



*Protecting Lake Michigan & Our Waterways.*

**North Shore Water  
Reclamation District**

**Electrical Maintenance – Instrument Repairer**

Repair and maintain instrumentation and power distribution equipment, plant telephone systems and varied electric/electronic controls. 5 yrs relevant field maintenance experience and a valid Drivers License required. Formal instrumentation training and exp. with automation, electronics, HVAC, pneumatics and hydraulics desired. Apply in person or send resume to:

North Shore Water Reclamation District  
P.O. Box 750  
14770 W. Wm. Koepsel Drive  
Gurnee, IL 60031-0750  
Fax: 847-623-6101  
[hmail@northshorewrd.org](mailto:hmail@northshorewrd.org)  
Equal Opportunity Employer



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## JOB DESCRIPTION

**Title:** Instrument Repairer

**Department:** Operations

**Job Purpose Statement:** Perform duties to maintain, repair and install a variety of electrical and electronic processing equipment instruments and controls, communications equipment and data transmission, security, lighting and HVAC systems.

**Reporting Structure:** Supervisor, Electrical Maintenance,

**Information/Directions from:** Written and verbal instructions, work orders, schematics, prints, technical manuals, and wiring diagrams.

### **Job Functions:**

#### *Essential*

1. Complete scheduled preventive and corrective work orders and check with the Plant Supervisor and the Electrical Supervisor to prioritize the daily work.
2. Maintain and repair all installed electrical/electronic equipment including motors, controllers, generators, variable frequency drives, processing equipment, metering, monitoring and controlling devices, HVAC, lighting, security, communications systems, and external PLC circuitry.
3. Maintain, repair and/or install hydraulic and pneumatic control systems.
4. Troubleshoot, analyze, test equipment to diagnose the nature of the equipment malfunction. Perform necessary repairs, test and restore to operation.
5. Perform preventive maintenance, including checking fluid levels, drive belts and brushes. Test equipment for proper operation, cleaning slip rings and Eddy Current couplings and do thermal testing of contacts, bus bars and other electrical connections.
6. Install new equipment, conduit, wiring and connection boxes. Determine the parts required for proper installation and obtain them. Make electrical connections and test for proper operation.
7. Operate electrical power distribution system, including the emergency generators and 4160 volt switchgear. Parallel the 4160-volt generators with supplied power to test generator operation.
8. Modify and rewire installed electrical systems in accordance with engineering work orders and documents. Update existing drawings as required.
9. Design and build special test fixtures as needed.
10. Respond to emergency calls on a 24-hour basis. Maintain contact with the plants via radio/pager during off-hours. No standby or scheduled call-in is required.

### **Types of Machines, Tools, Equipment (Office and Industrial), Software used:**

Variety of electrical and electronic test equipment, pipe bending and threading tools, hand power tools and hand tools, and related stationary power tools.

### **Physical and Visual Activities:**

Physical and visual activities that are commonly associated with the performance of the functions of this job.

Standing, Walking, Sitting, Lifting, Carrying, Pushing, Pulling, Climbing, Balancing, Stooping, Kneeling, Crouching, Crawling, Reaching, Handling, Fingering, Feeling, Talking, Hearing, Acuity far, Acuity near, Depth Perception, Field of Vision, Accommodation, Color Vision.

**Title:** Instrument Repairer **Department:** Technology Services

**Physical Demands:**

Physical demands commonly associated with the performance of the functions of this job.

Lift up to 1 lb up to 15% of the time, Over 1 lb up to 5 lbs over 70% of the time, Over 5 lbs up to 25 lbs over 40% up to 70% of the time, Over 25 lbs up to 60 lbs over 15% up to 40% of the time, Over 60 lbs up to 15% of the time.

**Environmental/Atmospheric Conditions:**

Environmental and atmospheric conditions commonly associated with the performance of the functions of this job.

Inside, Outside, Both, Extremes of cold, Cold temperature changes, Extremes of hot, Hot temperature changes, Wet, Humid, Noise, Vibration, Hazards, Fumes, Odors, Toxic conditions, Dust, Poor ventilation.

**Knowledge:** Use of electrical and electronic test equipment, i.e. (DMM's, oscilloscopes, signal generators), use of pipe bending equipment, (hand, mechanical, hydraulic) threading tools (hand, mechanical, electric), hand fish tapes and powered cable pullers, use of all related hand and power tools (drills, drill press, lathe, mill, belt and wheel grinders, air tools, bending brakes and shears). High school diploma plus post high school education in electricity and electronics.

**Examples of Desired Knowledge:** Familiarity with 5000 volt power distribution equipment, including proper splicing and termination procedures of shielded and unshielded high voltage cable. Knowledge of special safety considerations and techniques required when working at these voltage levels. Good working knowledge of hydraulic and pneumatic control systems and related electrical interfaces. Ability to analyze and interpret electrical ladder diagrams and electronic schematics to aid in trouble shooting, equipment installation and to determine if electrical operation is proper. A working knowledge of Programmable Logic Controllers (P.L.C.'s) and how to interface them with external electrical apparatus. Knowledge of plant operations and how their actions affect the overall operation of the process. Knowledge of standby electrical power equipment and how to safely and properly interface them with our power distribution systems.

**Experience:** Five years minimum in the electrical/electronic field.

**Machines, Tools, Equipment (Office and Industrial), Software:** Hand tools, powered hand tools, electrical/electronic test equipment, bench lathe, mill, break, shears, bolt and wheel grinders, drill press, air tools, personal computer.

**Licenses/Certifications:** Drivers License.

**Other:**

Several years of technical training beyond high school is strongly desired. (e.g. CLC, DeVry, Gateway Tech., M.A.T.C., etc.) Such training does not substitute for experience.

A GED serves as high school graduation equivalency if all other qualifications are present.