MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-078
Item to be Scouted	BABA Compliant UV Disinfection System
Days to be scouted	30
Response Due By	04/11/2025
Description	United States manufacturers of BABAA-compliant Compliant UV Disinfection System ology in a horizontal bulb configuration. Two systems will be provided in a lead/standby configuration, each rated for a peak flow capacity of 2.0 MGD. The system shall meet a monthly average fecal coliform limit of 14 CFU/100mL and a monthly average enterococcus limit of 8 CFU/100mL. The UV system manufacturer must provide power and control equipment for the system.
Notify Requester Immediately	No
State item to be used in	Maine

Section 2: Technical Information

Type of supplier being sought	Other
Details	Manufacturer/Distributor
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Various as there are different and varied components. Includes but is not limited to Electronic Assembly
Provide dimensions / size / tolerances / performance specifications for the item	See attached UV Disinfection System Products Specification. Domestic components in each of the BABAA compliant manufactured products must exceed 55% of the total component cost and be assembled in the United States.
List required materials needed to make the product, including materials of product components	MATERIALS OF CONSTRUCTION • All module welded metal components in contact with effluent shall be Type 304 stainless steel. All metal components that are not in contact with the effluent shall be Type 304 stainless steel. • All wiring exposed to UV light will be Teflon coated. • All material exposed to UV light shall be 304 stainless steel, 316 stainless steel, anodized aluminum, quartz 214 glass, Viton, or Teflon. • UV Module Frame/Support Rack: Type 316 stainless steel • Ballast: Anodized aluminum or 304 stainless steel • Level Control Weir: Type 304L stainless steel or aluminum • Cleaning Wipers: Teflon or Viton • PDC, SCC and HSC Enclosures: Type 304 stainless steel - Type 4X (IP66) • Lifting Device: Type 304 stainless steel • Maintenance Rack: Type 304 stainless steel • All Bolts, nuts, anchors, washers, appurtenances, and related fastening hardware shall be type 316 stainless steel. All stainless steel components shall be electro- polished or pacified to obtain maximum corrosion resistance. All necessary hardware, attachments, and related appurtenances for installation of the equipment and supporting systems shall be provided. All stainless steel bolts shall comply with ASTM F 593 standards. Stainless steel nuts shall comply with ASTM F 594 standards.

Are there applicable certification requirements?	No
Are there applicable regulations?	Yes
Details	Yes. National Electrical Manufacturers Association (NEMA), National Water Research Institute (NWRI), Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, EPA Design Manual EPA/625/1-86/021 Municipal Wastewater Disinfection. American Society for Testing and Materials (ASTM).
Are there any other stndards, requirements, etc.?	No
NAICS 1	
NAICS 2	
Additional Technical Comments	Certification(s) required - Build America, Buy America Act (BABAA) compliant Must be able to submit BABAA manufactured product self-certification manufactured product letter that details a compliant product. Manufacturers shall specialize and have experience in the manufacturing of the designated components. Provide all related appurtenances, including but not limited to effluent weir, wiper system, supports, wiring, attachments, conduit, control relays, foundations, anchors, support brackets, and all related accessories to provide a complete operational UV disinfection system. The UV system shall be provided complete with a level control weir to maintain sufficient submergence of the UV lamps with minimal level change to ensure submergence, cooling, and disinfection under the full range of flows. See attached UV Disinfection System Products Specification. Basis for design is Trojan Technologies UV Disinfection System that is not a BABA compliant manufactured product.

Section 4: Business Information

Estimated potential business volume	Two (2) UV Disinfection Systems
Estimated target price / unit cost information (if unavailable explain)	Best available, as this is related to BABA, acceptable pricing is to be determined in negotiation.
When is it needed by?	August 2025
Describe packaging requirements	No specifications - undamaged
Where will this item be shipped?	Freeport, Maine

Additional Comments

Is there other information you would like to include?	Nationwide Search Provide written documentation in response to the Supplier Scouting request of being a current Build America Buy America Act compliant UV Disinfection System manufacturer with experience manufacturing the system components meeting the product performance requirements. Information on BABAA compliance requirements can be found at Made in America Office link https://www.madeinamerica.gov/. POC - Joe Edmondson - joe.edmondson@okalliance.com USDA - Posted through CBS

PART 2 – PRODUCTS

GENERAL

A. Provide a complete UV disinfection system with UV lamp modules, level control weir, wiper system and UV monitoring system as shown on the Drawings and as herein specified. The UV system shall be provided complete for installation in the location as specified and as indicated on the Drawings. Additional shelters supplemental cooling or supplemental heating shall not be required for the UV disinfection system.

B. All materials and equipment shall be as specified and as shown on the Drawings. All equipment shall be suitable for continuous (24 hours per day) operation under the specified design conditions. Materials and equipment shall be new and unused, except for testing. Where two or more pieces of equipment performing the same function are required, they shall be duplicate products of the same Manufacturer. Under no circumstances, under the specified range of operation, shall the equipment be subjected to factors including but not limited to: overheating, excessive vibration, and excessive strain.

C. The UV system shall be provided complete with a level control weir to maintain sufficient submergence of the UV lamps with minimal level change to ensure submergence, cooling, and disinfection under the full range of flows as specified.

UNIT DESCRIPTIONS

Provide the following UV disinfection systems as part of the Work.

Tag #	Description
UV-0701	UV Disinfection System #1
UV-0702	UV Disinfection System #2

PROCESS DESIGN CONDITIONS

A. Each UV system specified in this section shall meet the following design criteria under the specified range of performance and site design service conditions:

ULTRAVIOLET DISINFECTION EQUIPMENT DESIGN CRITERIA	
Number of Channels	Two
Number of Banks Per Channel	One
Channel Duty Configuration	Lead/Standby – 100% Redundancy
Fluid	Tertiary Cloth Disc Filter Effluent
Fluid Specific Gravity	1.0
Fluid Absolute Viscosity	1.0 cP
Fluid Temperature Range	33 ^{0}F to 85 ^{0}F

Fluid pH	6 to 9 S.U.
Filter Effluent BOD	< 10 mg/L
Filter Effluent TSS	< 10 mg/L
Filter Effluent Turbidity	0.2 to 0.5 NTU
Filter Effluent Maximum Mean Particle Size	< 10 Microns
Design Flow (1 channel online)	0.34 MGD (average day) 0.51 MGD (maximum month) 2.0 MGD (peak)
UV Transmittance (Minimum)	65%
Fecal Coliform Effluent Standard (Monthly Average)	14 cfu/100 ml
Fecal Coliform Effluent Standard (Daily Maximum)	31 cfu/100 ml
Fecal Coliform Disinfection Period	Year Round
Enterococcus Effluent Standard (Monthly Average)	8 cfu/100 ml
Enterococcus Effluent Standard (Daily Maximum)	54 cfu/100 ml
Enterococcus Disinfection Period	Seasonal (April 15 – October 31)
Effluent Standard Measurement	Monthly Average Geometric Mean
UV Wavelength	253.7 nm
Electrical Hazard Area	Unclassified

Power Distribution Centers (PDC)	Maximum Two (2) – One Per Channel
PDC Power Supply	480Y/277V, 3 Phase, 4 Wire, 60 Hz
PDC Load (Maximum)	14.3 kVA per PDC (28.6 kVA total)
System Control Center Power Supply (If separate from PDC)	120 Volt, 1 Phase, 2 Wire, 60 Hz
Hydraulic System Power Supply	480 Volt, 3 Phase, 3 Wire, 60 Hz
Hydraulic System Load (Maximum)	2.5 kVA
UV Lamp Type	Low Pressure, High Intensity
Channel Type	Concrete – Open Channel
Channel Length	See Drawings
Channel Width	See Drawings
Channel Depth	See Drawings
Installed Location	Outdoors
System Control Center Location	Outdoors
UV Modules Per Bank[(1)]	7
Lamps Per UV Module[(1)]	8
Total Number of Lamps[(1)]	112
UV Module Power Cable Length	10 feet (Minimum)
UV Module Length	See Drawings
UV Module Width	See Drawings
UV Module Height	See Drawings
Existing Channel Width	3’-6”

Lamp Orientation	Horizontal
Level Control Device	Fixed Finger Weir
UV System Head Loss (including finger weir, banks, and flow conditioner plate)	4 Inches (Maximum)
Automatic Wiping System	Yes – Hydraulic, Pneumatic or Electrically Actuated
Variable Output Ballasts	Yes
UV Intensity Monitoring	Yes
UV System Protector Caps	No
Channel Level Switch	Yes - if required per Manufacturer
Flow Conditioner Plate	Yes - if required per Manufacturer

1. Deviations for quantity of modules and lamps shall be acceptable to accommodate different manufacturers with different model designs provided certification of performance to permit limits at specified conditions is included as part of product submittals.

A. The UV lamp array configuration shall be evenly spaced in all directions with all lamps parallel to each other.

B. The UV system will be designed to deliver a minimum UV dose as previously specified, in effluent with a UV transmission as previously specified after reductions for quartz sleeve absorption, sleeve fouling, and end of lamp life after aging. The basis for evaluating the UV dose delivered by the UV system shall be the manufacturer's bioassay as carried out by an independent third party. Bioassay validation methodology shall follow protocols described in US EPA/625/1-86/021, without exception.

C. The UV system shall produce effluent conforming to the discharge permit requirements as previously specified. Samples shall be taken in accordance with the Microbiology Sampling Techniques found in Standard Methods for the Examination of Water and Wastewater, Latest Edition.

D. The UV dose shall be adjusted using an end of lamp life factor of 0.5 to compensate for lamp output reduction over the time period corresponding to the manufacturer's lamp warranty. The use of a higher lamp aging factor shall only be considered upon review and approval of independent third party who has verified that data has been collected and analyzed in accordance with protocols described in NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse.

E. The UV dose shall be adjusted using a sleeve fouling factor of 0.8 when sizing the UV system in order to compensate for attenuation of the minimum dose due to sleeve fouling during operation. The use of a higher sleeve fouling factor shall be considered only upon review and approval of independently verified data that has been collected and analyzed in accordance with protocols described in NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse.

F. Independent Validation for use of higher factors (lamp aging and sleeve fouling) shall be submitted to the Engineer a minimum of fifteen (15) days prior to bid opening.

G. The system shall be able to continue providing disinfection while replacing UV lamps, sleeves, ballasts and while cleaning the UV lamp sleeves.

LAMP ARRAY CONFIGURATION

A. The lamp array configuration shall be a uniform array with all lamps parallel to each other and to the flow.

B. Lamp array designs which are parallel to each other and in an inclined orientation will also be acceptable.

C. The system shall be designed for complete immersion of the UV lamps including both electrodes and the full length of the lamp tube in the effluent.

UV MODULE

A. Each UV module shall consist of UV lamps with an electronic ballast enclosure mounted on a frame. No forced air ventilation shall be required.

B. Each lamp shall be enclosed in its individual sleeve, one end of which shall be closed, and the other end sealed by a lamp end seal.

C. The closed end of the sleeve shall be held in place by means of a retaining O-ring. The sleeve shall not come in contact with any stainless steel in the frame.

D. The ends of the lamp sleeve shall not protrude beyond the frame of the UV Module.

E. Lamp wires shall terminate in the electronic ballast enclosure located at the top of the UV module. Designs which incorporate a ballast cabinet (Power Distribution Center) in the vicinity (at the top) of the UV channel shall also be acceptable. All lamp to ballast connections shall be made by and tested by the UV Manufacturer.

F. The electronic ballast enclosure shall contain the electronic ballasts and addressable lamp status monitoring systems.

G. At the point of exit from the UV module frame the multi conductor cable shall pass through a waterproof strain relief.

H. Each UV module shall have a rating of Type 6P if ballasts are housed inside the UV modules. Systems with a rating of IP67 shall also be acceptable if the ballasts are not housed inside the UV module and are not subject to prolonged submersion.

I. The UV module design and mounting shall provide plug and socket quick disconnect facilities enabling non-technical personnel to carry out lamp replacement, wiper insert replacement, etc. without the need for any tools or specialist isolation procedures.

UV LAMPS

A. Lamps shall be a design as previously specified. Lamps shall be removable with the sleeve and wiper system remaining in place.

B. The lamp shall be preheated to promote longevity. Lamps shall require a cool-down period of no more than 10 minutes prior to re-start.

C. The filament shall be of the clamped design, significantly rugged to withstand shock and vibration.

D. Electrical connections shall be at one end of the lamp and have four pins, dielectrically tested for 2,000 Vrms.

E. Lamps shall be operated by electronic ballasts with variable output settings. Ballast shall be capable of varying the power output between 50 and 100%.

LAMP END SEAL & HOLDER

A. The open end of the lamp sleeve shall be sealed by means of a sleeve nut which threads onto a sleeve cup and compresses the sleeve O-ring.

B. The sleeve nut shall have a knurled surface to allow a handgrip for tightening.

C. The lamp shall be held in place by means of a molded lamp holder that shall incorporate two seals. The lamp holder shall incorporate a double seal against the inside of the sleeve to act in series with the external O-ring seal.

D. The second seal on the lamp holder shall isolate and seal the lamp from the module frame and all other lamps in the module.

E. In the event of a sleeve fracture the two seals of the lamp holder shall prevent moisture from entering the lamp module frame and the electrical connections to the other lamps in the module.

SLEEVES

A. Sleeves shall be Type 214 clear fused quartz circular tubing as manufactured by General Electric or equal.

B. Lamp sleeves shall be domed at one end.

C. The nominal wall thickness will be 1.5 mm.

UV MODULE SUPPORT RACK

A. Provide a UV module support rack mounted above the effluent in the channel allowing adjustment to the precise height of the channel.

LEVEL CONTROL WEIR

A. Provide a level control weir for each channel located downstream of the UV banks to maintain an average water depth to ensure lamp submergence at all times.

B. Maximum effluent level variance from zero to peak flow upstream of finger weir and all UV banks shall not exceed the peak head loss previously specified.

C. The weir shall be welded water-tight. Contractor shall be responsible for ensuring that the weir is watertight against the concrete channel walls and floor.

LOW WATER LEVEL SENSOR

A. One low water level sensor shall be provided by the UV Manufacturer for each UV channel.

B. During manual, automatic, and remote modes of system operation, the water level sensor will ensure that lamps extinguish automatically if the water level in the channel drops below an acceptable level.

CLEANING SYSTEM

A. An automatic cleaning system shall be provided to clean the sleeves using mechanical and/or chemical methods. The wiper component in contact with the sleeve shall not damage or scratch the sleeve or UV intensity sensor.

B. The cleaning system shall be fully operational while UV lamps and modules are submerged in the effluent channel and energized.

C. The wiping sequence shall be automatically initiated with capability for manual override. Cleaning cycle time intervals shall be field adjustable. Remote Manual and Remote Auto cleaning control options shall be provided.

D. If a chemical cleaning system is provided it shall be provided with the required solutions necessary for initial equipment testing and for equipment start-up.

LIFTING DEVICE

Provide a lifting device to allow for manual removal of UV modules from the channel for systems with horizontal lamps.

MAINTENANCE RACK

A. Provide one (1) maintenance rack for UV module cleaning for systems with horizontal lamps. The rack shall be designed to hold UV modules during service or maintenance.

B. Systems with inclined lamps shall not require a maintenance rack but shall include provisions for the lamps and sleeves to be removed from the module without the need for the module to be removed from the UV Channel. All wetted parts shall be accessible while the module is in the lift position without having to unmount the module from the UV channel frame.

PROTECTOR CAPS

A. Manufacturer shall provide protector caps for each UV module.

B. Protector caps shall be used as a replacement seal for UV module plugs and Power Distribution Center receptacles when UV modules are removed from the effluent channel during the non-disinfection season.

C. Protector caps shall not be required for inclined UV systems equipped with locking pins such that the module can be lifted out of the channel for periods of time without having to disconnect the lamp cables.

UV DETECTION SYSTEM

A. A submersible UV sensor will continuously monitor the UV intensity produced in each bank of UV lamps.

B. The sensor shall measure only the germicidal portion of the light emitted by the UV lamps, measured at the UV wavelength previously specified. The detection system shall be factory calibrated.

DOSE PACING

A. A dose-pacing system shall be supplied to modulate the lamp UV output in relationship to a 4-20 mA DC signal from the effluent flow meter.
B. The system shall be dose-paced such that as the flow and effluent quality change, the design UV dose is delivered while conserving power.

C. The dose-pacing system shall allow the operator to vary the design dose setting. Logic and time delays shall be provided to regulate UV bank ON/OFF cycling.

HYDRAULIC SYSTEM CENTER (HSC)

A. One (1) HSC shall be supplied to house all components required to operate hydraulically actuated automatic cleaning systems.

B. The HSC shall contain a hydraulic pump complete with integral 4-way valve and fluid.

C. Provide hydraulic hoses and 304 stainless hose fittings for a complete operational system.

D. Hydraulic system shall only utilize food/environmental grade hydraulic fluid that will not cause hazard to the environment in the event of a hydraulic leak.

HARDWARE

A. All Bolts, nuts, anchors, washers, appurtenances, and related fastening hardware shall be type 316 stainless steel. All stainless steel components shall be electro-polished or pacified to obtain maximum corrosion resistance. All necessary hardware, attachments, and related appurtenances for installation of the equipment and supporting systems shall be provided. All stainless steel bolts shall comply with ASTM F 593 standards. Stainless steel nuts shall comply with ASTM F 594 standards.

FINISHING

A. All external ferrous metallic surfaces of the equipment shall be provided with the manufacturers standard two-part epoxy coating. The coating shall be resistant to sewage and other chemicals normally found in wastewater.

B. Stainless steel, brass, bronze, aluminum, and plastic components shall not be painted. Nameplates shall not be painted.

C. Before exposure to weather and prior to shop painting all ferrous metallic surfaces including but not limited to pumps, motors, and slide brackets shall be thoroughly cleaned, dry and free from all mill-scale, rust, grease, dirt, and other foreign matter. Stainless steel, brass, bronze, galvanized, plastic, and copper components shall not be painted. All nameplates shall be properly protected during painting.

ELECTRICAL

A. Each UV module within a bank shall be powered from the Power Distribution Center.

B. UV manufacturer shall supply all cabling and conduit between lamps and ballasts for systems with integral ballasts.

C. UV manufacturer shall perform all terminations between lamps and ballasts.

D. Each electronic ballast within a UV module shall operate two lamps but provide individual control and monitoring circuits and individual status information to the Control System.

E. Power factor shall not be less than 98% leading or lagging.

F. Electrical supply to each Power Distribution Center, Hydraulic System Center and System Control Center shall be as previously specified or shown on the Drawings.

POWER DISTRIBUTION CENTER

A. Power distribution shall be through environmentally sealed receptacles or cordgrips/bulkheads that conform to NEMA 4X and UL standards on the PDC(s) to allow for local connection of UV modules.

B. Data concentration shall be through integrated circuit boards located inside the Power Distribution Center.

C. All internal components will be sealed from the environment.

D. All Power Distribution Centers shall be UL listed.

CONTROLS

A. Provide microprocessor-based controls that continuously monitors and controls all the system function for the fully automatic operation of the UV system, including a free-standing NEMA 4 control panel for installation in an indoor area. Panel shall be UL listed.

B. Provide an operator interface terminal with a 7" color touch screen display. Screen to be menu driven with automatic fault message windows appearing on alarm conditions.

    A. Provide the following I/O to facilitate hardwired communication between the system control panel and SCADA system as a minimum to indicate to plant operators that maintenance attention is required or to indicate an extreme alarm condition in which the disinfection performance may be jeopardized:

        i. Analog Inputs (4-20mA)

            1. Effluent Flow (from SCADA System)

        ii. Analog Outputs (4-20mA to SCADA System)

            1. UV Intensity

        iii. Digital Outputs (for each UV bank) – (Dry Contacts to SCADA System)

            1. Common Alarm – Major
            2. Common Alarm – Minor
            3. Low UV Intensity
            4. Low Level Sensor
            5. Bank Running Status

C. All nameplates shall be black phenolic nameplates with white lettering or polyester acrylic metallized label.

D. All other alarms, controls, switches, outputs, ladder logic programming, or other programming required to properly operate the treatment equipment, shall be provided by the Manufacturer. The Contractor shall be responsible for coordinating with the Manufacturer and the Engineer to provide integration of the UV Disinfection Controls into the Main Plant Control System.

E. The 100 most recent alarms will be recorded in an alarm history register and displayed when prompted.

F. Bank status shall be capable of being placed either in Manual, Off or Auto mode at the OIT.

G. Elapsed time of each bank shall be recorded and displayed on the display screen when prompted.

MANUFACTRERS

A. Trojan and Wedeco were used as the basis of design for the UV system. Both are hydraulically acceptable with respect to the Facilities Hydraulic Profile.

NAMEPLATES

A. Each major item of equipment shall have the Manufacturer's name, address, type or style, model or serial number, catalog number, rated capacity, speed, and all other pertinent data on a plate secured to the item of equipment per Section 40 00 00 Basic Process Materials and Methods. The nameplate for each electric motor shall show at least the minimum information required by NEMA MG 1 standards.