



## Water-Based Systems Layout Certification Level III Content Outline

(Updated Exam Release Date: July 8, 2024)

### Engineering Technician

The candidates for NICET certification at Level III in Water-Based Systems Layout should have the knowledge, experience, and skills needed to work independently with codes, standards, plans, and specifications to produce complete submittals for all types of water-based systems. They oversee Level I and II technicians and design and coordinate projects from start to finish. Level III technicians have at least 5 years of experience in water-based systems layout.

**There are two exams listed at Level III. Both are required for certification.**

### **General Plans Preparation Exam (10013)**

#### **3.1 Contract Documents**

(Questions related to these tasks make up 1-8% of the exam.)

- 3.1.1 Apply project specifications. 1
- 3.1.2 Explore value engineering options. 1
- 3.1.3 Develop design-build project criteria. 1

#### **3.2 Survey Existing Conditions**

(Questions related to these tasks make up 1-10% of the exam.)

- 3.2.1 Evaluate existing systems. 1

#### **3.3 Codes and Standards**

(Questions related to these tasks make up 7-17% of the exam.)

- 3.3.1 Determine design criteria. 1
- 3.3.2 Implement water-based system designs. 1, 3, 7

#### **3.4 Sprinkler System Layout**

(Questions related to these tasks make up 42-52% of the exam.)

- 3.4.1 Layout complex systems. 1, 8
- 3.4.2 Address mixed occupancy protections. 1, 2, 7
- 3.4.3 Determine applicability of pipe schedule systems. 1
- 3.4.4 Evaluate storage occupancies. 1
- 3.4.5 Address impacts of building features on water-based systems. 1
- 3.4.6 Perform seismic calculations. 1
- 3.4.7 Optimize system layouts. 1, 9

#### **3.5 Complex Standpipe System Layout**

(Questions related to these tasks make up 6-16% of the exam.)

- 3.5.1 Determine flow and pressure requirements. 1, 2, 3

#### **3.6 Fire Pump Unit Layout**

(Questions related to these tasks make up 9-19% of the exam.)

- 3.6.1 Layout fire pumps and all appurtenances. 3

#### **3.7 Water Storage Tanks**

(Questions related to these tasks make up 1-9% of the exam.)

- 3.7.1 Select and layout water storage tank. 1, 4



### **3.8 Project Management**

(Questions related to these tasks make up 1-9% of the exam.)

3.8.1 Manage contract modifications. 1, 6

3.8.2 Prepare project schedules. 1, 5

3.8.3 Manage approval processes. 1

## **Hydraulics and Water Supply Planning (10014)**

### **3.9 Calculate Standpipe Systems**

(Questions related to these tasks make up 5-15% of the exam.)

3.9.1 Calculate automatic standpipe systems. 1, 2

3.9.2 Determine remote hose valve locations. 2

### **3.10 Calculate Water Supply with Pumps**

(Questions related to these tasks make up 25-35% of the exam.)

3.10.1 Evaluate water supplies. 1, 3, 4, 5

3.10.2 Select fire pumps. 1, 2, 3, 6

3.10.3 Evaluate fire pump systems. 1, 3

### **3.11 Hydraulic Calculation Principles**

(Questions related to these tasks make up 55-65% of the exam.)

3.11.1 Perform hydraulic calculations. 1, 3, 4, 5

3.11.2 Perform a hand calculation of a tree system. 1

3.11.3 Perform a hand calculation of a simple loop system. 1, 5

3.11.4 Evaluate hydraulic calculations. 1

3.11.5 Balance simultaneous demands. 1

April 12, 2024      Footnote number is linked to a reference on the General References listing