The Drinking Water Board's

Hydraulic Modeling Rule

by
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Hydraulic Modeling Rule Purpose:

- Ensure a reliable supply of drinking water
- Fine tune the design
- Properly managed growth
- Engineering based decisions

Rule Applies to:

- Community water systems
- Non Transient Non Community water systems with high water demands
  - Demands higher than required
  - Fire suppression
- Water systems submitting plans to the Division for a project

Projects Excluded:

- New sources without any new connections
- Chlorination / Fluoridation
- Pipelines without new connections
- Pump stations
- Storage tank repair & maintenance
- Systems with approved master plans and an engineer tracking growth
- Projects involving minimal hydraulic impact

Expectations of the Rule

It is expected that necessary improvements will be made to the existing system in conjunction with an expansion project, if the expansion project will cause unacceptable supply or pressure problems for existing customers. The extent of the improvements to the existing system will be sufficient to keep existing customers whole.

Exclusion to the Expectation

If the expansion project is hydraulically separated from a known problem area in the distribution system, (the proposed project will not further degrade the service in the problem area) the expansion project may proceed without addressing the problem area in conjunction with the project. The water system would be encouraged to address the problem area.

Reasons for the rule:

- The Division of Drinking Water (DDW) wants:
  - Water systems that can reliably supply sufficient water to all customers at adequate pressures
- The Division of Drinking Water (DDW) wants to avoid:
  - Water utilities, without adequate water supply or delivery capability, promising water to future developments
  - Political decision makers making engineering decisions without the benefit of engineering advise

Hydraulic Modeling Rule Elements:

- The rule applies when plans are submitted to DDW
- The design engineer:
  - Prepares, runs, calibrates, evaluates the model and accounts for model identified deficiencies in the design
- Submits to DDW:
  - A certification of the results
  - A Hydraulic Model Design Elements Report
  - The water system management's acknowledgement of receipt of the model findings

The Design Engineer Certification:

- Certifies that:
  - The minimum model requirements were met
  - The appropriate demand requirements as specified by Rule were used in the model
  - The model shows that minimum pressures can be maintained during high demand conditions
  - The model was adequately calibrated
- Identifies the modeling method and software name and version

Things a Utility Can do to Prepare

- Prepare and/or update facility maps
  - Pipe diameter and material (CIP, PVC, DI etc.)
  - Valve locations
  - Storage locations, volumes
  - Pump sizing (pump curves/specifications)
  - Pressure zones
  - elevations

Engineering Contract Issues

- Data gathering and data entry
- Require in the contract that the consultant provide an electronic copy of the physical facility data to the utility

Issues Associated with the Rule

- Only expansion projects invoke the rule
- A hydraulic model would identify the true cost of providing water to a new development
- The developer should pay for the full cost of providing water
- Cities and Towns should consider ordinances dealing with growth
- RWAU can help

3 Points of View

- The Division of Drinking Water
- Public Water Systems
- Design Engineers

Questions and/or Comments?

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