

STATE OF SOUTH DAKOTA CLASS SPECIFICATION

Class Title: Hydrology Specialist

Class Code: 40527

A. Purpose:

Provides departmental oversight to hydrologic and geochemical projects and activities carried out by the department and regulated entities by determining the potential for development of, and the possibility and extent of contamination to, ground and surface water resources of the state; and by evaluating and authorizing control methodologies to ensure safety and protection of human health, ground water and hydrologic systems, and other natural resources.

B. Distinguishing Feature:

Hydrology Specialists provide direct departmental oversight to hydrologic goals and objectives; and routinely provide comprehensive hydrologic information and evaluations to the department secretary, division directors, program administrators, and department boards for critical decisions regarding environmental permitting and natural resources management.

Senior Hydrologists are assigned complete research projects and investigations, apply appropriate conditions to permits and clean-up plans, and work under general supervision.

C. Functions:

(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)

1. Supports department administrators, boards, and managers in critical decision-making by providing hydrologic and geochemical information, evaluation, and expertise necessary to carry out department goals and objectives in natural resources protection and management.
 - a. Reports on the availability and quality of ground and surface water.
 - b. Conveys the department's philosophy on ground water protection at public meetings.
 - c. Recommends protocols and methodologies for the remediation of spill sites or other contaminated sites.
 - d. Recommends rules and regulations related to ground water quality.
 - e. Recommends department action in regard to complaints about ground water quality.
2. Formulates and directs hydrologic research to complete comprehensive assessment of ground water and hydrologic systems, and the causes and control of pollution.
 - a. Coordinates research with other affected agencies.
 - b. Directs research projects by assigning and directing staff, overseeing approved research activities, and monitoring and enforcing project deadlines.
 - c. Executes numerical ground water flow models to delineate capture zones, contaminant flow paths, and wellhead protection areas.
 - d. Formulates research project plans and budgets, and negotiates contracts.
 - e. Reviews Hydrologists' reports and recommendations and provides expertise and advice regarding proper ground water practices, protocols, and procedures.
 - f. Reviews and makes recommendations on grant proposals and contracts for ground water research and public education, represents the department at meetings concerning proposals, and maintains contact with all entities participating in a project.
 - g. Prepares assigned portions of the state's water management plan.
 - h. Develops and implements strategies and procedures for collecting, maintaining, and retrieving accurate hydrologic and geologic information and using that information to provide evaluations that can be used in making critical natural resource protection and management decisions.

3. Directs hydrologic regulatory investigations and inspections and evaluates scientific results to ensure continuation and maintenance of professional standards and procedures and compliance with permit requirements.
 - a. Designs and directs aquifer tests to determine hydrologic parameters.
 - b. Designs ground water monitoring systems to obtain water quality data.
 - c. Analyzes hydrologic, geochemical, and geologic data and makes recommendations regarding ground water protection and clean-up.
 - d. Reviews and makes recommendations on ground water contamination assessments.
 - e. Prepares and presents information and recommendations on the quality and quantity of ground water, water pollution prevention, and ground water clean-up to the department secretary, division directors, program administrators, and boards.
 - f. Reviews reports and correspondence written by others for technical accuracy and department priorities.

4. Evaluates proposed activities that will be regulated by the department to determine potential impacts to ground water and hydrologic systems.
 - a. Reviews permit applications, reports on findings to department secretary, division directors, program administrators, and boards.
 - b. Researches and reviews ground water, geochemical, and geologic data pertinent to permits.
 - c. Assesses potential for ground water contamination due to land surface activities.
 - d. Recommends ground water monitoring activities and interprets and evaluates resulting water quality data.

5. Performs other work as assigned.

D. Reporting Relationships:

Reports to a Natural Resources Administrator or the State Geologist. Does not supervise.

E. Challenges and Problems:

Challenged to resolve the conflict between development activities that may impact ground water, and protection of the environment. This is challenging because of the multiple combinations of environmental factors that are possible and must be evaluated, the need for projecting and evaluating possibilities in future scenarios, and the need to allow feasible economic development within environmental protective constraints. Further challenged to develop, interpret, and maintain the professional protocols by which hydrologic issues are studied and evaluated, and from which factual conclusions are derived.

Problems resolved include determining the scope and design of studies which will adequately identify the hydrologic parameters necessary to reach factual conclusions; scheduling and accomplishing activities within prescribed deadlines; determining answers to new ground water quality problems, integrating scientific data to obtain complete understanding of projects, and collecting adequate data to make recommendations within allocated time.

F. Decision-making Authority:

Decisions include recommendations for department protocols and methodologies for conducting ground water and hydrologic studies and remediation of ground water and contaminated sites, recommendations for rules and regulations governing ground quality, recommendations for departmental action in resolving controversial issues, recommendations for protection of water resources, the extent and methods of research for hydrologic assessments and studies and

assignment of staff, the content of public presentations and information, whether permits provide adequate protection for natural resources and comply with rules and regulations, and whether water quality data is adequate.

Decisions referred include final approval of protocols and methodologies, rules and regulations, projects and budgets, and permits.

G. Contact with Others:

Daily contact with program administrators to discuss projects and coordinate with other departmental programs, with other department staff and other state agencies to coordinate project development, with local government agencies to respond to requests for investigations or availability of data, with the regulated community and industry to exchange technical information and provide consultation on ground water activities and problems, and with the general public to provide information; and weekly contact with department secretary and division directors to provide consultation on projects, with state and federal agencies to discuss project results, with the United States Geological Survey (USGS) to obtain and discuss technical information, and with the Environmental Protection Agency (EPA) to report on ground water grants and commitments in the performance partnership agreement.

H. Working Conditions:

Works in a typical office environment, on construction sites, and around environmental management facilities; is exposed to varied weather conditions, construction equipment, hazardous materials, and infectious bacteria; wears self-contained breathing apparatus and personal protection equipment; and is subject to physical exertion during on-site inspections and field investigations.

I. Knowledge, Skills, and Abilities:

Knowledge of:

- environmental statutes;
- legislative and administrative processes;
- department policies and procedures;
- the principles and practices of hydrology, hydraulics, and fluid mechanics;
- physical, chemical, and biological technologies as they relate to analyses of water quality;
- the state's geology and hydrology;
- personnel and fiscal management;
- the principles and procedures of supplying expert testimony;
- human relations sufficient to establish working relationships with professional staff, managers, elected officials, consultants, and the public.

Ability to:

- advise others in technical matters;
- organize and analyze available information and reach sound conclusions;
- write both technical reports and reports for the public;
- communicate persuasively and defend a position or decision;
- recognize situations of potential liability to the department and take appropriate action;
- budget monetary, material, and equipment resources;
- communicate complex technical and natural resource issues to department managers, elected officials, and the general public in a clear and understanding manner both verbally and in writing.