

ELECTRICIAN/INSTRUMENTATION TECHNICIAN

DEFINITION

Under the general supervision of the Water Treatment and System Supervisor, the Electrician/Instrumentation Technician performs a variety of skilled work related to the installation, maintenance and repair of industrial high voltage electrical motors, motor controls and equipment used in water and wastewater facilities; installs, maintains, calibrates, repairs and operates electrical, pneumatic and mechanical instrumentation, controls, and equipment associated with the Supervisor Control and Data Acquisition (SCADA) system; and performs other or related duties as required.

CLASS CHARACTERISTICS

This is a single position class. The incumbent independently performs complex journey level electrical work on a wide variety of electrical systems and learns to perform responsible work on the SCADA instrumentation system.

SUPERVISION RECEIVED AND EXERCISED

Supervised by: Water Treatment and System Supervisor

Exercises supervision over: no supervisory responsibility

ESSENTIAL DUTIES (*Duties may include, but are not limited to, the following*):

Troubleshoots electrical problems in all electrical equipment/ systems at water and wastewater treatment plants and pump and lift stations, including high voltage electrical motors, valves, pumps, switches, distribution panels, transformers, lighting panels, motor control circuits, motor control panels, and all associated control circuits ranging from low voltage to high voltage (480 volts AC); troubleshoots hydroelectric and solar systems and instrumentation including electromagnetic, pneumatic, hydraulic and similar sensor, communication, control and signal conversion devices; uses a variety of equipment to test systems including digital meters, ohm meters, high voltage meters, amp probe, high potential testers, calibrators, and data recorders.

Identifies and isolates faulty parts, components, circuits or panels; repairs, fabricates or replaces parts, components or circuits; installs new or repaired parts or components.

Installs and tests electrical equipment including conduit, electrical panels, lighting, receptacles, motor control panels, relays, contactors, motor starters, motors, pumps, valves, electrical services and generators; ranging from low voltage to high voltage; installs and tests telemetry systems and hydroelectric and solar electric systems.

Sets up, schedules and performs a preventive maintenance program; lubricates motor bearings, services motor control panels, distribution panels, and other electrical

components; tests equipment on a regular basis to determine if test results fall within correct ranges.

Responds to all power failures and electrical emergencies; isolates and evaluates affected equipment or process; implements procedures to restore or modify electrical feeder configurations.

Schedules and oversees work performed by electrical contractor or vendor; specifies tasks to be performed; monitors compliance testing and performance issues associated with the contract; assists in project or contract completion.

Maintains comprehensive logs on completed electrical maintenance; researches electrical components or products; requisitions and maintains an adequate inventory of all electrical supplies.

Reviews electrical plans, and recommends any changes necessary at the plant or lift stations.

QUALIFICATIONS

DEMONSTRATED KNOWLEDGE OF AND PERFORMANCE IN THE FOLLOWING AREAS:

- Principles and techniques of maintaining and repairing electrical motors, switchgear, and other appurtenant equipment;
- Troubleshooting methods and procedures;
- Electrical components and wiring configurations used in industrial systems;
- Testing procedures used to detect electrical problems, including operation of the typical testing instruments;
- Safety problems and procedures.

ABILITY TO:

- Read and interpret electrical drawings and diagrams;
- Update electrical plans;
- Perform competent electrical repair work on all plant electrical components, including the ability to recognize and troubleshoot malfunctions as they occur;
- Conduct an on-going preventive maintenance program, maintaining maintenance records;
- Interpret and draw electrical plans;
- Work independently.

PHYSICAL AND SENSORY REQUIREMENTS

- Sufficient eyesight to read fine plans and standard text and data;
- Ability to speak and hear at normal conversational levels in person and over the telephone;
- Manual dexterity to write legibly and to use electrical test equipment;
- Ability to lift and carry up to forty (40) pounds of plant equipment and/or materials on a regular basis and one hundred (100) pounds on an occasional basis;

- Ability to reach, bend, stoop or crouch to inspect equipment and perform work;
- Ability to occasionally walk on uneven and slippery surfaces;
- Exposure to outdoors and high noise levels as created by large pumps;
- Ability to travel to different sites and locations.

TRAINING AND EXPERIENCE GUIDELINES

Any combination of training and experience, which demonstrates attainment of the required knowledge and ability to perform the required work (with reasonable accommodation, if needed), typically:

EDUCATION: College level classes in electrical subjects may substitute for work experience.

EXPERIENCE: Four (4) years of experience as a journey level electrician including a minimum of one (1) year at the journey level experience performing high and low voltage electrical work in an industrial setting.

CERTIFICATIONS, LICENSES, AND REGISTRATIONS

A valid California class C driver's license must be maintained at all times.

Certification in Water /Wastewater Treatment is highly desirable.