



**APPROVED BY: THE CHIEF  
ADMINISTRATIVE OFFICER**

**EFFECTIVE: March 2005**

## **CHEMIST I/II**

*Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.*

### **DEFINITION**

To perform a wide variety of professional analytical and technical duties involved in the analyses of water, wastewater, and related material samples for organic or inorganic constituents; to interpret test results for water quality; to assist in the development of various applied research projects; and to perform a variety of technical tasks relative to assigned areas of responsibility.

### **DISTINGUISHING CHARACTERISTICS**

#### **Chemist I**

This is the entry level class in the Chemist series. This class is distinguished from the Chemist II by the performance of the more routine tasks and duties assigned to positions within the series under immediate supervision while learning to perform the full range of responsibilities as assigned. Since this class is typically used as a training class, employees may have only limited or no directly related work experience. Advancement to the "II" level is based on demonstrated proficiency in performing the assigned functions, and is at the discretion of higher level supervisory or management staff.

#### **Chemist II**

This is the journey level class within the Chemist series. Employees within this class are distinguished from the Chemist I by the performance of the full range of duties as assigned including performing a variety of laboratory tests. Employees at this level receive only occasional instruction or assistance as new or unusual situations arise, and are fully aware

of the operating procedures and policies of the work unit. Positions in this class are flexibly staffed and are normally filled by advancement from the "I" level, or when filled from the outside, have prior experience.

## **SUPERVISION RECEIVED AND EXERCISED**

### **Chemist I**

Receives immediate supervision from assigned supervisory or management personnel.

### **Chemist II**

Receives general supervision from assigned supervisory or management personnel.

## **ESSENTIAL FUNCTION STATEMENTS**

*Essential responsibilities and duties may include, but are not limited to, the following:*

1. Perform a variety of chemical, biological, biochemical, physical, and other tests on water, wastewater, and related material samples; interpret the results tests samples as related to the treatment, quality, and distribution of potable water; utilize professional standards and methods in analyses to ensure validity of data.
2. Calibrate, operate, and perform minor maintenance and repair of instrumentation and electronic equipment including atomic absorption and UV/VIS (Ultra-Violet/Visible Imaging System) spectrophotometer, gas chromatograph, automatic pipetors, autoclaves, and total organic carbon analyzer.
3. Assist in the development of applied research projects; develop and review test equipment, products, methods and procedures; recommend operational and equipment modifications to ensure delivered water meets regulatory requirements.
4. Perform trace metal analyses for water and wastewater using ion chromatography; analyze samples and compile report results.
5. Develop and implement taste and odor profile analyses utilizing professional standards for raw and finished water.
6. Perform special biological, limnological, and ecological investigations of reservoirs, distribution systems, and flood control facilities; collect samples for specified projects.

7. Analyze performance evaluation samples for quality assurance; prepare reports as required by the State and Federal Environmental Laboratory Accreditation program.
8. Perform calculations and maintain records; enter data for analysis; interpret results and prepare oral and reports of work performed.
9. Maintain quality assurance and laboratory safety programs; maintain laboratory and equipment in a safe and orderly condition.
10. Respond to public inquiries in a courteous manner; provide information within the area of assignment; conduct tours of treatment plant and laboratory facilities.
11. Attend and participate in professional group meetings; stay abreast of new trends and innovations in the field of chemistry.
12. Perform related duties and responsibilities as required.

## **QUALIFICATIONS**

### **Chemist I**

#### *Knowledge of:*

Basic principles of chemistry, biology, bacteriology, and related fields.  
Basic principles and practices of organic, inorganic, and analytical chemistry.  
Basic quantitative and qualitative analysis methods.  
Basic procedures, equipment and instrumentation used in the examination, testing and analysis of water samples.  
Modern office procedures, methods, and computer equipment.

#### *Ability to:*

Learn principles and practices of statistical procedures and mathematical concepts.  
Learn operational characteristics of laboratory and electronic instruments and equipment.  
Learn methods and techniques of water sampling and storage requirements.  
Learn methods and techniques used in laboratory quality assurance programs.  
Learn methods and techniques of handling and storing hazardous materials.  
Learn pertinent federal, state and local laws, codes and regulations.  
Learn to maintain and conduct minor maintenance on various laboratory equipment.

Learn to perform and interpret water analysis test results.  
Perform a variety of duties in the analysis of water and wastewater samples.  
Assist in applied research projects.  
Prepare clear and concise technical and administrative reports.  
Communicate clearly and concisely, both orally and in writing.  
Establish and maintain effective working relationships with those contacted in the course of work.

### *Experience and Training Guidelines*

Any combination of experience and training that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

#### Experience

One year of chemistry or water/wastewater analysis.

#### Training

Equivalent to a Bachelors degree from an accredited college or university with major course work in chemistry, microbiology, or a related field. Directly related experience may be substituted for the college requirement on the basis of one and one-half years of experience for one year of education to a maximum of four years.

### **License or Certificate**

Possession of, or ability to obtain, an appropriate, valid California driver's license may be required with determinations made on a case-by-case basis at the time of job posting.

## **Chemist II**

In addition to the qualifications for Chemist I:

### *Knowledge of:*

Principles of chemistry, biology, bacteriology, and related fields.  
Modern chemical quantitative and qualitative analysis.  
Principles and practices of statistical procedures and mathematical concepts.  
Procedures, equipment, and instrumentation used in the examination, testing, and

analysis of water samples.  
Operational characteristics of laboratory and electronic instruments and equipment.  
Methods and techniques of water sampling and storage requirements.  
Methods and techniques used in laboratory quality assurance programs.  
Methods and techniques of handling and storing hazardous material.  
Modern and complex principles and practices of organic, inorganic, and analytical chemistry.  
Pertinent federal, state and local laws, codes and regulations.

*Ability to:*

Perform professional duties in the analysis of water and wastewater samples.  
Maintain and conduct minor maintenance on various laboratory equipment.  
Perform and interpret water analysis test results.

*Experience and Training Guidelines*

Any combination of experience and training that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Experience

Two years of experience as a professional chemist including one year in water or wastewater analysis.

Training

Equivalent to a Bachelors degree from an accredited college or university with major course work in chemistry, microbiology, or a related field. Directly related experience may be substituted for the college requirement on the basis of one and one-half years of experience for one year of education to a maximum of four years.

**License or Certificate**

Possession of, or ability to obtain, an appropriate, valid California driver's license may be required with determinations made on a case-by-case basis at the time of job posting.

**WORKING CONDITIONS**

**Environmental Conditions**

Water laboratory environment; exposure to noise, potentially hazardous chemicals, toxic materials and solvents.

**Physical Conditions**

Essential functions may require maintaining physical condition necessary for sitting or standing for prolonged periods of time; some light carrying and bending.