

# CEUs - CONTINUING EDUCATION UNITS

## Pumping Stations and Hydraulics

[ 1 DAY INSTRUCTION ]

### COURSE OVERVIEW

Pumping facilities are required wherever gravity cannot be used to supply water to the distribution system under sufficient pressure to meet all service demands. Pumping accounts for most the energy consumed in water supply operations. This course also introduces some elementary concepts of the hydraulics of water distribution systems. These include piezometric surface and hydraulic grade line, hydraulic head, head loss, pumping heads, and pump curves. Also discussed are the hydraulics of pipe flow, the hydraulics of a water system, the use of network analysis, and the concepts of hydraulic transients.

### COURSE OUTLINE

- Pumps and pumping stations: types of pumps, operation of centrifugal pumps, maintenance, record keeping, and pump safety.
- Hydraulics of water distribution systems: fluids at rest and in motion, hydraulic gradient, hydraulics of pipe flow, hydraulics of the system, network analysis, water hammer.
- Appendices.
- Quiz.

### PREREQUISITE

Open.

### TARGET AUDIENCE

Water distribution operators, water utility field staff, water utility construction inspectors, and water system design personnel.

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FROM OUR HOMEPAGE.**

### DATE

TBD

### TIME

8:30 am to 4:00 pm

### LOCATION

TBD

### COURSE DURATION

1 day

### DIRECTOR APPROVED CEUs

0.6

### COST

\$300.00 + \$39.00 = \$339.00

### TRAINER

James Haskell



### PHONE

807-737-1135 x4000 x4001

877-737-5638 x4000 x4001

### FAX

807-223-8426

### E-MAIL

[info@watertraining.ca](mailto:info@watertraining.ca)

### WEB SITE

[www.watertraining.ca](http://www.watertraining.ca)

