

October 2018

**15% MORE WATER
AVAILABLE WITH
LESS
BACKWASHING**

Boggabilla Water Treatment Plant Raw Water Aeration

Moree Plains Shire Council needed to upgrade the town water quality at Boggabilla and Toomelah, North West New South Wales. Originally the plan was to upgrade the Boggabilla Water Treatment Plant and construct a new plant at Toomelah; however, it was decided to create a pipeline between the two towns which would allow movement of water either way and gain access to an improved water supply for both towns.

In amongst the revised strategy was a need to relocate the raw water inlet for the Boggabilla water supply. This meant moving this inlet further downstream and improve the positioning in the weir to ensure water supply in times of drought. The raw water supply is the McIntyre River which separates Queensland and New South Wales. As a result, a new pontoon was constructed holding raw water pumps and a Solari RMA QA 60 aerator.



The new raw water inlet is positioned in a deeper part of the weir built on the river to supply water to the town of Boggabilla.

The river experiences times of stopped flow and major floods. The old inlet position was not as secure as the new position, which is placed in the river shown left during a period of low water flow.

Aeration has been included in the project to improve the quality of the river water that will be pumped to the town treatment plant

Why Aerate:

Aeration will always improve the quality of water. Water and air are injected in close contact to remove dissolved gases (such as carbon dioxide) and oxidizes dissolved metals such as iron, hydrogen sulphide, and volatile organic chemicals (VOCs). Aeration is often used as the first step in water treatment. During aeration, constituents are removed or modified before they can interfere with the treatment processes.

The Solari RMA QA aerator introduces a range of bubbles into the water body. These are coarse, fine, micro and nanobubbles. The smaller the bubble the better.



Pontoon with Solari aerator positioned between raw water pumps

In a riverine environment coarse and fine bubbles will break the surface of the water and bring to the top many contaminants which bacteria and microbes will use as food, thereby removing these from the water. The micro and nanobubbles do not have the energy to break the water surface and as such this oxygen is available to improve the water quality.



The Solari aerator is positioned between the two raw water pumps (shown at left during installation) to deliver the maximum amount of aeration throughout the water body where raw water is harvested for treatment.

The nanobubbles created will spread throughout the water body; downstream, some upstream, deeper to the river bed and across the river. These bubbles will release high levels of oxygen into the water providing improved quality at the start of treatment.

In a riverine environment aeration also assists the marine life present in the river. In aquaculture studies of micro and nanobubbles, yield increase of up to 15% weight have been registered on some species. Within the river are native Australian fish and the weir is a popular fishing spot for local people. A side benefit is the gain in fish numbers and size these people will experience.

Aeration will not only occur between the raw water pumps. At right shows aeration moving away from the side of the pontoon and across the river. Physical aeration movement could be seen close to the centre of the river, with aeration under the surface able to move fully across the river.

Not only does this aeration improve the town water supply by 15%, it is also improving the environment including removal of algae that does build up in the warmer months

