

OCCUPATIONAL GROUP: Engineering, Mathematics and Science

CLASS FAMILY: Geology

CLASS FAMILY DESCRIPTION:

This family of positions includes professional scientific positions applying knowledge of the principles and theories of geology and related sciences in the collection, measurement, analysis, evaluation, and interpretation of geologic information concerning the structure, composition, and history of the earth. This includes the performance of basic research to establish fundamental principles and hypotheses to develop a fuller knowledge and understanding of geology, and the application of these principles and knowledge to a variety of scientific, engineering, and economic problems. This family also includes those employees who lead other geologists in investigating, collecting, and analyzing geological field samples and data or may individually conduct controversial or sensitive projects involving contacts and coordination with outside agencies.

CLASS TITLE: Geologist 1

DISTINGUISHING CHARACTERISTICS OF LEVELS:

These positions are the first level in this family. They perform complete field investigations with the field geological teams and provide a variety of basic geological services concerning the composition and physical and biological structure of the earth. Perform related work as required.

EXAMPLES OF WORK: (Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.):

- Collects, analyzes and catalogs geologic samples.
- Takes scientifically samples core specimens; cleans and orientates core samples.
- Updates geologic maps and combines historical survey reports from various sources into summaries/composites. Plots data on geologic maps.
- Maps water flow, disposition or sediment, and ground absorption for environmental review of the effect of pollution events and/or stability of proposed projects.
- Tests physical properties of cores, such as composition and resistivity.
- Assists in reviewing contamination assessment reports and plans, closure plans and permit applications for appropriate environmental integrity.
- Compiles statistical data on the production and value of the State's geologic resources.
- Collects, verifies, loads and manipulates geologic data for survey monitoring and mapping.

KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of concepts and principles of geology.
- Knowledge of geological research methods and techniques.
- Knowledge of geologic mapping.

- Skill in the use of survey tools and equipment.
- Skill in the preparation of geologic maps; reading and interpreting topographic maps.
- Ability to learn data input and manipulation procedures using computer packages.
- Ability to identify and classify rocks, minerals, fluids, soils and geologic information.
- Ability to establish and maintain effective working relationships with co-workers, government officials, industrial representatives and the public.
- Ability to communicate with others both orally and in writing.
- Ability to walk long distances in adverse weather over rugged terrain.
- Ability to lift and carry equipment for considerable distances.

MINIMUM QUALIFICATIONS:

Education: Bachelor's degree (related to Geology) from a regionally accredited four-year college or university.

Experience: None

Education & Experience Substitution: None

Certificates, Licenses, Registrations Required: None

CLASS TITLE: Geologist 2

DISTINGUISHING CHARACTERISTICS OF LEVELS:

These positions perform work providing geologic services concerned with the composition and physical and biological structure of the earth. Work includes research, compiling and gathering information on contamination assessment reports and proposals, remediation specifications, remedial action plans, closure plans, and permit applications for appropriate environmental integrity. Perform related work as required.

EXAMPLES OF WORK: *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Reviews and evaluates contamination assessment reports and proposals, remediation specifications, remedial action plans, closure plans, and permit applications for appropriate environmental integrity.
- Researches known and potential mineral and hydrocarbon deposits, using standard sampling techniques, drillers' logs, inspection of mines, and road cuts.
- Collects, analyzes and catalogs geologic samples. Studies the location, character, quantity and economics of geologic deposits.
- Maps water flow, disposition or sediment, and ground absorption for environmental review of the effect of pollution events and/or stability of proposed projects.
- Interprets geological data obtained from field monitoring devices, laboratory tests and surveys.
- Participates as a team member or lead worker in resistivity and seismic surveys.
- Compiles statistical data on the production and value of the State's geologic resources.
- Interprets survey results and prepares formal reports.
- Plans and conducts short-term research projects.

- Collects, verifies, loads and manipulates geologic data for survey monitoring and mapping and interprets results.
- Advises responsible parties of evaluation findings and advises, counsels and/or negotiates acceptable mitigation activities.
- Answers service request for maps and other information from industry, government agencies, and private citizens.

KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of geologic and geotechnical principles.
- Knowledge of soil and rock slope stability analysis and contaminated soils.
- Knowledge of geological methods of collection, analysis and documentation of field data.
- Knowledge of federal and state geologic survey maps and reports.
- Skill in the use of survey tools and equipment.
- Skill in the preparation of geologic maps.
- Skill in the reading and interpreting of topographic maps.
- Ability to learn data input and manipulation procedures using computer software packages.
- Ability to identify and classify rocks, minerals, fluids, soils and geologic information.
- Ability to learn State laws, rules and regulations pertaining to geology.
- Ability to utilize acceptable methods, procedures, and approaches for making a complete and satisfactory geologic investigation.
- Ability to assemble data to prepare technical reports, including recommendations.
- Ability to maintain records, document findings and prepare reports and correspondence regarding investigations and findings.
- Ability to establish and maintain effective working relationships with co-workers, government officials, industrial representatives and the public.
- Ability to communicate with others both orally and in writing.
- Ability to walk long distances in adverse weather over rugged terrain.
- Ability to lift and carry equipment for considerable distances.

Minimum Qualifications:

Education: Bachelor's degree (related to Geology) from a regionally accredited four-year college or university.

Experience: 2 – 3 years of full-time or equivalent part-time paid experience in geology, soil mechanics or related field.

Education & Experience Substitution: Master's Degree (related to Geology) from a regionally accredited college or university may be substituted on a year-for-year basis for the required experience.

Select Certification – Areas of Assignment: Applicant must have completed six (6) semester hours or have one (1) year of professional geologic experience in the area of specialization to be eligible.

Select Certification may be requested in the following six (6) area of specialization: (1) Coal Geology; (2) Environmental Geology; (3) Hydrology, Water Resources Geology,

Hydrogeology/Groundwater Geology; (4) Petroleum Geology; (5) Land Reclamation and Soil Geology; (6) Structural Geology.

CLASS TITLE: Geologist 3

DISTINGUISHING CHARACTERISTICS OF LEVELS:

These positions perform professional work at the advanced level, conducting complex research projects or coordinating research teams and/or the supervision of subordinate professional and technical personnel. They analyze, interpret, and evaluate complex geologic data. These positions have the responsibility to evaluate the accuracy and suitability of geological data from a multitude of disparate sources for use in research, requests for information, mapping, and resource development. They review, assess and submit findings and approve all sections related to geology and hydrology on permitting applications. These positions provide technical support for geology/hydrology issues related to mining and reclamation and providing findings when required. Perform related work as required.

EXAMPLES OF WORK: *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Plans, coordinates and evaluates the work of several research teams or organizational units or sections.
- Plans, organizes, and directs long-term research projects and programs.
- Supervises the work of subordinate professional and technical personnel.
- Initiates research projects within a specific area of geology.
- Evaluates problems and hazards related to projects and provides solutions.
- Represents the department at the local and national level by providing specifications on technical information.
- Reviews and evaluates technical documents and specifications as part of research development.
- Interprets rules and regulations, reviews recommended permitting actions, and makes critical decisions.
- Writes specifications related to geotechnical/geological items; and review all phases of plan issuance and details to meet specifications.

KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of state personnel rules and policies.
- Knowledge of geologic and geotechnical principles.
- Knowledge of soil and rock slope stability analysis and contaminated soils.
- Knowledge of geological methods of collection, analysis and documentation of field data.
- Knowledge of federal and state geologic survey maps and reports.
- Skill in the use of survey tools and equipment.

- Skill in the preparation of geologic maps.
- Skill in the reading and interpreting of topographic maps.
- Ability to direct and supervisor professional and technical staff.
- Ability to identify and classify rocks, minerals, fluids, soils and geologic information.
- Ability to utilize acceptable methods, procedures, and approaches for making a complete and satisfactory geologic investigation.
- Ability to assemble data to prepare technical reports, including recommendations.
- Ability to maintain records, document findings and prepare reports and correspondence regarding investigations and findings.
- Ability to establish and maintain effective working relationships with co-workers, government officials, industrial representatives and the public.
- Ability to communicate with others both orally and in writing.
- Ability to walk long distances in adverse weather over rugged terrain.
- Ability to lift and carry equipment for considerable distances.

Minimum Qualifications:

Education: Bachelor's degree (related to Geology) from a regionally accredited four-year college or university.

Experience: 4 – 5 years of full-time or equivalent part-time paid experience in geology, soil mechanics or related field.

Education & Experience Substitution: Master's Degree (related to Geology) from a regionally accredited college or university may be substituted on a year-for-year basis for the required experience.

Select Certification – Areas of Assignment: Applicant must have completed six (6) semester hours or have one (1) year of professional geologic experience in the area of specialization to be eligible.

Select Certification may be requested in the following six (6) area of specialization: (1) Coal Geology; (2) Environmental Geology; (3) Hydrology, Water Resources Geology, Hydrogeology/Groundwater Geology; (4) Petroleum Geology; (5) Land Reclamation and Soil Geology; (6) Structural Geology.

CLASS TITLE: Geologist 4

DISTINGUISHING CHARACTERISTICS OF LEVELS:

These positions perform highly skilled professional geologic work in a research position; or, highly skilled expert level professional geologic work; or, may include project management, supervision of professional or technical personnel. They perform as an expert geologic witness before State Boards, State Courts, and Federal Courts. A wide latitude for independent judgment and training/mentoring of subordinate geologists is required, within general agency objectives. Work is performed in the office and field, with statewide travel/expertise needed to accomplish agency objectives. Perform related work as required.

EXAMPLES OF WORK: *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Serves at the expert level providing expertise on complex geology issues.
- Makes expert geologic interpretation of data obtained from field monitoring devices, laboratory tests and surveys.
- Plans, organizes and directs geologic research project research projects and policy formation projects.
- May supervise the work of the agency's subordinate geologists and various technical/scientific personnel.
- May conduct peer reviews of the professional geologic staff for accuracy and consistency.
- Interfaces with agency's legal staff on the agency's position on geologic issues.
- Represents the agency in providing information and programs to the public on geologic issues.
- Trains subordinate geologists, technical personnel and inspection personnel on geologic issues critical to the agency's mission.

KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of complex and broad areas of geology on a statewide basis.
- Knowledge of current research in the area of assignment.
- Knowledge of techniques and methods used in research.
- Knowledge of state regulations and their application.
- Knowledge of supervision and leadership skills.
- Ability to evaluate the work of junior geologists and technical/scientific personnel.
- Ability to provide solutions and corrections to a wide variety of mining, highway construction, engineering and other complex research projects or design problems.
- Ability to describe internally and advance externally the agency's position to the public, courts and other state and federal agencies through excellent verbal and written skills.
- Ability to apply geologic, laboratory, scientific and engineering solutions and techniques to complex field issues.
- Ability to interpret geologic, scientific, engineering and laboratory data.

Minimum Qualifications:

Education: Bachelor's degree (related to Geology) from a regionally accredited four-year college or university.

Experience: Six years of full-time or equivalent part-time paid experience in geology, soil mechanics, or related field.

Education & Experience Substitution: Master's Degree in Geology from a regionally accredited college or university may substitute for the required experience on a year-for-year basis; **OR** a Doctorate in Geology from a regionally accredited college or university may substitute for the required experience on a year-for-year basis.

Select Certification – Areas of Assignment: Applicant must have completed (6) semester hours or have (1) year of professional geologic experience in the area of specialization to be eligible.

Select Certification may be requested in the following six (6) areas of specialization: (1) Coal Geology; (2) Environmental Geology; (3) Hydrology, Water Resources Geology,

Hydrogeology/Groundwater Geology; (4) Petroleum Geology; (5) Land Reclamation and Soil Geology; (6) Structural Geology.

CLASS TITLE: Geologist 5

DISTINGUISHING CHARACTERISTICS OF LEVELS:

These positions perform as highly skilled senior professionals, carrying out the mission of the agency by administering and managing research, service, and data compilation for a given area of expertise such as coal, oil and gas, geologic hazards, water use, and geologic mapping, as well as for the agency as a whole. These positions report directly to the agency director. They review and recommend agency policies. These positions set and implement objectives, goals, and priorities for their program. They participate in the development and implementation of an agency strategic plan, and generally assist the director. Perform related work as required.

EXAMPLES OF WORK: *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Oversees a formally designated organizational unit or program that requires extensive planning, organizing, and monitoring of work activities of subordinate staff, controlling resources including staff, budget, equipment, and all the means used to accomplish work within the assigned area of responsibility
- Lead research projects, including identifying research projects, writing proposals, budgeting, building a research team, setting and maintaining schedules, supervising the work of subordinates, coordinating the work of others.
- Oversee/approve the plan and design projects.
- Evaluates geological research and service programs conducted by subordinates.
- Provide direction on geological projects for subordinate staff.
- Attends professional conferences to present the results of studies, and to gather information from the work of other researchers.

KNOWLEDGE, SKILLS AND ABILITIES:

- Knowledge of complex and broad areas of geology on a statewide basis.
- Knowledge of current research in the area of assignment.
- Knowledge of techniques and methods used in research.
- Knowledge of state regulations and their application.
- Knowledge of supervision and leadership skills.
- Ability to evaluate the work of junior geologists and technical/scientific personnel.
- Ability to provide solutions and corrections to a wide variety of mining, highway construction, engineering and other complex research projects or design problems.
- Ability to describe internally and advance externally the agency's position to the public, courts and other state and federal agencies through excellent verbal and written skills.
- Ability to apply geologic, laboratory, scientific and engineering solutions and techniques to complex field issues.

- Ability to interpret geologic, scientific, engineering and laboratory data.

Minimum Qualifications:

Education: Bachelor's degree from a regionally accredited four-year college or university.

Experience: Eight years of full-time or equivalent part-time paid experience in geology, soil mechanics, or related field.

Education & Experience Substitution: Master's Degree in Geology from a regionally accredited college or university may substitute on a year-for-year basis; **OR** a Doctorate in Geology from a regionally accredited college or university may substitute for the required experience on a year-for-year basis.

Select Certification – Areas of Assignment: Applicant must have completed (6) semester hours or have (1) year of professional geologic experience in the area of specialization to be eligible.

Select Certification may be requested in the following six (6) areas of specialization: (1) Coal Geology; (2) Environmental Geology; (3) Hydrology, Water Resources Geology, Hydrogeology/Groundwater Geology; (4) Petroleum Geology; (5) Land Reclamation and Soil Geology; (6) Structural Geology.