WATER SYSTEM OUTAGE ANALYSIS

Water Demand Balancing and Outage Analysis Tool

Benefits of Outage Analysis Tool
A water system often has multiple pressure zones, surface and groundwater sources, treatment facilities, and pump stations and pipelines. The outage analysis tool assists engineers, operators, and managers to respond timely to an outage situation when one or more of these components are temporarily or permanently out of service.

This tool offers the following benefits for water utilities, engineers, and hydraulic molders:
- Provides a prompt solution on how to balance the remaining water resources to best meet the demands of various zones or agencies. This analysis can screen scenarios to be further modeled using hydraulic models.
- Determines the strategy for developing new sources and treatment facilities.
- Evaluates system improvement alternates (new or improved force mains, pipes, pump stations and PRVs) and prioritizes them based on their benefits versus costs.
- Assesses the impacts of alternate system improvement components on overall water system resilience.

Graphical Interface
This tool provides the following graphical features to help users explore their water system virtually:
- Graphical process flow for users to explore the whole system and switches to turn on and off components manually or automatically to simulate a system failure or operation mode.
- Animated graphical indications to identify the bottlenecks and demand deficits.
- Linked values of demand, supply and deficits for each zone and total.
- Other customizable pop-up warnings.

The outage analysis tool utilizes genetic algorithm optimizer or full factorial solver to promptly balance supply versus demands between pressure zones or among agencies, prior to more in-depth analysis using hydraulic models.