

Continuing Services - Mark B. Whitaker WTP

Location: Knoxville, Tenn.

Client: Knoxville Utilities Board

Completion Date: 2003



PROJECT SUMMARY

For several decades, Burns & McDonnell has worked with the Knoxville Utilities Board to develop a long-term master plan for the Mark B. Whitaker treatment plant. Burns & McDonnell completed master plans for the plant in 1980 and 1990, along with the design of recommended improvements to expand plant capacity and improve finished water quality. The 60-million-gallon-per-day (MGD) plant, which uses Fort Loudoun Lake for raw water supply, was evaluated to identify plant modifications required to meet projected increases in water demand and to continue compliance with new and proposed drinking water regulations.

The scope of work for the 2000 master plan addressed demographics and water usage, source water quality changes, Safe Drinking Water Act Amendments impacts, clarification, filtration, plant wastes, clearwell, high service pumping, plant capacity, distribution water quality, electrical and mechanical systems, structural assessment, instrumentation and controls, operations facilities, staffing requirements, benchmarking, and consumer confidence reporting.

The scope of work also includes:

- Evaluating the existing and potential capacity of the plant treatment, pumping and storage facilities.
- Defining the water source, treatment plant and site limiting factors.
- Correlating the ultimate facility capacity with projected water demands.
- Developing an implementation schedule for the various plant improvements.

Recommended improvements outlined by Burns & McDonnell will allow the utility to meet projected increases in water demand in an orderly and efficient manner, while minimizing construction and operation costs.

Burns & McDonnell has completed design and construction of some recommended improvements, including a new 5-MG clearwell and 60-MGD transfer pumping station. Also included was a new 60-MGD high service pumping station and 4-MG reservoir as the first phase of the improvements recommended in the 2000 master plan. Most recently, Burns & McDonnell provided criteria for filtration system upgrades and hydraulic capacity improvements at the plant.

SERVICES PROVIDED

- Water plant master planning
- Safe Drinking Water Act compliance
- Clearwell design
- Pump station design
- Water usage projections
- Filtration system evaluations

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