

INDUSTRIAL ELECTRICIAN/INSTRUMENTATION
220

DEPARTMENT: James City Service Authority

NATURE OF WORK:

Performs highly skilled work in the maintenance and repair of electrical and electronic systems used in water production and wastewater collection organizations. These skills include in-depth knowledge of complicated control applications and the programming of automated systems.

Duties are performed under the general supervision of the Support Section Superintendent.

ESSENTIAL FUNCTIONS OF THE JOB:

Installs, troubleshoots, and repair electric equipment and systems in well and lift station facilities to include motors, switch gears, lighting systems, power distribution systems, fire alarms, and chemical feeders.

Installs and troubleshoots 4-20 ma control loops, Proportional Integral Derivative (PID) loops and related components.

Changes and upgrades Virginia Power services up to 600 ampere at 480 volt.

Redesigns and rewires control systems in wells and lift stations. Designs, modifies control circuits for new and relocated electrical equipment systems.

Installation, maintenance, and programming of IGBT variable frequency drives, and solid state, soft star/stop controllers.

Program, troubleshoot, and repair industrial, modular programmable logic controllers.

Performs complex generator and engine control work and various types of automatic bus transfer switching systems.

Assists in the development and creation of schematics and ladder diagrams using computer-based software.

Inspects new well and lift station facilities before they are accepted by the County.

Maintains and repairs electrical/electronic controls on fire protection systems.

Identifies, selects, and works with warehouse and vendors to order all materials and equipment necessary to maintain efficient operation of electrical systems and equipment.

Performs electrical construction projects to include rigid, EMT and PVC conduit installation; installation and termination of cables, installation of control panels, and motor controllers in sizes up to 600 ampere at 480 volts.

Performs repair and installation on low voltage D.C. telemetry interface. Performs electronic repairs and adjustments to telemetry circuit boards.

JOB LOCATION AND EQUIPMENT OPERATED

Duties are performed at various facilities and lift stations throughout the County. Requires driving to work locations. Work is often performed under unpleasant and hazardous conditions. Operates a variety of hand and power tools, measuring and test instruments used in electrical/electronic systems repair.

REQUIRED KNOWLEDGE, SKILLS, AND ABILITIES:

Extensive knowledge of the methods, practices, tools, and equipment used in electrical/electronics equipment repair.

Extensive knowledge of electrical construction and maintenance, including installation of all sizes of electrical conduits, cables, wires, switchgear, and starting automatic equipment.

Thorough knowledge of National Electrical Codes, applicable to installation, maintenance, and repair work.

Ability to troubleshoot and repair industrial Programmable Logic Controllers (PLC).

A working knowledge of PLC programming software to include I/O ladder logic.

A working knowledge of Variable Frequency Drive programming software.

Familiarity with and ability to install and troubleshoot 4-20 ma control loops, Proportional Integral Derivative (PID) loops and related components.

Ability to diagnose and correct highly complex electrical control systems and related equipment problems.

Ability to read and work from electrical drawings, schematics, and control circuit diagrams.

MINIMUM QUALIFICATIONS:

Requires high school diploma or equivalent; supplemented by vocational, trade school, or technical training in industrial electrical work; and extensive experience in the maintenance and repair of industrial class electric motors, and mechanical electrical systems, preferably in water production/waste water systems; or any equivalent combination of training and experience providing the required knowledge, skills, and abilities.

NECESSARY SPECIAL QUALIFICATIONS:

Ability to distinguish colors of electrical wiring.

Must possess valid Journeyman Electrician License issued by the Commonwealth of Virginia.

Must possess a valid Virginia driver's license and have an acceptable driving record based upon James City County's criteria.