

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT CLASSIFICATION SPECIFICATION

TITLE: ELECTRICAL, INSTRUMENTATION, AND SCADA SUPERINTENDENT

DATE: 10/18/2011

JOB CODE: 51834

FLSA STATUS: EXEMPT

UNIT REPRESENTATION: MID-MGMT

Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.

DUTIES SUMMARY

Under the general direction of the Director of Water Reclamation, to plan, organize, implement and control installation, maintenance, operation and repair of electrical/instrumentation/Supervisory Control and Data Acquisition (SCADA) systems and equipment associated with water and wastewater utilities; schedule, assign, monitor and inspect work in progress and upon completion; supervise assigned administrative staff and electrical/instrumentation/SCADA personnel involved in the preventative maintenance, adjustment, repair, overhaul, replacement and installation of electrical and instrumentation apparatus and related equipment and devices; ensure work is completed following appropriate and applicable provisions of the Electric Code, approved plans and specifications, and standard industry practices; research and prepare a variety of studies and reports regarding the Department's short and long-term electrical, electronics, telemetry, communications, and related systems requirements; perform related work as required.

DISTINGUISHING CHARACTERISTICS

Supervision is received from the Director of Water Reclamation. Supervision is exercised over the Electrical, Instrumentation, and SCADA (EI&S) Section and other Water Utility and Water Reclamation employees. In the absence of the Director, the EI&S Superintendent may act as his/her designee. This is a single-incumbent class responsible for planning, coordinating, and directing the construction, installation, maintenance, repair, and servicing of all industrial electrical and electronics-related systems and equipment used in the water and wastewater utilities. The work of this class is complex and involves significant accountability and decision-making responsibilities. The ability to understand customer's needs and balance response with cost effective scheduling is essential.

EXAMPLES OF DUTIES

The following duties are typical essential duties for positions in this classification. Any single position may not perform all of these duties and/or may perform similar related duties not listed here:

- Provide courteous and expeditious customer service to the general public and City Department staff;
- Routinely adhere to and maintain a positive attitude toward City and Department goals;
- Supervise, train, develop, and evaluate the performance of foremen, supervisors, and crafts workers;

- Interview applicants and recommend action on appointments; counsel employees and recommend disciplinary actions;
- Plan and evaluate staff performance; establish performance requirements and personal development targets; regularly monitor performance and provide coaching for performance improvement and development;
- Provide day-to-day leadership and work with staff to ensure a high performance, customer service-oriented work environment which supports the Department's mission, strategic plan, objectives and values;
- Supervise employees engaged in constructing, installing, maintaining, testing and repairing electrical mechanisms, low voltage (600V or less) panels, switches, motors, controls, power output frequency regulators, solenoids, telemetry, clay valves, automatic control valves (ACVs), voltage controls, low cut-out alarms, geothermal couplers, relays, electronic controls, generators, electronically automated systems, measurement systems, chlorination control systems, and other electrical equipment and apparatus; work in and around low voltage circuits, panels, and equipment;
- Oversee troubleshooting and repairing of instrumentation systems, control and process loops, PIDs, and associated equipment;
- Supervise and direct the installation, maintenance, and repair of control circuits, pressure switches, floats, underground cables, motors, telemetry, copper lines, and power output frequency regulators and transducer recorders;
- Participate in the Department's short- and long-range planning process for water utility and water reclamation needs and requirements; review engineering design plans for the Department's systems and facilities to ensure conformance with department standards and policies;
- Supervise the inspection of tele-metering, electric controllers, programmable controllers, process meters, analyzers, flow systems, and a variety of other types of instrumentation for proper operation;
- Oversee and direct the installations, repairs, modifications, calibrations, and preventative maintenance on a wide variety of complex digital, analog, programmable and other auxiliary equipment used in the collection, transmission and treatment of water/wastewater;
- Oversee and monitor the work of others performing calibration and maintenance of meters, analyzers, recorders, control systems, and feed systems, including but not limited to electric, electronic, pneumatic, hydraulic, and mechanical equipment; keep accurate maintenance records;
- Monitor the work performed by others related to electrical and electronic apparatus and instrumentation including repair, replacement, disassembling, assembling, installing, and testing;
- Read, interpret, and direct others with regard to electrical and instrumentation plans, specifications, blueprints, sketches, wiring diagrams, and schematics;
- Supervise the testing of power distribution, transformers, circuit breakers, meters, and other apparatus; oversee others engaged in performing routine maintenance of electrical equipment and supplies;
- Supervise the inspection of equipment installation work performed by contractors and other personnel for workmanship and compliance;
- Estimate labor and material for electrical installations and repairs; lay out work on the project site; prepare reports of time and material expended;

- Maintain an inventory of parts, materials, and supplies used in the electrical instrumentation shop and in performing everyday tasks;
- Oversee and participate in the documentation of all programming, testing, and updates performed;
- Evaluate and maintain records of maintenance and repair functions; prepare routine and special reports on equipment maintenance and repair;
- Assure effective cost and manpower controls through a formal and continuing maintenance management program;
- Maintain network communication between equipment, controls, field hardware, and SCADA system;
- Respond to emergency situations during off hours as required;
- Review and provide input and suggestions on new system requirements;
- Participate in the safety program and coordinate the training of assigned staff;
- Keep up to date on the latest safety requirements and procedures and provide for continuing instruction of supervisors and employees;
- Inspect and assure that safety equipment is consistently used and worn by employees and that proper safety standards and procedures are adhered to and enforced;
- Exercise a high level of tact and diplomacy in dealing with the public as well as other divisions of the Department;
- Work effectively with others;
- Prepare written and verbal reports, memorandums, and correspondence;
- Assist in preparing/administering the annual budget;
- Assist in the preparation of the Department's Capital Improvement Plans;
- Review and approve payroll timekeeping records;
- Schedule and conduct staff meetings;
- Operate Department vehicles;
- Perform other related work as required.

QUALIFICATIONS

Any combination of education, training, and experience that would likely provide the knowledge, skills and abilities to successfully perform in the position is qualifying. A typical combination includes:

Knowledge of:

- Principles, theory, and practices of electricity, electronics, pneumatics, hydraulics, and mechanics as they apply to installation, maintenance, and repair of equipment and instruments commonly found in water and wastewater production, transmission, distribution, and treatment facilities;

- SCADA theory at an advanced level;
- Programmable logic controller (PLC) programming theory at an advanced level for testing, troubleshooting, and repairs of PLC components and data highway systems;
- Applicable codes and regulations;
- Industrial electricity and safety practices, precautions, and procedures;
- Tools, materials, methods, and practices of electrical, electronic, and instrumentation trade;
- Methods, materials, and equipment used in chlorine system installation and repair;
- Symbols and standard practices used in the preparation of process and instrument flow diagrams;
- Electrical installations and maintenance in water utility or reclamation facilities including low voltage (600V or less) electrical circuit;
- Shop mathematics applicable to the electric trade;
- Advanced principles of project management;
- Appropriate safety precautions and procedures;
- Instrumentation calibration concepts and procedures;
- Mid-level computer operation skills, including word processing, database programs, spreadsheets, electronic mail, Department utilized software application programs, and SCADA operation;
- Complex record keeping, documentation and practices;
- English usage, spelling, grammar, and punctuation;
- General principles of supervision, scheduling, and training.

Ability to:

- Plan, organize, schedule, and monitor work for efficiency, quality, and timeliness;
- Recognize, analyze, and define a variety of routine to complex mechanical, electrical, chlorination, and instrumentation problems and direct necessary repairs;
- Correct instrument operating problems and make recommendations for system modifications to meet operational needs without close supervision;
- Operate power tools, hand tools, and light equipment used in electrical activities; operate specialized test equipment such as milliamp and millivolt calibrators, multimeters, power supplies, and oscilloscopes;
- Perform a wide range of skilled water utility or reclamation electrical installation, wiring, repair, and maintenance work on low voltage circuits in accordance with safety standards;
- Read, understand, interpret, and apply moderately complex materials including technical manuals, drawings, specifications, layouts, diagrams, blueprints, plans, and schematics;
- Keep detailed, complex, and accurate records;

- Recognize, report, and correct unsafe working conditions;
- Understand and carry out routine to complex instructions furnished in oral, written or diagrammatic form;
- Make arithmetical calculations involving fractions, decimals, and percentages with speed and accuracy;
- Communicate clearly and concisely, both orally and in writing;
- Establish and maintain effective relationships with those contacted in the course of work;
- Operate a vehicle observing legal and defensive driving practices;

- Make work assignments, set priorities for, train, and review the work of subordinate supervisors and staff personnel;
- Maintain a driving record which meets Vehicle Code Standards and is acceptable to the Department and its insurance carrier;

- Respond to call-out or emergencies as required; handle emergency situations as directed.

MINIMUM QUALIFICATIONS

Education and Experience:

High School graduation or G.E.D. equivalent and completion of sixty (60) semester units (90 quarter units) of college level course work in business administration, electrical engineering, electronics, instrumentation and control systems, or closely related science and five (5) years of journey-level experience in programming of PLCs, electrical and/or electronic instrumentation maintenance and repair, including five (5) years supervisory experience in the construction, installation, maintenance, and repair of electrical and electronics system, equipment and facilities.

Or

A Bachelor's Degree from an accredited college or university in Business Administration, Electrical Engineering, Electronics, or Instrumentation and Control Systems, or closely related science, and four (4) years of journey-level experience in programming of PLCs, electrical and/or electronic instrumentation maintenance and repair, and at least two (2) years supervisory experience in the construction, installation, maintenance and repair of electrical and electronics system, equipment and facilities.

Or

High School graduation or G.E.D. equivalent and ten (10) years of journey level experience in programming of PLCs, electrical systems and electronic instrumentation installation, maintenance, and repair and at least five (5) years supervisory experience in the construction, installation, maintenance and repair of electrical and electronics system, equipment and facilities.

And

Certificates: Possession of a valid California Class "C" driver's license required upon application. For out-of-state applicants, a valid driver's license is required and a valid California Class "C"

driver's license is required within ten (10) days of appointment (CA Vehicle Code 12505c).

NECESSARY SPECIAL REQUIREMENTS

An employee within this classification may be designated as a "key responder" and as such shall be required to respond to non-normal working hour emergency operational conditions.

PHYSICAL TASKS AND ENVIRONMENTAL CONDITIONS

Work involves exposure to potential physical harm, infectious disease and hazardous chemicals including smoke, fumes, gas, treated water, high frequency noise, dirt, dust, grease, oil, chemicals, solvents and toxic agents. Incumbents need to be able to tolerate unpleasant odors, wet conditions and uncomfortable climate conditions. There is frequent need to stand, stoop, walk, crawl, climb and perform other similar actions during the course of the workday. Employee accommodations for physical or mental disabilities will be considered on a case-by-case basis.

Incumbents require sufficient mobility to work in a variety of environmental and weather conditions, transport materials and supplies weighing up to 50 pounds, work in boom truck with lift of 30 to 60 feet and work to heights of 150 feet. Must be able to see in the normal visual range with or without correction. Must be able to hear in the normal audio range with or without correction. Employee accommodations for physical or mental disabilities will be considered on a case-by-case basis.

CAREER LADDER

From: Electrical, Instrumentation and SCADA Superintendent

To: Director of Water Reclamation

Job Description:

BOWC Approved: 10/18/11

Testing Standards: Open/City Promo/Suppl Appl/CS Oral:

CSB Approved: 11/8/2011