



## **Maintenance Engineer I – Aquarium Life Support #00850**

City of Virginia Beach – Job Description  
Date of Last Revision: 07-28-2020

**FLSA Status:** Non-Exempt

**Pay Plan:** General

**Grade:** 23

### **City of Virginia Beach Organizational Mission & Values**

The City of Virginia Beach exists to enhance the economic, educational, social and physical quality of the community and provide sustainable municipal services which are valued by its citizens. The City of Virginia Beach organization is based upon a belief in the democratic process of government. This belief provides meaningful ways for citizens, reflecting the diversity of our City, to contribute to the development of public policy. This process is enhanced by organizational values which guide member performance within the Virginia Beach Quality Service System. These Values define our desired organizational culture. We value quality customer service; teamwork; leadership and learning; integrity; commitment; and inclusion and diversity.

### **Class Summary**

Serve as a work leader and oversee the operation and maintenance of aquarium life support automated control systems to meet the mission and objectives of the Virginia Aquarium and Marine Science Center and in accordance with industry best practices, safety protocols, standards and guidelines established by the Virginia Aquarium, governing agencies and regulatory/accrediting bodies. Train and assist life support staff in the performance of their assigned tasks.

### **Representative Work Functions and Responsibilities**

Demonstrate commitment to Virginia Aquarium and Marine Science Center guest experience, mission, vision, and values.

Support the guest experience by participating in visitor enhancement development; may lead public programs and tours; serve as a spokesperson on behalf of the Aquarium; and actively seek out guest engagement opportunities.

Oversee and perform troubleshooting, repairs and alterations to maintain aquarium life support automated control system in proper operating order; repair, update, and program existing control system components. Add and integrate additional control systems and components to existing infrastructure.

Maintain, test, and resolve defects of control systems programs and components that include networks, operating and alarm software, and programmable logic controllers.

Initiate, manage, and follow-through controls projects to completion and implementation, including assessing control needs with filtration systems, developing scope of work for projects, designing control systems, developing budgets for controls systems, and assisting senior curator with associated financial reporting.

Oversee and perform construction and programming of control systems and components.

Train life support staff on control system operation, construction, maintenance, and programming control systems.

Maintain exhibit life support systems by conducting routine and emergency maintenance and repair of exhibit and life support components. This includes but is not limited to, fiberglass and concrete

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structures; waterproofing materials and treatments; piping systems; valves; pumps, filters; tanks. Regularly examines infrastructure and operations for improvements.

Serve on rotation for life support and facility operations weekend duty.

Monitor and analyze trends to include recognizing issues and responding per established protocols.

Assist with conducting and interpreting water quality tests, analyze data, and assist with corrections as needed.

Maintain control system operation, maintenance, and documentation for future reference. Write control systems protocols and procedures to ensure accurate up-to-date standards and state of the art design to enhance the guest experience.

Implement performance improvements of control system operation. Utilize a variety of resources to research animal life support system topics and product information.

Maintain the highest standard of work area cleanliness and safety at all times.

Collaborate with water quality, veterinary, and animal care staff to ensure the highest standards of animal care and welfare for all animal exhibits and holding/quarantine systems.

Assist with management of record keeping for aquarium systems and exhibits using industry standard software.

Drive city vehicles to accomplish related activities.

May require occasional travel for training and professional development.

Perform other job duties requiring skills, knowledge and physical requirements as demanded by those duties described or less. Individual assignments will be determined by the supervisor based on then current workloads and department needs.

### **Performance Standards**

Perform repairs and alterations in accordance to instructions and procedures; demonstrate proficiency in the areas of aquarium life support automated control system design and operations, life support construction repair, and preventive maintenance; adequately train, and assist with supervision of the work of life support staff effectively by assigning tasks and scheduling tasks so that work is completed properly and on time; records and drawings are kept neatly and up-to-date; foresee problems and take preventive action; utilize proper procedures for pricing and ordering materials; comply with all safety and aquarium life support industry standards at the work-site to ensure quality workmanship and minimize hazards.

### **Minimum Qualifications**

Requires a High school diploma or GED plus five (5) years of experience in fields utilizing the required knowledge, skills, and abilities and associated with such positions as aquarium life support operator/technician/engineer, water treatment plant operator, automation technician or PLC/SCADA technician; or any equivalent combination of related education, experience and training.

Must have a current and valid driver's license.

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This description is intended to indicate the kinds of tasks and levels of work difficulty that will be required of positions that will be given this title and shall not be construed as declaring what the specific duties and responsibilities of any particular position shall be. It is not intended to limit or in any way modify the right of any supervisor to assign, direct, and control the work of employees under his or her supervision. The use of a particular expression or illustration describing duties shall not be held to exclude other duties not mentioned that are of similar kind or level of difficulty.

**Preferred Qualifications**

Associates of Applied Science or bachelor's degree in a related field. Aquatic Animal Life Support Operators (AALSO) Life Support Operator Level II certification and Water Quality Technician Level II certification. Two (2) years of full-time equivalent life support operation experience in a public aquarium or similar facility. Experience building and maintaining automated control systems in an industrial environment. Experience developing and maintaining budgets.

**Special Requirements**

Must be available to work evenings, weekends, holidays, and overtime when required to meet operational needs.

This position may require that incumbents wear and maintain appropriate personal protective equipment such as, but not limited to, steel toed shoes, hard hats, safety glasses, gloves, or other safety attire and equipment in designated areas of risk. Specific requirements will be determined and communicated by the employee's supervisor based on position assigned.

This is a safety sensitive position and is subject to mandatory drug testing. Positive drug test results may result in counseling and/or discipline, up to and including, termination.

Positions within this class have been designated as Alpha I positions requiring employees to work during inclement weather, regardless of the City's operational status.

Successful completion of a pre-employment physical.

**Knowledge-Skills-Abilities Required to Perform Satisfactorily**

A. Knowledge

1. Knowledge of safety rules and procedures applicable to the position, and of occupational hazards and safety precautions. Knowledge of aquarium and animal science as it relates to maintaining species in human care.
2. Knowledge of industry standard maintenance practices related to water filtration and automated controls.
3. Knowledge of electrical theory and its application.
4. Knowledge of troubleshooting and repair procedures.
5. Knowledge of electrical control circuits and devices.
6. Knowledge of Supervisory Control and Data Acquisition systems (SCADA)
7. Knowledge of Programmable Logic Controllers (PLC)
8. Knowledge of automated process control systems.
9. Knowledge of Association of Zoos and Aquariums (AZA), Alliance of Marine Mammal Parks and Aquariums (AMMPA), U.S. Fish and Wildlife Service, and U.S. Department of Agriculture (USDA), and other governing agencies' and regulatory/accrediting bodies' standards and guidelines.

B. Skills

1. Skill in the installation, operation, troubleshooting, maintenance and repair of complex aquarium life support systems and all associated equipment.
2. Skill in programming and debugging life support automated controls systems and associated

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components.

3. Skill in organizing and interpreting data.
4. Skill in training and overseeing staff and volunteers with different levels of experience.
5. Skill in writing and analyzing control systems programs

### C. Abilities

1. Ability to use power tools.
2. Ability to plan and manage multiple projects simultaneously.
3. Ability to keep records and prepare detailed reports.
4. Ability to read and create schematic diagrams.
5. Ability to read and understand programming languages associated with automated control systems.
6. Ability to give and follow directions and maintain effective working relationships with Aquarium staff and other groups or organizations with which the Aquarium has contact.

### **Working Conditions**

The below stated working conditions are intended to provide a general overview of the environmental conditions inherent in the job setting, as well as the physical, mental, and sensory requirements necessary to perform the essential functions of positions in the noted job title. A more detailed description will be made available at the position (PCN) level.

*NOTE: Per HR Policy 6.19, Americans with Disabilities, the City follows the requirements of the Americans with Disabilities Act (ADA) in all hiring and employment decisions. The City shall not discriminate on the basis of disability in its hiring and employment practices. The City shall make reasonable accommodations for the known physical or mental limitations of a qualified applicant or employee with a disability upon request unless the accommodation would cause an undue hardship on the operation of the City's business.*

**Physical Requirements:** *Physical refers to the requirement for physical exertion and coordination of limb and body movement.*

Medium to heavy work that involves walking, standing, bending, stooping, climbing, lifting, pushing, and raising objects and involves exerting up to 75 pounds of force on a regular and recurring basis; may require exerting up to 100 pounds of force on occasions; occasional use of standard office equipment; considerable skill and adeptness in the use of fingers, hand, or limbs in tasks involving close tolerance or limits of accuracy

**Mental Requirements:** *Mental refers to the degree that the job involves cognitive activities, and use of mental processes*

Performs specialized technical or professional work requiring general understanding of operating policies and procedures and their application to problems not previously encountered; applies specialized technical or professional principles and practices in the solution of problems; may require continuous, close attention for accurate results and frequent exposure to unusual pressure.

**Environmental Conditions:** *Environmental refers to job conditions inherent to the job setting, including those that may lead to injury or health hazards even though precautions have been taken.*

May risk exposure to animals/wildlife to include exposure to animal bites, scratches, and diseases; may be exposed to venomous and non-venomous animals, insects, fishes, amphibians, arthropods and other species of organisms; work may be performed outdoors, indoors, in or under water, under all types of weather conditions with exposure to bright/dim light, dusts and pollen, extreme heat and/or cold, wet or humid conditions, noise, vibration, fumes, odors, traffic, moving machinery, electrical shock, chemicals, height, and confining/congested spaces.

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**Sensory Requirements:** *Sensory refers to hearing, sight, touch, taste, and smell required by the job.*  
Normal visual acuity, depth perception, field of vision, color perception, hearing, speaking, sense of smell, and texture perception.

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