

# REPLACING THE CHLORINE GAS SYSTEM WITH LIQUID SODIUM HYPOCHLORITE AT THE MERRIGUM WATER TREATMENT PLANT

Merrigum water treatment plant (WTP) is a re chlorination point for treated water piped 10km from Kyabram to service the township of Merrigum. In the past the water has been re-chlorinated using chlorine gas stored in 70kg bottles with a duty and standby system on site. As the Merrigum WTP is situated in close proximity to housing and the potential risk to the public if a chlorine leak was to occur, it was decided that the chlorine gas system was to be replaced with a liquid sodium hypochlorite system. This poster will outline the reasons for the changes and the problems and solutions that were created by this change of systems.

## INITIALLY...

The issue with the on going use of chlorine gas at the Merrigum WTP can be separated into the following arguments:

- The cost of replacing the existing, out dated re-chlorination system with a similar duty stand-by chlorine gas system vs. a liquid sodium hypochlorite solution
- The issue of public and operator safety if a chlorine leak was to occur
- The cost of storing chlorine gas on site in the 70kg bottle considering the amount of chlorine used at the Merrigum WTP

## FROM THE TOP...

In considering both the economics and the potential for risk of both chlorine gas and liquid sodium hypochlorite it was decided to install a Grundfos hypo dosing system.



## THE PROBLEMS...

The dosing tank is too high for our shortest operator to pour chemical into, and if we were to construct a platform our tallest operator would hit his head on the roof. A hand pump was installed to solve this problem.



The site tube is too large to accurately measure the small amounts of sodium hypochlorite that is being dosed



The pumps were placed in an awkward position making the values harder to read and the pumps more prone to gassing up, to combat this the pumps have been placed on a platform

## THE RESULT!

Goulburn Valley Water now has a fully functioning liquid sodium hypochlorite dosing system at the Merrigum WTP. The new re-chlorination system will reduce operational costs and remove the severity of risk to the public and operational staff.

From this



## POTENTIAL RISK MATRIX

Likelihood of harm ↓	Severity of consequence				
	Fatality	Permanent injury	Hospital in patient	Medical treatment	First Aid only
Frequent	Very high	Very high	High	Medium	Low
Occasional	Very high	High	Medium	Low	Low (liquid sodium hypochlorite)
Remote	High (CHLORINE GAS)	Medium	Low	Low	Very Low
Improbable	Medium	Low	Low	Very Low	Improbable

To this



By Kristy Bourke