



CITY OF SANTA CRUZ CHEMIST I/II

Reports to: Laboratory manager at the Water Treatment Plant or the Wastewater Treatment Facility
Supervises: May provide lead direction and training
Bargaining Unit: Service

DEFINITION:

Under direction, conducts a variety of physical, inorganic and organic chemical, microbiological and bacteriological analyses of raw and treated water or wastewater and related solids and by-products relevant to water treatment and distribution or wastewater collection, treatment and disposal; collects and analyzes samples in order to ensure compliance with state and federal mandates, quality assurance requirements, and laboratory certification standards; conducts or assists with research projects; and, performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS:

Chemist I is the journey level classification in the series. As experience is gained, incumbents are expected to work with greater independence of action within established guidelines. This classification is alternately staffed with Chemist II and incumbents may advance to the higher level after gaining experience and demonstrating a level of proficiency that meets the qualifications of the higher-level classification.

Chemist II is the advanced journey level classification in which incumbents are expected to independently perform the full scope of assigned duties and demonstrate working knowledge of all applicable regulations, policies, procedures and work methods associated with assigned duties. Incumbents may be assigned to provide lead direction and training to less experienced staff.

Chemist I/II positions are assigned to either the Water Treatment Plant or the Wastewater Treatment Facility.

TYPICAL DUTIES (*may include, but are not limited to, the following*):

- Schedules, coordinates, conducts and interprets results of a variety of physical, inorganic and organic chemical, microbiological and bacteriological analyses of raw and treated drinking water or wastewater, and related solids and by-products relevant to drinking water or wastewater, distribution, collection, treatment and disposal in accordance with local, state and federal requirements.
- Conducts analyses and interprets the results of physical, chemical, biological and bacteriological tests of raw and treated drinking water, wastewater, industrial waste, hazardous waste and other materials related to treatment, quality and distribution of water or wastewater; determines probable causes, recommends and implements corrective measures for problems which may occur during sampling, transporting, storage or laboratory

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processes; performs complex chemical and mathematical calculations and statistical analyses for test results.

- Conducts analyses of raw and treated drinking water, wastewater and other materials in compliance with applicable federal, state and local regulatory requirements; files mandated reports; assists in preparing and completing reports relevant to regulatory monitoring and process control requirements; maintains records of laboratory test results, laboratory operations and quality assurance, and makes daily or periodic reports as required by regulatory and professional standards; conducts and/or assists in research and monitoring projects requiring special chemical and biological analyses.
- Collects and analyzes samples and makes determinations; preserves samples as required; maintains sampling equipment; performs follow-up testing as needed.
- Operates a variety of laboratory equipment, including microscopes, gas chromatography/mass spectrometer, ion chromatography, atomic absorption spectrophotometer, and computer controlled analyzers; sets up, calibrates, operates and performs minor maintenance on a variety of lab equipment and instruments; assists with keeping equipment inventory current and ordering supplies; makes recommendations regarding the purchasing of equipment and supplies; assists with maintaining the laboratory.
- Assists in designing evaluation methods for laboratory services, equipment and supplies, including quality assurance and laboratory safety and sanitation programs; stays current with federal, state and local regulatory requirements and other issues related to physical, inorganic and organic chemical, microbiological and bacteriological analyses; recommends and implements changes to practices and procedures as appropriate.
- Trains and acts as a lead-worker to less experienced personnel in analytical procedures, quality assurance and quality control procedures, safe laboratory practices, routine laboratory functions, water quality concerns and other related areas; may assign and review the work of assigned technical staff.
- Works with commercial laboratories and requisitions specialized testing as appropriate.
- Investigates, responds to and resolves customer inquiries and complaints; conducts field investigations; alerts appropriate staff to irregularities in the system.
- Confers with other City employees, governmental agencies, industrial organizations, water agencies, associations, customers and others on matters relating to water quality, wastewater and/or laboratory issues.
- Performs all work in accordance with standards of the California Department of Health Services Quality Assurance Program requirements to maintain the laboratory's Environmental Laboratory Accreditation Program certification.
- Performs all work in accordance with the City's Chemical Hygiene Program and other relevant safety procedures.
- May serve as the division or department representative on committees, as assigned.
- May assist in developing and monitoring the division budget.

ENVIRONMENTAL AND WORKING CONDITIONS:

Position requires prolonged sitting, standing, and walking on unlevel and slippery surfaces; reaching, twisting, turning, kneeling, bending, stooping, squatting, crouching, grasping and making repetitive hand movements in the performance of daily duties. The position also requires near, far and color vision when performing tasks such as collecting and analyzing samples, in

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reading work related documents and using a computer. Acute hearing is required when providing phone and in-person service. The ability to lift, carry and push equipment, tools, and supplies weighing up to 40 pounds is also required. Additionally, when collecting samples and working in the laboratory, the incumbent may be exposed to biohazards and a variety of working conditions, including mechanical and electrical hazards, loud noise, wet, heat and cold. The use of cleaning and laboratory chemicals may expose the incumbent to fumes, dust and contaminants. The nature of the work also requires the incumbent to climb ladders and to operate motor-powered boats and off-road vehicles when collecting samples, go to remote and isolated areas, drive on rough and unpaved roads in varying weather conditions, to collect samples, and enter customers' homes to collect samples in the investigation of water quality complaints.

Some of these requirements may be accommodated for otherwise qualified individuals requiring and requesting such accommodations.

MINIMUM QUALIFICATIONS:

Education and/or Experience:

Any combination of education and experience that has provided the knowledge, skills and abilities necessary for Chemist I/II may be qualifying. A typical way of obtaining the required qualifications is to possess the equivalent of:

Chemist I:

Bachelors Degree in chemistry or a related field and one year of laboratory experience in an environmental or other analytical laboratory that included the performance of physical, inorganic and organic chemical, biochemical and bacteriological tests related to the analysis of water or wastewater, depending upon area of assignment.

Chemist II:

Bachelors Degree in chemistry or a related field and two years of experience as a professional level chemist which included at least one year of experience conducting physical, inorganic and organic chemical, biochemical and bacteriological tests related to the analysis of water or wastewater, depending upon area of assignment.

Licenses:

- Possession of and ability to maintain a valid California driver's license and a safe driving record.

KNOWLEDGE/SKILLS/ABILITIES:

Chemist I:

Working knowledge of:

- principles, practices, standards, methods, chemicals and equipment used in physical, inorganic and organic chemical, microbiological and bacteriological testing and analyses of water, wastewater and various pollutants, depending upon area of assignment.
- standard methods of qualitative and quantitative chemical analysis.
- safe laboratory and sampling procedures and practices.
- methods and techniques for record keeping and report preparation and writing.

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- quality assurance and quality control procedures.
- chemicals and equipment used in water analyses.
- applicable sampling techniques, methods and processes.
- standard office practices, methods and equipment, including the use of a computer and applicable software.

Some knowledge of:

- chemical, physical and bacteriological characteristics of raw and treated drinking water, wastewater influents, and effluents and septage waters, depending upon area of assignment.
- principles and methods of physical, inorganic and organic chemical, and bacteriological analysis and sampling techniques for raw and treated drinking water or wastewater.
- design, development and implementation of sampling strategies and programs.
- applicable federal and state laws, codes and regulations.

Chemist II:

Working knowledge of the above, plus working knowledge of:

- methods and standards issued by state and federal regulatory agencies related to water or wastewater sampling and analysis, depending upon area of assignment.

Some knowledge of:

- principles and practices of environmental health, public health, and epidemiology.
- principles of water treatment and distribution, hydrology and limnology, if assigned to the Water Department.

Chemist I/II:

Ability to:

- plan, conduct and interpret a variety of laboratory tests involving the physical, inorganic and organic chemical, microbiological and bacteriological analysis of water.
- make independent decisions regarding test results, initiating appropriate follow-up and corrective actions.
- plan, organize, and conduct complex projects related to area of assignment.
- conduct research, analyze data, and prepare sound recommendations for action.
- collect samples, prepare samples for testing, and preserve samples.
- develop, update and monitor quality assurance and quality control programs and resolve laboratory quality control issues.
- set up and verify new laboratory procedures as required.
- operate, maintain and calibrate laboratory instruments and sampling equipment.
- perform mathematical calculations and statistical analysis of laboratory data.
- maintain accurate records and prepare clear, comprehensive and concise reports.
- use a computer and a variety of word processing and software applications.
- communicate clearly and concisely, both orally and in writing.
- make effective oral presentations to City employees and to the public.
- follow oral and written directions.
- observe safety principles and work in a safe manner.

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- work independently.
- learn more complex principles, practices and techniques related to assigned duties.
- operate a four-wheel drive vehicle and/or motor boat for the collection of samples.
- establish and maintain effective working relationships with City staff, outside agencies, and the public.

DESIRABLE QUALIFICATIONS:

- Certification by the American Water Works Association or the California Water Environment Association as a Laboratory Analyst, depending upon department to which assigned.
- Certification by the California State Department of Health Services as a Water Treatment Plant Operator or Water Distribution Operator, if assigned to the Water Treatment Plant.

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