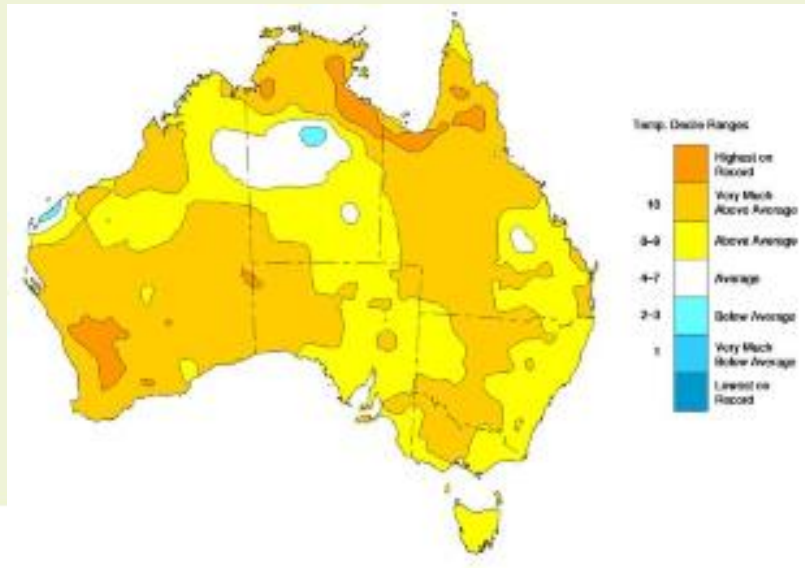
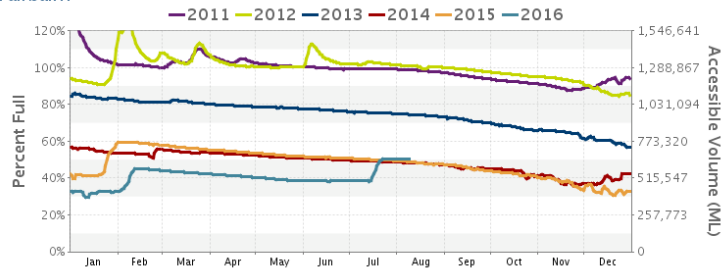


- Sewage treatment
  - effluent quality – particularly plants with final lagoons (growth of algae)
  - currently working through Environmental Authority amendments
- Legislation changes
  - potential changes to ADWG



- Water security

Fairbairn



# Recent major projects

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# East Nogoia Water Treatment Plant

- Capacity of 19 ML/d
- Doubled the water supply treatment capacity for Emerald
- Total budget of \$33 million
- Opened in 2015





# Blackwater – WTP and Reticulation

- Reticulated water issues in Blackwater for a number of years
  - Taste and Odour – attributed to organic matter and manganese
  - Dirty brown / black water – manganese
- Two step solution
  - Water treatment – upgrade of water treatment plant for manganese and organic removal
  - Reticulation – mains cleaning through ice pigging



# Blackwater WTP

- Constructed new contact tank for PAC and potassium permanganate dosing
- Upgraded chemical dosing systems
  - PAC
  - Potassium permanganate
  - Replaced batching of powdered alum with liquid alum, ACH, polymer
  - Pre-filter chlorination (with manganese oxide layer on media)
- Replaced filter media and nozzles
  - also had to replace four filter floors due to poor condition
- Automation
  - Additional instrumentation and SCADA control



# WTP Upgrade Photos



# WTP Upgrade Photos



# Blackwater ice pigging

- Mains cleaned throughout Blackwater and Bluff to remove of biofilm and manganese/iron buildup
- Ice pigging undertaken after earlier air-scouring
  - Salt ice injected into main through hydrant
  - Use mains pressure to flush ice “pig” through main to a second hydrant
  - Ice and scoured material removed by tanker for disposal
- Less intrusive than conventional pigging
  - 73 km of mains
  - 126 individual sections averaging 580m
  - Average disruption time <2 hours



# Ice Pigging Photos



# Ice Pigging Photos



# Ice Pigging Photos





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