

124-19 Appendix A – Scope of Work
Progressive Design-Build Services for the Water Purification Demonstration Facility

SECTION 1: OBJECTIVES AND DESCRIPTION OF PROJECT

1.1 General

JEA is soliciting qualifications from a team comprised of three professional members: Contractor, Engineer and Visitor Experience Specialist for the Water Purification Program. In 2017, JEA embarked on a planned phased Water Purification Program evaluating potable reuse as a means of diversifying the future water supply portfolio. In the completed Research & Development (R&D) pilot-scale evaluation, two industry leading treatment trains were tested at two different Water Reclamation Facilities (WRFs). Documents detailing the R&D results are provided in the appendix. The R&D phase provides a roadmap for demonstration and implementation of the program, particularly the selection of a membrane based treatment train for purification. The R&D phase also provided a detailed communications plan which will be executed separate from this solicitation by a JEA agency on file.

1.2 Project Description

This phase includes the design and construction of a 1.0 million gallons per day (MGD) demonstration-scale facility based around membrane based treatment fully expandable to full-scale commercial implementation currently estimated to be 10 MGD. The demonstration plan was developed in the R&D phase provided in the appendix is based on a capacity of 0.5 MGD. Since that project was completed the capacity of the demonstration facility has been updated to one (1) MGD of influent feed water. The demonstration phase also includes a pilot scale system separate from the demonstration scale capacity for additional testing. The treated water must meet applicable water quality standards including primary and secondary drinking water standards, potable reuse regulations and address the removal of currently unregulated compounds. The facility shall utilize innovative technology including state of the art controls and instrumentation. Full-scale implementation may occur as an expansion of the demonstration facility and/or at one or more WRFs. For planning purposes the expansion capacity is estimated at ten (10) MGD. The ultimate implementation capacity and location will be identified in the Integrated Water Resources Plan currently in development.

A key component to the demonstration facility will be the visitor experience/education center and execution of the public communication plan. It is anticipated that the demonstration facility will have thousands of visitors each year. The demonstration facility will include a visitor/education center that must be accessible for tours for attendees such as JEA employees, elected officials, community leaders, grade school students, university students, regulatory agency employees, engineers and plant operators from other utilities. The visitor experience/education center must incorporate a training area that is suitable for at least 50 water professionals or students at one time. The experience for education and tours shall be designed and implemented by a Company specializing in visitor experience, corporate innovation and education centers.

SECTION 2: SCOPE OF SERVICES

JEA intends to award one (1) contract to the most highly qualified team that meets the minimum qualifications to submit a proposal and with which JEA is able to successfully negotiate a contract. JEA reserves the right to negotiate the commercial implementation phase by expanding the demonstration facility up to but not limited to 10 MGD and/or at a separate location identified by JEA with the firm that is successfully awarded a contract for the demonstration facility.

The project delivery method is progressive design build with the goal of operating the facility within 18 months from the notice to proceed. To expedite the schedule JEA may direct pre-purchase of equipment

and other components. The location of the demonstration and/or implementation facilities will be determined by JEA prior contract negotiation. Scope of services include design, construction and startup and operational assistance of the demonstration facility as outlined below.

Major process components of the demonstration facility may include:

- Reclaimed Water Storage/Equalization
- Pumping (influent, transfer, effluent, etc.)
- Piping (influent, process, effluent, drain, etc.)
- Pretreatment
- Microfiltration/Ultrafiltration
- Low Pressure Reverse Osmosis
- Advanced Oxidation
- Finished Water Storage
- Chemical Storage and Pumping
- Permeate Stabilization
- Concentrate Management
- Instrumentation and Controls
- Electrical
- Pilot Testing System

The demonstration facility shall be designed for operational flexibility and performance optimization including but not limited to:

- Pretreatment Options
- Post-Treatment Stabilization of Purified Water Based on Potential End Use
- Disinfection By-Product Formation Potential
- Aquifer Recharge
- Waste Minimization
- Waste/Concentrate Quality, Stabilization and Management
- Microfiltration/Ultrafiltration – performance optimization including module selection, chemical usage, life cycle and autopsy
- Reverse Osmosis – performance optimization including element selection, chemical usage, life cycle, autopsy, and additional stages
- Advanced Oxidation – oxidant type and dose optimization
- Impact of Influent Water Quality Variations on Treatment Performance
- Treatment Reliability such as limiting factors, real time monitoring, length of downtime, pathogen monitoring/control, process shutdown plans and procedures, backups to backups, etc.
- Various other testing such as challenge testing, system spiking, etc.

Major components of the demonstration facility and components may include:

- LEED certification
- Welcome Area
- Interactive Exhibits
- Training Rooms
- Auditorium

- Tour Exhibits
- Tasting Area
- Bottling Area
- Offices
- Restrooms
- Laboratory
- Site Work
- Piping to and from the facility
- Stormwater
- Natural or Constructed Wetlands
- Landscaping
- Parking
- Electrical/Solar Exhibit
- Innovation Exhibit
- Security

The scope of work may also include, but is not limited to:

- Education Program
- Communications
- Water Quality Sampling Plans and Schedule
- Aquifer Recharge
- Operator Training
- Startup and continued operational assistance after final construction completion
- Surveys
- Geotechnical Investigations
- Basis of Design Reports, P&IDs, Process Flow Diagrams, Mass Balances, etc.
- Process Modeling
- Design Drawings
- Specifications
- Permitting and Applications such as construction, building, stormwater, wetland, well, discharge/outfall, etc.
- Federal, State and other funding assistance