STATE OF NEVADA
Department of Administration
Division of Human Resource Management

CLASS SPECIFICATION

TITLE	GRADE	EEO-4	CODE
CHEMIST V	**38**	**A**	**10.707**
CHEMIST IV	**36**	**B**	**10.708**
CHEMIST III	**34**	**B**	**10.712**
CHEMIST II	**32**	**B**	**10.713**
CHEMIST I	**30**	**B**	**10.724**

SERIES CONCEPT

Chemists analyze air, water, tissue, milk, petroleum, soil, cement, paint, construction materials, pesticide residue and other samples; operate sophisticated laboratory instrumentation; identify and document sample contents and contaminants; provide testimony to State boards, lawmakers and industry; and maintain records of results.

Analyze water samples from drinking, surface, and industrial waste water, and sewer treatment plant sources in accordance with Environmental Protection Agency (EPA) approved procedures; identify the presence and concentration of nitrate, nitrite, fluoride, ammonia, kjeldahl nitrogen, and total phosphorus using titrametric, colorimetric or specific ion electrode techniques; and analyze presence of metals using flame atomic absorption, graphite furnace atomic absorption, and inductively coupled plasma-mass spectrometer.

Analyze air, sediment, sludge, blood and tissue samples according to established EPA procedures and standard laboratory methods.

Conduct chemical testing of State highway construction materials such as paint, cement and water; ensure chemical and physical properties of construction materials are appropriate for projects, and in compliance with State specifications; assist engineers in solving construction problems related to chemical and physical properties of materials.

Analyze construction materials and samples; maintain records of results; determine and document sample contents and contaminants; evaluate new and existing materials for compliance to federal, State and local regulations and specifications.

Evaluate, maintain, update and write specifications for new and existing construction materials, products, equipment and specifications for special provisions, standard plans, and invitations to bid.

Provide testimony to State boards, lawmakers, and industry representatives as requested; assist field offices, other governmental agencies and private entities in resolving conflicts and problems in sample testing.

Evaluate and maintain new and existing technology, methodology, literature and analyses for possible incorporation into laboratory procedures and protocols.

Analyze diesel, gasoline and motor oil samples for physical characteristics and air quality impact according to American Society for Testing and Materials using gas chromatography, x-ray, near infrared spectroscopy and other techniques; and determine compliance with labeling and the specifications adopted by law.

Determine compliance of antifreeze samples to specifications; measure specific gravity and check pH balance, boiling point and temperature tolerances to test for foaming tendencies.

SERIES CONCEPT (cont'd)

Analyze ground water, surface water, vegetation, soil and tissue for pesticide residues by extraction, derivatization and use gas and liquid chromatography instruments with various selective detection systems including mass spectrometry; and confirm the presence and concentration of herbicides and pesticides.

Analyze water samples for gross alpha and gross beta and additional radiochemistry as needed.

Analyze pesticide samples according to EPA guidelines; review product label; identify active ingredients, known problem areas, and possible contaminants; research current literature for available analytical methodology; select appropriate method for determining the presence and concentration of the sample's components; utilize extraction and column chromatography; and modify procedures to meet the specific needs of the analysis.

Analyze fertilizer samples for nitrogen, phosphorus, potassium and minor nutrients using appropriate analytical methods.

Maintain sample integrity and chain of custody; inspect samples for leakage; complete lab data calculations and worksheets; record processes and results; prepare and submit analytical report; enter findings into computer and maintain quality assurance.

Identify and request laboratory equipment and instrumentation; maintain and perform minor repairs by following manufacturers' instructions and schedules; ensure proper operation of equipment; recommend major repairs and services; request supplies, chemicals, and equipment; utilize updated computer programs to accommodate standards and new methodology.

Perform related duties as assigned.

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CLASS CONCEPTS

Chemist V: Under administrative direction, Chemist V's plan, organize, coordinate and oversee the overall operation of a laboratory(ies) in which water, soil, petroleum products, pesticides, highway construction materials and other materials are tested for chemical composition, contamination and/or compliance with State and federal regulations and standards.

Train, supervise and evaluate the performance of professional chemists, laboratory technicians and assistants; develop work performance standards; schedule and assign work and determine priorities; provide technical expertise as requested by subordinate staff.

Establish and revise laboratory policies and procedures; develop and maintain appropriate quality control and quality assurance procedures; ensure compliance with current safety requirements including the proper handling, storage, use and disposal of hazardous materials; coordinate laboratory activities with other State and federal agencies and entities.

Participate in long-range planning and budgeting processes; project personnel and equipment needs; develop and monitor the laboratory budget; order equipment, supplies and materials; maintain current knowledge of technological advancements in chemical analysis, computer applications and specialized instrumentation.

CLASS CONCEPTS (cont'd)

Chemist V (cont'd)
May direct the registration of pesticides, fertilizers and petroleum products, ensuring compliance with applicable federal and State laws and regulations; issue special need registrations and crisis exemptions; oversee the collection of fees and the licensing of restricted pesticide dealers in the State.

Chemist IV: Under general direction, positions allocated to this class either:

(1) Report to a supervisor who is not a chemist and work independently in providing chemical analysis of various materials in support of agency programs and activities; oversee and coordinate activities in the assigned laboratory including analytical equipment and instrumentation; order supplies and equipment; and implement quality assurance procedures; or

(2) Report to a Chemist V and perform the full range of duties described in the series concept. In addition, Chemist IV's supervise lower level professional chemists including responsibility for training, evaluating performance, assigning and reviewing work, and counseling and discipline. Incumbents at this level may also be assigned to participate in budget preparation and monitoring, requesting equipment and supplies, and recommending the purchase of new equipment and instrumentation, but the Chemist V has the final decision-making authority.

Chemist III: Under general supervision, incumbents perform a broad range of duties outlined in the series concept in an assigned laboratory. This is the journey level for the series.

Chemist II: Under supervision, incumbents continue to receive training and gain experience in performing duties outlined in the series concept. This is the advanced trainee level for the series.

Chemist I: Under immediate supervision, incumbents receive training in performing duties outlined in the series concept. This is the trainee level for the series.

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MINIMUM QUALIFICATIONS

***SPECIAL REQUIREMENT*:**

* Pursuant to NRS 284.4066, some positions in this series have been identified as affecting public safety. Persons offered employment in these positions, must submit to pre-employment screening for controlled substances.

CHEMIST V

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in chemistry or closely related field and five years of progressively responsible professional experience as a chemist in a laboratory setting; **OR** one year as a Chemist IV in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Detailed knowledge of: various scientific literature related to a specified field of chemistry; and laboratory equipment used for analyses. **Ability to:** plan, organize and oversee laboratory operations; prepare and monitor budgets; oversee the work of professional, technical and support personnel; read and interpret scientific literature and reports; evaluate and determine equipment, materials, and supplies needed in a laboratory; supervise, evaluate, counsel and discipline subordinate staff; *and all knowledge, skills and abilities required at the lower levels*.

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MINIMUM QUALIFICATIONS (cont'd)

CHEMIST V (cont'd)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Detailed knowledge of: pertinent federal and State rules and regulations; providers of chemistry equipment and supplies; supervisory techniques and practices; and State purchasing policies and procedures.

CHEMIST IV

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in chemistry or closely related field and four years of professional experience as a chemist in a laboratory setting; **OR** two years as a Chemist III in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Detailed knowledge of: analytical computer systems and applications used in a laboratory setting; organic or inorganic chemistry including quantitative and qualitative methods of analysis; safety precautions; laboratory equipment used for analysis. **Ability to:** write technical and scientific reports; initiate and develop testing policies and procedures; read and interpret scientific literature and reports; abstract and summarize technical procedures and complex data; *and all knowledge, skills and abilities required at the lower levels*.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Detailed knowledge of: relevant federal and State rules and regulations. **Working knowledge of:** agency rules, regulations, policies and procedures. **Ability to:** determine methodology to be applied and equipment to be utilized in conducting various tests and analysis; analyze a variety of materials to determine chemical content and composition; and perform complex chemical analysis without technical supervision.

CHEMIST III

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in chemistry or closely related field and two years of professional experience as a chemist in a laboratory setting; **OR** one year as a Chemist II in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: organic or inorganic chemistry including qualitative and quantitative methods of analysis; laboratory equipment used for analysis; health and safety precautions applicable to working with volatile chemicals and other hazardous materials; computer hardware and software used in a chemistry laboratory. **Ability to:** compare analytical results with reference standards and form logical conclusions; systematically arrange information, test results, data, and reports into appropriate categories; determine laboratory instruments' reliability and make necessary adjustments; analyze information, methods and procedures in order to determine the best method for analysis; perform several different procedures simultaneously using a variety of equipment; *and all knowledge, skills and abilities required at the lower levels*.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Working knowledge of: agency rules and regulations, policies and procedures related to laboratory practices. **General knowledge of:** relevant federal and State laws and regulations. **Ability to:** work independently in completing chemical analysis.

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MINIMUM QUALIFICATIONS (cont'd)

CHEMIST II

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in chemistry or closely related field and one year of professional experience as a chemist in a laboratory setting; **OR** one year of experience as a Chemist I in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
General knowledge of: organic or inorganic chemistry including qualitative and quantitative methods of analysis; health and safety precautions applicable to working with volatile chemicals and other hazardous materials; laboratory equipment used in analysis of water, gas, oil and other samples. **Skill in:** performing standard laboratory techniques and procedures; *and all knowledge, skills and abilities required at the lower level*.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
(These are identical to the Entry Level Knowledge, Skills and Abilities for Chemist III.)

CHEMIST I

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in chemistry or closely related field; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Basic knowledge of: organic or inorganic chemistry including qualitative and quantitative methods of analysis; health and safety precautions applicable to working with volatile chemicals and other hazardous materials; and laboratory equipment used in analysis of water, gas, oil and other samples. **Ability to:** read and understand technical laboratory literature; accurately measure, record and report scientific data; establish and maintain effective and cooperative working relationships with others; and perform testing procedures using modern laboratory equipment and techniques. **Skill in:** performing basic laboratory techniques and procedures.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
(These are identical to the Entry Level Knowledge, Skills and Abilities for Chemist II.)

This class specification is used for classification, recruitment and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

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ESTABLISHED:	7/1/99P 12/17/98PC	10/25/74	9/1/64	1/1/61	1/1/62
REVISED:			10/25/74	10/25/74	10/25/74
REVISED:		7/1/87-12P 7/18/86P	7/1/87-12P 7/18/86PC	7/1/87-12P 7/18/86PC	7/1/87-12P 7/18/86PC
REVISED:		7/1/99P 12/17/98PC	7/1/99P 12/17/98PC	7/1/99P 12/17/98PC	7/1/99P 12/17/98PC
REVISED:	4/11/14PC	4/11/14PC	4/11/14PC	4/11/14PC	4/11/14PC