



Code: 5534

Family: Technical Engineering
Service: Operation and Construction
Group: Engineering, Designing, and Structural
Series: Chemical Engineering

CLASS TITLE: WATER CHEMIST IV

CHARACTERISTICS OF THE CLASS

Under general supervision, supervises staff and participates in the chemical and physical analyses of raw and treated water and the testing of materials used at water treatment facilities, and performs related duties as required

ESSENTIAL DUTIES

- Supervises staff in the preparation of chemical testing solutions, ensuring compliance with testing standards and procedures
- Oversees and participates in conducting complex analyses of water samples to determine the level of contaminants in the City's water supply
- Reviews the results of chemical analyses conducted at water filtration facilities to ensure completeness, accuracy of findings, and compliance with testing standards
- Performs calculations and analyses on complex tests and prepares reports on findings
- Supervises the preparation of work activity and project status reports
- Supervises the maintenance of records and the preparation of reports on samples collected and tested, ensuring procedures comply with state and federal regulations
- Assigns and coordinates the conduct of special tests initiated as a result of complaints or emergencies
- Researches and recommends improved methods of water purification
- Monitors and determines the amount of chemicals to be used at purification plants
- Trains staff in methods and standard operating procedures used in a chemical laboratory environment
- Coordinates and monitors the ordering, maintenance, and upkeep of laboratory supplies, instruments, and equipment
- Addresses public forums as an expert in the chemical testing and analyses of water, as required

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 Chemistry, Chemical Engineering, or a directly related field, plus two years of experience in water purification and chemical analysis; or an equivalent combination of education, training and experience provided that the minimum degree requirement is met

Licensure, Certification, or Other Qualifications

- None

WORKING CONDITIONS

- Exposure to fumes or dust

- Exposure to hazardous and toxic chemicals

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., glasses, gloves)
- Scientific calculators
- Chemical and environmental testing and monitoring equipment
- Laboratory instruments and materials

PHYSICAL REQUIREMENTS

- Some moving or lifting of laboratory equipment and supplies

KNOWLEDGE, SKILLS, ABILITIES, AND OTHER WORK REQUIREMENTS

Knowledge

Considerable knowledge of:

- *applicable water treatment and purification principles, theories, methods and practices
- *laboratory methods, practices, and procedures
- *chemical testing and analysis principles, theories, methods, and practices
- *applicable safety principles, methods, practices, and procedures
- *applicable federal, state, local laws, regulations and guidelines
- *procedures and methods for maintaining applicable equipment and instruments

Moderate knowledge of:

- *water treatment and purification operations

Some knowledge of:

- supervisory methods, practices, and procedures
- applicable computer software packages and applications

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

Other knowledge as required for successful performance in the Water Chemist III class

Skills

- *ACTIVE LEARNING - Understand the implications of new information for both current and future problem-solving and decision-making
- *ACTIVE LISTENING - Give full attention to what other people are saying, taking time to understand the points being made, ask questions as appropriate, and not interrupt at inappropriate times
- *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

- *SCIENCE - Use scientific rules and methods to solve problems
- *COMPLEX PROBLEM SOLVING - Identify complex problems and review related information to develop and evaluate options and implement solutions
- *COORDINATION WITH OTHERS - Adjust actions in relation to others' actions
- INSTRUCTING - Teach others how to do something
- *JUDGEMENT AND DECISION MAKING - Consider the relative costs and benefits of potential actions to choose the most appropriate one
- *EQUIPMENT SELECTION - Determine the kind of tools and equipment needed to do a job
- *EQUIPMENT MAINTENANCE - Perform routine maintenance on equipment and determine when and what kind of maintenance is needed
- *QUALITY CONTROL ANALYSIS - Conduct tests and inspections of products, services, or processes to evaluate quality or performance

Other skills as required for successful performance in the Water Chemist III class

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
- RECOGNIZE PROBLEMS - Tell when something is wrong or is likely to go wrong
- REASON TO SOLVE PROBLEMS - Apply general rules to specific problems to produce answers that make sense
- REASON MATHEMATICALLY - Choose the right mathematical methods or formulas to solve a problem
- ORGANIZE INFORMATION - Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations)
- REACH CONCLUSIONS - Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)

Other abilities as required for successful performance in the Water Chemist III 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.