Aquifer Recharge

SWIFT Water from the treatment train is pumped into the recharge well, where the well conditions and surrounding aquifer water quality can be constantly monitored.

Chemical Addition

Disinfected water is adjusted by small chemical doses to more closely match the geochemistry of the water already in the aquifer.

Reduced-scale Water Treatment Pilot Equipment

Allows plant operators and researchers to test treatment techniques at reduced scale before applying them to the main process, and provides flexibility to research new treatment technologies.

Chlorine Contact

Disinfection of finished water using chlorine serves as an additional barrier to pathogens.

Ultraviolet Disinfection

Provides a barrier to pathogens by disinfecting the water with high intensity ultraviolet light.

Granular Activated Carbon Contactors

Removes trace organic compounds and prepares the water for ultraviolet disinfection.

Biologically Active Filtration

Filters out suspended particles, pathogens, and removes dissolved organic compounds through microbiological activity.

Ozone Contact

Breaks down organic material and provides disinfection.

Flocculation and Sedimentation

Removes suspended solids by settling large particles to the bottom of the water column.

Advanced Water Treatment Process

Highly treated water from the Nansemond Treatment Plant is pumped to the Research Center’s advanced treatment facility where it undergoes an 8-step process to prepare the water for recharge of the aquifer.

1. Flocculation and Sedimentation
   - Removes suspended solids by settling large particles to the bottom of the water column.

2. Ozone Contact
   - Breaks down organic material and provides disinfection.

3. Biologically Active Filtration
   - Filters out suspended particles, pathogens, and removes dissolved organic compounds through microbiological activity.

4. Granular Activated Carbon Contactors
   - Removes trace organic compounds and prepares the water for ultraviolet disinfection.

5. Ultraviolet Disinfection
   - Provides a barrier to pathogens by disinfecting the water with high intensity ultraviolet light.

6. Chlorine Contact
   - Disinfection of finished water using chlorine serves as an additional barrier to pathogens.

7. Chemical Addition
   - Disinfected water is adjusted by small chemical doses to more closely match the geochemistry of the water already in the aquifer.

8. Aquifer Recharge
   - SWIFT Water from the treatment train is pumped into the recharge well, where the well conditions and surrounding aquifer water quality can be constantly monitored.