



MEMORANDUM

DATE: November 12, 2024
To: Mr. Riback, City of Denton Public Utilities Board
From: David Brown, City of Denton Water Utilities
SUBJECT: Ray Roberts Water Treatment Plant Expansion Filtration Methods

The upcoming Ray Roberts Water Treatment Plant expansion will add 20 MGD of additional treatment capacity. The expansion will utilize three filtration processes to treat the lake's influent raw water.

These include the following in order:

Sedimentation / Flocculant Basins

These basins are simply settling basins that utilize flocculation to combine small suspended particles into larger ones that settle to the bottom of the basin as sediment. Flocculation is promoted by adding Ferric Sulfate, which binds smaller particles together and increases effectiveness by reducing the amount of material suspended in the water.

Ultrafiltration

Ultrafiltration (UF) is a water treatment process using ultrafine membrane media to separate solids and large molecules from liquid. Low pressure forces the water from the conventional sedimentation basin against the semi-permeable membrane material. The remaining solids remain outside the material while water and fine particles pass through the membrane. UF has been proven effective in removing particulate material and valuable for removing bacteria and microorganisms, which can impart color, taste, and odor to the water. This process is new to Denton and the facility. The project includes a UF performance pilot study at the facility, which the Texas Commission on Environmental Quality (TCEQ) requires.

Granulated Activated Carbon Filter (GAC)

GAC is the final filtration process. It traps particles in the carbon by passing water through the filter. The porous carbon granules remove impurities by absorbing them into the filter's large surface area. This process is the last step in polishing the water before customer distribution.

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Inclusion • Collaboration • Quality Service • Strategic Focus • Fiscal Responsibility