

EarthTec® Treatment Case Results

Lance Creek Water Reservoir

Local Water Manager: South Gippsland Water

Location: Victoria, Australia

May 2020

Summary

Lance Creek Reservoir, located southwest of Leongatha Victoria, is a 4,200 ML drinking water reservoir managed by South Gippsland Water (SGW).

To maintain quality water to customers, whilst managing cyanobacteria blooms, the facility has employed several steps including, treatment with powder activated carbon (PAC), application of algaecide and, blending with other water supply sources. Based on data over a 5-year period, when using PAC to manage taste and odour complaints, a typical dosage of 10-15ppm. was applied.

PAC is expensive and entails OH&S risks. As a treatment measure, PAC also introduces additional water treatment costs through the cumbersome handling of the raw material, corrosion and erosion of equipment and the removal and disposal of additional sludge.

In the USA, taste and odour problems have been resolved by the use of a novel product, EarthTec, in water treatment facilities.

EarthTec is an algaecide that is produced by a proprietary process which yields nearly 100% bioactive copper. This product is NSF/ANSI/CAN 60 certified for treatment of drinking source water and is effective in exceedingly low doses.

The trial at Lance Creek using the EarthTec product commenced in March 2020.

All water analysis throughout the trial was conducted by a third-party, ALS Global.

Residual copper measurements were recorded during the trial to ensure that the concentrations used to provide control of the cyanobacterial bloom would remain far below the World Health Organisation's (WHO) Guideline for Drinking-Water Quality (GDWQ), which is 1,300 parts per billion (ppb) as elemental copper.

The successful treatment at Lance Creek using EarthTec did not exceed 50 ppb as copper, i.e., only 4% of the WHO standard.

Treatment Strategy

First treatment

2 March 2020 at 2.3 ppm as EarthTec and related to approximately 20-40 ppb as copper (as it has been mixed/diluted with the surrounding water) around the offtake area.

Second Treatment

13 March 2020 was a partial dosing of 4 ppm of Earthtec or 12.5kg added at the outtake only. It was calculated that 100 ppb as copper or 40 litre per surface hectare would be achieved on 40 days of operation in this surrounding area of the outtake. However, this dissipated quicker than anticipated due to wind and environmental conditions.

Third Treatment

23 April 2020 EarthTec was applied in four (4) locations across the reservoir at an average of 4.5 ppm of EarthTec. The treatment quantity was calculated on the surface area volume to a depth of 1 metre.

This would translate to a reservoir

concentration of copper addition of approximately 60ppb (as it mixes/dilutes with the surrounding water) with test results mimicking similar levels.

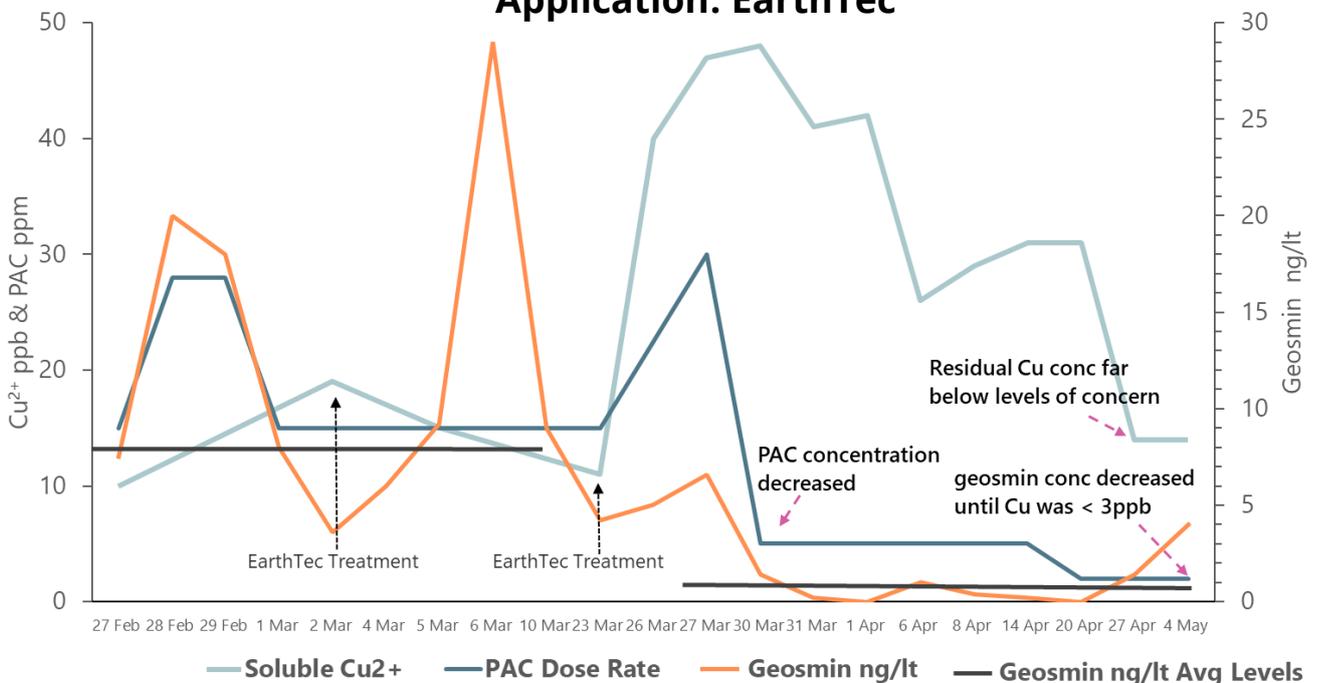
Post Treatment Results

The initial results show that the application of EarthTec has reduced geosmin levels and provided a reduction in the use of PAC at SGW's Lance Creek treatment plant. These results have provided valuable operational cost savings that will be confirmed and quantified as further data are collected as the trial continues.

The figure below shows the results of geosmin and soluble copper levels averaged across the testing locations on the particular day, alongside the PAC dosage levels.

The grey horizontal line shows that the average geosmin concentration in the reservoir prior to treatment with EarthTec was 11.5 ppt, and within 4 days post-treatment dropped to 1.85 ppt, where it remained for the subsequent month.

Lance Creek Treatment Results: Avg. across Reservoir
27 Feb -4 May 2020
Application: EarthTec



Earth Science Labs Global are EarthTec Asia-Pacific distributors.
Email: contact@earthsciencelabs.global
Phone: 1300 072 078

