

# STATE OF MONTANA

## JOB DESCRIPTION

*Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodation(s) to otherwise qualified individuals with disabilities.*

**Job Title: Subsurface Exploration Technician**

**Position Numbers: 46002, 46003, 46012, 46020 & 94620**

**Department: MDT Division and Bureau: Project Development & Delivery-Geotechnical & Pavement Bureau.**

**Section & Unit: Field Investigation Unit.**

**Job Overview:** This position serves as a subsurface exploration technician and conducts a variety of on-site exploration and sampling operations. Duties include operating specialized drilling equipment, Cone Penetration Test equipment, gathering and preparing soil & rock samples and maintaining and repairing drill machinery, equipment, tools and vehicles. This position reports to the Subsurface exploration Crew Leader and ultimately to the Field Investigation Unit Supervisor and does not directly supervise other agency personnel. This position is part of the Field Investigation Unit career ladder.

**Essential Functions (Major Duties or Responsibilities):**

**Subsurface Exploration Operations --70%**

- Conducts on-site drilling and sampling activities according to the requirements of drilling requests and a variety of Federal, State and Department guidelines, policies and procedures.
- Operates a variety of specialized drilling equipment (Truck Mounted Drills, ATV mounted drills, water trucks, Semi transport equipment) and Cone Penetration Test (CPT) equipment.
- Performs in place soil strength tests and sampling such as Standard Penetration Tests, Shelby Tubes, Dynamic Cone Penetrometers, Rock coring.
- installs specialized geotechnical instrumentation (inclinometers, piezometers, shape arrays, settlement plates) including use of specialized grout or bentonite mixtures. ; performs CPT tests to obtain soil shear strength parameters, pore water pressures, and shear wave velocities.
- Obtains, secures, and preserves soil and rock samples obtained as part of the site characterization; performs boring layout activities such as determining accessibility to the site by various equipment types; and transports exploration equipment, tools, and sampling instruments to field sites.
- Assist Geotechnical professionals with performing geophysical exploration techniques: seismic refraction, electrical resistivity, and ground penetrating radar.

## **Equipment Maintenance, Repair and Transportation-25%**

- Maintains, repairs, and recommends the acquisition of specialized exploration equipment, tools, and sampling products for use in field operations.
- Maintains and repairs specialized exploration equipment and tools; resolves drilling and sampling equipment malfunctions, deficiencies, and other problems in the field; identifies maintenance and repair needs and prepares supply request orders; recommends the acquisition of exploration equipment and tools.
- Inspects incoming vendor shipments of supplies and equipment

## **Other Assigned Duties—5%**

This position performs a variety of other duties assigned by the Subsurface exploration Crew Chief, Field Investigation Unit Manager, or other Bureau management in support of ongoing Bureau operations. This includes participating in ongoing training and educational programs as directed, consulting with technical experts, and promoting effective relationships with professional consultants, contractors, other agency personnel, and the public.

## **Supervision**

The number of employees supervised is: NA.

- Heavy independent lifting (up to 75 lbs.) of equipment, material samples, etc.
- Ability to walk over uneven terrain or in water.
- Exposure to extreme weather.
- Exposure to loud noises.
- Exposure to high-speed traffic.
- Possible exposure to environmental containments.
- Remaining seated or standing for extended periods of time, with occasional walking, standing, and bending.
- Extensive travel and driving within the state to project locations.
- Operating a personal computer.
- Operating a commercial vehicle over 14,000 GVW. In traffic.

This position requires an average of three days' overnight travel per week on a year round basis. Most of the work is performed at various field project locations involving extensive statewide travel (more than 12,000 miles a year) as well as hazards and demands associated with an active project site, including exposure to high- decibel noises and heavy equipment; traversing rough and uneven terrain; and extreme weather and driving conditions. The incumbent must be able to lift and transport supplies, samples, and equipment weighing more than 75 pounds. Unanticipated project problems, safety concerns, and other impediments require the incumbent to work long hours under stressful and demanding conditions.

## **Knowledge, Skills and Abilities (Behaviors):**

- Knowledge of specialized geotechnical subsurface exploration operations, CPT operations, equipment, and tools; techniques of sample collection and preservation; boring layout; and Federal, State, and Department exploration policies and procedures.
- Knowledge of light duty mechanical repair and/or fabrication and welding procedures, skill in specialized and general maintenance techniques and processes and diagnostic analysis.
- Knowledge of the methods and techniques of subsurface exploration and sampling; Environmental Protection Agency regulations governing safety and techniques of drilling and sampling soil and water known to be contaminated with hazardous materials.
- Knowledge of MUTCD traffic control flagging procedures and possession of a Flagger certificate.
- Skill in the safe and effective operation of heavy and hazardous machinery, tools, and vehicles.
- Skill in operating, maintaining, and repairing specialized exploration and sampling equipment and tools, vehicles, and various support equipment and hand tools, equipment maintenance and repair, and light duty welding and fabrication.
- Ability to work effectively with a team of drillers and in potentially hazardous environments and inclement weather.
- Ability to monitor field operation equipment needs and recommend equipment and supply purchases.

**Minimum Qualifications (Education and Experience):**

The required minimum knowledge and skills are typically acquired through a combination of education and experience equivalent to a high school diploma.

**Tech I:** This is an entry level position and does not require any Geotechnical subsurface exploration experience.

**Tech II:** This is a step higher than the entry level position and requires a minimum of six months' Geotechnical subsurface exploration experience and satisfactory performance of the work elements to advance to Level II found in the career ladder.

**Tech III:** This is the highest level on the career ladder and requires a minimum of two years of total progressive Geotechnical subsurface exploration experience in Hollow Stem Auger drilling, Odex Drilling or Downhole hammer experience, Casing Advancing or Mud Rotary and Rock coring. With one year of MDT subsurface exploration experience and passage of the field elements test in the career ladder.

**Required at all levels:** During the first year of employment attainment of a Commercial Driver's License (Type A or B) is in accordance with the career ladder for these positions and Class B can be an initial step in this process, however the Class A with tanker endorsement ultimately will be required to be maintained during employment.

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

**Special Requirements:**

- Fingerprint check
- Background check
- 035-MFPE    Union Code
- Valid driver’s license
- Other; Class A/Type 2 CDL license
- 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.

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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.

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Employee	Title	Date
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**Human Resources Review**

**Job Code Title: Drill Operator    Job Code Number: S52011**

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

- FLSA Exempt
- Telework Available
- Classification Complete
- FLSA Non-Exempt
- Telework Not Available
- Organizational Chart attached.

**Human Resources:**

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Signature	Title	Date
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