

Winter Season Algal Bloom Responsible for Taste and Odor Changes in Our Water Supply

The mid-summer “algal bloom” is the most common yearly occurrence in all surface water supplies which is responsible for the taste and odor changes in the water supply. It is rare and uncharacteristic that a winter algal bloom can create taste and odor changes in the water supply during cooler weather patterns. As a result of the winter algal bloom, an earthy or metallic taste and/or odor are noticeable in the North Texas Municipal Water District (NTMWD) water supply.

The treated water supply provided to the region served by NTMWD continues to meet and exceed the Safe Drinking Water Standards set forth by the Environmental Protection Agency and the Texas Commission on Environmental Quality. Although aesthetically undesirable from time to time to some consumers, the palatability change that results from a naturally occurring algal bloom does not alter the quality of the water provided to the cities and the communities served. The water supply remains safe for use with no health risks created by these events.

NTMWD utilizes several steps to treat the taste and odor produced by the algal blooms. Currently, NTMWD laboratory personnel perform algal counts to confirm the occurrence of an algal bloom and the algal species which are responsible for the changes in taste and/or odor. Laboratory analysis of recent raw water samples have shown levels of geosmin that exceed anything previously found in NTMWD’s records. Geosmin is produced by the algal bloom. The current treatment process will reduce but not eliminate the taste and/or odor changes.

Previous studies and thorough testing have shown that the use of ozone, an oxidation process, to supplement the current treatment process can provide additional advantages including: micro-flocculation to reduce chemical usage, micro-constituent oxidation, and taste and odor control. In June 2008, the NTMWD Board of Directors authorized the Black & Veatch Corporation to perform a preliminary engineering evaluation for the use of ozone at the NTMWD’s Water Treatment Plant in Wylie.

The preliminary engineering report for implementing ozone at the NTMWD’s Water Treatment Plant in Wylie is scheduled to be completed in May 2009. Upon completion of the engineering evaluation and favorable recommendations, NTMWD anticipates detailed design to begin in the summer of 2009 and to receive construction bids for the ozone facilities in the summer of 2010. Currently, NTMWD anticipates approximately three years to complete construction which would place the ozone system in service in mid 2013. Adding ozone treatment requires significant time and capital expenditures. Once construction is completed, NTMWD’s Water Treatment Plant in Wylie will be the largest single ozonation facility in the world. The cost for adding ozone facilities is estimated to be in excess of \$150 million, which does not include operating expenditures.

NTMWD continuously monitors the taste and odor changes that occur from the naturally occurring algal blooms and has continued to implement strategies to reduce the effects with the technology that is currently available at the water treatment plant. Ozonation is a proven technology and is the process used by the majority of water producers in our area.

While no taste and odor control process is 100% effective, ozonation will eliminate or greatly minimize the palatability issue of the water supply. NTMWD and our consultants are continuing to analyze the potential causes of the taste and odor episodes, the source of the recent record levels of geosmin and additional methods to address the issue until the ozonation process is constructed and operational.