



Dufresne Group provided services to the Pembroke Water Works Department for developing a computerized water system model as part of an overall water system evaluation. The update included extensive field testing including fire, C-value, tank level measurements, and well pump flow tests.

Dufresne Group calibrated the water model to match field conditions. The calibrated water modeled was used to identify hydraulic deficiencies within the existing water system and evaluate various system improvements to resolve the deficiencies.

Extended period simulations and analysis of tank levels showed the current manual method of source operation has a direct effect on tank refill. SCADA improvements were recommended to allow for automatic operation of the well pumps, allowing the tanks to refill during the nighttime, off-peak electrical hours.

Since the water model was developed and calibrated, DG has used the tool to evaluate several proposed developments and system connections.

### KEY FEATURES

- Extended period simulations identified hydraulic limitations affecting tank refill rates.
- Modeling identified water main dead ends in an area previously believed to be looped.
- Water age analyses critical for evaluating potential source treatment system modifications.
- WATERGEMS program provides for interfacing with both ArcGIS and AutoCAD software.