

STATE OF MONTANA

JOB DESCRIPTION

Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodations to otherwise qualified individuals with disabilities.

Job Title: Materials Lab Specialist

Position Number: 40044

Location: Helena

Department: Transportation

Division and Bureau: Highways and Engineering, Materials Bureau

Section and Unit: Testing Operations

Job Overview:

This position serves as a Materials Laboratory Specialist for the MDT Materials Bureau. The position is responsible for directing various materials testing processes to ensure the quality, consistency, and efficiency of materials lab operations, to ensure that materials comply with specifications, and to provide information and consultation for the development and application of materials and planning and conducting materials testing and analysis projects. The position is also responsible for the accuracy and consistency of testing and results for the cement, concrete, fabric, and soils materials laboratory's in the Materials Bureau. The position reports to the Concrete Supervisor.

Essential Functions (Major Duties or Responsibilities):

Materials Testing Oversight - 50%

Under the direction/supervision of the Concrete Supervisor, assess and coordinate various materials testing processes to ensure the quality, consistency, and efficiency of materials lab operations, to ensure that materials comply with specifications, and to provide information and consultation for the development and application of materials.

- Coordinate the development, refinement, and implementation of new test procedures and processes.

- Develop, implement, and monitor procedures, manuals, and guidelines related to the MDT's Physical Testing Program based upon assessment of daily materials testing needs and operations, professional testing and analysis methods and standards, and Division policies.
- Assess changes affecting testing protocols and requirements; evaluate, interpret, incorporate new testing and documentation methods; and monitor the ongoing effectiveness of materials lab operations to recommend new approaches to testing and reporting protocols.
- Assess incoming testing assignments to determine priority based on factors such as contract requirements, project needs, length of time for testing processes, and staff and supply resources. Determine staff assignments based on individual capabilities, certifications and qualifications, and testing requirements. Interpret, monitor, and implement work plans, policies, and procedures. Review assigned work for compliance with quality, quantity, and other standards.
- Research and evaluate workflow processes, efficiencies, and problems to identify the most effective use of human and fiscal resources to meet section goals and project objectives. Present recommendations for improving section work flow and staff performance. Determine the need for additional staff or overtime, fill in for absent staff on testing procedures, and adapt testing procedures and work assignments to meet changing demands in the lab.
- Coordinate with unit supervisors and Materials Lab Specialists involved with other testing activities to identify and resolve common problems; evaluate and determine resource allocations and priorities; and incorporate section-wide priorities and equipment into specific testing projects.
- Provide technical oversight, quality assurance reviews, and assistance on specific testing projects to ensure the quality, efficiency, and cost-effectiveness of work as well as compliance with standards, specifications, and Department requirements. Review project documentation and reported discrepancies, resolve problems, and provide on-the-job training.
- Interpret and explain standards, specifications, and other requirements to materials lab staff, field and district staff, and contractors to ensure consistency and compliance, resolve discrepancies, and ensure that project requirements and objectives are met. Respond to project staff or contractor requests for clarification, recommend adjustments and alternatives to prevent or mitigate compliance deficiencies, and resolve problems while maintaining standards and specifications.
- Coordinate and oversee inspections of testing equipment to ensure operability and proper calibration according to defined testing methods and specifications. Oversee equipment calibrations, replacements, and repairs and resolve advanced technical and mechanical problems referred by materials laboratory staff.

- Ensure materials were properly transported, received, and labeled; and monitor sample preparation, assess the adequacy of samples, and determine necessary adjustments based on testing methods, equipment, standards, and specifications.
- Coordinate and oversee quality control and assurance of testing methods to ensure the accuracy of methods, refine procedures, and ensure compliance with applicable requirements including coordination of ACI lab certifications and AASHTO ReSource and CCRL accreditation.
- Determine the training needs of unit staff through analysis of program effectiveness, new methods and policies, and staff performance. Provide or coordinate formal and on-the-job training to ensure that current physical testing methods and equipment are properly applied by unit staff. Ensure consistency in the application of training opportunities for staff and that Unit personnel are properly monitored and trained.
- Provide input to the Section Supervisors on position descriptions and performance standards. Relay information to the Supervisor regarding staff performance based on observable, measurable appraisal standards. Recommend, implement, and monitor corrective actions. Participate in recruitment and selection by assisting the Supervisor in screening applicants, establishing questions for the structured interview, participating in interviews, and recommending hiring.
- Oversee adherence to the Section's safety plan to ensure the safety of Department staff performing work in the Materials Lab and compliance with department, state, and federal occupational safety and health requirements.

Testing Operations 45%

This position performs a range of duties in support of material testing and evaluation including coordinating and implementing the physical and chemical testing of cement and pozzolans; batching, mixing, and testing of concrete mixtures; compiling and analyzing concrete mix component test results; conducting calculations to ensure compliance with yield, quality, durability, and other specifications requirements; performing special investigations, trouble shooting, research, and quality assurance analysis. The position also oversees and performs a range of duties in support of soil, aggregate, fabric, and Cement Treated Base (CTB) material testing and evaluation including coordinating and implementing soils testing procedures, aggregate testing procedures, geosynthetics testing procedures, and CTB mix design verification and testing procedures.

- Coordinate, oversee, and conduct specialized physical and chemical tests on cement and pozzolans to verify specifications and adherence to the Qualified Products List (QPL) requirements.
- Coordinate, oversee, and conduct specialized tests on concrete materials to verify specifications and determine the specific nature and cause of deficiencies.

- Coordinate, oversee, and conduct specialized tests on soils, aggregates, geosynthetics, and CTB samples to verify specifications and determine the specific nature and cause of deficiencies.
- Investigate the nature and cause of significant or recurring deficiencies and coordinate with other project supervisors and materials lab specialists to resolve problems.
- Compile, calculate, and summarize test results; compare final results to specifications; and maintain records of testing procedures and results. Review and approve test results compiled by subordinate materials lab technicians to ensure accuracy and compliance with standards and specifications.
- Enter information in the computer including performing mathematical calculations and completing data sheets. Conduct computer analysis of results to determine materials compliance by comparing with established standards in the project specifications.
- Analyze data to discern discrepancies and provide recommendations on mix design or other materials alterations. Report non-typical sample data to the supervisor along with recommendations as to the cause of results.
- Communicate test results and provide technical assistance to field staff and district labs.
- Maintain and repair laboratory testing equipment to ensure safety, accurate results, proper operation, cost containment, and extended life.
- Determine and fulfill equipment and supply procurement needs of the Unit. Monitor supply levels, projecting needs based on work load and project plans, prepare order forms, and integrate equipment into existing operational practices to ensure maximization of resources. Make recommendations to the supervisor on the need for new equipment based on observations during operation and maintenance activities including responsibility for developing specifications and recommending budget justifications and requests.

Other Duties as Assigned 5%

Perform a variety of special studies, research and analysis activities, facilitate additional testing as directed, and other duties as assigned by the supervisor and bureau chief in support of the department mission and bureau objectives.

Supervision

The number of employees supervised is: 0

The position number for each supervised employee is: n/a

Physical and Environmental Demands:

- Heavy independent lifting (up to 75 lbs.) of equipment, material samples, etc. Remaining standing or seated for extended periods of time
- Extended periods in a high humidity environment.
- Manual manipulation of testing equipment (shakers, compaction devices, sieves, etc.)
- Visual acuity required to observe and discern material and sample conditions

Knowledge, Skills and Abilities (Behaviors):

This position requires knowledge of materials inspection and testing principles and practices; the properties and characteristics of a variety of materials; laboratory testing protocols and procedures; highway construction methods and techniques, a variety of site specific circumstances and their impacts (soils, temperature, weather conditions, gradations, segregation, air contents, slumps, admixtures, absorption rates, etc.); safety practices and procedures; state, federal, AASHTO, FHWA, and ASTM standards and project specifications; the Montana Materials manual; material specifications; testing equipment diagnosis and repair; project administration; supervisory principles and practices; collective bargaining agreements; training and professional development principles; and technical writing.

This position requires skill in planning and coordinating materials testing projects; analyzing and interpreting technical test results; adapting testing methods and techniques to meet various material and project circumstances; and in operating a variety of testing equipment and general office equipment including a personal computer and associated business applications.

Minimum Qualifications (Education and Experience):

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to Bachelor's Degree in Chemistry, Engineering, Physical, or Environmental Science, or a related field.

This position requires a minimum of 2 years of work related experience including, 1 year of progressively responsible experience in cement testing for highway and bridge construction and one 1 year progressively responsible experience in highway construction materials laboratory testing. Lab management experience is preferred. Experience testing the physical properties of Cement in a CCRL accredited lab is necessary to meet the cement testing requirement. Alternatively, any combination of additional related work experience and education equivalent to the minimum qualifications, including 2 years progressively responsible experience in highway construction materials laboratory testing, with the ability to demonstrate proficiency in cement testing per ASTM C1222 within 90 calendar days from date of hire. Cement testing experience is preferred. Lab management experience is preferred.

Certifications, licensure, or other credentials include: Requires a valid driver's license. Requires obtaining ACI Strength Testing Technician Certification and WAQTC Concrete Field Testing Certification within 6 months of hire.

Special Requirements:

List any other special required information for this position

- | | |
|--|--|
| ☐ Fingerprint check | ☒ Valid driver's license |
| ☐ Background check | ☐ Other; Describe |
| 035 Union Code | Safety Responsibilities |

The specific statements shown in each section of this description are not intended to be all inclusive. They represent typical elements and criteria considered necessary to perform the job successfully.

Other information including working conditions such as shifts, lifting requirements, travel or hours:

The predominant work is performed in a controlled lab environment involving exposure to testing equipment, caustic chemicals (cement, lime, acids, mercury, and other chemicals), dust and fumes. The position works with hot materials and equipment (steel molds, ovens at 350 degrees, hot plates, etc.), and solvents and chemical additives which require use of protective apparel such as gloves, respirators, and eye protection. The position requires training in, and close observation of, safety practices and procedures.

Signatures

My signature below indicates the statements in the job description are accurate and complete.

Immediate Supervisor	Title	Date
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Administrative Review	Title	Date
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My signature below indicates that I have read this job description.

Employee	Title	Date
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Human Resources Review

Job Code Title: Materials Lab Specialist

Job Code Number: 172715

Pay Band: 5

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

☐ FLSA Exempt

☒ FLSA Non-Exempt

☐ Telework Available

☒ Telework Not Available

☒ Classification Complete

☐ Organizational Chart attached

Human Resources:

Signature

Title

Date