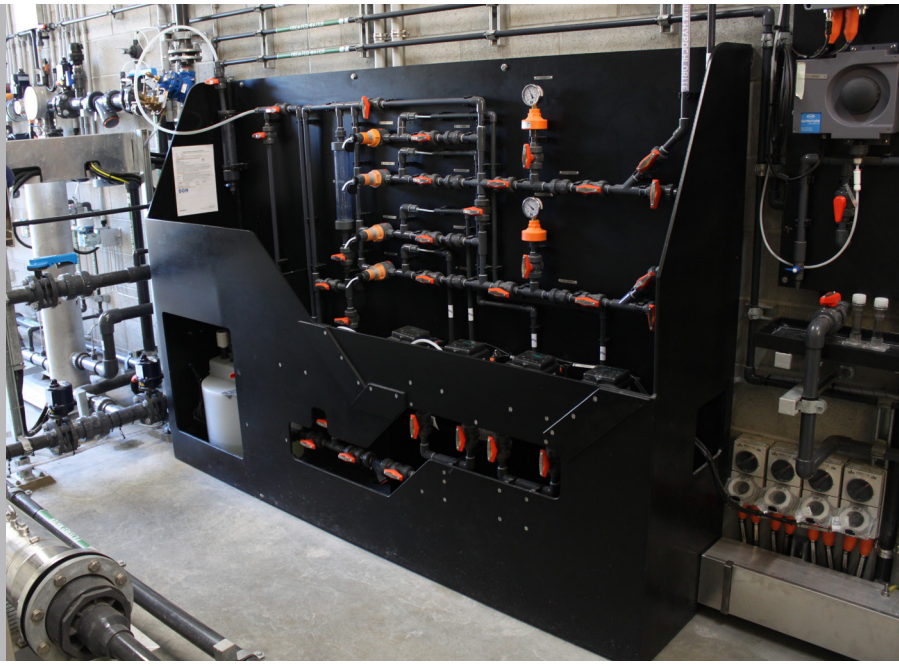
Utilities & Infrastructure

PRACTICAL® ENGINEERING

SEQWATER
LINVILLE WATER TREATMENT PLANT UPGRADE

Practical Engineering delivers new Water Treatment Plant for Linville. The regional Queensland township of Linville is now receiving treated water from the new Linville Water Treatment Plant, commissioned in April 2020.



Practical Engineering Australia (PEA) were engaged by Seqwater for the design and construction of the new $3 million plant. The Linville WTP is in the North Somerset Region, 40km North-West of Kilcoy. The WTP services approximately 80 connections through infrastructure owned and operated by Queensland Urban Utilities. The existing WTP was taken offline following damage to the bore infrastructure during flooding in January 2013 and has not been reinstated since.

As Linville is not connected to the water grid, the supply of safe drinking water since the plant was shut down has been maintained by using water tankers to fill the two onsite storage tanks which feed the town reservoir.

The WTP upgrade was commenced in September 2019 with the installation of a temporary pumping system to maintain water supply to the town during construction. The existing building was then demolished, before construction commenced and was completed in February 2020.

Commissioning commenced in March and was completed in April 2020.

The new plant is fully automated and consists of a bore water supply, in-line 2 stage cartridge filtration, UV disinfection and sodium hypochlorite dosing. A new submersible bore pump supplies raw water at up to 6m3/hr to the validated cartridge filtration system.

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Sodium hypochlorite is dosed upstream of the filters, inhibiting biofilm formation on the filters and iron/manganese oxidation.

The filtered water then passes through a UV disinfection unit before entering two on site chlorine contact tanks. A recirculation pump operates constantly, providing online chlorine, pH and turbidity readings and facilitating a secondary sodium hypochlorite dosing point.

Treated water is then pumped from the contact tanks via a pair of variable speed pumps into the rising main to Linville and to the local storage reservoir. The Linville plant is formally rated at 120m3/day, operating at 6m3/hr for 20 hours. The figure below shows an overview of the process system.

Services and outcomes delivered:

- Piping System Design
- Pumping System Design
- Dosing Skid Design
- Functional Description Development
- Diagram (P&ID) Development
- Detailed layout model and isometric drawings
- Fabrication drawing development
- Commissioning and proof of performance testing
- Operations and Maintenance Manual
- HAZOP and CHAZOP process
- Detailed design development for multi-disciplinary project
- Mechanical design and construction of new stair tower and bore upgrades