EARTHTEC®
Revolutionary fast algae control for water storages

Earth Science Labs.global

CASE STUDY

EarthTec® Treatment Case Results Water Treatment Plant (WTP)

Local Water Manager: City of Tulsa
Location: Oklahoma, USA, 2015

Summary

A municipal drinking water treatment plant (WTP) in the City of Tulsa Oklahoma, treats 375 megalitres per day (ML) and was using copper sulfate to control taste and odour problems that originated from geosmin in their source lakes.

Several months of the year are characterized by algal blooms (cyanobacteria of the genera Anabaena and Cylindrosperma) that contribute musty-smelling geosmin to the water. The problem peaked in 1999-2000 with geosmin levels exceeding 2,000 ppt and overwhelming the WTP's methods of powdered activated carbon and potassium permanganate for odour reduction.

In 2001, water quality managers began using EarthTec instead of copper sulfate and saw an immediate and dramatic improvement in geosmin removal. Pre-treatment with EarthTec, followed by granulated activated carbon filters within the plant, has allowed operators to consistently achieve finished water with geosmin levels below human detection limits (<10 ppt), essentially solving this persistent problem.

Plant managers concluded that compared to previous methods, EarthTec is providing superior performance at reduced expense.

Key Outcomes

- Geosmin levels reduced by 80-99%
- Excellent water quality
- Cost savings and improved performance over previous methods for odour control

Municipality Economically Reduces Taste and Odour

Application and Dosage

Prior to 2001, water quality managers were combating blue-green algae blooms by applying granular copper sulfate to the source lake, located about 80 kms north of the treatment plant, at a rate of approximately 12.5kg/hectare.
In 2001 they started dosing EarthTec in the delivery pipeline less than 1 km upstream from the WTP, which enabled operators to destroy the odour compounds immediately prior to the WTP rather than needing to kill all the algae in the lake.

In 2006, operators began treating the water as it enters the intake pipe exiting the source lake, allowing treatment to occur in the 80 kms pipeline itself, with the benefits of thorough mixing and no exposure to the environment. At times of the year when taste and odour problems are prevalent, the product is metered into the raw water pipeline at a rate of 1 ppm of EarthTec to control odours, algae, and biofilm. It is occasionally also used to control algae in the lakes.

Cost

The taste and odour problems could not be overcome with costly conventional methods such as potassium permanganate and powdered activated carbon; at times the city was forced to draw water from an entirely different source, at great expense.

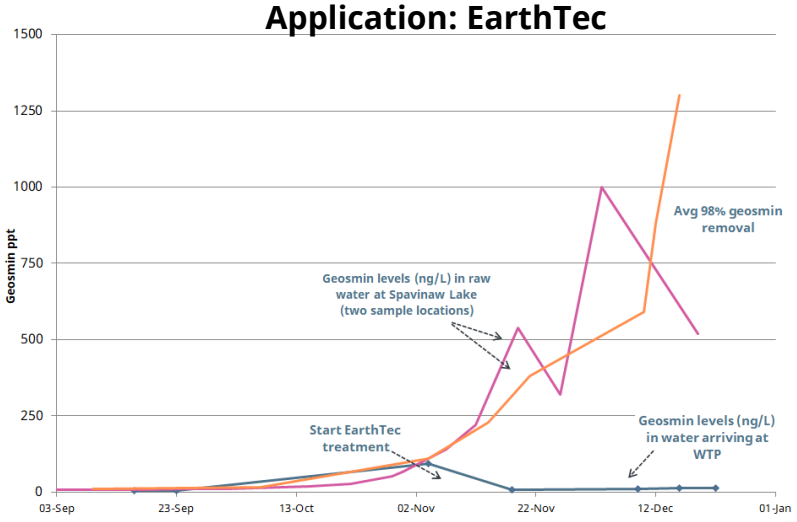
Now, during the periods of the year that treatment is required EarthTec reliably reduces geosmin to a manageable level.

Additional cost savings accrue from keeping the pipes free of biofilm.

Performance

By the time the water has travelled through the source pipe and reaches the terminal holding reservoir (approximately 3-4 days), geosmin levels are reduced from anywhere between 200-2500 ppt in the lake to between 10-40 ppt at the pipe outfall. After entering the WTP, activated carbon filters further reduce concentrations below the human detection threshold of about 10 ppt.
Lake managers continue to occasionally treat blue-green algae blooms in the source lakes and terminal holding reservoir as needed, using EarthTec at a rate of about 10 litres per 1 metre surface hectare.

Geosmin removal Tulsa WTP Autumn 2013. Application: EarthTec



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

Earth Science Labs.global