

Registered Apprenticeship Program for
Wastewater
Treatment Plant Operator



Occupation Summary

Wastewater Treatment Plant Operators (WWTPOs) monitor, operate, and adjust a wide variety of systems used in the treatment of wastewater. Operator duties may vary according to the plant's average daily design flow and treatment processes. Duties include, but are not limited to:

- Routinely monitoring laboratory data, charts, and computer control systems, which indicate performance status of a wide variety of biological nutrient and chemical removal.
- Collecting various samples and plant process information.
- Backflushing, clearing, and purging pumps; and monitoring and adjusting flow rates.

Summary of Apprenticeship Program

- On-the-job learning is the heart of apprenticeship, constituting approximately 90% of the program. Apprentices learn key duties and tasks in a hands-on manner directly from a skilled worker.
- Paid related instruction teaches apprentices the theory behind their daily duties, and constitutes approximately 10% of the program.
- The WWTPO apprenticeship is approximately three years, including approximately 5,568 hours of on-the-job learning and 432 hours of paid related instruction.
- The program uses a new "hybrid" model. In on-the-job learning, apprentices must successfully complete learning hours and competencies, as described in the program provisions of the apprentice contract.

On-the-Job Learning

Key duties and tasks, referred to as "work processes," include:

- Promote Safety; Operate Plant Facilities and Equipment; Manage Plant and Collection System Processes
- Manage Laboratory Testing, Equipment and Reporting; Maintain Equipment and Technology
- Manage Plant Solids Programs
- Utilize Computers and Wastewater Treatment Technologies, Including Reports and Plant Logs
- Optional Duties and Tasks Unique to the Plant

Paid Related Instruction

- Related instruction is provided online by Moraine Park Technical College
- The employer is responsible for paying the apprentice to attend 432 hours of required classes. The apprentice pays for additional hours. The employer does not pay the apprentice for doing homework.

Additional Requirements

- An employer may require an apprentice to obtain a Commercial Driver License (CDL)
- An apprentice must pay for and complete First Aid, CPR, Confined Space Entry and applicable OSHA requirements, as indicated in the Special Provisions portion of the apprentice contract

Certifications, Interim Credentials and Licenses

- Prior to completing the program, WWTPO apprentices must pass the certification exams in general wastewater and the following proposed subclasses, i.e. unit processes at a plant: A (Biological Treatment Processes, at least one); B (Solids Separation); and C (Biosolids Handling, Treatment & Disposal). The tests are administered by the WI Department of Natural Resources.

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Participant Support Services

Once registered, apprentices are notified by the Bureau via letter that they might be eligible for supportive services through the SAGE project until December 31, 2012. Supportive services include:

- Training Funds up to \$1,800 per participant (tuition, book fees, job related tools/clothing/ equipment)
- Supportive Funds up to \$1,800 per participant (transportation, childcare, auto repairs, etc.)

Qualifications of a Wastewater Treatment Plant Operator Apprentice Applicant

- Must be High School graduate or equivalent
- Must be physically able to perform the work of the trade with reasonable accommodations, including lifting, climbing, ability to work outside in all types of weather, without hazard to themselves or others
- May be required to undergo drug or alcohol testing at time of selection as an apprentice
- Must have a valid driver's license

Responsibilities of a Wastewater Treatment Plant Operator Apprentice

- Work safely and follow employer's written work rules and policies
- Maintain a record of training required by the occupation information
- Pay the tuition and book costs for related instruction
- Advance competency on- the-job under the supervision of a skilled worker
- Notify the Apprenticeship Training Representative (ATR) of address changes, new phone numbers, or any other status changes and upon completion of related instruction and work-based competencies

Qualifications of a Sponsoring Employer

- Provide training environment conducive to delivering well-rounded, work-based training for apprentices, including well maintained and current equipment
- Ensure that apprentices are trained in the core work processes identified for this trade, and employ a full time journey worker to supervise the apprentice and ensure safe training at all times
- Licensed and in good standing with appropriate regulatory agencies
- Employ an Operator In Charge and a full-time operator

Responsibilities of a Sponsoring Employer

- Train apprentice(s) on-the-job and provide learning experiences as outlined in the occupation information
- Provide proper supervision and mentoring of apprentices from an experienced journey level workers
- Monitor the apprentice's on the job progress and provide feedback
- Ensure apprentice is released from work to attend related instruction (school) and pay apprentices while attending classroom instruction at the same rate as for services performed

Getting Started

- Contact the Bureau of Apprenticeship Standards at (608) 266-3332 or www.wisconsinapprenticeship.org
- The Bureau will put you in contact with the Apprenticeship Training Representative in your area

TERM OF APPRENTICESHIP: The term of apprenticeship shall be Hybrid, which has been established to be 6,000 hours. In addition to the specified hours, the apprentice must successfully attain the competencies described in these program provisions. Hours of labor shall be the same as established for other skilled employees in the trade.

PROBATIONARY PERIOD: The probationary period shall be the first 9 months of employment, but in no case shall it exceed twelve calendar months. During the probationary period, this contract may be cancelled by the apprentice or the sponsor upon written notice to the Department, without adverse impact on the sponsor.

SCHOOL ATTENDANCE: The apprentice shall attend the Wisconsin Technical College System or other approved training provider, as assigned, for paid related instruction four hours per week or the equivalent and satisfactorily complete the prescribed course material for a minimum of 432 hours, unless otherwise approved by the Department. The employer must pay the apprentice for attended related instruction hours at the same rate per hour as for services performed.

WORK PROCESS SCHEDULE: In order to obtain well-rounded training and thereby qualify as a skilled worker in the trade, the apprentice shall have experience and training in the following areas and shall demonstrate competency, as specified herein. This instruction and experience shall include the following operations but not necessarily in the sequence given. Time spent on specific operations need not be continuous.

Work Process Description

Approximate Hours
(Min - Max)

- Promote a safe work environment for self and others
1. Wear PPE daily in accordance with safety guidelines
 2. Follow lock-out and tag out procedures
 3. Adhere to hazard communication and right to know programs
 4. Monitor air quality and noxious gas levels
 5. Identify and follow safety training for confined spaces
 6. Monitor security around gates, fences and grates
 7. Respond to emergencies using first-aid, CPR and appropriate rescue procedures
 8. Adhere to chemical safety programs
 9. Apply safe work practices around the plant
 10. Complete confined space entry permits correctly
 11. Use ladders and scaffolds safely

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- Operate wastewater treatment plant facilities and equipment
1. Monitor plant operations as required
 2. Analyze plant operating performance
 3. Respond to plant alarm systems
 4. Troubleshoot and solve operational problems effectively
 5. Look, listen, feel, and smell prior to taking corrective action

1400

6. Start and stop plant equipment
7. Process plant operational information effectively
8. Record operational data, personal attendance, meter and gauge readings on specified forms
9. Perform activities, read instruments, and maintain records and reports relative to compliance with State and Federal discharge permits
10. Operate and maintain digester gas handling systems (methane)
11. Apply knowledge of regulations to plant operations

Manage wastewater treatment plant and collection system processes 1100

1. Handle and add chemicals such as ammonia, chlorine, or lime to disinfect and deodorize water and other liquids, in accordance with directions
2. Inspect equipment and monitor operating conditions, meters, and gauges to determine load requirements and detect malfunctions
3. Monitor treatment plant processes & operations relative to preliminary and primary treatment
4. Monitor treatment plant processes & operations relative to secondary treatment
5. Monitor treatment plant processes & operations relative to tertiary treatment
6. Monitor treatment plant processes & operations relative to biological nutrient removal
7. Troubleshoot and take corrective actions regarding equipment or plant processes & operations plant operations
8. Operate disinfection equipment and technology
9. Implement process control strategies
10. Apply laboratory results, wastewater treatment plant maintenance activities, machines and equipment, and materials used to treat wastewater coming into the plant
11. Test new and repaired equipment prior to putting into operations
12. Adjust equipment and machines for changing weather conditions
13. Clean and maintain pre-treatment tanks, filter beds, and other areas using hand tools and power tools

Manage laboratory testing, equipment, and reporting 900

1. Collect samples according to established procedures
2. Perform laboratory sampling and testing including chlorine residuals, pH constant, dissolved oxygen, biochemical oxygen demand, and other related tests
3. Verify accurate results
4. Provide information acquired from math calculations
5. Perform lab duties in accordance with NR 149
6. Ensure consistent lab and sampling procedures
7. Interpret lab results
8. Perform laboratory testing such as dissolved oxygen, biochemical oxygen

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Exhibit A - Program Provisions

demand and other related tests	
Maintain wastewater treatment plant/collection systems equipment and technology	650
1. Perform mechanical maintenance on equipment	
2. Perform preventative maintenance when scheduled	
3. Calibrate equipment and instrumentation	
4. Exercise valves, pumps, and other mechanical devices	
5. Troubleshoot and repair malfunctioning and inoperable equipment	
6. Maintain pumps and sludge handling systems	
7. Monitor equipment performance through testing and measurement	
8. Maintain liftstations	
9. Inspect and maintain collection system pipes and manholes	
Manage wastewater treatment plant solids programs	650
1. Monitor sludge production	
2. Perform sludge removal activities	
3. Record treated sludge and solids information accurately	
4. Dispose of treated sludge in accordance with plant permitting	
5. Manage bio-solids programs effectively	
Utilize computers and wastewater treatment technologies, including reports and plant logs	300
1. Complete reports using computer software	
2. Use Supervisory Control and Data Acquisition (SCADA) software	
3. Control wastewater treatment processes using programmable logic controls (PLC)	
4. Enter data into computer systems	
5. Download and export data from computer systems	
6. Record plant information accurately	
7. Enter data into equipment maintenance management systems	
Optional	100
1. Communicate plant and wastewater treatment specific information effectively	
2. Perform management related duties	
3. Operate water supply and distribution	
Paid Related Instruction	432
TOTAL	6000

The above schedule is to include all operations and such other work as is customary in the trade.

MINIMUM COMPENSATION TO BE PAID:

N/A

Base skilled wage rate N/A per hour.

If at any time the base skilled wage rate rises or falls, the apprentice's wage shall be adjusted proportionately. The wage rate of apprentices employed in this trade and this firm shall be based on the base skilled wage rate stated above.

All apprentices are covered by State and Federal Wage and Hour Standard requirements. All apprentices shall be paid no less than the minimum wage established under regulations.

CREDIT PROVISIONS: The apprentice, granted credit at the start or during the term of the apprenticeship, shall be paid the wage rate of the pay period to which such credit advanced the apprentice.

Work credit hours approved:	N/A
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School credit hours approved:	
 Paid related instruction:	N/A

 Unpaid related instruction:	N/A
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Total credit hours to be applied to the term of the apprenticeship:	N/A
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SPECIAL PROVISIONS:

The apprentice must complete Red Cross First Aid and CPR or equivalent in the first year of the apprenticeship and maintain it throughout the program; Confined Space Entry and OSHA 10 Hour; and Transition to Trainer. The apprentice may be required by the employer to obtain a CDL.

Apprenticeship Program for Wastewater Treatment Plant Operator

Courses for Related Instruction

Provided Online by Moraine Park Technical College

Overview

Related instruction teaches apprentices the science and theory behind their daily duties. It comprises 432 of the 6000 hours of the program, the equivalent of four hours per week when school is in session. The apprentice is paid by the employer to attend.

Course Descriptions (*Listed in sequence*)

Intro to Wastewater Treatment summarizes the different processes used in wastewater treatment plants, as well as the collection system and sludge disposal procedures. The course also covers frequently used calculations; preventive maintenance; and environmental regulations and safety. (Fall 1 or Spring 2)

College Mathematics reviews and develops fundamental concepts of mathematics pertinent to the areas of: (1) arithmetic and algebra, (2) geometry and trigonometry, and (3) probability and statistics. Special emphasis is placed on problem solving, critical thinking and logical reasoning. (Fall 1 or Spring 2)

Water Chemistry explores basic chemical concepts and principles that are applicable to evaluating and regulating water quality, and applies them to wastewater treatment. Students also examine laboratory techniques, equipment, quality assurance and recordkeeping and reporting. (Spring 2)

Conventional Wastewater covers the basic biology, chemistry and operational controls of wastewater treatment processes: pre- and primary treatment of wastewater, activated sludge, trickling filters and RBCs (Rotating Biological Contactors). (Spring 2)

Advanced Wastewater Treatment studies iron, manganese and radium removal, zeolite softening, VOC removal, disinfection precursor and disinfection-by-product reduction, alternative disinfectants, demineralization, lime-softening, and new and emerging technologies. (Fall 3)

Equipment Maintenance & Instrumentation develops skills in the identification and application of tools, correcting facility and system mechanical problems, and understanding the complete concepts of preventative and predictive maintenance. (Spring 4)

Hydraulics of Water & Wastewater provides information and procedures necessary to predict and manipulate the hydraulics of water transmission and collection. The primary work assignments involve applying hydraulic principles in a real-life case analysis as a laboratory project. (Fall 5)

**Department of Workforce Development
Division of Employment & Training
Bureau of Apprenticeship Standards**

APPRENTICESHIP TRAINING REPRESENTATIVES – (FIELD STAFF)			
Areas of Responsibilities	Staff Names	Phone Number	<u>Cell /FAX Numbers</u>
Appleton North – Area 8-Counties: Outagamie, Waupaca, Waushara, Winnebago	Lisa Perkofski Lisa.Perkofskilamz@dwd.wisconsin.gov	920 832-5303	920 858-1454 920 735-2473
Chippewa Falls- Area 2 – Counties: Ashland, Barron, Bayfield, Burnett, Chippewa, Clark, Douglas, Dunn, Eau Claire, Iron, Pepin, Pierce, Polk, Rusk, Sawyer, St. Croix, Washburn	Travis Ludvigson Travis.Ludvigson@dwd.wisconsin.gov	715 738-3853	715-577-0253 715 738-3854
Green Bay – Area 7 – Counties Brown, Door, Florence, Kewaunee, Marinette, Menominee, Oconto, Shawano	Burt Harding Burt.Harding@dwd.wisconsin.gov	920 492-5618	920-360-1567 920 498-6315
La Crosse – Area 3 – Counties: Buffalo, Crawford, Grant, Iowa, Jackson, Juneau, LaCrosse, Lafayette, Monroe, Richland, Trempealeau, Vernon	Kathy O’Sullivan Kathleen.OSullivan@dwd.wisconsin.gov	608 785-9176	608-235-5711 608 785-9327
Lakeshore –Area 9 Counties Calumet, Fond du Lac, Manitowoc, Sheboygan	Sandy Destree Sandra.Destree@dwd.wisconsin.gov	920 693-1102	920 901-1764 920-693-1104
Madison North – Area 5 – Counties: Columbia, Green Lake, Jefferson, Marquette, Sauk	Debbie Schanke Debra.Schanke@dwd.wisconsin.gov	608 246-3887	608 235-5708 608 242-4843
Madison South – Area 6 – Counties: Dane, Green Rock	Mary Pierce Maryx.Pierce@dwd.wisconsin.gov	608 246-7900	608-235-5705 608 266-0766
Milwaukee – Area 11 – County: Milwaukee	Kay Haishuk Kay.Haishuk@dwd.wisconsin.gov	414 768-7190	414-587-4397 414 768-7193
Milwaukee – Area 16 – Counties: Milwaukee, Waukesha Barber/Cosmetology only	Hafeezah Ahmad Hafeezah.Ahmad@dwd.wisconsin.gov	414 227-4973	414 840-9815 414 227-4210
Moraine Park—Area 10-Counties Dodge, Ozaukee, Washington	Barbara Robakowski Barb.Robakowski@dwd.wisconsin.gov	262 335-5849	414 840-2535 262 335 5326
Racine – Area 13 – Counties: Kenosha, Racine, Walworth	Sandra Brietzman Sandra.Brietzman@dwd.wisconsin.gov	262-564-3210	414 587-4393 262 564-2951
U.S. Dept. of Labor, Madison – Area 14 –	Mary Harrington Mary.Harrington@dwd.wisconsin.gov	608 267-2355	Fax: 608 266-0766
Waukesha – Area 12 – County: Waukesha	Robert Scheldroup Robert.Scheldroup@dwd.wisconsin.gov	262-695-7778	414 587-4395 262 695-7798
Wausau – Area 4 - Counties: Adams, Forest, Langlade, Lincoln, Marathon, Oneida, Portage, Price, Taylor, Vilas, Wood	Benjamin Stahlecker Benjamin.Stahlecker@dwd.wisconsin.gov	715 261-8754	715-571-4485 715 261-8752