

ENVIRONMENTAL RESEARCH SCIENTIST

KIND OF WORK

Advanced scientific research work in the area of pollution control.

NATURE AND PURPOSE

Under general supervision, an employee in this class is responsible for development and analysis of scientific research projects dealing with pollution control issues, and for providing expert scientific and technical advice to staff of the Pollution Control Agency. Position is involved in scientific modeling and other research work designed to test specific hypotheses or to make observations within a specific environmental field. Responsibilities include planning, designing, and implementing methods and procedures for verifying accuracy, validity, and completeness of research projects. This classification differs from lower level Pollution Control Specialist Senior positions in that it acts as subject matter expert within a particular environmental science field. Employees in this class report to the program director who does not possess the level of environmental science technical expertise and who directs other administrative and program areas within the agency.

EXAMPLES OF WORK (A position may not include all the work examples given, nor does the list include all the may be assigned.)

Conduct scientific research and review of water quality standards, toxic substance criteria, and effluent limits determination to ensure that state water quality is protected and enhanced by determining the appropriate water quality criteria or effluent limitation; evaluating the research of peer scientists to assure its quality, determine its reliability, and validate its applicability to establishment of water quality criteria; researching and developing the physical, chemical, and biological factors utilized to modify existing EPA or other criteria and establish a procedure for developing new criteria; determining and recommending biological, mathematical, or statistical alterations or procedures appropriate to modify the existing criteria; developing new scientific concepts to address utilization of identified factors impacting toxic substance criteria; serving as agency technical expert on EPA Regional Standards Committee; acting as Water Quality Division liaison with other divisions and offices with respect to toxic pollutant criteria research and development.

Provide expert technical and scientific advice on air transport and dispersion, atmospheric chemistry, atmosphere deposition, and environmental effects of air contaminants to ensure that scientifically appropriate and current methods are used by reviewing acid deposition methodology; providing technical and scientific guidance to air toxics and acid deposition teams; maintaining knowledge of and providing technical and scientific information on atmospheric chemistry and the environmental effects of air contaminants; interacting and exchanging information with scientists from industry, academia, governmental agencies, and other countries; reviewing and advising staff on computerized data management and statistical analysis of acid deposition data.

Analyze toxicological impacts of specific projects undergoing environmental review to ensure that the issues are properly addressed and mitigation appropriately provided by reviewing environmental documents and preparing comments with respect to toxicological impact; recommending mitigative measures and assisting in development of strategies to control specific substances; reviewing scientific and technical information and identifying current trends and possible problem areas; preparing reports, documents, and technical publications; participating in meetings with various agency personnel; assisting in the design of systematic approaches to problem analysis where toxicological parameters are of primary concern; conducting special studies and/or scientific analysis to provide for possible areas of rule making or policy development.

Conduct modeling studies as required by state and federal regulations to predict concentrations of atmospheric pollutants to ensure protection of public health and the environment by maintaining up-to-date knowledge of prevention of significant deterioration, new source review, state implementation plan requirements, and other governmental regulations which rely upon dispersion modeling; maintaining knowledge of procedures and technical options for regulatory dispersion modeling; applying, evaluating, and interpreting regulatory dispersion models with regard to sources of air pollutants; preparing input data, running programs, and writing technical support documents; providing technical background regarding the interpretation of modeling results; performing sensitivity analyses for complex and empirically derived parameters.

Review environmental impact statements, superfund or hazardous waste cleanup sites, human health risk assessments, and other projects or programs to assess the impact of toxic pollutants on the environment and to make recommendations to ensure that agency management decisions protect the environment and citizen welfare by researching and developing water quality criteria for state waters; evaluation of the aquatic community and/or impact on human health of the discharge of toxic pollutants into impacted waters; researching and evaluating physical, biological, and chemical factors which may alter the impacts of toxic pollutants; recommending appropriate strategies, operating procedures, plans, and activities which protect water quality.

Review studies submitted to the agency with regard to their scientific accuracy, completeness, and currentness in the fields of atmospheric transport and dispersion, atmospheric chemistry, computer modeling, and compliance with regulatory requirements based on dispersion modeling and ambient air quality standards to ensure that studies meet all necessary regulatory requirements by reviewing atmospheric dispersion modeling studies to document satisfaction of ambient preconstruction and post-construction monitoring requirements under the federal Prevention of Significant Deterioration (PSD) program; monitoring and modeling demonstrations of attainment for the State Implementation Plan (SIP); maintaining knowledge of recommended procedures and technical options for regulatory dispersion modeling, providing technical background in interpretation of modeling results; reviewing other studies submitted to the agency in related fields to ensure that they are comprehensive, multidisciplinary, and meet all necessary regulatory requirements; providing guidance to Office of Planning and Review to develop plans and review work completed by consultants for environmental assessment worksheets and environmental impact statements.

Serve as source of technical information to the public and other agency personnel on toxics-related issues to ensure that requests for information are addressed by providing citizens with answers to their questions or direction to proper sources for these answers; providing officials of cities and townships appropriate response to questions or determining appropriate staff at MPCA to address issues; providing environmental organizations with answers to raised issues when possible or providing direction as to means of obtaining requested information.

KNOWLEDGE, SKILLS AND ABILITIES REQUIRED

Knowledge of:

Scientific, experimental, and research techniques sufficient to conduct extensive and sophisticated scientific research and analysis.

Current literature in air, water, solid and hazardous waste contamination sufficient to assemble data, summarize reports, and document research.

Environmental assessment principles and practices sufficient to conduct investigations and to prepare and review environmental documents.

Procedures for planning, executing, evaluating, and reporting controlled experimental research sufficient to identify and evaluate toxic pollutants and their impacts on air and water quality.

Ability to:

Perform and evaluate complex dispersion modeling sufficient to make use of computer programming and database management techniques.

Design studies and methodology sufficient to analyze data and develop recommendations.

Establish and maintain effective working relationships sufficient to interact with the public and other governmental agencies, groups and professional staff.

Write, collaborate in writing, or assist others in writing articles or papers on the results of research projects sufficient to communicate complex issues on projects which have a high degree of public and political exposure.

Est.: 9/25/90

Rev.:

T.C.: 6/27/94

Former Title(s): Pollution Control Scientist