HYDRAULIC MODELING FOR WATER UTILITY DISTRIBUTION SYSTEMS

February 4-5, 2020
EUCI Conference Center
Plaza Tower One Conference Center
Denver, CO
OVERVIEW

This course introduces hydraulic models for water utility distribution systems and covers how modeling can be applied to benefit water utilities. Ensuring a robust and redundant infrastructure, reducing operating costs, planning for outages, and determining fire fighting capabilities are some of the items that attendees should have new ideas about after this course.

Hydraulic Modeling for Water Utility Distribution Systems will highlight the fundamentals of modeling including the purpose of a model, inputs, and results while covering the more challenging basics of data collection, defining capacity and demand, and outage analysis.

LEARNING OUTCOMES

Upon completion of this course, participants will be able to successfully:

- Layout the components of a hydraulic model
- Collect hydraulic modeling data from GIS and other sources
- Define Hydraulic Grade Line (HGL) and Headloss and interpret the impacts to HGL in the distribution system and pressure pipe models based on minor losses
- Assign consumption to the model
- Recognize how to ensure robust and redundant infrastructure
- Determine fire-fighting capabilities
- Analyze the distribution system
- Perform outage analysis and better plan for outages
- Assess water quality within the distribution system
- Refine operational modeling skills: linking the model to SCADA, forecasting, and forensics
- Optimize operations and reduce costs

WHO SHOULD ATTEND

This course is designed for anyone who wishes to obtain a basic understanding of hydraulic modeling for water utility distribution systems

- Engineers
- Water modeling specialist
- GIS specialist
- Project managers
- Water operations
- Mid managers and supervisors
AGENDA

TUESDAY, FEBRUARY 4, 2020

8:00 – 8:30 am  Registration and Continental Breakfast

8:30 – 8:45 am  Course Introductions and Objectives

8:45 – 9:45 am  Hydraulic Modeling Overview
  •  Transmission
  •  Storage
  •  Operations

9:45 – 10:00 am Morning Break

10:00 – 11:00 am GIS and Modeling
  •  Useful data for Modeling in GIS
  •  1 to 1 Models
  •  Data needed not found in GIS

11:00 am – 12:00 pm Hydraulic Grade Line (HGL) and Headloss
  •  Major impacts to HGL in Distribution Systems
  •  Minor losses in pressure pipe models
  •  Impacts of pumps, control valves, and PRV’s

12:00 – 1:00 pm Group Luncheon

1:00 – 2:00 pm Consumption
  •  Common Data
  •  Assigning Consumption to the Model
  •  Diurnal Patterns
  •  AMI

2:00 – 3:00 Redundancy Assessments Using Hydraulic Models
  •  One side out analysis
  •  Criticality of pipes

3:00 – 3:15 pm Afternoon Break

3:15 – 4:15 pm Fire Flow Analysis
  •  Benefits of hydrants being in the hydraulic model
  •  Multiple hydrant analysis
  •  Available flow at a hydrant

4:15 – 5:00 pm Analysis of Distribution System
  •  Main Sizing
  •  PRV Set Points
  •  System Head Curves for Pumping
# AGENDA

**WEDNESDAY, FEBRUARY 5, 2020**

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<th>Time</th>
<th>Session</th>
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<td>8:00 – 8:30 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>8:30 – 9:30 am</td>
<td>Outage Analysis</td>
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<td>• Storage offline</td>
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<td>• Conduit outages</td>
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<td>• Comparing solutions</td>
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<td>9:30 – 10:30 am</td>
<td>Water Quality</td>
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<td>• Source tracing</td>
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<td>• Introduction to multi species modeling</td>
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<td>10:30 – 10:45 am</td>
<td>Networking Break</td>
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<td>10:45 – 11:45 am</td>
<td>Operational Modeling</td>
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<td>• The reality of operations</td>
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<td>• Linking the model to SCADA</td>
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<td>• Forecasting</td>
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<td>• Forensics</td>
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<td>11:45 am – 12:30 pm</td>
<td>Optimization</td>
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<td>• Pumping Operations</td>
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<td>• Valve Control</td>
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<td>• Demand planning</td>
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<td>12:30 – 1:00 pm</td>
<td>Wrap up: Questions, Comments, and Remarks</td>
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## INSTRUCTOR

**Kedric Szana**  
*Water Modeling Specialist, Denver Water*

Kedric is Denver Water’s lead hydraulic modeler. He specializes in hydraulic and water quality modeling of distribution systems, collection systems, raw water systems, and transients. He has worked extensively on GIS integrated hydraulic models and the benefits of AMI for distribution system modeling. He has been focused on SCADA integrated, operational, and real-time modeling for the past decade.
REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

INSTRUCTIONAL METHODS

This program will use PowerPoint presentations and active participation with modeling software. Laptops are required.

IACET CREDITS

EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.1 CEUs for the course.

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this event may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

EVENT LOCATION

Plaza Tower One Conference Center
6400 S Fiddlers Green Cir.
Greenwood Village, CO 80111
The EUCI conference center is conveniently located adjacent to the Arapahoe at Village Center Light Rail Station, allowing easy access to and from DIA, Downtown, and Local Area Attractions.

NEARBY HOTELS

Each of these hotels offers a complimentary shuttle to and from the EUCI conference center.

Hyatt Regency Denver Tech (2.8 miles away)
7800 E. Tufts Ave. Denver, CO 80237
303-779-1234

Special EUCI Room Rate: $179.00
To access EUCI room rate visit denvertechcenter.regency.hyatt.com
Click “Book Now”, then click “Special Rates”,
Click “Corporate or Group Code” and enter CR102338

You may also call central reservation at 1-800-233-1234 and give them the corporate code of CR102338

Springhill Suites DTC (.3 miles away)
7900 East Peakview Ave., Greenwood Village, CO 80111
303-721-3321

Wingate by Wyndham (.3 miles away)
8000 E. Peakview Ave., Greenwood Village, CO 80111
303-626-2641

Hyatt Place DTC (2.1 miles away)
8300 E. Crescent Pkwy, Greenwood Village, CO 80111
303-804-7000

Denver Marriott Tech Center (3.1 miles away)
4900 S. Syracuse St., Denver, CO 80237
303-779-1100
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See nearby hotels on page 5

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Billing Zip Code/Postal Code

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Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before January 3, 2020 in order to be refunded and will be subject to a US $195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI’s liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices. EUCI reserves the right to alter this program without prior notice.