



WASTEWATER SYSTEMS OPERATION SPECIALIST
(Time-Based)

APPENDIX A

D.O.T. CODE 955.362-010

O*NET CODE 51-8031.00

This training outline is the current standard for Work Processes and Related Instruction. Changes in technology, regulations, and safety/health issues may result in the need for additional On-the-Job Training or classroom learning.

WORK PROCESSES

Approximate Hours

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| A. <u>Tools, Equipment and Workplace Safety</u> | 240 |
| <ul style="list-style-type: none">1. Become familiar with tools, pipe and other materials used on the job;2. Understand and use Personal Protective Equipment (PPE) and safety procedures;3. Demonstrate general plant safety and security operations;4. Plan and set up work area for safety of crew and public;5. Monitor confined spaces and traffic control zones;6. Perform all work in conformance with the Occupational Safety and Health Administration (OSHA) guidelines for General Industry;7. Perform all work in conformance with the Public Employees Safety and Health Act (PESH) guidelines for General Industry (where applicable). | |
| B. <u>Vehicles and Heavy Equipment (Excluding Operation of Heavy Equipment)</u> | 400 |
| <ul style="list-style-type: none">1. Develop a working knowledge of pre-trip inspection which includes: ensuring lights and warning lights are operational, inspecting safety chains on dump truck tailgates, ensuring audible alarms are operational, making sure pins on excavators/backhoes/tailgates are securely fastened;2. Gain the ability to identify swing paths for excavation equipment – for both ground level and overhead (utility poles, overhead wires, oncoming vehicle | |

or foot traffic within excavation area), understand hand signals between equipment operators and ground staff while properly setting up a work zone (signs, cones, barrels) ensuring employee, vehicle and foot traffic safety;

3. Use necessary safety procedures while working in proximity to heavy equipment, such as: excavators, backhoes, front loaders, dump trucks, service trucks, pumps, air compressors & generators;
4. Demonstrate understanding of different excavation techniques for water and wastewater such as; excavation around natural gas lines and buried electric lines, swabbing new fitting with disinfectant to prevent any contamination before excavation, and mitigating any potential health hazards such as de-watering a water main before it is excavated;
5. Understand proper equipment placement (i.e., dump trucks next to excavation), proper materials placement and assisting the heavy equipment operator with identifying other utilities (gas & electric) in an excavation;
6. Master the overhead crane operation: safety and operation in using overhead cranes for pump and motor repairs and replacements.

C. System Operations & Maintenance

1920

1. Develop a working knowledge of the operation, methods and procedures of a wastewater treatment & collection system;
2. Perform inspection of new sewer lines and services;
3. Demonstrate the ability to read and interpret maps, as well as drawings of the wastewater system;
4. Assist with the maintenance and repair of the wastewater treatment plant, collection system, pump stations and lift stations;
5. Develop a working knowledge of preventive maintenance, troubleshooting & repair of mechanical equipment;
6. Learn the safety and proper use of sludge pressing equipment to remove processed sludge from the facility.

D. Quality Control

960

1. Learn to perform all aspects of sampling, monitoring and testing required to maintain compliance with Federal, State, and Local regulations;
2. Identify normal and out-of-range values;
3. Maintain open communication & report results to supervisors;
4. Learn emergency response procedures.

E. Logistics, Reports and Supervision 480

1. Complete work order forms;
2. Order equipment and supplies as needed;
3. Document routine maintenance;
4. Visit other facilities to learn about new technology.

Approximate Total Hours 4000

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <http://www.labor.state.ny.us/workerprotection/publicwork/PDFs/Article8FAQS.pdf>

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APPENDIX B

RELATED INSTRUCTION

Safety, Health, and the Workplace

OSHA Standards & state guidelines

First Aid & CPR (minimum 6.5 hours)

Safety Data Sheets (SDS)

811 Call Before You Dig

Excavation, trenching & shoring

Confined space: identifying, entry & hazardous gases

Fire & Electrical Safety

Traffic control

Chlorine and chemical safety

Apprenticeship Program Overview

Circuit Rider training assistance

The National Rural Water Association (NRWA) University

Sexual Harassment Prevention-MUST comply with Section 201-g of the Labor Law

Professional Requirements

Responsibilities of a Wastewater System Operations Specialist

Ethics of a public health & environmental professional

Customer service & community outreach

Professional Organizations

Operations & Maintenance

Pumps & motors

Energy efficiency

Valves & other appurtenances

Collection systems

Gravity & force mains

Lift & pump stations

Inflow & infiltration

Fats, oils & grease

Inspection & cleaning

Treatment Processes

Preliminary, primary & secondary treatment

Land treatment

Disinfection methods
Tertiary or advanced treatment
Decentralized (onsite or cluster) systems
Laboratory procedures
Detention structures & settling basins
Biosolids handling
Reuse
Supervisory Control and Data Acquisition (SCADA)
Work orders

Operator Mathematics

Problem solving strategies
Calculating chemical dosage & detention time
Flow & rate problems
Horsepower calculations

Security & Emergency Response

Critical Infrastructure Sector designation
National Incident Management System
ISC-100: Introduction to the Incident Command System Certificate (FEMA)
Emergency response plans & procedures

Laws & Regulations

Pollutants
Clean Water Act basic requirements
State laws & regulations
Regulatory compliance
National Pollutant Discharge Elimination Systems (NPDES) permits
State Pollutant Discharge Elimination System (SPDES)
Combined sewers and sanitary sewer overflows
Peak flows at treatment plants

Introduction to Utility Management

Capacity development & sustainable utility management
Finances, rates & billing
Water University-Utility Management Certification
Understanding budgets, geographic information systems
Working with boards and elected officials

Overview of Construction Projects

Assessment of existing facilities
Working with engineers & consultants
Preliminary design & alternatives

Funding sources & requirements
Construction design process
Interpreting and understanding construction plans and specifications

Bid process & contract signing
Inspections
Resident inspector
Substantial completion
Final inspection & certification
Operations & maintenance manuals
Ongoing grant & loan requirements

Other Related Courses as Necessary

A Minimum of 288 hours of Related Instruction is Required for Each Apprentice.