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AURORA RESERVOIR WATER PURIFICATION FACILITY – MULTIPLE BARRIER TREATMENT APPROACH TO MEET WATER QUALITY GOALS

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ABSTRACT: Aurora's Prairie Waters Project will utilize its water rights in the South Platte River to meet a critical need to fortify the reliability of the City's water supply system. Similar to many water supplies in the U.S., robust purification systems will be deployed to meet Aurora's high standards for water quality. Aurora Water has a track-record of performance. Their customers have grown accustomed to water that is not only safe, but meets all State and Federal standards, as well as satisfying Aurora Water's aesthetic standards. Quantifying these aesthetic standards and defining the best treatment approach for the new supply required thoughtful consideration of many different criteria, while considering cost and performance. The full range of known treatment technologies was considered, including high-pressure membranes, conventional treatment, advanced oxidation, UV disinfection, and granular activated carbon. Bench-scale testing was performed to evaluate the effectiveness of UV AOP and GAC. Test results will be presented that demonstrate destruction of spiked N nitrosodimethylamine (NDMA) occurred by UV photolysis from a low-pressure collimated beam apparatus, and UV AOP performance for NDMA destruction was predictable and repeatable. There are a myriad of micro-pollutants and with limited data regarding health effects and purification strategies. In addition to the testing involving nitroso-DBPs, extensive bench and field testing for the treatment of other micro pollutants, including pharmaceutical and personal care products (PPCPs) and taste- and odor-causing compounds was completed. The testing results summarized in this presentation represent an important dataset for these emerging micropollutants. The presentation will address the use of UV AOP and GAC as part of the multiple barrier purification process at the new Aurora Reservoir Water Purification Facility. The multiple barrier approach selected for the Prairie Waters Project will produce water that exceeds water quality regulations to protect public health and meets the aesthetic standards demanded by Aurora's customers.

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