Winter Season Algal Bloom

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. Infrequently, however, a winter algal bloom can create taste and odor changes in the water supply during cooler weather patterns. As a result of the current 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.

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. During an algal bloom, laboratory analysis of raw water samples can show high levels of geosmin. Geosmin and MIB (2-Methylisoborneol) are produced by an algal bloom, but geosmin is more predominant in the winter and MIB in the summer. Geosmin and MIB are organic compounds released during the decomposition of algal species. Utilizing current treatment processes, the NTMWD can reduce but not eliminate the taste and odor issues.

The NTMWD is pursuing the implementation of ozonation which is expected to significantly reduce and/or eliminate taste and odor issues caused by algal blooms. 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.

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

NTMWD Ozonation Implementation Plan

A preliminary engineering study for the utilization of ozonation as a primary disinfectant at the NTMWD Wylie Water Treatment Plants has been completed by the NTMWD staff and consulting engineer. The study provides the framework for the engineering design of ozonation facilities to be constructed at the Wylie Water Treatment Plant to meet the Texas Commission on Environmental Quality Stage 2 Disinfection Byproducts rules. A design contract has been executed with a consulting engineer, and the design has commenced. A purchase order has been issued for procurement of ozone generation equipment. The NTMWD anticipates completion of the design to allow for construction bids to be brought to the NTMWD Board of Directors for consideration in the fall of 2010. The project is estimated to cost $140-$150 million and will take several years to construct and place into operation. The current schedule includes implementation of the ozonation treatment process taking place in stages during the latter part of 2013 and early 2014.