

Title:

Flip-Flap, Modulate, and BURP! – A “Specialty”, Automatic Valves Training for Engineers and Operators

Course Description for Program:

Engineers and operators alike will learn about “specialty” valves which include, hydraulic control valves, air valves, and check valves. This discussion begins with basic hydraulics and how hydraulics automatically operate control valves to manage system pressure, flow, reservoir levels, and pumps. The 3 hour hands-on session on control valves will demonstrate valve and pilot internals, sizing, design, troubleshooting, and maintenance. Some students will have the opportunity start up, operate, and shut down a valve under live pressures!

The additional 2 hours will focus on check and air valves and how they are critical to a functioning water distribution system. This section will highlight 6 different check valves, selection, and function. This will include education on “slamming” and preventing it. Further discussion will include the problem of air in a system, why air must be eliminated regularly, how air valves work, and selection of air valves. Live models of both air and check valves will be present for engineers and operators see how these valves operate in system.

Agenda:

- 1) 8:00: Arrival, Logistics, Coffee (not counted toward CEU credits)
- 2) 8:15am: Introduction; Why Control Valves. (Formal course beginning; CEU’s count)
- 3) 8:35am: Basic Principles of Control Valve Operation
- 4) 8:45am: Control Valve Main Body & Internals (Includes dissection of main valve body)
- 5) 9:05am: Intro to Pilot Systems
- 6) 9:15am: Pressure Reducing Valves
- 7) 9:25am: Valve Sizing and Selection
- 8) 9:30am: Electronic Controls
- 9) 9:45am: Pressure Reducing Package System Design
- 10) 10:15am: Break
- 11) 10:30am: Pressure Relief Valves (includes surge anticipation valves)
- 12) 10:50am: Pressure Sustaining Valves
- 13) 11:00am: Flow Lab Work
- 14) 11:30am: Lunch
- 15) 12:30pm: Asset Management
- 16) 1:00pm: Check Valves: Purpose
- 17) 1:10pm: Slamming
- 18) 1:20pm: Check Valves: Discussion of 6 different types and functions
- 19) 2:00pm: Break
- 20) 2:15pm: Air Valves: Discussion of Air in Water Pipelines
- 21) 2:30pm: Air Valves: Different types of air valves: placement and function
- 22) 3:00pm: Conclusion of Session

CEU Relevancy Statement:

Specialty valves and maintenance are a vital aspect of a functioning water system. Proper understanding, maintenance, and design practices will aid to ensure proper valve performance and prevent valve failure which affects system reliability, community safety, resource (water) protection, and resource conservation. Hydraulic control valves especially remain a mystery to many engineers and operators. This class is designed to build a fundamental familiarity with valve function and hydraulic piloting systems. When a specialty valve is needed for as a new installation or replacement, engineers and operators will have a better understanding of function, design, and selection.

Steve Causseaux Bio:

Steve has worked closely along side water and wastewater district operators, engineers, and independent engineering firms over the last 15 years to select valves and specific valve functions for the wide range of applications. With 33,000+ possible combinations of control valves available, engineers and operators often need assistance in understanding valve capabilities, applications, maintenance, and troubleshooting. Cimco-GC Systems has been supporting the PNW water/wastewater industry for 47 years.

Robert Velasquez Bio:

Robert has been fielding valve design, sizing, and troubleshooting questions and requests from engineers and water districts, daily, since 2015. In addition to supporting project design, he spends plenty of time in vaults and pump houses rebuilding, maintaining, and troubleshooting valves. When he isn't writing valve specifications for projects throughout the Pacific Northwest, including Alaska, Rob enjoys remodeling his house and playing with his two young daughters and "little" son.