HYDRAULIC TRANSIENT COMPUTER MODEL FOR SAN DIEGO WATER AUTHORITY

(A003)

Petr Ingeduld¹, Robert Carr¹, Nona Yang², Gene Gemperline³

¹DHI Inc., USA
²San Diego County Water Authority, USA
³Franklin DeFazio, Inc, USA

Keywords: hydraulic transient analysis, water supply

Abstract
San Diego County Water Authority is a water wholesaler providing a safe and reliable water supply to its 24 member agencies in the San Diego region. The Water Authority has come to supply up to 90% of San Diego County's water, which serve more than 3 million residents. The water supply system consisting of approx. 300 miles of pipelines ranging from 48 to 108 inches in diameter, 103 active meter connections, 7 pumping stations, 4 hydroelectric facilities, one water treatment plant, and one reservoir. These facilities are been developed over the last 60 years through a sequence of individual projects and has significant hydraulic complexity.

DHI Inc has been awarded a contract to develop a dynamic transient flow model that will be suitable for modeling the Water Authority’s conveyance and distribution system as well as relevant appurtenant facilities of other local agencies that have a significant hydraulic influence upon the Water Authority’s system. The work includes modification to an existing Hydraulic Transient Engine known as FG3D (Frank DeFazio Inc) which will be incorporated into MIKE URBAN Hydraulic Model to provide an integrated modeling system.

The project includes substantial programming of menu’s and tools, as well as additional functionality in the Transient Model code. The transient model will be verified on the pilot reaches including Second Aqueduct untreated water pipelines from Twin Oaks Valley Flow Regulatory Structure (TOVFRS) to Otay Lake including Olivenhain Pipeline and Pump Station and inactive pipelines south of Miramar Vent. Project duration: 2008-2010, SDCWA project manager: Nona Yang, DHI Project manager: Petr Ingeduld