



Code: 5517

Family: Technical Engineering

Service: Operation and Construction

Group: Engineering, Designing, and Structural

Series: Chemical Engineering

CLASS TITLE: CHIEF FILTRATION ENGINEER

CHARACTERISTICS OF THE CLASS

Under direction, responsible for managing and direction the operations, personnel and administration of one of the City's two water purification plants, and performs related duties as required

ESSENTIAL DUTIES

- Directs the Assistant Chief Filtration Engineer and unit supervisors overseeing professional (i.e. Filtration Engineers) and skilled trades (i.e. Operating Engineers) personnel engaged in the operation, maintenance, and repair of water purification equipment and facilities
- Confers with supervisors on the effectiveness of water purification treatments and plant conditions and implements equipment and procedural changes to ensure efficiency of operations
- Coordinates with management and contractors in reviewing status of large scale capital improvement projects at water treatment plants and prioritizes the scheduling of facility and equipment repair, replacement, and maintenance
- Monitors work in progress and on-going projects of private contractors, ensuring adherence to contract specifications, quality standards and compliance with Illinois Environmental Protection Agency (IEPA) requirements
- Reviews water treatment operational reports including water quality data and oversees the preparation of comprehensive reports to the IEPA documenting compliance with EPA standards
- Coordinates the contracting, purchase, installation, and testing of new and refurbished equipment; approves the ordering of chemicals for use in treatment plants and pumping stations
- Keeps abreast of governmental regulations affecting water purification operations in order to ensure that regulatory agencies' standards regarding operating procedures, risk management, and process safety are met
- Directs the maintenance of plant records and the preparation of operational reports
- Reviews plant operating records and lab reports to determine the status of water quality and orders changes to ensure water quality standards are maintained
- Authorizes engineering studies on water treatment techniques, equipment, and processes and recommends modifications to water purification processes at the plant
- Coordinates safety programs and training of plant personnel
- Directs the development and implementation of work and performance standards, and conducts performance evaluations of supervisory personnel
- Directs administrative functions in support of the water treatment plant's operations including budgeting, expenditures, procurement, personnel and staffing, and safety administration
- Provides technical information on water filtration activities at regulatory proceedings

NOTE: *The list of essential duties is not intended to be inclusive; there may be other duties that are essential to particular positions within the class.*

MINIMUM QUALIFICATIONS

Education, Training, and Experience

- Graduation from an accredited college or university with a Bachelor's degree in Chemical Engineering, Civil Engineering, Mechanical Engineering, Environmental Engineering or a directly related field of engineering, plus six (6) years of engineering experience working in a water treatment facility or on projects relating to water treatment in an operational and/or engineering capacity, of which three (3) years are in a supervisory role related to water treatment processes or engineering projects, **OR**
- Graduation from an accredited college or university with a Master's degree or higher in Chemical Engineering, Civil Engineering, Mechanical Engineering, Environmental Engineering or a directly related field of engineering, plus five (5) years of engineering experience working in a water treatment facility or on projects relating to water treatment in an operational and/or engineering capacity, of which three (3) years are in a supervisory role related to water treatment processes or engineering projects

Licensure, Certification, or Other Qualifications

- A State of Illinois Class "A" Public Water Supply Operator license is required within six months of hire

WORKING CONDITIONS

- Water treatment plant work environment
- Exposure to outdoor weather conditions

EQUIPMENT

- Standard office equipment (e.g., telephone, printer, photocopier, fax machine, calculator)
- Computers and peripheral equipment (e.g., personal computer, computer terminals, hand-held computer)
- Personal protective equipment (e.g., hard hat, shoes, glasses, gloves)
- Scientific calculators

PHYSICAL REQUIREMENTS

- Ability to walk and stand for extended or continuous periods of time
- Ability to climb staircases, ladders, and to access multi-level facilities

KNOWLEDGE, SKILLS, ABILITIES, AND OTHER WORK REQUIREMENTS

Knowledge

Comprehensive knowledge of:

- *water treatment plants, pumping stations and water purification operations
- *water filtration system maintenance methods
- *chemical and chemical engineering methods, theories, principles, and procedures
- *applicable biological theories, principles, methods, and practices
- *use of filtration plant monitoring and measuring equipment and instruments

Considerable knowledge of:

- *management and supervisory methods, practices, and procedures

Moderate knowledge of:

- environmental inspection, research and analysis methods, and techniques
- safety principles, methods, practices, and procedures
- *mechanical system installation and maintenance methods
- *applicable federal, state, and local laws, regulations, and guidelines

Some knowledge of:

- applicable sanitary engineering methods, theories, principles, and procedures
- applicable civil engineering methods, theories, principles, and procedures

Knowledge of applicable City and department policies, procedures, rules, and regulations

Skills

- **ACTIVE LEARNING** - Understand the implications of new information for both current and future problem-solving and decision-making
- **CRITICAL THINKING** - Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems
- **MATHEMATICS** - Use mathematics to solve problems
- **MONITORING** - Monitor and assess performance of one's self, other individuals, or organizations to make improvements or take corrective action
- **COMPLEX PROBLEM SOLVING** - Identify complex problems and review related information to develop and evaluate options and implement solutions
- **MANAGEMENT OF PERSONNEL RESOURCES** - Motivate, develop, and direct people as they work and identify the best people for the job
- **JUDGEMENT AND DECISION MAKING** - Consider the relative costs and benefits of potential actions to choose the most appropriate one
- **SYSTEMS EVALUATION** - Identify measures or indicators of system performance and the actions needed to improve or correct performance relative to the goals of the system

Abilities

- **COMPREHEND ORAL INFORMATION** - Listen to and understand information and ideas presented through spoken words and sentences
- **SPEAK** - Communicate information and ideas in speaking so others will understand
- **COMPREHEND WRITTEN INFORMATION** - Read and understand information and ideas presented in writing
- **WRITE** - Communicate information and ideas in writing so others will understand
- **REASON TO SOLVE PROBLEMS** - Apply general rules to specific problems to produce answers that make sense
- **REACH CONCLUSIONS** - Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)

Other Work Requirements

- **PERSISTENCE** - Persist in the face of obstacles on the job
- **INITIATIVE** - Demonstrate willingness to take on job challenges
- **LEADERSHIP** - Demonstrate willingness to lead, take charge, and offer opinions and direction

- **DEPENDABILITY** - Demonstrate reliability, responsibility, and dependability and fulfill obligations
- **INDEPENDENCE** - Develop own ways of doing things, guide oneself with little or no supervision, and depend mainly on oneself to get things done
- **INNOVATION** - Think creatively about alternatives to come up with new ideas for and answers to work-related problems
- **ANALYTICAL THINKING** - Analyze information and using logic to address work or job issues and problems

Other characteristics as required for successful performance in the Assistant Chief Filtration Engineer class

All employees of the City of Chicago must demonstrate commitment to and compliance with applicable state and federal laws, and City ordinances and rules; the City's Ethics standards; and other City policies and procedures.

The City of Chicago will consider equivalent foreign degrees, accreditations, and credentials in evaluating qualifications.

* May be required at entry.

City of Chicago
Department of Human Resources
January, 2012; April, 2025