



case study:

Broken Hill Water Treatment Plant

In July 2008, Country Energy awarded Tenix the contract to design, build and commission a new drinking water treatment plant for the city of Broken Hill, in western NSW.

The plant will replace the existing Mica Street Water Treatment Plant, which was built in 1952 and fulfil Country Energy's commitment to provide safe, secure, reliable and high quality water to the people of Broken Hill. The plant will have the capacity to produce 30 million litres of high quality drinking water for Broken Hill's 21,000 residents every day.

Key Features and Outcomes

Process design

Raw water supplied to the plant is from a range of sources, which vary in quality from "extremely good to extremely bad". Significant difficulties had been anticipated, as local raw water is prone to contain high levels of iron, manganese and suspended solids, as well as occasional parasites and algal blooms. Tenix's utilisation of the most innovative water treatment strategies has inspired confidence in all parties that both Australian Drinking Water and Country Energy Guidelines will be met. To accommodate the wide range in raw water quality Tenix has provided a complex water treatment process train which includes:

- Polymer dosing
- Alum dosing
- Flocculation
- Clarification
- Filtration (using coal, sand, gravel and garnet)
- UV disinfection
- Fluoridation
- Chlorination
- Reverse Osmosis
- A treated water storage



Field Services

- Preventative Maintenance
- Corrective Maintenance
- Fault Services (24/7)
- ✓ Asset Replacement
- ✓ New Build
- Connection services

Management Services

- Design
- ✓ Engineering Design
- ✓ Process Design
- ✓ Project Management & Systems
- ✓ Quality Management & Systems
- ✓ HR & IR Management
- ✓ Construction Management
- ✓ Procurement Management
- ✓ Subcontractor Management
- ✓ Cost Planning & Estimation
- Planning Approvals
- Stakeholder Management



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This major project to secure long-term quality drinking water, marks significant capital injection that will help contribute to a sustainable future for Broken Hill.

Craig Murray, Country Energy's Managing Director.



Local Community Benefits

Construction of the new water treatment facility commenced in December 2008. The project has provided significant financial and employment benefits to local companies and the community. Local sub-contractors have been used for the bulk of the work to date. Key local sub-contractors and equipment suppliers used to date include:

- Earthworks; Northern Earthmoving, Lingstar
- Civil structure; De Franceschi and Sons
- Supply of Ready Mixed Concrete, Consolidated Plant and Quarries
- Water Treatment Australia – filter floors, chemical dosing equipment
- Clarifier Tube Settlers, Distributors and Launderers- CST Wastewater Solutions Pty Ltd
- UV- Liquitek Pty Ltd- CST Wastewater Solutions Pty Ltd
- Clarifier Chain & Flight Sludge Scrapers
- Pump supply- Grundfos
- Chlorine Disinfection System, Fluoride Dosing System- ProMinent
- Dry Lime Dosing System- WAM Aust

Resources and Skills

Tenix has provided a high performance team to project manage, design and construct the plant. This will continue through the testing and commissioning phases.

Tenix will self-perform the design, installation and testing of the plant's control system, including PLC / SCADA and telemetry control. The plant will be fully automated and will be capable of remote monitoring and operation 24 / 7.

Asset Type: Water Treatment Plant	Duration: July 2008 to July 2010
Clients: Country Energy	Value: \$29 million
Location: Broken Hill, NSW	Scope: Design, construction and commission
Contracting Style: Design and Construction	Completed: July 2010