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/Radiation Safety Officer

Position Number: 40003 **Location:** Headquarters **Department:** Transportation

Division and Bureau: Engineering Division/Materials Bureau

Section and Unit: Physical Testing Inspection Operations Section/Quality Control Unit

Job Overview: This position serves as a Materials Laboratory Specialist within the Materials Bureau's Inspection Operations Section. The Materials Lab Specialist/Radiation Safety Officer (RSO) is responsible for developing and implementing a radiation safety program and serving as the RSO compliance inspector to ensure the safety of department personnel, the environment and the public in adherence to the license agreement with the Nuclear Regulatory Commission (NRC) and the law. The RSO is responsible for analyzing, maintaining and repairing the MDT inventory of nuclear densometers to ensure radiological safety, and optimal, cost-effective operations in compliance with specifications, manufacturer's recommendations, NRC regulations, department policies and state and federal laws.

This position assists in delivery of the WAQTC (Western Alliance for Quality Transportation Construction) training and certification program, statewide Independent Assurance Program. This position assists with maintaining MDT's central laboratory federally mandated AASHTO-Resource (American Association of State Highway and Transportation Officials) and CCRL (Cement and Concrete Reference Laboratory) accreditation. This includes managing the central laboratory QMS (quality management system). This position reports to the New Products/QPL Manager.

Essential Functions (Major Duties or Responsibilities):

Radiation Safety Program/Radiation Safety Officer - 35%

- Interpret and apply radiation theory, NRC literature and the Code of Federal Regulations to develop the MDT nuclear program. Develop policies and protocols for MDT personnel involved in operating and storing of nuclear densometers and their parts. Ensure compliance with other laws and guidelines including incorporating manufacturer's recommendations into policies.

Calculate, confirm and document federally mandated maximum allowable radiation exposure of MDT staff and the public for any MDT related operation.

- Manage and oversee the MDT radiation safety program to ensure the safe use, transport and storage of radioactive material (RAM). Conduct field inspections, including systematic inspection of nuclear densometer field storage units. Develop, implement and distribute current standard operating, emergency, and security procedures and protocols relating to nuclear safety. Analyze MDT operations and conditions at MDT facilities across the state to determine appropriate security protocol, NRC radiation exposure limits, appropriate storage temperatures, and related issues to ensure devices are stored legally and safely.
- Provide radiation safety and electronic circuitry consultation and technical assistance to MDT personnel to ensure safety of personnel, cost-effective operations and to minimize accident potentials throughout the state. Provide guidance on radiological matters related to any phase of construction, maintenance, storing, testing and sampling for MDT staff, contractors, vendors, the public and other agencies.
- Oversee MDT staff to ensure that individuals working with nuclear densometers are monitored for and protected from physical exposures to radiation and are complying with state and federal policy and procedures. Identify non-compliance issues and develop corrective action plans and implement changes to ensure compliance. Issue personnel radiation exposure monitoring devices and equipment and maintain tracking and evaluation system for personnel and equipment. Address and correct any violations or areas of concern identified by the NRC.
- Monitor MDT work site environments for hazards using appropriate sampling and testing equipment such as the leak test. Analyze radioactive sources for contamination and document results; investigate complaints concerning possible radiation safety violations and recommend corrective measures when appropriate. Recommend disciplinary actions for personnel who violate protocols or improperly handling nuclear densometers. Report incidents to the proper authorities.
- Investigate accidents or incidents state-wide involving nuclear densometers (including high exposures) to assess danger, damage and risk to ensure appropriate accident response measures are taken. Direct MDT personnel at accident sites to mitigate health and environmental damage. Prepare and submit reports to NRC, answer any additional questions presented and follow up to ensure compliance with appropriate corrective actions. Review the entire response process in the aftermath to ensure best practices and update emergency procedures if necessary. Ensure radioactive materials are disposed of properly.
- Perform administrative duties related to radiation safety and attend training sessions to maintain knowledge base of handling radioactive material.
- Develop agendas, facilitate and record minutes for Radiation Safety Committee meetings with upper management to ensure that issues potentially impacting safety are promptly identified, evaluated and rectified.

Maintenance and Repair - 25%

- Develop and perform cost effective repair-strategies in maintaining and repairing inventory of nuclear densometers. Maintain associated troubleshooting equipment, diagnostic equipment and densometer spare parts.
- Manage system for monitoring location, service records, maintenance schedules, life spans and mandatory documentation for MDT statewide supply of nuclear densometers. Coordinate with personnel in nuclear gauge storage sites to transfer equipment for use, repair or routine winter maintenance.
- Perform and analyze tests of equipment for leakage and radiation contamination.
- Analyze any issues or trouble reported from field operators or district storage facilities; determine how to resolves issues and make changes to policies and procedures as needed.
- Calibrate nuclear densometers. Perform all appropriate calibration quality assurances.
- Train and monitor a Lab Technician on a seasonal basis to ensure section goals and objectives are met and to ensure incumbent can perform proper repair and calibration of nuclear gauges and related tasks.
- Perform repair and maintenance of laboratory equipment including asphalt burn ovens, scales etc.

Instruction, Certification, and Training - 20%

- Assists in delivery of the WAQTC (Western Alliance for Quality Transportation Construction) training and certification program
- Collaborates in conjunction with other Materials Laboratory Specialists in the section to accomplish delivery of eLearning curricula.
- Develop, review and implement primary (8-hour) and refresher training for MDT personnel across the state in radiation safety and nuclear densometer operation including certification procedures to ensure that federal NRC accreditation standards are met and to enhance the overall quality and efficiency of training and testing procedures.
- Train and advise staff and their supervisors on radiation exposure issues and regulations.
- Monitor nuclear densometer operators statewide to ensure their certifications are current. Research, develop and maintain a resource center of nuclear materials testing training documents, articles, books, manuals, visual and audio media and computer software.
- Instruct and communicate with District Lab and Field Engineering personnel on the operation, troubleshooting and testing procedures regarding nuclear densometers.
- Perform research and review literature to maintain expert knowledge of nuclear densometers and remain current in all duties related to the nuclear program and as the primary responder, investigator, trainer and maintenance/repair manager etc.
- Provide materials testing consultation and technical assistance to laboratory personnel and other Department staff throughout the course of projects to enhance the overall quality and

efficiency of testing processes. Work collaboratively with the other QA Unit members to determine training needs of Unit staff and monitor staff performance.
- Assist in the research of new products, trends, and approaches to laboratory inspections, materials testing procedures, equipment operations, certification requirements and other issues to serve as a technical specialist and information resource for other Bureau and Department staff.
- Manage access, return, storage, and disposal of resource materials; respond to specialized information requests; and recommend purchase/acquisition of new resources.
- Assist with the coordination review, coding, and payment of training expenses associated with training course delivery, publications, materials, seminar attendance, and others to ensure accurate and timely payment in accordance with MDT policies and purchase agreements.

Radiation Safety and Laboratory Inspection Compliance - 10%

- Ensure the safety of department personnel, the environment and the public in adherence to the license agreement with the Nuclear Regulatory Commission (NRC) and the law.
- Assists with compliance oversite, auditing, and monitoring of the consultant, district, and area MDT laboratories.
- Develops, maintains, and implements inspection, certification, and oversite procedures to maintain federally mandated AASHTO-Resource and CCRL laboratory accreditation and the NRC.
- Coordinate with federal certification authorities to evaluate and recommend new standards and procedures.
- Perform and report on laboratory inspections to assess laboratories for conformance to AASHTO-Resource, CCRL, and department requirements.
- Monitor statewide district and area laboratory operations and identify actual or potential deficiencies.
- Identify non-compliance issues, develop corrective action plans, and implement changes necessary for compliance. Recommend corrective action as well as implement and enforce corrective action to maintain accreditation.
- Documents all actions and updates manuals in preparation for accreditation inspections. Adjusts and implements new MDT testing standards and criteria after inspection.
- Create reports documenting reasons, justifying need, and demonstrating efficiency of new or modified procedures and standards.

Statewide Materials Independent Assurance (IA) Program Management - 5%

- Assists with development, implementation, and management of the state's technician and consultant IAP (Independent Audit – Procedure) and IAC (Independent Audit – Comparison)

program in accordance with federal guidelines and agreements and verifies the program mandated IAs on all technicians are performed.
- Assist and monitors the established objectives, and observable performance standards for the technicians performing the IAPs.
- Assist with creating laboratory referee samples to assess testing equipment and procedures as well as develop problem models.

Other Duties - 5%

- Performs a variety of other duties as assigned by the New Products/QPL Manager 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:

- Independent lifting of equipment (up to 50 lbs.), material samples, etc.
- Ability to walk through uneven terrain and/or active construction sites
- Travel within the state to project locations, and out of state travel by airline to national conferences and meetings
- Remaining seated for extended periods of time, with occasional walking; standing; bending
- This position works with equipment containing radioactive material which requires strict adherence to statutes, policies, and guidelines as well as the use of appropriate and/or required protective personal equipment.
- This position requires training in, and close observation of safety practices and procedures

Knowledge, Skills and Abilities (Behaviors):

- Knowledge of electrical circuitry; testing, storing, transporting and operating nuclear densometers; radiation hygiene.

- knowledge of materials sampling and testing practices, equipment, procedures, and State and federal requirements so laboratory inspection and certification processes reflect the most current methods, technologies, and requirements
- Knowledge of the biological effects of radiation and safety procedures/protocols related to MDT operations; mathematics and statistics; electronic troubleshooting procedures applied principally to radiation detection and counting instruments; methods of calibration and standardization; sampling and testing techniques to determine physical and engineering properties of soils and asphalt cements; practical knowledge of preparation, placement, and compaction of construction materials; and soils classification.
- Skill in organizing repair/maintenance schedules and priorities; operating equipment such as nuclear densometers, power tools, EPROM Programmers/Erasers, computers and MDT software, Geiger Counters, Oscilloscopes, Volt/Ohm Meters, Leak-test Ratemeter and audio-visual equipment for training. The position also requires skill in program and project management; analyzing and evaluating test results and related reports; developing solutions for complex materials testing problems; managing multiple projects under inflexible deadlines; and the use and application of specialized laboratory testing and analysis methods and equipment.
- Ability to work collaboratively with staff to mitigate dangers involving radioactive materials including implementing corrective action; establish and maintain effective working relationships with department employees, state and federal agencies, vendors, materials suppliers, contractors, and project engineers; read and understand involved regulatory codes, testing methods/procedures, specifications, and technical reports and articles; communicate effectively, both orally and in writing, on a variety of topics related to highway construction such as test procedures, specifications, and radiation safety. Present seminars and training material focused on radiation safety and nuclear gauge operation. Perform complex technical and computational tasks on the computer and interpret schematics and diagrams.

Minimum Qualifications (Education and Experience):

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to Associate's Degree with coursework in electronics, radiation safety, physical sciences, or another related field.

This position requires a minimum of four years progressively responsible experience in electronics and testing laboratories. Two or more years of demonstrated proficiency in electronic troubleshooting and repair; program management; training; and understanding technical specifications and regulations is preferred.

Certifications, licensure, or other credentials include: Radiation Safety Officer Certification must be obtained within one (1) year of hire. The successful candidate must possess all required WAQTC certifications within 6 months of hiring.

Alternative qualifications include: Any combination of additional related work experience and education equivalent to the minimum qualifications.

Special Requirements:

List any other special required information for this position

☐	Fingerprint check	☒	Valid driver's license
☐	Background check	☐	Other; Describe
MFPE	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.

Signatures

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

Immediate Supervisor **Title** **Date**

Administrative Review **Title** **Date**

My signature below indicates that I have read this job description.

Employee **Title** **Date**

Human Resources Review

Job Code Title: Materials Specialist Job Code Number: D2D011 Level: 1

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**