

JOB DESCRIPTION

TITLE: ELECTRICIAN/INSTRUMENT TECH

DEPT: SITE OPERATIONS, FT. WAINWRIGHT, FT. GREELY, FT. RICHARDSON

REPORTS TO: SUPERVISOR OF ASSIGNED DEPARTMENT AT EACH SITE

WAGE: PER PUBLISHED SCALE

POSITION OBJECTIVES:

Serves as a journeyman electrician and electronic industrial controls technician. Installs, maintains and repairs electrical systems, electrical subcomponents, electrical and direct digital controls, motors and other electrical systems at the Central Heat & Power Plant, Water Treatment facilities, Wastewater Treatment facilities, airfield lighting system and other Doyon Utilities locations. The position is also responsible for installation, modification, repairs, maintenance, troubleshooting, testing and load determination of new and existing electrical lines, circuits, systems and associated fixtures, controls and equipment such as secondary power distribution lines and circuits used to supply a wide range of voltage, amperage, phase and frequency requirements to distribution panels, switchgear power and control circuits. The position determines material and equipment requirements for jobs assigned to this position and may be called upon to perform technical inspections of work performed by contractors and other in-house personnel involving the installation or repair of electrical equipment. Inspects, maintains, tests and repairs fixtures, fans, motor controllers, switches, fire alarms, clock circuits, rheostats, thermostats and automatic transfer switches. Responsible for repairs and installation of SCADA components and transmitters. May use a voltmeter, ammeter, wattmeter, megger, frequency counter or ohmmeter to test circuits and equipment. Maintains powered hand tools and shop equipment. The incumbent may also be responsible for installing and maintaining Industrial Multiphase Systems thermocouple sensors, fire detection and suppression systems, galvanic and impressed current cathodic protection systems to reduce system corrosion on underground equipment and pipes. Incumbent must also have a familiarity with electronics to troubleshoot electrical circuits containing electronic components in order to isolate the systems, computer interface devices, analog/digital controls and solid state motor control circuits.

MAIN ACTIVITIES:

1. Perform maintenance and repair of electrical equipment to include motors, motor controls, control equipment (including capacitors, resistors, relays) involving electrical interlocks, electrical timing devices switch gear and other miscellaneous devices in the CHPP, Water Treatment and Wastewater Treatment facilities.
2. Repairs and adjustments made to equipment including replacement of brushes, dressing commutators, testing and cleaning windings, insulating generator windings, repairing switchboards, recalibrating instruments on generator switchboards, replacing fuses, testing insulating oil and oil switches, cleaning and repairing distribution transformers and related duties.

3. Adjust and repair voltage regulators, over-current and anti-motoring relays and various switches and instruments on switchboards.
4. Routine and frequent inspection of electrical equipment for purpose of determining necessary maintenance and repairs or adjustments to minimize future major repairs.
5. Repairs and overhauls a variety of electrical motors such as those installed in the CHPP, Water Treatment facilities or Wastewater facilities.
6. Installs new equipment as necessary such as meters, regulators, transformers, switches, relays, circuit boards or digital controls.
7. Responsible for the maintenance, troubleshooting, calibrating, modifying, testing and repair of all integrated electronic control and computer systems within the CHPP, water treatment and distribution, airfield lighting system and wastewater facilities.
8. Incumbent must be capable of analysis and diagnostic testing of all electronic and solid state systems in the utility plants and determine required repairs.
9. Maintain records of equipment failures, reasons for failures, symptoms, maintenance actions taken, parts costs and repair time.
10. Interpret wiring diagrams, circuit schematics, blueprints, and specifications which govern the maintenance and operation of the electrical systems, controls and devices.
11. Maintain knowledge of SCADA or other recording and management systems and procedures to ensure system reliability.

SKILLS AND QUALIFICATIONS:

1. Demonstrate an aptitude for electronics, electronic/digital controls and commonly used power distribution equipment such as circuit breakers, transformers, regulators and control equipment.
2. Knowledge of electrical theory such as power factors, transformers, series and parallel circuitry, line loading, line losses, and dielectric and conductivity or conductive properties of materials.
3. Ability to read and understand circuit diagrams and diagnose problems with various electrical and control systems.
4. Knowledge to repair complex electronic industrial control micro-processing and computer systems.
5. Demonstrate a working knowledge of electronic theory and practice applicable to integrated systems.
6. Ability to use all types of shop and hand tools and equipment associated with the electrical trade, such as meggers, oscilloscopes, protective relay testers, watt meters, output, resistance to ground and other electrical characteristics.
7. Ability to troubleshoot electrical circuits containing electronic components in order to isolate the cause of malfunction in complex relay circuits for electrical control systems, computer interface devices, analog/digital controls and solid state motor control circuits.
8. Ability to interpret and apply the National Electrical Code, National Fire Protection Association requirements, OSHA, building plans, blueprints, wiring diagrams, and engineering drawings and to use trade formulas to calculate

- properties such as voltage, voltage drop and current capability in series and parallel circuits.
9. Ability to calculate electrical resistance, capacitance, power factor, current flow and temperature and length in single and multiple raceway conduits, gutters and cable trays.
 10. Knowledge of construction, installation, operation and troubleshooting of sophisticated circuitry and controls associated with different projects.
 11. Must be able to work outdoors or in confined spaces for extended periods under unfavorable conditions and without constant supervision.
 12. Ability to understand and execute written and oral instructions and relay instructions to other employees.
 13. Possess sufficient physical strength, ability, dexterity, vision and hearing to perform all the work of the position. Vision must include ability to distinguish primary colors.
 14. Ability to communicate effectively with supervisor, other operators and plant personnel.
 15. Possess an Electrician Certificate of Fitness issued by the State of Alaska.
 16. Demonstrate initiative and be able to work with little supervision.
 17. Must be able to lift a minimum of 50 pounds to shoulder level and exhibit the dexterity to work in awkward positions for extended periods of time.
 18. Able to extend arms overhead while performing duties or perform duties while standing, stooping, twisting, bending, kneeling, or from a prone position for up to one hour may be required.
 19. Must be willing to maintain plant and equipment in a clean, serviceable condition.

WORKING ENVIRONMENT:

Works both indoors and outdoors on voltages up to 4160 KV. In winter months, the ambient temperatures may reach -60 F. Workers may be exposed to extreme heat and cold and frequent temperature changes. While working around power production facilities the worker may be exposed to dust, dirt, coal dust, hot piping, etc. Exposure to moving equipment and parts, danger from falling from ladders and scaffolds and other risks may be present. Adequate safety and personal protective equipment is issued to the employee including but not limited to: insulated rubber gloves, hard hats, gloves, respirators, hearing protection and goggles. Workers are required to wear proper hearing protection throughout the shift while working in high noise hazard areas. Often the Electrician/Instrument Tech will be required to work alone or independently with little direct supervision so must be capable to making sound decisions regarding instrumentation or electrical issues. The employee will be responsible for ensuring safety and security on all their job sites. The position requires a minimum of 40 hours per week. Some overtime or adjustment of shift hours may be necessitated by duty requirements.

CONDITIONS OF EMPLOYMENT:

1. Incumbent must be able to maintain a level of physical fitness to perform the duties of Electrician/Instrument Technician.

2. The incumbent is subject to pre-hire and random drug testing in accordance with the published policy for Doyon Utilities.
3. Must possess a Journeyman Electrician Certificate of Fitness issued by the State of Alaska.
4. Vision with the ability to distinguish primary colors.
5. Must be eligible to work on a military installation in Alaska.
6. Willingness to report for duty during emergencies or to cover shifts under short notice to ensure adequate staffing to operate the various utilities.
7. Must have a valid Class A Commercial Driver's License issued by the State of Alaska.
8. Completion of an approved confined space entry class.

EDUCATION AND TRAINING:

High School Diploma or Equivalent

Electrician Certificate of Fitness issued by State of Alaska

Possession of a Class A Commercial Driver's License from State of Alaska

EMPLOYMENT CLASSIFICATION:

Non-Exempt/Full Time Permanent

