

INDUSTRIAL ELECTRICIAN

DEFINITION

Under supervision, performs skilled electrical work in the installation, maintenance, overhaul, repair and testing of power generating, transmission and distribution equipment, utility protective relays and controls, rotating equipment and their associated controls including variable frequency drives, PLC based controls, devices, and systems, standby and emergency power sources, and other electrical equipment found in industrial facilities.

SUPERVISION RECEIVED/EXERCISED

Receives supervision from the Division Manager or designee. Exercises no supervision.

DISTINGUISHING CHARACTERISTICS

The Industrial Electrician is distinguished from the Electrician in that the latter do not maintain 15K volt power generation equipment, including gas and steam turbines, or install, repair, and maintain electrical components for large rotating equipment above 200 hp including associated motor control centers, PLC, VFD equipment. Industrial Electrician is distinguished from the Industrial Electrician Supervisor in that incumbents of the latter have first-line supervisory responsibilities. Incumbents may be required to work holidays, nights, and weekends.

EXAMPLES OF IMPORTANT AND ESSENTIAL DUTIES

may include, but are not limited to, the following:

Preventative maintenance and repairs on 10 Mega Volt Ampere (MVA) substations with 70 kilovolts (KV) transmission feed, 15KV distribution feed, and 15KV distribution line and switchgear.

Installs and maintains industrial electrical equipment, electric motors, conventional and solid state control devices and systems for electrical installations and associated electrical equipment.

Utilize safe work practices for the de-energizing, lockout, testing, and grounding of electrical circuits and equipment in low, medium and high voltage electrical distribution stations; steam, gas, and diesel generating stations, motor control centers, and other electrical installations.

Install, troubleshoot and repair low to medium voltage variable frequency drives.

Troubleshoot, test and repair combined cycle power plant.

Install, maintain, overhaul and repair low, medium and high voltage transmission and distribution equipment, protective relays and control wiring, power generation equipment, fiber optic cables, devices, and auxiliary equipment.

Inspects, maintains, overhauls, tests, and repairs rotating and other electrical equipment and their associated electrical and electronic control devices, including programmable logic controllers and microprocessor-based controls (VFD's), components, devices and systems.

Arranges for and participates in rigging and hoisting heavy electrical equipment in electrical installations.

Installs and maintains power electrical systems and raceways, plant and facility lighting, switchboards and panel boards, electronic surveillance equipment, fire alarm and signaling systems, public address and inter-plant communications, low voltage and line voltage lighting controls and systems.

Tests circuits for shorts, grounds, open conditions and insulation integrity; conducts electrical tests utilizing equipment such as meggers, volt meters, ohm meters, hi-pot, scope meters and phase rotation meters.

Inspects, cleans, lubricates, and replaces brushes and auxiliary equipment on motors and generators.

Cleans and replaces control apparatus and associated equipment on all types of electrical devices, motors, controls, panels and switchboards.

Reads and interprets electric plans, drawings, blueprints, wiring diagrams, circuit diagrams, schematics, loop diagrams, sketches and electrical code specifications.

Keeps routine work records and utilizes basic computer skills for access to work orders and warehouse inventories.

Troubleshoots, maintains and repairs power, lighting, controls and electronic supervisory systems; coordinates these activities with other crafts and trades.

May inspect installations and alterations for building and electrical code compliance.

Perform other associated duties as required.

JOB RELATED AND ESSENTIAL QUALIFICATIONS

Knowledge of:

Methods, materials, tools and equipment used in the installation, maintenance, testing and repair of equipment used in industrial facilities, generating plants, and pumping plants other electrical installations and.

Motors and small power generators, electric lighting and wiring installations, switchboards, signaling systems, and other equipment as related.

Hazards involved and the applicable safety procedures for working on, or in proximity to, open energized low, medium and high voltage conductors and equipment, including CPR, first aid and pertinent provisions of the California Electrical Safety Orders.

Fundamentals of electricity and electronics as related to the installation, maintenance and repair, of electrical and electronic equipment in industrial facilities and plants.

Electric plans, drawings, blueprints, wiring diagrams, circuit diagrams, schematics, loop diagrams, sketches and electrical code specifications as used in installation and maintenance work.

Internal functions and connections of motors, generators, and other rotating electrical equipment.

Electrical and mechanical characteristics of electrical equipment.

Applicable electrical codes, laws, and regulations .

CalOSHA regulations; including lockout/tagout procedures and safe working practices.

Skill to:

Operate office equipment, a computer and a variety of word processing and software applications.

Safely operate a motor vehicle.

Ability to:

Use tools and protective equipment for work on, or in proximity to, energized low, medium and high voltage conductors and equipment from 24 volts to 70,000 volts.

Read and interpret electric plans, drawings, blueprints, wiring diagrams, circuit diagrams, schematics, loop diagrams, sketches and electrical code specifications;

To wear and use a respirator consistent with state mandates.

Understand and follow directions;

Prepare time, work and material reports;

Estimate time and material required for electrical installations and maintenance;

Deal tactfully and effectively with supervisory and management employees, other employees and the public;

Prepare plans, sketches, schematics, and electrical diagrams for permits and work layouts;

Ensures that proper safety precautions are utilized.

To learn wastewater treatment plant processes.

MINIMUM QUALIFICATIONS

Education:

Completion of a recognized four-year electrical apprenticeship program

OR

60 semester units from an accredited college or university in a related electrical field

AND

Experience:

Two years of experience as a journey-level Electrician in an industrial setting performing troubleshooting, repair, and installation of gasoline or steam driven turbines, transmission and power distribution equipment, large motors and motor control centers, and programmable logic controllers.

Necessary Special Requirements:

At time of appointment must obtain, and maintain for the entire term of employment in this class, a valid Class C California Driver's License.

Required to obtain a California State Electrician's Certificate of Competency within one year of appointment, and maintain a valid certificate for the entire term of employment in this class.

APPROVED: _____
Director of Personnel Services

DATE: _____