cdpengineers

Jackson Water Treatment Plant and Water Distribution

project description | water treatment

location
Jackson, KY

client contact
Mayor Michael D. Miller
City of Jackson
(606) 666-7069

period of services
2000-2005

construction cost
$6,800,000

The City of Jackson contracted with CDP Engineers (CDP) to develop and design a infrastructure project to include construction of a new water treatment plant, transmission main, and a small tank for the municipal water system. Other tasks, including the creation of a hydraulic model and comprehensive GIS were performed by CDP.

A hydraulic model was created using PIPE2000 (KYPIPE) software for use in the project facility design and for subsequent incorporation into a comprehensive GIS. The hydraulic model included over 400 pipes and junctions encompassing the distribution grid of Jackson as well as the rural lines extending into Breathitt County.

The engineering tasks included design of a new, 2.5 million gallon water plant with state-of-the-art treatment and disinfection components and processes. CDP suggested the patented Actiflo® process to give consistency and efficiency to the difficult task of treating the turbid water of the North Fork of the Kentucky River while remaining in compliance with the new requirements of the Interim Enhanced Surface Water Treatment Rule. To ensure compliance with the Disinfectant/Disinfection By-Products Rule, CDP recommended mixed oxidant disinfection achieved through the MIOX® process.

Directional boring was specified to accomplish the sub-fluvial crossing of the North Fork. A new transmission main was designed to convey treated water to the existing storage tank on Highland Avenue. Finally, a small welded steel tank replaced the existing tank on Picnic Hill to continue to provide pressure for several customers in the higher elevations of Jackson.

To optimize the value of the $6,700,000 in federal grants and low-interest loans, creation of a comprehensive GIS was included in the project scope. GIS was recommended for a variety of reasons. The primary benefit of GIS for the water utility was to record and preserve data, including locations of facilities, materials, and maintenance records. Unlimited other benefits follow, including the vast opportunities of cooperative efforts with the county PVA and 911 coordinator and many time-saving features that maximize the work product of city employees and the services offered by the City to her residents.