

City Electrician

Reports to: City Engineer
Supervisory: No
FLSA Status: Non-exempt
Grade/Union: Lodge 1000
Department: Public Works

Summary: This position includes performing complex electrical work performed at the journeyman level in the installation, maintenance, testing, and repair of lift stations, lighting, building facilities, traffic signals, street and ornamental lighting and wiring, pumps and motors, civil defense systems, electrical, electronic, and Supervisory control and data acquisition (SCADA) equipment associated with municipal electrical systems and equipment.

In addition, this position includes the performance of skilled tasks on a variety of installations maintained by the City. Work is performed under the general supervision of the Chief Electrician and City Engineer with considerable technical independence and is subject to incidental instructions on new work and installation assignments. Work is reviewed through discussions on specific problems, incidental inspections of completed work, work reports prepared, and the achievement of desired results.

Essential Functions:

Other duties may be assigned. (This list may not include all of the tasks and/or knowledge which may be expected of the employee, nor does it cover all of the specific duties which may be required).

Organizes, coordinates, and performs installation, maintenance, testing, and repair work; inspects jobs under way and upon completion; advises on work problems; inspects jobs upon completion; prepares basic work reports.

Performs duties or participates with the other staff when project assignments require.

Perform a variety of all tasks related to the maintenance, installation, repair, programming, and testing of a variety of electrical / electronic traffic signal equipment ranging from underground cables, traffic signal cabinets, controllers, and overhead signal component in accordance with City policy, National Electric Code, and the Manual of Uniform Traffic Control Devices.

Troubleshoot traffic signal systems in order to locate malfunctions such as shorts, open or grounded circuits, and reasons for equipment failure.

Upload and download data between computer, signal controllers, and other traffic signal / ITS equipment.

Performs general electrical maintenance on street and ornamental lighting systems; repairs underground cables, re-lamps units.

Maintains civil defense warning sirens; trouble shoots controls; makes periodic electrical checks on equipment.

Use electronic locating equipment to locate City-owned underground electric and fiber optic systems. Work with JULIE Coordinator to insure GIS records are current to protect underground utilities.

Performs general electrical maintenance on municipal water system controls; installs and trouble shoots electronic flow, level process control and communications equipment; wires motor controls; maintains and repairs pumps and motors for water pumping stations and sewer lift stations.

Installs, programs, maintains, troubleshoots, documents and repairs a wide variety of industrial instrumentation and equipment, which include computer systems, electronic monitoring, metering, controlling, signaling devices, PLC control systems, VFD control systems, SCADA system controls, fiber

optic and Ethernet systems used in production, treatment and distribution of water, lift stations, lighting, drives, motors, facilities, etc.

Troubleshoot and problem solve situations/problems (material quality, equipment operation/repair, etc.).

Installs, alters, maintains and repairs electrical systems, equipment, switches, fixtures, and other elements in accordance with standard practices of the electrical trade and local and national electrical codes.

Locates and corrects power failures and motor trouble on electrically operated equipment, machinery and apparatus.

Orders repairs, parts and tools; maintains a limited inventory of parts; maintains an equipment and parts catalog file.

Responsible for jobsite safety ensuring that proper on-the-job safety procedures are followed and safety equipment is consistently and properly used. Follows proper procedures, equipment, and documentation of safety practices.

Prepares standard job reports; provides specific data for daily log reports; lists materials used, work performed, and man hours devoted to respective jobs.

Identify and resolve all regular and extraordinary maintenance and repairs required to ensure continuous and dependable water production and sanitary sewer pumping for both regular and peak demand.

Coordinates maintenance activities with mechanical maintenance staff to minimize disruption of plant or system operations.

Use maintenance management software to track work and keep records of maintenance activities and equipment.

Estimates cost and time for all aspects of maintenance, repair and construction work.

Researches and assists with the design of new control systems; automates old systems.

Performs manual labor tasks associated with maintenance and repair of the systems; installs equipment and components, pulls wires, removes and replaces parts, prepares the work site; and cleans up after work is completed.

Coordinates and maintains positive relationships with other City departments, other governmental entities, and private utilities in the course of performing assigned work.

Performs related work as required.

Qualifications:

1) Education/Experience:

- a. Graduation from standard high school or vocational/technical school; completion of an approved apprenticeship in electrical trades work; considerable experience in electrical maintenance and repair work at the journeyman or contractor level related to the maintenance and repair of electrical, electronic, and Supervisory control and data acquisition (SCADA) equipment associated with water treatment plant, lift stations, lighting, traffic signals, and building facilities; or any equivalent combination of training and experience to provide the outlined knowledge, abilities, and skills:

2) General Skill Levels:

Knowledge of:

- Municipal water system grid and its components.
- Standard practices, materials, tools, and equipment of the electrical trade.
- Standards and occupational hazards involved and the safety precautions necessary in the performance of assigned work.
- Computer and computer software system(s) including but not limited to the email, work order system, internet searches, GIS, and SCADA diagnostics and programming.
- Practices, methods, tools, and materials used in surface water treatment plants, sanitary sewer pump stations, storm water lift stations, traffic signals, and building facilities.
- Occupational hazards involved and the safety precautions necessary in maintenance and operations of the electrical trade.
- Operation of electrical testing devices and instruments.
- Principles of electrical theory as applied to electrical circuits and wiring systems and the ability to apply this knowledge to wiring, equipment and controls.
- Operations of traffic signal equipment, wiring, and installation.
- Variable Frequency Drives and industrial controls.
- Various voltage and multi-phase environments (120v, 240v, 480v, 2300v, etc.)
- Digital and micro-processor based equipment, and PLC and SCADA programming.
- Aspects and principles of maintenance and repair of electrical, electronic and SCADA systems.
- Read electrical schematics, electrical prints, wiring diagrams, and nameplates.

Skills:

- In the use, care, and demonstration of general and specialized tools, and the equipment used in required for installation, maintenance, testing, and repair work.
- Operating of a utility truck and related maintenance vehicles.
- Transferring technical knowledge to operational activity to achieve desired results.
- Using tact, discretion, initiative and independent judgment within established guidelines.

Ability to:

- Plan and organize the completion of work with skilled and semi-skilled maintenance crews and individuals.
- Prepare standard work and operational reports.
- Deal with the public in general and difficult work situations.
- Troubleshoot, repair, and diagnose electronic controls and electrical equipment, wiring, and operations.
- Perform work independently under limited supervision.
- Ensure that proper on-the-job safety procedures are followed and safety equipment is properly and consistently used.
- Read and understand technical information including plans and blueprints and apply guidelines and regulations to operational situations.
- Communicate orally and in writing with internal and external stakeholders professionally.
- Understand and follow general oral and written instructions.
- Work evenings, nights and weekends as required and respond to emergency situations.
- Correctly perform basic arithmetic.
- Correctly take, record and use measurements.
- Diagnose operating defects in complex electrical apparatus.
- Undertake responsibilities with initiative and judgment.

- Establish and maintain effective relationships with subordinate personnel, managers, and the public.
- Climb ladders and gain access to difficult and confined space areas around mechanical equipment, building systems, and roofs.

3) Certificate or Licenses:

a. Required

Possession and maintenance of a valid Illinois Class B Commercial Driver's License with airbrake endorsement.

b. Preferred: Illinois EPA Public Water Supply Class D Operators License is desirable; IMSA Level III Traffic Signal Technician is desirable.

4) Physical Requirements/Working Conditions:

Majority of work is performed in an outdoor or plant setting in all conditions including hot, cold, wet and dry weather. Work requires traveling to construction sites and the ability to traverse a variety of natural and altered ground surfaces which may be uneven, wet or slippery or sloped.