

2012 - 2013

**Florida Department of Education
Curriculum Framework**

Program Title: Water Distribution Systems Operations
Program Type: Career Preparatory
Career Cluster: Agriculture, Food & Natural Resources

PSAV	
Program Number	A600100
CIP Number	0715050607
Grade Level	30, 31
Standard Length	275 hours
Teacher Certification	WSP OPER @7 G
CTSO	N/A
SOC Codes (all applicable)	51-8031
Facility Code	263 http://www.fldoe.org/edfacil/sref.asp (State Requirements for Educational Facilities)
Targeted Occupation List	http://www.labormarketinfo.com/wec/TargetOccupationList.htm
Perkins Technical Skill Attainment Inventory	http://www.fldoe.org/workforce/perkins/perkins_resources.asp
Industry Certifications	http://www.fldoe.org/workforce/fcpea/default.asp
Statewide Articulation	http://www.fldoe.org/workforce/dwdframe/artic_frame.asp
Basic Skills Level	Mathematics: N/A Language: N/A Reading: N/A

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Agriculture, Food & Natural Resources career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the water/wastewater sector of the Agriculture, Food & Natural Resources career cluster.

The content includes but is not limited to safety, installation, maintenance, and repair of a water distribution system. This will include its structure, appurtenances, and equipment while protecting water quality by using accepted disinfection and monitoring practices to protect the health and welfare of the system's users.

Program Structure

This program is a planned sequence of instruction consisting of three courses and three occupational completion points.

When offered at the postsecondary adult career and technical level, this program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

The following table illustrates the program structure:

OCP	Course Number	Course Title	Course Length	SOC Code
A	EVS0240	Water System Operator Level 3	100 hours	51-8031
B	EVS0241	Water System Operator Level 2	75 hours	51-8031
C	EVS0242	Water System Operator Level 1	100 hours	51-8031

Laboratory Activities

Laboratory activities are an integral part of this program. These activities include instruction in the use of safety procedures, tools, equipment, materials, and processes related to these occupations. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an Individual Educational Plan (IEP) served in Exceptional Student Education or ESE) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note postsecondary curriculum cannot be modified.

Some secondary students with disabilities (ESE) may need additional time (i.e., longer than the regular school year), to master the student performance standards associated with a regular Occupational Completion Point (OCP) or a Modified Occupational Completion Point (MOCP). If needed, a student may enroll in the same career and technical course more than once. Documentation should be included in the IEP that clearly indicates that it is anticipated that the student may need an additional year to complete an OCP/MOCP. The student should work on different competencies and new applications of competencies each year toward completion of the OCP/MOCP. After achieving the competencies identified for the year, the student earns credit for the course. It is important to ensure that credits earned by students are reported accurately. The district's information system must be designed to accept multiple credits for the same course number (for eligible students with disabilities).

Articulation

This program has no statewide articulation agreement approved by the Florida State Board of Education. However, this does not preclude the awarding of credits by any college through local agreements.

For details on statewide articulation agreements which correlate to programs and industry certifications, refer to http://www.fldoe.org/workforce/dwdframe/artic_frame.asp.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Identify professions in the water technology field.
- 02.0 Operate storage facilities.
- 03.0 Operate water distribution system facilities.
- 04.0 Describe water quality consideration in a water distribution system.
- 05.0 Explain water distribution system operations and maintenance needs and techniques.
- 06.0 Describe the principles and practices of disinfection in water distribution systems.
- 07.0 Describe the principles and practices of safety relating to water distribution system operation.
- 08.0 Solve water distribution system mathematical problems.
- 09.0 Apply principles of water distribution system administration.
- 10.0 Identify operational needs and maintenance of storage facilities.
- 11.0 Identify operating and maintenance needs for water distribution system facilities.
- 12.0 Develop and implement pipe-cleaning operations.
- 13.0 Identify water quality concerns and disinfection needs in a water distribution system.
- 14.0 Identify principles and practices of safety relating to water distribution system operations.
- 15.0 Apply principles of water distribution system administration.
- 16.0 Demonstrate and apply supervisory skills.
- 17.0 Demonstrate water distribution system management and organizational skills.
- 18.0 Develop cost effective management.
- 19.0 Prepare water distribution system budgets.

- 20.0 Develop standard operating procedures for training of water distribution system operators.
- 21.0 Demonstrate personnel selection and discipline.
- 22.0 Develop and demonstrate contingency planning.
- 23.0 Demonstrate record-keeping and computer technology applications in planning.
- 24.0 Interpret and apply federal, state and local rules and regulations concerning water distribution systems and employees.
- 25.0 Demonstrate public-relation skills in community interactions.

2012 - 2013

**Florida Department of Education
Student Performance Standards**

Program Title: Water Distribution System Operations
PSAV Number: A600100

Course Number: EVSO240
Occupational Completion Point: A
Level 3 Water System Operator – 100 Hours – SOC Code 51-8031

- 01.0 Identify professions in the water technology field--The student will be able to:
- 01.01 Explain the work done by water distribution system operators.
 - 01.02 Explain the responsibilities of a water distribution system operator.
 - 01.03 Describe where to seek employment in the water distribution profession.
 - 01.04 Find sources of further information on how to do work task performed by water distribution system operators.
 - 01.05 Define what a water supply system is.
 - 01.06 Explain the water sources.
 - 01.07 Demonstrate employability skills.
- 02.0 Operate storage facilities--The student will be able to:
- 02.01 Understand the purpose of storage facilities.
 - 02.02 Identify the various types of storage facilities.
 - 02.03 Understand the application of storage facilities.
 - 02.04 Properly perform storage facility inspections.
 - 02.05 Understand the process of taking a storage facility out of service and retuning it back to service.
 - 02.06 Operate and maintain storage facilities in a safe manner.
 - 02.07 Understand the methods and applications of storage facility corrosion control.
 - 02.08 Apply interior and exterior protective coatings to a storage facility.
 - 02.09 Understand the operation and use of altitude control valves.
 - 02.10 Understand how to maintain water quality in a storage facility.
 - 02.11 Understand how to troubleshoot water quality problems in a storage facility.
 - 02.12 Understand disinfection processes and methods for storage facilities.
 - 02.13 Disinfect a storage facility.
 - 02.14 Collect samples from a storage facility.
 - 02.15 Understand federal, state, and local regulations for storage facilities.
 - 02.16 Understand booster pumping for storage facilities.
 - 02.17 Understand AWWA specifications and standards for storage facilities.
 - 02.18 Maintain landscaping and aesthetics of storage facilities.
 - 02.19 Maintain records for storage facilities.
- 03.0 Operate water distribution system facilities--The student will be able to:
- 03.01 Explain the purpose of a water distribution system.
 - 03.02 Explain distribution system hydraulics.
 - 03.03 Understand water distribution system pressure requirements.
 - 03.04 Understand the causes of friction losses within a distribution system.

- 03.05 Understand water distribution transmission systems.
- 03.06 Explain the different water distribution system layouts.
- 03.07 Understand water main pipe features and requirements.
- 03.08 Explain the different types of piping materials.
- 03.09 Explain the different type of pipe joints and their applications.
- 03.10 Understand the different type of corrosion control used to protect pipe.
- 03.11 Understand and perform water main installation task.
- 03.12 Understand application of pipe fittings.
- 03.13 Install pipe fittings.
- 03.14 Understand the requirements of the "ONE CALL" system.
- 03.15 Explain water main separation requirements.
- 03.16 Understand excavation spoil setbacks.
- 03.17 Understand sheeting and shoring requirements.
- 03.18 Understand trenchless technology.
- 03.19 Define a "Competent person".
- 03.20 Understand the responsibilities of a "competent person".
- 03.21 Explain the need and application of thrust blocks.
- 03.22 Properly install harnessed joints.
- 03.23 Understand the correct process of backfilling an excavation.
- 03.24 Perform a hydrostatic pressure and leakage test.
- 03.25 Disinfect a pipeline using accepted standards.
- 03.26 Understand the application and operation of the different type water distribution system valves.
- 03.27 Install water distribution system valves.
- 03.28 Understand inspection and maintenance of distribution valves.
- 03.29 Understand the operation of fire hydrants.
- 03.30 Install a fire hydrant.
- 03.31 Understand inspection and maintenance requirements for fire hydrants.
- 03.32 Repair and maintain fire hydrants.
- 03.33 Understand the process of repairing a water main while it is under pressure.
- 03.34 Understand the process of taking a water main out of service, repairing it and returning it to service.
- 03.35 Explain the purpose of water meters.
- 03.36 Define the different type of meters.
- 03.37 Read a water meter.
- 03.38 Understand the application of water meters.
- 03.39 Understand the need for testing and calibrating water meters.
- 03.40 Understand backflow prevention and cross-connection.
- 03.41 Explain the different type of backflow prevention assemblies.
- 03.42 Explain the application for the different types of backflow prevention assemblies.
- 03.43 Explain what a "Degree of Hazard" is.
- 03.44 Understand the requirements for installing backflow prevention assemblies.
- 03.45 Understand the testing and maintenance requirements of backflow prevention assemblies.
- 03.46 Make a tap on a water main while under pressure.
- 03.47 Safely operate machinery and equipment.
- 03.48 Read and understand the use of gauges:
 - PSIG (Gauge).
 - PSIA (Absolute).
 - PSID (Differential).
- 03.49 Install, read, and monitor pressure-recording gauges.

03.50 Read and understand water distribution system mapping.

04.0 Describe water quality consideration in a water distribution system--The student will be able to:

- 04.01 Define specific terms used for water quality.
- 04.02 Understand the importance of water quality.
- 04.03 Understand water quality standards.
- 04.04 Understand the types of contaminants that affect water quality.
- 04.05 Understand the sources of contaminants.
- 04.06 Understand causes of water quality degradation in water distribution systems.
- 04.07 Understand how to maintain water quality within a water distribution system.
- 04.08 Perform water-monitoring test for pH.
- 04.09 Perform water-monitoring test for disinfectant residuals.
- 04.10 Understand the process and need for collecting samples from a distribution system.
- 04.11 Collect samples from a water distribution system.
- 04.12 Troubleshoot water quality complaints.
- 04.13 Perform flushing activities for maintaining water quality.

05.0 Explain water distribution system operations and maintenance needs and techniques--
The student will be able to:

- 05.01 Explain the need for system operation and maintenance.
- 05.02 Explain the different types of maintenance.
- 05.03 Understand water distribution system surveillance programs.
- 05.04 Understand water quality-monitoring programs for a water distribution system.
- 05.05 Understand and conduct a cross-connection control inspection.
- 05.06 Understand and conduct bacteriological sampling.
- 05.07 Understand lead and copper monitoring and sampling procedures.
- 05.08 Determine and understand booster-pumping needs in a water distribution system.
- 05.09 Understand booster pumping maintenance requirements.
- 05.10 Connect water pipes together using different types of pipe joints.
- 05.11 Read water distribution maps to locate buried pipes and appurtenances.
- 05.12 Locate water main leaks.
- 05.13 Understand and use leak detection equipment.
- 05.14 Understand the different types of water main repair clamps and fittings.
- 05.15 Make repairs on water main leaks.
- 05.16 Flush pipes.
- 05.17 Set up a flushing program.
- 05.18 Understand pipe-cleaning operations.
- 05.19 Understand pipelining technology.
- 05.20 Understand and use the required equipment for making a service connection to a water main.
- 05.21 Understand how a water meter is installed.
- 05.22 Understand testing and calibrating water meters.
- 05.23 Understand and perform flow testing.
- 05.24 Explain field disinfection requirements and methods.
- 05.25 Disinfect a new water main and storage facilities.
- 05.26 Understand record keeping requirements.

- 05.27 Keep accurate operation and maintenance records of a water distribution system.
- 05.28 Understand and interpret water distribution mapping.
- 05.29 Understand engineering design and profile drawings.
- 05.30 Make accurate "as-built" drawings.
- 05.31 Understand landscaping needs.
- 05.32 Understand restoration requirements.
- 05.33 Develop and use proper public relation skills.
- 05.34 Safely operate and maintain a water distribution system.

06.0 Describe the principles and practices of disinfection in water distribution systems--The student will be able to:

- 06.01 Define technical terms relating to disinfection in water distribution systems.
- 06.02 Understand the purpose of disinfection.
- 06.03 Understand disinfection rules, regulations, and standards.
- 06.04 Describe factors that influence disinfection.
- 06.05 Understand the removal processes for microorganisms.
- 06.06 Understand the formation of disinfection-by-products.
- 06.07 Understand the processes for disinfection-by-product control.
- 06.08 Describe disinfection processes.
- 06.09 Explain accepted practices and standards for disinfection in a distribution system.
- 06.10 Understand hypochlorites.
- 06.11 Describe the properties of chlorine.
- 06.12 Understand the disinfection action of chlorine when added to water.
- 06.13 Describe breakpoint chlorination.
- 06.14 Describe the method for producing chloramines.
- 06.15 Understand nitrification within a distribution system when using chloramines as a disinfectant.
- 06.16 Understand the minimum disinfection requirements in a water distribution system.
- 06.17 Understand disinfection residual testing.
- 06.18 Perform disinfection-monitoring testing in a distribution system.
- 06.19 Calculate chlorine dosages.
- 06.20 Prepare a hypochlorite solution for disinfecting a new main, storage facility, pump, or well.
- 06.21 Disinfect new and existing wells.
- 06.22 Disinfect pumps.
- 06.23 Disinfect new and existing water mains.
- 06.24 Disinfect new and existing storage facilities.
- 06.25 Perform emergency and/or maintenance disinfection.
- 06.26 Understand the operation and maintenance of hypochlorinators.
- 06.27 Troubleshoot disinfection equipment.
- 06.28 Understand the hazards of chlorine and other disinfection chemicals.
- 06.29 Understand the safe handling and storage of disinfection chemicals.
- 06.30 Conduct a chlorine safety inspection.

07.0 Describe the principles and practices of safety relating to water distribution system operation--The student will be able to:

- 07.01 Understand safety programs for a water distribution system.

- 07.02 Safely operate and maintain pumps and wells with attention to the safety of operators and consumers.
 - 07.03 Understand "Lock-out" and "Tag-out" requirements.
 - 07.04 Inspect vehicles and equipment for safety features and/or defects.
 - 07.05 Operate vehicles defensively and safely.
 - 07.06 Operate construction equipment in a safe manner.
 - 07.07 Understand and operate pneumatic tools safely.
 - 07.08 Understand and operate hydraulic tools safely.
 - 07.09 Apply proper application and use of personal protective equipment.
 - 07.10 Understand work zone safety.
 - 07.11 Describe an MOT (Maintenance of Traffic) set-up through a work zone.
 - 07.12 Define terms used for work zone traffic control.
 - 07.13 Understand signage requirements for work zone traffic control.
 - 07.14 Understand "Right-To-Know" laws.
 - 07.15 Understand and know what information is obtained from "Material Safety Data Sheets (MSDS)."
 - 07.16 Understand and use atmosphere-testing equipment.
 - 07.17 Understand what a confined space is.
 - 07.18 Safely enter confined spaces.
 - 07.19 Apply all safety rules and regulations for excavations.
 - 07.20 Understand and use proper sheeting and shoring for trench safety.
 - 07.21 Conduct safety inspections of water distribution facilities.
- 08.0 Understand and solve water distribution system mathematical problems--The student will be able to:
- 08.01 Add, subtract, multiply, and divide whole numbers.
 - 08.02 Add, subtract, multiply, and divide fractions.
 - 08.03 Add, subtract, multiply, and divide decimals.
 - 08.04 Calculate percentages.
 - 08.05 List from memory basic conversion factors.
 - 08.06 List from memory basic formulas used in water distribution.
 - 08.07 Solve basic mathematical formulas used in water distribution for:
 - Areas.
 - Volumes.
 - Circumferences.
 - Flow rates and velocities.
 - Chemical dosages.
 - Temperature conversions.
 - Force, pressures, and head.
 - 08.08 Understand pump characteristics and pump curves.
- 09.0 Understand and apply principles of water distribution system administration--The student will be able to:
- 09.01 Understand the functions of a manager.
 - 09.02 Understand the responsibilities of a supervisor.
 - 09.03 Accurately record information on a work order.
 - 09.04 Describe the benefits of short-term, long-term, and emergency planning.
 - 09.05 Understand how to conduct an employee evaluation.

- 09.06 Prepare written or oral reports on a distribution system's operations.
- 09.07 Communicate effectively within the organization and with the community.
- 09.08 Understand a contingency plan for emergencies.
- 09.09 Understand record keeping requirements.
- 09.10 Understand requirements for disposal of distribution system records.

Course Number: EVSO241

Occupational Completion Point: B

Level 2 Water System Operator – 75 Hours – SOC Code 51-8031

10.0 Identify operational needs and maintenance of storage facilities--The student will be able to:

- 10.01 Identify locations for proper placement of storage facilities.
- 10.02 Take a storage facility off line and put it back on line.
- 10.03 Identify the standards and specifications for storage facility coatings.
- 10.04 Identify and take corrective action for water quality problems in storage facilities.
- 10.05 Develop and implement maintenance schedules for storage facilities.
- 10.06 Determine and implement corrosion control for storage facilities.
- 10.07 Inspect the work being performed by contractors on a storage facility.
- 10.08 Explain federal, state and local rules and regulations operating and maintaining storage facilities.

11.0 Identify operating and maintenance needs for water distribution system facilities--The student will be able to:

- 11.01 Explain hydraulic concerns and performance within a distribution system.
- 11.02 Explain and determine hydraulic gradient lines.
- 11.03 Determine and implement changes in a distribution system that would improve system hydraulics.
- 11.04 Develop protocols for "best practice" methods for the installation of system piping and appurtenances.
- 11.05 Develop and implement programs for inspection and maintenance of fire hydrants.
- 11.06 Develop and implement programs for inspection, maintenance, and calibration of water meters.
- 11.07 Develop and implement programs for inspection and maintenance of distribution valves.
- 11.08 Develop and implement programs for the inspection, testing, and maintenance of backflow prevention assemblies.
- 11.09 Explain and apply federal, state, and local rules and regulations for distribution facility installation and maintenance.
- 11.10 Identify equipment needs for operating and maintaining distribution systems.
- 11.11 Interpret and review engineering design drawings and make field changes when necessary.
- 11.12 Read and interpret distribution system mapping.
- 11.13 Train operators in safe practices for maintaining and operating distribution system facilities.
- 11.14 Develop and implement a water distribution system surveillance program.
- 11.15 Tests and calibrate a water meter.
- 11.16 Make proper applications of water meters.

- 11.17 Determine specifications for equipment used to install and maintain distribution piping and appurtenances.
- 11.18 Develop and implement corrosion control methods for distribution piping.
- 12.0 Develop and implement pipe-cleaning operations--The student will be able to:
 - 12.01 Schedule preventive maintenance activities.
 - 12.02 Develop and implement programs for corrective maintenance activities.
 - 12.03 Direct activities for new pipe line installation.
 - 12.04 Determine material requirements for performing distribution system operations and maintenance activities.
 - 12.05 Determine labor requirements for performing distribution system operations and maintenance activities.
 - 12.06 Determine equipment requirements for performing distribution system operations and maintenance activities.
 - 12.07 Understand the use of Supervisory Control and Data Acquisition systems.
- 13.0 Identify water quality concerns and disinfection needs in a water distribution system--The student will be able to:
 - 13.01 Explain and apply federal, state, and local rules and regulations pertaining to water quality and disinfection in a distribution system.
 - 13.02 Develop and implement a flushing program for maintaining water quality in a distribution system.
 - 13.03 Determine and implement improvements and changes that would improve water quality within a distribution system.
 - 13.04 Develop and implement a bacteriological sampling program.
 - 13.05 Develop and implement a lead and copper sampling program.
 - 13.06 Develop and implement heterotrophic plate count sampling program.
 - 13.07 Develop and implement nitrite and nitrate sampling program.
 - 13.08 Explain the different types of disinfection processes.
 - 13.09 Explain how each disinfection process affects water quality within a distribution system.
 - 13.10 Develop protocols for disinfection of new and existing water mains.
 - 13.11 Develop protocols for disinfection of storage facilities.
 - 13.12 Develop protocols for disinfection of pumps and wells.
 - 13.13 Develop protocols for prevention and control of nitrification in a distribution system when using chloramines as a disinfectant.
 - 13.14 Develop and implement field-testing programs for pH.
 - 13.15 Develop and turbidity, temperature and disinfection residuals.
 - 13.16 Develop and implement programs for the safe handling and use of chemicals used in water distribution.
 - 13.17 Develop and implement a backflow prevention and cross-connection control program.
 - 13.18 Use proper public relation skills when dealing with consumers concerning water quality issues.
 - 13.19 Train operators to prepare for and respond to emergencies that would affect water quality in a distribution system.
- 14.0 Identify principles and practices of safety relating to water distribution system operations--The student will be able to:

- 14.01 Understand and apply federal, state, and local rules and regulations for safe practices when working on water distribution systems.
 - 14.02 Develop and implement safety program for a water distribution system.
 - 14.03 Install sheeting and shoring for excavation safety.
 - 14.04 Perform inspections of work sites for safe conditions.
 - 14.05 Perform safety inspection of tools and equipment.
 - 14.06 Instruct distribution employees on safe work practices.
 - 14.07 Develop plans for follow-up to insure the use of personal protective equipment by employees.
 - 14.08 Implement safety-training programs for distribution system operators.
 - 14.09 Inspect "Work Zone" set-ups.
 - 14.10 Perform the responsibilities of a "Competent Person."
 - 14.11 Develop protocols for handling and storage of hazardous chemicals.
- 15.0 Apply principles of water distribution system administration--The student will be able to:
- 15.01 Understand the utilities organizational chart.
 - 15.02 Understand and write job descriptions for a specific position within the utility.
 - 15.03 Plan and prepare maintenance and work schedules.
 - 15.04 Maintain employee time records.
 - 15.05 Conduct employee performance assessments.
 - 15.06 Prepare and conduct technical training for distribution system employees.
 - 15.07 Review technical specifications for materials.
 - 15.08 Review technical specifications for tools and equipment.
 - 15.09 Prepare a budget.
 - 15.10 Prepare job cost estimates.
 - 15.11 Interview job applicants.
 - 15.12 Understand and apply federal, state, and local rules and regulations for record keeping.
 - 15.13 Maintain water distribution system records.
 - 15.14 Prepare written or oral reports on distribution operations.
 - 15.15 Describe the financial strength of your distribution system.
 - 15.16 Develop and implement contingency plans for emergencies.
 - 15.17 Understand the security plans for your utility's facilities.
- 16.0 Demonstrate and apply supervisory skills--The student will be able to:
- 16.01 Understand and define:
 - Authority.
 - Responsibility.
 - Delegation.
 - Accountability.
 - Unity of Command.
 - 16.02 Demonstrate supervisory and leadership skills.
 - 16.03 Supervise the activities of assigned work force.
 - 16.04 Describe the steps necessary to provide equal and fair treatment to all employees.
 - 16.05 Effectively utilize disciplinary actions to correct employee behavior.
 - 16.06 Follow proper procedures for disciplining employees.

- 16.07 Delegate responsibility and assign work tasks.
- 16.08 Follow proper process for handling employee grievances.
- 16.09 Identify emergency situations and respond appropriately.
- 16.10 Identify components of the budgeting process.
- 16.11 Demonstrate inventory control procedures.
- 16.12 Identify the supervisor's role in customer relations.
- 16.13 Identify the supervisor's role within the organizational structure.
- 16.14 Communicate effectively within the organization and the community.
- 16.15 Effectively handle conflict resolution.

Course Number: EVSO242

Occupational Completion Point: C

Level 3 Water System Operator – 100 Hours – SOC Code 51-8031

17.0 Demonstrate water distribution system management and organizational skills--The student will be able to:

- 17.01 Describe and implement principles of management and supervision.
- 17.02 Describe the concepts relating to management and supervision.
- 17.03 Demonstrate organizational skills and methods.
- 17.04 Develop an organizational chart.
- 17.05 Develop a staffing pattern.
- 17.06 Identify goals and objectives for the distribution system.
- 17.07 Identify lines of communication within the organization and the community.

18.0 Develop cost effective management--The student will be able to:

- 18.01 Identify and evaluate operational cost for:
 - Personnel staffing.
 - Material warehousing inventory.
 - Equipment inventory.
 - System operations.
 - Equipment maintenance.
 - Safety and training programs.
- 18.02 Perform cost analysis and surveys.
- 18.03 Develop a plan for "best practice" efficient operations.

19.0 Prepare water distribution system budgets--The student will be able to:

- 19.01 Identify budget activities and categorizes expenses related to water distribution systems operation and maintenance.
- 19.02 Develop budget monitoring and control techniques.
- 19.03 Develop long-range capital improvement planning for future budgeting needs.

20.0 Develop standard operating procedures for training of water distribution system operators--The student will be able to:

- 20.01 Develop procedures to ensure employee safety.
- 20.02 Develop a written plan for in-house training of employees for:
 - Safety training:

- “Right-to-Know” training.
 - “MSDS” training.
 - “Competent Person” training.
 - “Confined Space Entry” training.
 - Technical training.
 - Equipment operation training.
- 20.03 Develop a written plan for employees obtaining certification certificates and licenses.
- 20.04 Develop a written plan for cross training of employees within the utility.
- 20.05 Develop a plan for providing basic employment information to new employees.
- 21.0 Demonstrate personnel selection and discipline--The student will be able to:
- 21.01 Identify appropriate interviewing and hiring practices.
- 21.02 Develop job descriptions for specific positions.
- 21.03 Develop job performance task for new positions.
- 21.04 Identify characteristics important to the role of a supervisor and how they will support the organizations goals.
- 21.05 Review and analyze job applications to select qualified candidates for interviews.
- 21.06 Conduct interviews.
- 21.07 Use appropriate communication skills.
- 21.08 Train and evaluate employees objectively and fairly.
- 21.09 Evaluate and apply disciplinary actions objectively and fairly.
- 21.10 Mediate conflict resolutions objectively and fairly.
- 21.11 Conduct supervisory performance assessments.
- 22.0 Develop and demonstrate contingency planning--The student will be able to:
- 22.01 Recognize and analyze potential emergency situations that can occur in a water distribution system.
- 22.02 Develop a written plan for dealing with emergency situations, which would include personnel assignments and equipment requirements.
- 22.03 Develop protocols for responding to customer complaints and inquiries.
- 22.04 Develop protocols to ensure continuous coverage of operations and maintenance of a water distribution system, including after hours, holidays, and weekend coverage.
- 22.05 Develop protocols in the event of natural disasters.
- 23.0 Demonstrate record-keeping and computer technology applications in planning--The student will be able to:
- 23.01 Develop a plan for inventory control.
- 23.02 Develop a plan to analyze operation and maintenance of the distribution system and equipment.
- 23.03 Evaluate and develop flow charts for the handling and control of distribution system records.
- 23.04 Review computer hardware and software, based on record-keeping needs.
- 24.0 Interpret and apply federal, state and local rules and regulations concerning water distribution systems and employees--The student will be able to:

- 24.01 Identify reporting requirements of federal, state and local regulatory agencies.
 - 24.02 Develop a plan for submitting required reports to regulatory agencies in the required time frame.
 - 24.03 Identify permitting requirements for distribution system improvements, expansion, and maintenance of a water distribution system.
 - 24.04 Develop a plan to acquire necessary permitting.
 - 24.05 Develop protocols for conforming to permitting requirements.
 - 24.06 Develop protocols for distribution system mapping.
 - 24.07 Develop protocols for handling liability claims.
 - 24.08 Evaluate results of a sanitary survey.
- 25.0 Demonstrate public-relation skills in community interactions--The student will be able to:
- 25.01 Demonstrate the ability to handle adverse and difficult situations with the public.
 - 25.02 Demonstrate the ability to handle the media and public inquiries appropriately.
 - 25.03 Demonstrate the ability to inform the media and public if a potential emergency situation arises.