



CLASS SPECIFICATION FOR:

Instrumentation Specialist III

General Statement of Duties:

Performs complex electrical, electronic and instrumentation installation, maintenance, testing and repair work at the Water Treatment Plant or the Water Reclamation Facility; does related work as required.

Distinguishing Features of Class:

Proficiently performs routine and complex maintenance, preventative maintenance, diagnostic troubleshooting and related repairs, and programming required for networked and process-specific pneumatic controls, electronics, instrumentation, integrated mechanical and motor controls and equipment, infrared technologies, VFD (Variable Frequency Drives) and PLC (Programmable Logic Controller), Proportional-Integral-Derivative Controller (PID) and other controls to ensure the compatibility and reliability of components and consistency and efficiency in the treatment process. Assigned duties may also include a variety of skilled electrical work requiring master-level knowledge, including serving as the primary electrician at assigned location and directing the work of assistants. Assigned duties may also include a variety of skilled electrical work. Work is performed both in the shop and the field as determined by the work assignment. May serve as lead worker assisting with training and directing the work of Instrumentation Specialists I and II as assigned. Position may be required to work on-call assignments and be subject to call back for emergency repairs.

Examples of Assigned Duties *(illustrative of the types and scope of duties and responsibilities assigned to positions in this class):*

- Proficiently performs all the duties assigned to Instrumentation Specialist I and II;
- Independently performs routine and complex maintenance, including preventative maintenance as assigned;
- Performs routine and complex calibrations, diagnostic troubleshooting, including researching and recommending repair options and problem solutions, and making approved repairs for process specific pneumatic controls, electronics, instrumentation, integrated mechanical and motor controls and equipment, infrared technologies, VFD (Variable Frequency Drives), MMR (Motor Management Relay), PLC (Programmable Logic Controller), Proportional-Integral-Derivative Controller (PID) and other controls;
- Obtains the necessary parts for maintenance and repairs, includes researching and recommending appropriate parts;
- Works with pneumatics, assorted mechanical, electrical and electronic equipment and devices used for assembling, installing, servicing, testing, repairing and adjusting the electrical, electronic, and mechanical components specific to the assigned facility's treatment process controls;
- Expands or extends existing electrical and electronic systems to gain operational efficiencies;
- Performs IT centric duties such as running cabling for networking interfaces and equipment, wiring and rewiring PLC cabinets, programming and reprogramming logic, and debugging programmable devices and equipment;
- Networks, interfaces and programs all types of process specific devices necessary for integrating older mechanical technologies with automated, programmable, and variable electronic (computerized) process controls; Researches, recommends and with IT authorization, installs, verifies, and upgrades software used in computer controlled systems, networks and interfaces; Under supervision of IT Specialist, may assist with networks, troubleshooting and repairing process specific servers, routers and other related networking equipment and devices;
- Adjusts constants and variables and proportional-integral-derivative (PID) settings;
- Troubleshoots ladder logic in PLC programming to better control facility's processes and makes approved adjustments;
- Performs set-up, troubleshooting and approved repairs to servers, routers and other networking equipment and devices as assigned;
- Performs routine troubleshooting and repair work related to assigned equipment and duties work on SCADA;
- Troubleshoots systems unique to assigned division, identifies solutions, and implements approved solutions;
- Tracks life cycle needs, identifies or develops solutions, projects costs and determines cost-savings (or ROI), advises supervisor for budget purposes, and tracks
- Develops and implements electrical, electronic and instrumentation solutions as needed to ensure operational safety and/or operational readiness and efficiencies
- Redraws and updates schematics and PLC drawings;



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- Writes and updates Preventive Maintenance instructions for the Computerized Maintenance Management System;
- Backs up programs for motor management relays (MMR), variable frequency drives (VFD) and other controls;
- Oversees and directs the work of contractors and vendors as assigned;
- May serve as essential personnel during emergency situations;
- May serve as lead worker assisting with training and directing the work of Instrumentation Specialists I and II as assigned;
- May serve as supervisor during Instrumentation Specialist Supervisor's absence;
- Performs other duties as assigned.

Required Knowledge, Skills and Abilities:

Considerable knowledge of the standard practices, materials, tools, and equipment of the electronic and/or instrumentation trade; demonstrated proficiency in the use and care of the tools, equipment and materials used in the work; sound working knowledge of the principles of electronics and instrumentation; comprehensive working knowledge of the occupational hazards of and safety precautions involved in electrical and electronic work; ability to accurately read, write and comprehend complex manuals and complex instructions; ability to read and follow detailed directions; ability to read and interpret typical and complex electronic schematics; considerable knowledge of relevant programming principles and concepts including higher math calculations; considerable knowledge of diagnostic and troubleshooting principles and processes; master level knowledge of electricity including complex (real and imaginary/apparent) power management; sound working knowledge of diagnostic and troubleshooting principles and processes; ability to accurately calibrate, repair and maintain a wide variety of complex equipment; demonstrated ability to work independently with limited general supervision; sound judgment with the ability to make appropriate decisions, identify and report issues, including proactively; critical thinking skills for appropriately and cost effectively solving a wide variety of work-related problems; physical condition permits activities including but not limited to lifting, carrying, bending, stooping, kneeling and routinely working under adverse temperature and/or weather conditions and in confined work spaces as needed; ability to create and maintain accurate paper and electronic records; basic knowledge of personal computers and /or automated systems and the ability to enter, maintain, retrieve and analyze data (CMMS data entry); effective oral and written communication skills with ability to express ideas clearly and concisely, including the ability to train other staff; effective oral and written communications skills with the ability to communicate, interpret and understand technical information; ability to collaborate and work effectively independently and as a team member; ability to establish and maintain good working relationships with Department personnel; basic supervisory skills with the ability to direct the work of assistants and contractors as needed (without formal supervisory authority); personal accountability including teamwork and establishing and maintaining positive relationships with Department personnel and other County employees; good organizational skills; excellent customer service skills; tact; and courtesy. Requires the ability to work a flexible schedule as needed for work assignments that may require working evenings, weekends, and some holidays.

Minimum Education and Experience:

- Education: Graduation from high school plus additional formal training (e.g. apprenticeship or vocational training) or completed formal education program in electronics and instrumentation or certified master electrician;
- Experience: Five (5) years relevant electronic and/or instrumentation experience in a water or wastewater treatment facility;

OR: Any equivalent combination of experience and training which provides the required knowledge, skills and abilities.

Additional Requirements:

NOTE: Effective 4/1/2009 County Ordinance 1128 requires a criminal history record check and fingerprinting of all employees in authorized and hourly safety sensitive positions.

- Current valid driver's license.
- May require current Master Electrician's license.
- May require a pre-employment and/or annual/regularly scheduled physical examination and/or medical tests administered by Henrico County Employee Health Services, the components of which are based on and appropriate to the specific sensory and/or physical demands of the given position.