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**STATE OF WISCONSIN  
CLASSIFICATION SPECIFICATION**

**ENVIRONMENTAL CIVIL ENGINEER  
CLASSIFICATION SERIES**

**I. INTRODUCTION**

A. Purpose of This Classification Specification

This classification specification is the basic authority under Wisconsin Administrative Code ER 2.04 for making classification decisions relative to professional engineering positions located at the Department of Corrections, Department of Health Services, and Department of Transportation. Positions allocated to this classification perform duties which are professional in nature as defined in s. 111.81(15), Wis. Stats.

Classification decisions must be based on the “best fit” of the duties within the existing classification structure. The “best fit” is determined by the majority {i.e., more than 50%} of the work assigned to and performed by the position when compared to the classification concepts and definitions of this specification or through other methods of position analysis. Position analysis defines the nature and character of the work through the use of any or all of the following: definition statements; listing of areas of specialization; representative examples of work performed; allocation patterns of representative positions; job evaluation guide charts, standards, or factors; statements of inclusion and exclusion; license or certification requirements; and other such information necessary to facilitate the assignment of positions to the appropriate classification.

B. Inclusions

This classification specification encompasses positions performing professional engineering duties and providing professional engineering expertise for environmental civil engineer programs. Programs include the Agency for Toxic Substances and Disease Registry Program, Wisconsin's Superfund Dump Site Program, Environmental Safety Engineering Program, Site Clean-up and Recycling Engineering Program, and various agency-specific hazardous material/environmental assessment programs. Positions included in this series must meet the qualifications prescribed under Section I.C.

C. Exclusions

Excluded from this classification series are the following types of positions:

1. Positions which meet the statutory definition of supervisor, as defined in s. 111.81(19), Wis. Stats.

2. Positions which do not meet the statutory definition of professional employe, as defined in s. 111.81(15), Wis. Stats.
3. Positions which do not require that the incumbent perform professional engineering duties and be a professional engineer by background and training for the successful performance of the tasks assigned to the position.
4. Positions which spend the majority of their time reviewing building plans and/or inspecting buildings to assure that minimum safety codes are met.
5. All other positions which are more appropriately identified by other classification specifications.

D. Entrance Into and Progression Through This Classification Series

Employes enter positions within this classification series by competitive examination and meeting the qualifications described under I.C. Progression to the senior level will occur through reclassification. Progression to the advanced level will typically occur through some form of competitive examination.

## II. DEFINITIONS

**Section A, Levels**, describes the appropriate placement of an employe based upon the specific level of skills, knowledge, and abilities required of the position and the amount of supervision received for the majority of time within the specific professional engineering program area.

**Section B, Functional Work Activities**, describes the full range of duties performed at the objective level. (The Senior level is the level an employe can reasonably expect to obtain if he/she performs the full range of functional work activities.)

Employes may also perform the following types of duties, but they are usually performed at the senior or advanced levels:

1. Lead Worker: An employe who trains, assigns the work, and reviews the work of other professional employes, and which may also include technical employes.
2. Program Leader: An employe who is the technical expert for a specific area(s) and who may have some oversight to assure uniformity within a specific engineering program area(s).
3. Project Leader: An employe who has the responsibility for coordinating the work of another professional engineer(s) when a project requires two (2) or more engineers for completion, and which may also include other technical and professional employes. This function would last only as long as the project. An employe can be a project leader and a team member for another project simultaneously; **OR**, a project leader can be an employe who has the responsibility of oversight of non-permanent, non-state, or contract engineers and related staff.

### A. Levels

## **ENVIRONMENTAL CIVIL ENGINEER**

Positions work under close progressing to limited supervision. Environmental engineering principles and practices have been learned prior to entrance into this classification series. The emphasis is in developing skills in working with and/or understanding the program, state systems, user group(s), and the mechanics of the program, and developing an understanding and applying the statutes, rules, regulations, administrative code, and standards required in the program area. Initial work assignments are well defined and of short duration. Over time, the work assignments become long term or short term, with the employe expected to exercise independent judgment in determining specifics and priorities, as the objectives are progressively less clear. Positions may be in contact with outside consultants or engineers and may have assignments which cross program lines, depending on where the individual employe's performance level is determined. The supervisor reviews the work to determine the completeness or accuracy and adherence to policy.

## **ENVIRONMENTAL CIVIL ENGINEER - SENIOR**

Positions work under general supervision. The work assignments the employe is expected to complete include the full range and scope of their specific program duties. The majority of the assignments are complex. Positions at this level have extensive authority in carrying out their assigned responsibilities, including independently implementing the assigned responsibilities. The work at this level requires a high degree of interpretation and creativity in evaluating engineering aspects of new technologies. Positions at this level make decisions independent of supervisory oversight, with the work being reviewed after decisions have been made.

## **ENVIRONMENTAL CIVIL ENGINEER - ADVANCED**

This is the objective level for positions under general policy review which provide advanced professional engineering expertise in their assigned program area. Positions at this level function as the primary engineer for a specific aspect of a department program or function as a program engineer within an assigned geographic area. Positions at this level perform the most complex, difficult, and advanced engineering work, which includes multi- and cross-program issues and which often include policy-making responsibilities. Employes at this level have engineering responsibilities which require continual high level contacts with public and private officials and engineers/engineering consultants on highly sensitive and complex engineering reviews. The engineering knowledge at this level includes a broader combination than found at the senior level. Assignments are broad in scope and continually require that the incumbent use independent judgment in making professional engineering decisions. Positions at this level make independent decisions and perform work in response to program needs as interpreted by the employe, with the work being reviewed after decisions have been made.

### **B. Functional Work Activities**

Agency for Toxic Substances and Disease Registry Engineering Program: Review soil and site evaluations, hydrologic reports, and environmental monitoring data for accuracy and precision of sampling and analytical procedures. Assess data package to determine the extent to which monitoring data depict temporal and spatial representatives of site contamination. Review results of chemical fate and transport modeling, including calibration, verification, sensitivity analysis, and estimation of confidence limits. Prepare a determination of potential exposure pathways and

exposure concentrations for receptors in the vicinity of the dump site. Prepare a report for inclusion in the health assessment document. Determine what additional sampling/analytical or environmental modeling efforts would be desirable to predict present or future human exposure to contaminants migrating from dump sites. Perform additional environmental modeling to predict future exposure pathways and exposure concentrations. Analyze and critically review surface and groundwater quality modeling data to determine the confidence by which such data can be used to predict present and future human exposure to toxic substances in the environment. Analyze available models in terms of required data inputs, accuracy, and limitations to ascertain their utility to a public health agency in predicting human exposure to toxic contaminants. Refine simple mathematical fate models to increase applications for the dump site health assessment program. Work with staff in the selection and application of commercially available modeling software and provide assistance toward in-house programming of simplified mathematical models. Apply mathematical water quality models in the absence of site-specific modeling data to predict the fate and transport of contaminants migrating from specific dump sites. Perform environmental transport and fate modeling for selected environmental contaminants for the development of exposure and risk assessments. Review scientific and engineering information as it relates to the sampling and analysis of chemical contaminants in the environment to ensure that optimal and scientifically valid approaches are applied to the Superfund Program. Review scientific and engineering information as applies to soils, hydrology, and site evaluations to ensure optimal methods are used for Superfund site evaluations. Visit dump sites to assess suitability of environmental monitoring and characterization efforts. Attend meetings with United States Environmental Protection Agency and state and local officials to disseminate information on the dump site assessment effort. Write scientific reports for publication. Critically review engineering aspects of the Remedial Investigation/Feasibility Study (RI/FS) to determine if proposed action will adequately protect the public's health. Determine the extent to which alternative remediation strategies might be advisable in order to protect public health. Provide written analyses of reviews and suggestions which can be incorporated into the final risk assessment document.

Department Environmental Engineering Programs: Prepare environmental assessments (EAs). Conduct periodic project site visits to gather data for development of the EA. Conduct interviews and communicate with other public agencies, local officials, utilities, and others, as needed, to gain required information. Prepare, publish, and distribute the EA for public comment. Modify the EA if necessary. Gather and transmit all available and required documents to a consultant if an Environmental Impact Statement (EIS) is required. Participate in the review of the administrative rules dealing with EAs and EISs. Provide engineering and project management expertise for department-owned waste water treatment systems, potable water, storm discharge, and all related water and sewer distribution systems. Provide project management services, including budget development, design, bid document development, and construction supervision for very complex civil engineering projects which include site work, utilities, security fencing, and waste water treatment and disposal. Develop project budget, prepare plan and specifications, and review bids. Review data and recommendations provided by consultants performing the analysis and design of projects. Direct the preparation of permits, plans, and specifications to bid the work necessary to improve/upgrade water and waste water treatments. Review and investigate existing waste water treatment and recommend and implement more effective approach to lower utilities costs and compliance with code requirements. Serve as project manager, directing civil engineering consultants and contractors in the area of civil and wastewater-treatment-related projects. Perform detailed technical inspections of all wells and elevated/underground water storage tanks and prepare assessments and establish a data base for potable water wells. Perform detailed technical inspections of all

wastewater treatment plants, prepare a preliminary assessment, and establish a data base. Plan, design, and expedite abatement of lead base paints and address other forms of water, air, and noise pollution. Identify pollution sources and coordinate the taking of samples of various substances. Analyze test results and recommend required corrective action. Design all abatement projects, to include development of funding request, bid documents, and supervision of abatement work. Obtain all required information in order to serve required air emission permits. Remain current of lead paint abatement as well as air, noise and water pollution. Interpret Department of Industry, Labor, and Human Relations and Department of Natural Resources codes and regulations. Provide assistance in the management, maintenance, removal, and cleanup of underground tanks. Administer the LUST (Leaking Underground Storage Tank) Program. Plan for the removal and/or replacement of underground storage tanks. Provide design and supervision services for the removal and cleanup of underground storage tanks and coordinate removal with DNR. Act as the liaison to the DFD and consultants on projects where hazardous waste (soil) has been created due to leaking tank conditions. Prepare plans and specifications to remove and install underground storage tanks. Coordinate handling, storage, and disposal of hazardous materials. Inspect facilities for hazardous substances. Remain current on state and federal regulations which impact handling, storage, and disposal of hazardous materials. Serve as project manager in the area of handling, storage, and disposal of hazardous materials.

Hazardous Materials Engineering Program: Administer the investigation and remediation of properties being considered for acquisition. Develop, review, and recommend consultant contracts for site assessments, investigations, and remediation. Prepare, monitor, and coordinate schedules for site assessments, investigations, and remediation. Review and approve consultants' work plans, perform on-site inspections, evaluate technical work (including reports), evaluate alternative mitigation methods, and review and recommend payment requests. Coordinate all site assessments, investigations, and remediation efforts with appropriate federal, state, and local agencies, municipalities, and public officials. Develop methods to identify contaminated properties and sources during improvement development. Evaluate the effectiveness of remediation techniques. Sign all hazardous material drum manifests and related documents for all hazardous materials generated. Establish and administer a program to effectively identify, inventory, and transport all hazardous materials. Direct a team of engineers and technicians in developing major/complex hazardous materials remediation projects for the investigation phase of project development. Prepare or update the concept definition report. Plan, organize, and conduct the operational planning meeting. Prepare the public involvement plan. Initiate the data gathering activities by preparing requests for the required property descriptions, field surveys, soil borings, groundwater monitoring wells, laboratory analyses of samples, highway, street, and bridge features, utility and railroad locations, and disposal sites. Develop alternatives to the appropriate level of detail. Plan and organize public information meetings. Conduct environmental assessments. Prepare draft environmental documents. Direct a team of engineers and technicians to conduct the determination phase of project development for major/complex hazardous materials remediation projects. Direct a team of engineers and technicians in developing the final design for major/complex hazardous materials remediation projects. Administer, monitor, and review consultant and municipal work in the development of plans for major/complex hazardous material remediation projects. Project expertise on hazardous materials impact assessments. Direct the preparation of hazardous materials discussions for EISs and other environmental documents. Monitor environmental documents to ensure that federal and state hazardous materials criteria are satisfied. Evaluate and respond to hazardous materials complaints. Perform special studies to evaluate hazardous material problems and conform remediation effectiveness. Evaluate new products and technology.

Safety Engineering Program: Design, build, and install or review the design, building, and installation of safety devices on or modification to the following: machinery, heating, ventilating, air conditioning, and other air handling/exhaust/temperature-related equipment/structures, lighting, and equipment/structures affecting the water supply. Structurally remediate the work sites to lessen exposure to ionizing or non-ionizing radiation or to electromagnetic fields. Coordinate with environmental health specialists (industrial hygienists), environmental toxicologists, chemists, microbiologists, and/or other scientific or engineering personnel to solve or ameliorate work place health and disease problems in order to develop the best engineering-based remediation solution through the design, construction, and installation of appropriate structures and/or equipment. Provide professional engineering guidance to management and employees regarding the types of structures involved or modifications made. Provide a full range of engineering solutions for varied situations but may specialize in specific areas of safety engineering such as fire protection, water supply, air handling/ventilation, radiation, or industrial processes. As a fire protection engineer, develop studies of public buildings both before and after construction, considering factors such as the fire resistance of construction, usage or components of buildings, water supplies/water delivery, and egress facilities. Design or recommend specific materials and/or equipment to be used, such as structural components protection, fire detection equipment, alarm systems, and/or fire-extinguishing devices or systems. Advise on location, handling, installation, and maintenance. Recommend materials and equipment or methods for ameliorating potentially hazardous conditions. Research on the properties and strength of materials vis-a-vis fire retardant/resistant properties. Collaborate with environmental health specialists on the potential health effects of using specific fire resistant/retardant materials and devices, as well as the potential health effects of current hazardous conditions, in order to arrive at the best engineering solution. Oversee the work of technicians in carrying out engineering solutions.

Site Clean Up and Recycling Engineering Programs:

Provide environmental engineering and project management expertise in environmental quality matters in the areas of contaminated site clean up, soil and ground water purification, storm water discharge compliance, and air quality control. Direct environmental engineering consultants and contractors in the area of hazardous waste cleanup and the design and construction of soil and groundwater remediation systems and improvements needed for stormwater discharge compliance and air quality control. Perform technical inspections of leaking underground tanks and other hazardous material spills and evaluate site conditions, surface water resources, ground water levels, storm water runoff, and air emissions. Prepare preliminary assessments of the extent of detected contamination. Recommend environmental consultants to conduct detailed studies and perform remedial site investigations and analyses. Review data and recommendations of consultants. Secure State Building Commission approvals and funding for the cleanup. Establish schedules for completion of the design, contracting, and installation of a cleanup system. Direct the preparation of permits, plans, and specifications. Provide direction to the environmental consultant and contractors as to the level of cleanup required. Perform on-site inspections of the environmental cleanup work to assure it is progressing according to specifications, EPA, OSHA, and DNR requirements and sound engineering practices, and that adequate quality control measures are being practiced. Approve change order and payment requests. Promote the use of recovered and recycled materials. Identify materials which can be recycled for use in state construction projects. Identify projects where waste materials can be recycled into construction materials without compromising the structural integrity, program requirements, and cosmetics of the finished product. Identify waste products which can be consumed as fuel in state and utility generating plants. Have waste

material collected, converted, and consumed. Prepare plans and specifications for removing underground oil storage tanks, including a plan to cover cleaning up adjoining contaminated soils and disposal of the tanks. Prepare plans and specifications for installing new state-of-the-art tanks with monitoring systems and spill safeguards. Act as project manager on tank removal projects, with oversight of the engineering consultant and contractor for each project from inception to completion. Prepare the program statement. Direct the preparation of plans. Bid the project and review the bids received. Direct the consultant in the construction phase and oversee the completion of the project. Incorporate new EPA and Department of Natural Resources regulations into existing and future projects. Prepare operating and policy statements for use by staff and consultants involved in tank removal and cleanup projects. Perform special research tasks for the overall program of tank removal, hazardous waste cleanup, and the promotion of the use of recycled materials. Develop policy statements, cost estimates, and budget guidelines in support of new program elements.

### III. QUALIFICATIONS

Positions included in this series have duties and responsibilities of such a nature that it is required (by federal or state law or by position review and analysis) that the incumbent have one of the following:

- Registration as a Professional Engineer as determined by the Department of Safety and Professional Services per s. 443.04, Wis. Stats.;
- a specific record, issued by the professional engineering section of the Department of Safety and Professional Services, showing 4 years or more of experience in engineering work of a character satisfactory to the professional engineering section and satisfactory completion of the fundamentals of engineering exam;
- have graduated from a recognized college or university with a degree in a related engineering field such as electrical, mechanical, civil or environmental engineering ; OR
- have equivalent professional training and practical experience so as to be deemed a professional engineer as defined by the Department of Safety and Professional Services per s. 443.01, Wis. Stats. and also deemed to be qualified to engage in professional engineering practice as determined by the Department of Safety and Professional Services per s. 443.04 or 443.05, Wis. Stats.

Positions not having duties and responsibilities that require such credentials shall be allocated to a different classification series.

### IV. ADMINISTRATIVE INFORMATION

This classification series was created effective October 12 , 1997, and announced in Bulletin CC/SC-74, in order to describe positions which perform environmental civil engineering work. The creation of this classification series resulted from the Governor's Human Resource Reform Commission recommendation to simplify the classification system. This action resulted in the abolishment of the Environmental Civil Engineering classification series (class codes 27061 through 27065).

This classification series was modified effective March 12, 2000, and announced in Bulletin CLR/SC-109 in order to reflect the abolishment of the Environmental Civil Engineer-Advanced-Management classification effective March 12, 2000 (also see Bulletin CLR/SC-109).

The classification specification series was modified effective June 30, 2013 and announced in Bulletin OSER-0327-MRS/SC to reflect changes to the qualification language that better communicate the minimum qualifications that are required for positions in this series.

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