

# WATER PLANT AUTOMATION CONTROLS ENGINEER

Recruitment #1912-0183NR-001

<b>List Type</b>	Original
<b>Requesting Department</b>	DPW-WATER-HOWARD
<b>Open Date</b>	12/16/2019 4:25:00 PM
<b>Filing Deadline</b>	1/17/2020 11:59:00 PM
<b>HR Analyst</b>	Jeff Harvey

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## INTRODUCTION

Located on the western shore of Lake Michigan, Milwaukee is an urban hub bursting with energy. Milwaukee provides a casual sophistication – big city appeal without the big-city hassles. We are accessible and affordable, and our residents are welcoming. Milwaukee has evolved through the years, bringing together its unsurpassed old world charm with a breathtaking Art Museum, top-flight arts and cultural attractions, professional sports, lakefront festivals, recreational opportunities and great restaurants.

## PURPOSE

The Water Plant Automation Controls Engineer is responsible for programming and troubleshooting control systems, operator interfaces, servers and reports for the Milwaukee Water Works SCADA (Supervisory Control and Data Acquisition) system. In addition, the Water Plant Automation Controls Engineer will research and design new systems as they are updated.

## ESSENTIAL FUNCTIONS

- Design and layout new systems or replacements for obsolete PLCs (programmable logic controllers) using the latest control platform, including new or re-written programs. Integrate with the supervisory system by creating necessary HMI (human-machine interface) tags and alarms.
- Coordinate contractors and operations staff during construction and implementation of the new control system.

- Modify and expand programming and graphical user interface when new equipment or instrumentation is added to the system. Instrumentation includes VFDs (variable frequency drive), analog, or digital instrumentation, whether connected via current loop, Ethernet IP, Modbus, or ASCII (American Standard Code for Information Interchange).
- Assist in the layout, connection, routing and testing of new systems, including communications switch setup, graphics creation, adding tags to PI or SQL (structured query language) databases, adding trends, reports and documenting the system.
- Provide technical support and troubleshoot all equipment related to automated systems.
- Train and instruct operators, electricians and instrument personnel in the use and understanding of automated systems.
- Provide technical support, which includes coordination with engineering staff at the treatment plants on the proper integration and installation of the automation systems at pumping and booster stations, water storage facilities and pressure and flow control sites.
- Monitor and maintain automation systems, including processor faults, errors, warnings and the loss of communication and field device warnings.
- Conduct firmware upgrades of automation controllers for security updates and compatibility with new HMI platforms to be integrated.
- Monitor and maintain HMI servers used for SCADA (supervisory control and data acquisition).
- Create Excel reports for SCADA system and resolve Excel Reporting issues.
- Ensure that best industry practices are used to manage the SCADA servers.
- Maintain, update and add data to PI or SQL databases to store tag data for production reporting systems and trends.
- Conduct software patches and updates for Rockwell's Factory Talk HMI platform and control network.
- Conduct and coordinate complex pre-planning to anticipate downtime and recovery processes.
- Create and maintain SCADA documentation, including Guides for Operators and process control procedures.
- Create and maintain spreadsheets, technical notes and documents for SCADA management and tracking.
- Maintain equipment records with the TMA computerized maintenance management system.

*Reasonable accommodations requested by qualified individuals with disabilities will be made in accordance with the Americans with Disabilities Act (ADA) of 1990, as amended by the Americans with Disabilities Act Amendments Act (ADAAA) of 2008.*

## CONDITIONS OF EMPLOYMENT

- Must be able to respond to after-hours emergencies to maintain operating systems throughout the treatment plants and pumping stations.
- Water plant section employees are considered “essential” and must report to work no matter the weather conditions or emergency event.
- Must be able to work in adverse weather conditions for extended periods of time.

## MINIMUM REQUIREMENTS

1. Bachelor’s Degree in electrical engineering with an emphasis on control systems or related coursework PLUS one (1) year of full-time experience programming, repairing and maintaining control systems.

OR

Associate’s Degree in electronic technology automation, electronic engineering technology or a related field PLUS three (3) years of full-time experience programming, repairing and maintaining control systems.

OR

Five (5) years of full-time experience programming, repairing and maintaining control systems.

2. Valid driver’s license at time of appointment and throughout employment.

*Equivalent combinations of education and experience may be considered.*

**IMPORTANT NOTE:** To receive credit for college, transcripts are required and must be received by the application period closing date. College transcripts should be attached to your online application. Applications without transcripts attached will be considered incomplete and will be rejected. Your transcript must be legible and include the following information: the university or college name, your name, the degree completed (if applicable) and the date the degree was completed. Student copies are acceptable.

## KNOWLEDGES, SKILLS, ABILITIES & OTHER CHARACTERISTICS

- Knowledge of control systems, including ladder logic control strategies.
- Ability to program Rockwell automation PLCs and PACs (programmable automation controllers) using ladder logic and function block programming.
- Knowledge of basic computer programming including loops, conditionals and subroutines.

- Knowledge of Microsoft Windows to the system level, including the ability to work with services and registry.
- Knowledge of IPv4 (internet protocol version 4) networking, including subdomains and net masks.
- Knowledge of serial and Ethernet communications protocols, including Modbus TCP/IP (transmission control protocol/internet protocol) and CIP (control and information protocol).
- Knowledge of instrumentation communication, including HART (highway addressable remote transducer) current loops and other analog data transfer methodologies.
- Written communication skills, including the ability to communicate technical information in writing.
- Verbal communication skills to effectively interact with co-workers and vendors.
- Decision-making and problem-solving skills to handle complex technical issues as they arise.
- Ability to utilize computer software, including Microsoft Office suite.
- Ability to read electrical, piping and construction prints and diagrams.
- Ability to use basic electrical test equipment for troubleshooting issues.
- Ability to read and understand technical manuals when installing new equipment and instruments.
- Ability to remain calm and stay in control during high-pressure situations.
- Ability to work both independently and as a team to solve technical issues.
- Ability to remain current with constantly changing hardware and software associated with industrial control systems.

## **CURRENT SALARY**

The current salary range (PG 2IN) is \$63,131 - \$81,844 annually, and the resident wage incentive rate for City of Milwaukee residents is \$65,025 - \$84,300. Appointment above the minimum is possible based upon level of experience and other qualifications and is subject to approval. Appointments will be made in accordance with the salary ordinance.

## **BENEFITS**

The City of Milwaukee provides a comprehensive benefit program which includes:

- Defined Benefit Pension Plan
- 457 Deferred Compensation Plan
- Health and Dental Insurance
- Comprehensive Wellness Program
- Onsite Clinic Services
- Onsite Employee Assistance Program

- Alternative Work Schedules
- Long Term Disability Insurance
- Group Life Insurance
- Tuition Benefits
- Paid Vacation
- 11 Paid Holidays
- Paid Sick Leave and other paid leaves
- Flexible Spending Arrangement
- Commuter Value Pass

For full details of the benefits offered by the City of Milwaukee, please visit <http://city.milwaukee.gov/der/benefits>

## SELECTION PROCESS

THE SELECTION PROCESS will be job related and will consist of one or more of the following: education and experience evaluation; written, oral, or performance tests, or other assessment methods. The Department of Employee Relations reserves the right to call only the most qualified candidates to oral and performance examinations. Oral examinations may include written exercises. Selection process component weights will be determined by further analysis of the job.

INITIAL FILING DATE - The examination will be held as soon as practical after the application deadline listed above. Receipt of applications may be discontinued at any time after this date without prior notice. However, recruitment may continue until the needs of the City have been met. Qualified applicants will be notified of the date, time, and place of the examination. Unless otherwise required by law, the City of Milwaukee will not provide alternative test administration. The applicant is responsible for attending all phases of the job selection process at the time and place designated by the City of Milwaukee.

## ADDITIONAL INFORMATION

**APPLICATIONS** and further information may be accessed by visiting [www.jobaps.com/MIL](http://www.jobaps.com/MIL).

- Applications and transcripts should be submitted no later than the deadline listed above.
- If you would like assistance completing an application, please contact the Department of Employee Relations at (414) 286-3751 or [staffinginfo@milwaukee.gov](mailto:staffinginfo@milwaukee.gov).
- The Department of Employee Relations is located in City Hall, 200 E Wells St, Room 706, Milwaukee, WI 53202.