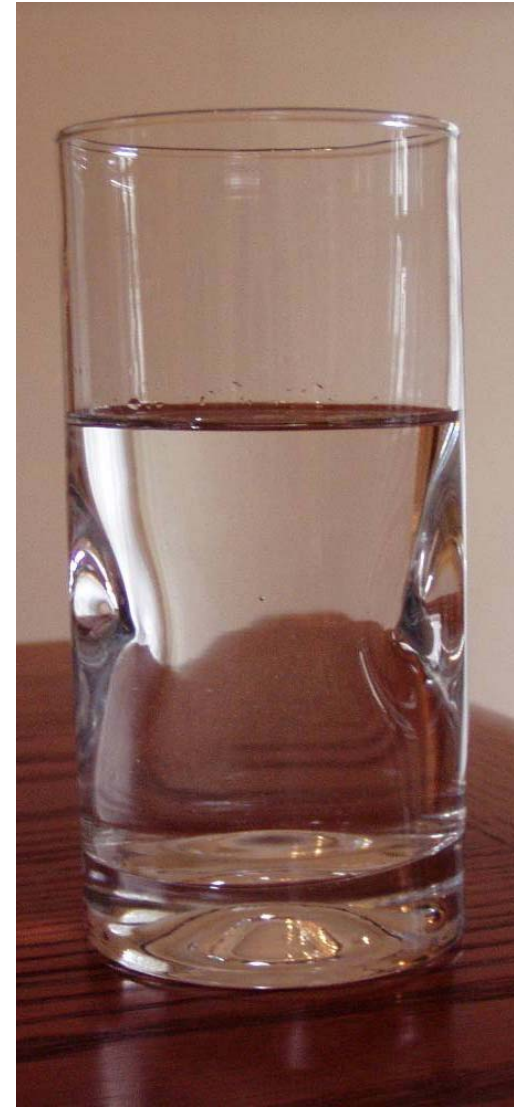


# Problem statement

- There is a need for real-time understanding and control of water distribution systems to ensure the provision of safe drinking water and to enable minimal disruption and negative outcomes in the case of a chemical or biological intrusion.
- Protection against accidental or intentional contamination of water distribution systems requires rapid detection, evaluation, and response.



## SCADA functions

- Remote Monitoring
- Remote Operations Control
- Data Management & Storage
- Alarm System
- Regulatory compliance
- Operation streamlining with automation
- Overall view of system from central location

## SCADA limitations

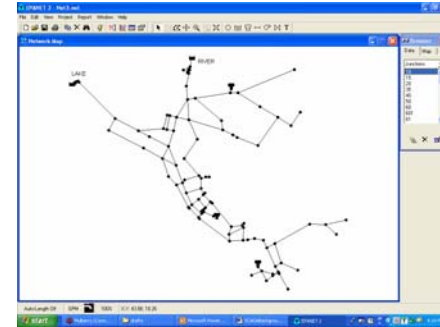
- Mostly monitors and controls at treatment plant but not throughout distribution system
- Mostly monitors flows and pressures and not water quality parameters
- Generally does not include advanced spatial and temporal data storage and analysis capabilities

# Proposed System Architecture

SCADA  
Data Collection

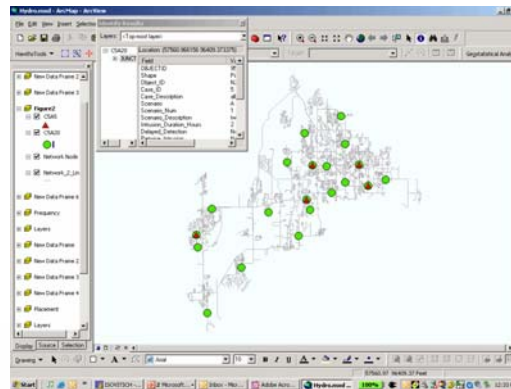


Modeling  
(EPANET Toolkit)



GIS

- Real-time data management
- Real-time system control



# Roadmap

- Incorporation of distribution system into plant-centric SCADA systems
- Communication between operations and engineering departments of water utilities and automatic communication between SCADA system and model.
- Integration of spatial and temporal data from SCADA system and model into GIS
- Addition of real-time water quality sensor data to water quantity data now archived in SCADA
- Provide capability to SCADA systems to control disinfection boosters based on sensor data