



Lessons Learnt From the Operation and Commissioning of the Angus Creek Stormwater Harvesting Scheme: How to Improve Water Quality and Extraction Capacity

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One of the main objectives for all stormwater harvesting and reuse projects is to produce fit for purpose water and to have a reliable and highly productive system which reduces the reliance on potable water. Blacktown City Council in conjunction with Optimal Stormwater have commissioned and operated the Angus Creek Stormwater Harvesting and Reuse Scheme (the Scheme) since October 2016. This paper provides important lessons learnt regarding how to improve water quality and extraction capacity through the operation and commissioning process.

The Scheme uses a centralised operating and monitoring system known as a Supervisory Control And Data Acquisition (SCADA) system to operate the equipment used in the harvesting, treatment, and distribution process and to monitor water quality, all of which can be done remotely.

During the commissioning process the effectiveness of the existing treatment was assessed through adjusting the set-points and collecting and analysing water samples on a daily basis. This included 3 samples per day over a 2 hour harvesting period with the samples being analysed via a combination of hand held water quality monitoring devices and at a laboratory. The water quality was monitored to ensure it met the stormwater recycling guidelines for irrigation (no access restrictions). Water quality results showed that all pH, Free Residual Chlorine, Electrical Conductivity, Escherichia coli, Turbidity, and Oxidation Reduction Potential met the required water quality targets.

During this commissioning period multiple set-points were adjusted and tested such as, chlorine dosing speeds (flow based set points, ORP based and fixed speed) and pump start points, to find the suitable settings to achieve the required water quality and quantity targets.

The flexibility of the SCADA system allowed for the increase in operation capability and improved the emergency response timeframes. Having an operations team providing prompt 24/7 responses to the breakdowns ensured the system produced the maximum recycled water over the commissioning period. The Scheme has the capacity to produce up to 850KL per day, which makes the response time and real time operation critical as it can potentially save Council over \$2,500 per day if potable water was used instead of harvested stormwater.

The increased water quality and production capacity plus the interactive operation process has ensured that the multi-million dollar systems installed at Angus Creek have performed to their intended purpose and have met the operational needs of Blacktown City Council.