

# Humboldt Bay Municipal Water District

## **ELECTRICIAN and INSTRUMENT TECHNICIAN I - OM7**

### **Position Description**

#### **GENERAL PURPOSE**

Under direct supervision, installs, maintains, troubleshoots, repairs, adjusts, programs and calibrates a variety of electrical, electronic, and electro-mechanical equipment including millivolt systems through high voltage distribution systems, SCADA system equipment, PLC ladder logic programming, wireless communications systems, hydroelectric power generation equipment, water pumps, cranes, and telemetry systems; and performs other related duties as required.

#### **ESSENTIAL FUNCTIONS AND DUTIES**

1. Under direct supervision, installs electrical circuits, relays, switch gear, wiring, electronic alarms, and telemetering equipment used in the operation and monitoring of high voltage distribution systems, hydroelectric power generation plant, water pumps, cranes, and telemetry systems.
2. Troubleshoots, repairs, and calibrates water treatment instrumentation, testing, and monitoring devices.
3. Troubleshoots, programs, and repairs automated control devices; repairs, adjusts, and replaces electrical relays.
4. Troubleshoots, repairs, rebuilds, and adjusts electrical and mechanical parts of pumps, motors, and pressure control valves.
5. Tests and repairs cathodic protection systems.
6. Under direct supervision, assists with testing, maintenance, and repair on metering and recording instruments, control apparatus, data logging and display equipment, communications and telemetering systems, and laboratory equipment; performs specialized maintenance and repair on two-way FM base radio stations, repeaters, mobile stations, portable and telemetry stations, antennas, and intercom systems.
7. Under direct supervision installs, maintains, repairs, and modifies office and shop electrical systems in District office and shop facilities.
8. With guidance and supervision, maintains and troubleshoots the District's SCADA system, sensors, communications devices, PLC's, etc.
9. Installs, maintains, and troubleshoots wireless radio communications systems.
10. May order parts, materials, and supplies required for electrical and other repairs.
11. Reads and interprets manuals, blueprints, and schematic drawings; updates and maintains records and reports of work performed; prepares schematic drawings and updates blueprints to reflect as-built conditions.

#### **REQUIRED KNOWLEDGE, SKILLS, and ABILITIES**

1. Principles and practices of electrical and electronic repair and maintenance.

2. Repair, maintenance, and operational adjustment procedures for water pumping, distribution, and treatment plant equipment.
3. Methods, materials, tools, and testing equipment used in the installation, maintenance, calibration, and repair of electrical and electronic equipment.
4. Measuring, monitoring, and calibration devices used in electrical, mechanical, instrumentation, and relay troubleshooting and repair.
5. Repair and calibration of instrumentation and relays.
6. Maintenance and repair of electrical generation equipment and high voltage (12,000 volt) transmission system.
7. Experience with (or able to learn) the operation, maintenance, and troubleshooting of Supervisory Control and Data Acquisition Systems.
8. Experience with (or able to learn) the programming of PLC's, HMI's, and the associated programming software such as Rockwell Automation's Studio 5000, RSview32, Factory Talk, Logix500, and ControlLogix5000.
9. Experience with wired and wireless telemetry technologies and the troubleshooting and maintenance methods employed with them.
10. Experience with (or able to learn) project development, specification and interconnection CAD work associated with the implementation of new equipment and/or control technologies.
11. Safety laws, regulations, and rules relating to electrical system and electronic maintenance and repair work. Safe work practices including necessary electrical clearances and lockout / tagout procedures.
12. Operation of computers, automated equipment, and standard applications software.
13. Develop cooperative working relationships. Use teamwork to effectively solve practical problems, and coordinate work among a small, close-knit workforce.

## **TRAINING AND EXPERIENCE**

Any combination of training and experience that provides the required knowledge and abilities is qualifying. A typical way to obtain the requisite knowledge and abilities would be:

1. High school diploma or GED
2. Community College, technical or other course work relevant for this position are beneficial
3. One-to-three years of journey-level experience in electrical and electronic construction, repair, and maintenance, preferably with some direct experience at a water or wastewater treatment plant, hydro-electric plant, or similar facilities. Completion of a formal apprenticeship or its equivalent in the electrical, electronics, or instrumentation fields are highly desirable.
4. Grade II Treatment (T2) and Grade II Distribution (D2) certificates

## **SPECIAL REQUIREMENTS**

1. Must possess the category of California Driver's license required by the State Department of Motor Vehicles to perform the essential duties of the position. Employees must maintain a driving record

acceptable to the District and its insurance carrier. Compliance with these requirements and established District vehicle operation standards are a condition of continuing employment.

1. Employee will be required to be certified as a competent Rigging and Signal Person for lifting operations.
2. Employee will be required to learn PLC ladder logic programming using Allen Bradley equipment and Rockwell Automation software.
3. May work odd shifts, weekends, or holidays and perform standby duties as assigned. Must be available to respond to emergencies which affect the District such as earthquakes, power outages, pipeline breaks, high water events, and other similar incidents.
4. In order to wear respiratory protection or other safety equipment, facial hair must be maintained as to keep hair growth out from between the skin and the facepiece sealing surface (such as stubble beard growth, beard, mustache, or sideburns).
5. Must be able to participate in confined space operations.
6. Must possess and maintain a Grade II Water Treatment Operator's Certificate (T2) and a Grade II Water Distribution Certificate (D2) pursuant to State drinking water regulations. If an employee does not initially possess this level of certification, the District will allow a period of time for them to obtain the required certifications. Employees must also meet the State's continuing education requirements to maintain certifications. Compliance with the State certification requirements is a condition of continuing employment.
7. Must acquire basic American Red Cross First Aid/CPR certificates during the initial year of employment.

## **ESSENTIAL PHYSICAL ABILITIES**

Individuals selected for appointment to this position must pass a pre-employment medical examination which the District pays for. Because this position is considered "safety sensitive" in nature, the person selected for appointment to this position must pass a pre-employment drug screening which the District also pays for. The medical examination and drug screening is intended to evaluate the applicant's ability to meet the physical and health requirements for this classification.

A person employed in this position must be able to:

1. Investigate and solve complex problems involving the ability to:
  - a. Perform visual inspections
  - b. Hear/discern normal versus abnormal noises
  - c. View and respond to operational control screens (including alarms)
  - d. Think critically
2. Sit for extended periods of time
3. Operate a computer
4. Operate motor vehicles and other equipment
5. Operate a variety of hand and electric tools

6. Perform a variety of physical activities which may involve reaching, bending, squatting, kneeling, crouching, crawling, climbing, and also manual dexterity
7. Perform additional physical activities to position or move tools, equipment, and supplies which may involve lifting, and pushing or pulling motions
8. Wear a respirator and other personal protective equipment
9. Understand and carry out oral and written directions
10. Communicate well with others, both verbally and in writing
11. Work cooperatively and get along well with other people
12. Read and understand complex electrical diagrams and communicate electrical processes contained in such diagrams
13. Draw rudimentary electronic diagrams and communicate electrical processes contained in such diagrams