

Missouri Department of Transportation Job Description

Job Title: Environmental Chemist

Title Code: R04411

Salary Grade: 10

Exemption Status: Exempt

Supervisory Responsibilities: None

District/Division: Central Office – Construction and Materials

Effective Date: 01-01-2025

Replaces (Effective Date): 10-16-2024

General Summary

The environmental chemist conducts field asbestos and heavy metal paint inspection and sampling, testing, and reporting; provides technical assistance to districts and divisions; performs analyses of soil and water samples for petroleum contamination and various other substances and hazardous materials. Responsibilities are performed under general supervision.

Minimum/Required Qualifications

- Bachelor's Degree: Chemistry or related with a Chemistry minor.
- Five years of experience in chemical testing procedures.
- Certification through the Missouri Department of Natural Resources as an asbestos inspector and contractor/supervisor required within twelve months of hire.
- OSHA 10-Hour Certification required within 90 days.
- Successful completion of a medical-physical examination.

Special Working Conditions/Job Characteristics

- Job requires regular, statewide, overnight travel.
- Job requires exposure to physical hazards, health and safety risks, and/or adverse or otherwise undesirable characteristics in the environment.
- Job requires moderate physical activity.

- A postsecondary degree is the best measure to ensure candidates possess required knowledge of elemental properties (organic/inorganic), cement digestion and analysis, instrumental analysis of unknowns using inductively Coupled Plasma (ICP) Spectrophotometry or FTIR Spectroscopy, analysis of coatings using Toxic Characteristics Leaching Procedure (TCLP), use of acids and bases, dilution determinations, needed concentrations of chemicals, bench chemistry, and chemical analysis test reporting.

Examples of Work

1. Conducts field asbestos inspections, identifying location quantities and sampling of all suspect asbestos containing materials; documents extent of presence and category of friability to determine if and how the asbestos should be removed; inspections are conducted on residential and commercial properties acquired by the department and state system bridges scheduled for demolition or re-decking.
2. Performs microscopic bulk asbestos analyses by identifying and quantifying asbestos content by point counting and other analytical techniques.
3. Conduct quality control procedures necessary to maintain accreditation with the National Voluntary Laboratory Accreditation Program (NVLAP); procedures include daily quality control checks of other environmental chemists, successful participation in the analyses of bulk asbestos proficiency samples from NVLAP, and successful completion of on-site laboratory inspections and on-site proficiency samples conducted by NVLAP personnel.
4. Conducts chemical analysis of soil and water samples for petroleum and heavy metal contamination using the analytical procedures and instrumentation outlined by Missouri Department of Natural Resources' procedures.
5. Interprets various state and federal regulations to provide technical support to district and division personnel; contacts state, federal, and local regulators, vendors, and contractors for insight and review of proposed changes to current regulations and test methods.
6. Conducts analyses of unknown materials for contents such as hazardous components to ensure materials are safe to use or if special disposal methods are required.
7. Conducts statewide field analyses of painted block, brick, and concrete to determine if additional sampling and specialized laboratory testing is necessary to determine the heavy metal content and leaching potential of painted materials.
8. Prepares responses detailing results of inspections and chemical analyses of asbestos, petroleum contaminated, and hazardous materials.
9. Maintains quality control of data; uses computers to program analytical instrumentation, log and analyze data to operate within the required testing standards of the Environmental Protection Agency and others.
10. Follows necessary procedures to properly handle and dispose of hazardous and carcinogenic waste generated by laboratory testing.

11. Conducts inspections in tight spaces such as attics and under houses, and uses ladders, hand tools, or other necessary equipment to collect samples during field inspections.
12. Performs other responsibilities as required or assigned.