

MAJOR FUNCTION

This is complex technical work laying out, specifying, purchasing; installing, wiring, programming, testing, documenting and maintaining multiple electrical protection, control and communications technicalities in power plants and substations. An employee in this class serves in the role of project manager and exercises technical independence in determining work methods and procedures. Work is performed under the general supervision of the Supervising Engineer-Relay and Communications, who sets objectives, identifies resources and reviews the employee's work through observation, conferences, reports, inspection of activities and by evaluation of results obtained.

ESSENTIAL AND OTHER IMPORTANT JOB DUTIES**Essential Duties**

Complies with NERC (North American Electrical Reliability Counsel) and FRCC (Florida Reliability Coordinating Counsel) requirements on load shedding, frequency settings, tie line settings, transmission protection and generator tripping requirements. Performs complex technical work laying out, specifying, purchasing, installing, wiring, programming, testing, documenting and maintaining/repairing and calibrating all distribution and transmission system protective and monitoring relays and communications equipment while directing the work of relay technicians and outside contractors. Purchases, installs, tests, documents and maintains analog and digital high voltage protective relays and control systems, fiber optic and wireless Wide Area Networks, station batteries, battery chargers, tower lighting and control circuits, voice and data communications. Inspects and repairs computerized control equipment at the City's Central Dispatch Center, electric substations and power plants. Uses computerized technology to accurately monitor system breaker controls, status, generator controls, tie line metering, voltages, amperes, watts, and vars. Provides indication of substation alarms for rapid response of system failures when they occur and provides video wide area network surveillance for remote substations. Tests and repairs microprocessors, as well as electric and electronic circuit boards. Maintains and repairs supervisory control data acquisition and recording equipment at the City's Dispatch Center, electric substations and power plants. Assists and works in conjunction with technicians as well as engineering staff or contractors on problems of circuit breakers, power transformers, coupling capacitors, current transformers and other substation equipment. Assists on a one-on-one basis with customers in reducing or eliminating electrical interference or other electrical problems. Performs quality assurance testing of all equipment installed. Supervises contractors while new equipment is being installed or outside contractors are working on the City's electrical infrastructure. Conducts detailed independent research of emerging technologies as they apply to electric system protection and communications. Performs related work as required.

Other Important Duties

Specifies and purchases relay control panels, relays, metering, fiber optic cable, communications and power cable, wide area network components. Checks drawings, software and other documentation for accuracy. Maintains and adjusts voltage regulator controls, capacitor bank controls, and power transformer tap changer and temperature controls. Maintains and repairs substation AC (Alternating Current) power transfer switches, power panels, and air conditioning units. Performs related work as required.

DESIRABLE QUALIFICATIONS**Knowledge, Abilities and Skills**

Knowledge of the standards, methods, practices, tools and materials of the repairs and maintenance of computerized electrical power system protection schemes and equipment, and Ethernet wide area network communication systems. Knowledge of computer application concerning supervisory control equipment and communications. Knowledge of all associated substation equipment: PT's (power transformers), CT's (current transformers), cap banks, power transformers, tap changers, and power

circuit breakers Knowledge of the generator load control system and protection. Ability to read and understand blueprints, schematics and service manuals. Ability to maintain and repair shop equipment and tools. Ability to test and calibrate analog and computerized power system equipment. Ability to understand battery and charger functions and to locate battery grounds. Ability to obtain field data and prepare regulatory government reports. Ability to follow and understand complex oral and written instructions. Ability to communicate effectively, orally and in writing. Ability to maintain and establish effective working relationships as necessitated by the work. Ability to specify equipment and to follow City purchasing procedures. Ability to read and write Boolean algebra relay logic, SEL relay logic, trouble shoot Ethernet WANs (Wide Area Network) and routers.

Minimum Training and Experience

Possession of a two year technical school degree in fiber optics, computer networks, computers, electronics, or a two year college degree in electronics, electrical engineering technology, computer technology or a related field and six years of technical experience in electrical equipment relating to the transmission and distribution of electrical power; or an equivalent combination of training and experience.

Necessary Special Requirements

At the time of appointment, must possess a class "E" State driver's license appropriate for the vehicle(s) to be operated.

Must annually acquire one additional technical training certificate in communications, protective relays or another related field approved by the department.

Established: 05-18-04