Cost Proposal "Mandatory" Worksheet
Solicitation No. 20210034
City of Port St. Lucie, Florida

Contractor must provide their cost information in this spreadsheet. Failure to complete this spreadsheet will result in disqualification from the Solicitation. The Contractor's figure submitted below must include all costs associated with and in support of the Contractor's technical proposal.

Offeror must submit the "Cost Proposal Mandatory Worksheet" as part of the response. The cost proposal will be evaluated in accordance with the solicition documention.

Item #	Description	Unit of Measure	Est. Qty.	Unit Price	Unit Installation Cost	Total Cost
	SKIDS 1-3					
1	Mobilization/Demobilization	LS	1	$ 13,620.81		$ 13,620.81
2	Replacement of Membrane Elements	EA	336	$ 101.62		$ 34,144.32
3	Pressure Vessels	EA	4	$ 13,465.63		$ 53,862.52
4	Pressure Vessel Snap Rings	EA	96	$ 146.16		$ 14,031.36
5	Pressure Indicating Transmitter	EA	1	$ 3,657.83		$ 3,657.83
6	Permeate Valves	EA	48	$ 39.41		$ 1,891.68
7	Permeate Manifold Replacement	EA	3	$ 11,644.87		$ 34,934.61
8	Concentrate Bypass Piping Modifications	LS	1	$ 30,666.58		$ 30,666.58
9	Concentrate Bypass Control Valve	EA	1	$ 52,653.79		$ 52,653.79
10	SCADA Integration	LS	1	$ 12,327.12		$ 12,327.12
					TOTAL PER SKID	$ 251,790.62
					NUMBER OF SKIDS MODIFIED	3
					TOTAL FOR 3 SKIDS	$ 755,371.86
	ENERGY RECOVERY DEVICE REPLACEMENTS (SKIDS 1-3)					
11	Energy Recovery Devices	EA	1	$ 106,553.73		$ 106,553.73
					TOTAL PER SKID	$ 106,553.73
					NUMBER OF SKIDS MODIFIED	3
					TOTAL FOR 3 SKIDS	$ 319,661.19
	SKIDS 4 & 5					
12	Mobilization/Demobilization	LS	1	$ 22,999.94		$ 22,999.94
13	Replacement of Membrane Elements	LS	336	$ 99.62		$ 33,472.32
14	Pressure Vessels	EA	4	$ 14,056.44		$ 56,225.76
15	Energy Recovery Device Nozzles	EA	1	$ 17,675.33		$ 17,675.33
					TOTAL PER SKID	$ 130,373.35
					NUMBER OF SKIDS MODIFIED	2
					TOTAL FOR 2 SKIDS	$ 260,746.70
	SKIDS 6-10					
16	Mobilization/Demobilization	LS	1	$ 12,764.57		$ 12,764.57
17	Replacement of Membrane Elements	LS	336	$ 99.62		$ 33,472.32
18	Pressure Vessels	EA	3	$ 17,248.64		$ 51,745.92
19	Energy Recovery Device Nozzles	EA	1	$ 15,233.07		$ 15,233.07
					TOTAL PER SKID	$ 113,215.88
					NUMBER OF SKIDS MODIFIED	5
					TOTAL FOR 5 SKIDS	$ 566,079.40
20	Miscellaneous Services	LS	1	$ 66,012.19		$ 66,012.19
					BID TOTAL	$ 1,967,873.05

Note: Quantities listed are per train.

Contractor's Full Legal Name as listed on W-9: Aerex Industries, Inc.

Printed Name and Title of Person Signing: Jason Carlson - President

Authorized Signature:

Date: May 26, 2021

This form must be completed in its entirety by the Contractor and posted as required in the solication.
DO NOT INCLUDE ANY COST INFORMATION IN THE TECHNICAL RESPONSE.

Mandatory Questions

These questions are Pass/Fail. To be considered responsive, responsible and eligible for award, you must answer all questions in this section.

DO NOT INCLUDE ANY COST INFORMATION IN YOUR RESPONSE TO THIS WORKSHEET.

Question #	Questions per Proposal Factors/Categories	Response by Offeror. Only Yes or No Answers	Upload Attachments ?	Attachment Name
	Proposal Factors			
1	List any criminal violations and/or convictions of the Proposer and/or any of its principals: (N/A is not an acceptable answer).	NO	IF YES	
2	Complete and upload PSL Location Form	YES	IF YES	G
3	Is firm a minority business?	NO	IF YES	
4	Is the firm incorporated? Yes--No If yes, in what state?	YES, FLORIDA	N	
5	List any judgements from lawsuits in the last five (5) years: (N/A is not an acceptable answer).	NO	IF YES	
6	List any lawsuits pending or completed within the past five (5) years involving the corporation, partnership or individuals with more than ten percent (10%) interest: (N/A is not an acceptable answer).	NO	IF YES	
7	Has the Proposer or any of its principals ever been declared bankrupt or reorganized under Chapter 11 or put into receivership?	NO	IF YES	
8	Proposers are required to submit all licenses and certifications required to perform this project.	YES	Y	LICENSE
9	Proposers are required, to submit a copy of their Insurance Certificate for the type and dollar amount of insurance they currently maintain.	YES	Y	INSURANCE
10	Complete and upload E-Verify Form	YES	Y	I
11	Complete and upload Drug Free Workplace Form	YES	Y	H
12	Complete and upload Consultant Code of Ethics	YES	Y	F
13	Complete and upload Non-Collusion Affidavit	YES	Y	J
14	Complete and upload Cone of Silence Form	YES		K
15	Complete and upload Truth-In Negotiation Form	YES	Y	L
16	Submit W-9	YES	Y	N
17	Upload and submit three (3) projects similar in size and scope to this Bid completed by your firm within the past five (5) years along with a brief description of the project, location of project, client name, client phone number, email, and value of contract.	YES	Y	REFERENCES
18	Complete and upload Mandatory Scored Questions	YES	Y	B
19	Complete and upload Contractor General Information Worksheet.	YES	Y	M

ADDENDUM #1 REVISED

Attachment B - Mandatory Scored Questions

Mandatory Scored Questions				
Offerors must answer all the questions in this spreadsheet in the cell provided.				
Failure to answer these questions will result in disqualification of the proposal.				
Offerors must indicate whether their proposal meets the individual requirement and provide a supporting narrative in the space provided. The narrative description, along with any required supporting materials, will be evaluated and awarded points in accordance with Section 6 "Proposal Evaluation, Negotiations and Award" of this eRFP. ONLY upload documents if there is a Yes in the "Upload Attachs with Additional Information?" column, to provide additional information about specific questions. Documents not requested in this column will not be evaluated.				
DO NOT INCLUDE ANY COST INFORMATION IN YOUR RESPONSE TO THIS WORKSHEET.				
Question #	Questions per Proposal Factors/Categories	Response by Offeror	Upload Attachments?	Attachment Name and Page # of Attachment its located in
1	Please provide all documentation needed for Location. Proposer's Location - Location shall mean a business which meets the following criteria: # of Miles from City Hall to Assigned Staff's Office location 0-60 Miles 61-80 Miles 81-100 Miles 101-120 Miles 121-140 Miles 140+ Miles	0-60 Miles	YES	G
2	Woman/Veteran/Minority Owned Business. Does the Primary firm hold a Minority Business Certification by the Florida Department of Management Services, as described in section 8 of the document? If so, please attach.	NO	YES	
3	Executive summary. This section should include the Firm's overall concept of the working relationship that will be required to successfully complete this project. The proposer shall provide an executive summary narrative containing information that indicates an understanding of the overall need for and purpose of the services presented in the RFP.		YES	Summary
4	Proposed Project Management Plan is the application of knowledge, skills, tools, and techniques to project actvities to meet project requirments. A management plan is the key to a successful project and is the most important document that needs to be created when starting any a project in meeting the customer and end user expectations. Provide your approach for a project management plan using the processes of initiating, planning, executing, montiotring & controlling, and closing.		YES	Summary
5	Provide a listing of firm's current contracts.		YES	Summary
6	Added Business Value Services. This term is used for non-core services, or, all services beyond the identified scope. Does the vendor firm net quantifiable benefit derived from business endeavors? Please include any additional material that may assist the City in evaluating the proposals and approach to the project. Pre-printed advertisements, brochures, and promotional material may be attached as additional information, but shall not serve as a substitute for a specific response. Attachment of brochures instead of the written response request will be grounds for disqualification or devaluation. A simple "yes" or "no" answer alone will not be acceptable unless clearly requested; an explanation shall be provided for each question/issue listed in this response outline.		YES	Summary

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7	Proposed Scope Management Plan is listing of activities, deliverables, and milestones within a project. What is the contractors proposed schedule management for this project? This section shall include timelines showing how the scope of work is controlled using work break down structure for each work activity to produce project deliverables.		YES	Summary
8	Prooposed Quality Control Management: Address the management of the project and the deliverables of the project. Include examples of quality management tools and techniques (checklist and flow charts) with sequence of steps showing decision making analysis.		YES	Summary
9	Proposed Schedule Management Plan: is the process of establishing the documentation for planning, developing,managing, executing and controllling the project schedule. Provide examples how monitoring project activities and controlling schedule changes. Include flow chart analysis example for backlog items, and change requests process for review. *Final project schedule will be negotiated with awarded firm.		YES	Summary
10	Proposed Resources: is the process of identifying and documenting project roles, responsiblilities, required skills, reporting relationships. And creating a staff management plan. Provide project roles, and project organization charts, and staffing management including the time tables for staff acquisition and release.			Summary
11	Has the contractor experienced failing a bacteriological test on a skid with membranes installed? Describe the steps taken to ensure testing was passed the first time or on repeat attempts?		YES	Summary
12	During membrane installation, what steps are taken to prevent O-ring failures, brine seal failures, skid contamination, and remedy of these failures once determined after the skid has been started up.		YES	Summary
13	Describe the steps taken when a skid has failed to meet performance testing requirements including identification of the problem, steps to remedy the performance issue, and typical performance testing challenges?		YES	Summary
14	When retrofitting a skid with new vessel endcaps, snap rings, bolts, fasteners, or other fittings can experience rust from years of service. Has the contractor experienced rusted sealing equipment and what steps would you take to remove the units safely without damaging the pressure vessels integrity?		YES	Summary
15	Has the contractor experienced excessive vibration or noise after installation of RO system components? Describe the steps to take when investigating and remedying the excessive vibration or noise within a RO skid.		YES	Summary
16	Often parts are ordered and shipped to the contractor for installation. What processes is used by the contractor to ensure that the proper grades of corrosion resistant materials are supplied with the equipment delivered to the site?		YES	Summary
17	If the specified permeate water quality requirements are not met when the skid is started up, what steps will the contractor take to ensure that the performance conditions are met?		YES	Summary
18	This project requires new pressure vessels to be installed within an existing skid. Describe the steps taken to ensure the side ports match up to the piping manifold ports.		YES	Summary
19	Should pressure vessels develop a warranty issue within the first year of operation, the contractor will be asked to remedy the vessel under the warranty claim. Describe the contractor's procedure for addressing the warranty defect, opportunity to expedite a remedy, and steps to take to maintain operation of the skid while the defective vessel is being remedied.		YES	Summary
20	Additional 316L stainless steel spool pieces will be required to fit the new control valves and energy recovery devices within the existing trains. Describe the construction methodology for field measurements, pipe fitting, and full immersion pickling and passivation to ensure the pipe constructed will properly fit the new equipment and carry the corrosion resistant characteristics.		YES	Summary
21	Describe the contractor's process for integrating new SCADA program updates within an existing system. Discuss the responsibility for subcontractor performance and overall skid operation.		YES	Summary
22	What steps will be taken for performance testing and verification of the v-port ball valve operation and control?		YES	Summary

ADDENDUM #1 REVISED

Attachment B - Mandatory Scored Questions

23	Describe the field tests and manufacturer certification to be conducted for the energy recovery devices before and after installation?		YES	Summary
24	Should disinfection of one skid leak to another membrane skid and the installed membranes get exposed to disinfection chemicals, what steps will the contractor take to prevent this exposure or mitigate membrane damage for the elements exposed to the chemicals?		YES	Summary
25	How will the contractor ensure piping systems are stable and well supported? Describe your approach to achieving proper support for skid related piping.		YES	Summary
26	Should pressures testing indicate a leak within piping, what steps will the contractor use to repair the leak and what timing should be anticipated for a full repair?		YES	Summary
27	Describe a plan of action to preserve membrane elements on a skid when a piping repair prohibits water flowing through the vessels.		YES	Summary
28	Provide a description of two completed retrofit and membrane replacement projects that are similar to this contract.		YES	Summary
29	In what ways will the contractor coordinate with the owner prior to skid shut down, during construction repairs, during skid start-up, and after skid start-up?		YES	Summary

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we
Aerex Industries, Inc.
(Here insert full name and address or legal title of Contractor)

113 North 2nd St. Fort Pierce, FL 34950
as Principal, hereinafter called the Principal, and
(Here insert full name and address or legal title of Surety)
Travelers Casualty and Surety Company of America

One Tower Square Hartford, CT 06183

a corporation duly organized under the laws of the State of Connecticut
as Surety, hereinafter called the Surety, are held and firmly bound unto
City of Port Saint Lucie

121 SW Port Saint Lucie Blvd., Port Saint Lucie, FL 34984
as Obligee, hereinafter called the Obligee, in the sum of ---- Five Hundred Dollars and 00/100 ------
---------- **Dollars ($** 500.00 **)**
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, The Principal has submitted a bid for
(Here insert full name, address and description of project)
James E. Anderson Reverse Osmosis Water Treatment Membrane Replacement - eRFP (Event) Number: 20210034

6901 LTC Parkway, Port Saint Lucie, FL 34986 - Membrane Replacement (Labor) for 10 RO Trains Plus various modifications

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 7th day of May, 2021

Donna L. Summerfield
(Witness)

Aerex Industries, Inc.
(Principal) (Seal)

Jason Carlson, President *(Title)*

Alana Kishun
(Witness)

Travelers Casualty and Surety Company of America
(Surety)

Jorge L. Bracamonte *(Title)* **Attorney-In-Fact & Florida Licensed Resident Agent**

Inquiries: (321) 800-6594

May 24, 2021

Mr. Jason Bezak, CPPB
City of Port Saint Lucie

Re: James E. Anderson RO Water Treatment Membrane Replacement
Bid Package Mandatory Scored Questions

Dear Mr. Bezak:

Please find our responses to your Mandatory Scored Questions listed below:

1. **Owners Comment:** Executive summary. This section should include the Firm's overall concept of the working relationship that will be required to successfully complete this project. The proposer shall provide an executive summary narrative containing information that indicates an understanding of the overall need for and purpose of the services presented in the RFP.

   Aerex Response: Aerex plans to work directly with the Engineer of Record (EOR) and Owner to plan, schedule and complete each phase of the project.

   Phase one addresses trains 1-3 and will begin with removing the existing membrane elements followed by train modifications including replacing the vertical permeate manifolds with 316L stainless steel manifolds, replacing the concentrate bypass valve and associated piping, adding 4 pressure vessels per train, and adding one pressure transmitter per train. Each train will be orifice tested and the PLC program including SCADA will be modified as necessary. After orifice testing, each train will be disinfected, and bacteriologically tested prior to installing the owner supplied membrane elements. New permeate adapters, membrane connectors, snap rings and permeate valves will be installed prior to initial startup. Temporary permeate piping will be installed directing the permeate generated during initial startup to disposal. After initial startup, permeate will be bacteriologically tested and cleared prior to removal of temporary permeate piping. Each train must successfully complete performance testing as described in the project specifications.

   Replacement of the existing energy recovery devices is also part of phase one but may, at the owner's discretion be addressed separately from the tasks above.

   Phase two addresses trains 4 & 5 will begin with removing the existing membrane elements followed by train modifications including adding 4 pressure vessels per train and replacing the existing energy recovery device nozzles. Each train will be orifice tested and the PLC program including SCADA will be modified as necessary. After orifice testing, each train will be disinfected, and bacteriologically tested prior to installing the owner supplied membrane elements. New permeate adapters, membrane connectors, snap rings and permeate valves will be installed prior to initial startup. Temporary permeate piping will be installed directing the permeate generated during initial startup to disposal. After initial startup, permeate will be bacteriologically tested and cleared prior to removal of temporary permeate piping. Each train must successfully complete performance testing as described in the project specifications.

Phase three addresses trains 6-10 will begin with removing the existing membrane elements followed by train modifications including adding 3 pressure vessels per train and replacing the existing energy recovery device nozzles. Each train will be orifice tested and the PLC program including SCADA will be modified as necessary. After orifice testing, each train will be disinfected, and bacteriologically tested prior to installing the owner supplied membrane elements. New permeate adapters, membrane connectors, snap rings and permeate valves will be installed prior to initial startup. Temporary permeate piping will be installed directing the permeate generated during initial startup to disposal. After initial startup, permeate will be bacteriologically tested and cleared prior to removal of temporary permeate piping. Each train must successfully complete performance testing as described in the project specifications.

Miscellaneous services include replacing pressure vessel snap rings, permeate adapters, permeate valves and membrane adapters on all 10 trains. Aerex has also included the removal of the pressure vessel auto-shims on trains 1-3. It should also be noted that Aerex has included the price of the Flow-Tek concentrate bypass valves with Rotork actuators and new communication modules for trains 1-3 as used on trains 4-10. The DeZURIK concentrate bypass valves were specified.

2. **Owners Comment:** Proposed Project Management Plan is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. A management plan is the key to a successful project and is the most important document that needs to be created when starting any a project in meeting the customer and end user expectations. Provide your approach for a project management plan using the processes of initiating, planning, executing, monitoring & controlling, and closing.

   Aerex Response: The project management plan will be completed by the assigned project manager and submitted to the EOR and owner for approval. Elements incorporated into the "Project Management Plan" will be:

   - Detailed Project Schedule
   - Define Deliverables and Estimated Due Dates
   - Defined Roles and Responsibilities
   - Ensure Proper Resource Allocation
   - Quality Assurance
   - Communication Plan

3. **Owners Comment:** Provide a listing of firm's current contracts.

   Aerex Response: Below is a list of our current Municipal Membrane related contracts. Piping, Filter Vessel and Nuclear contracts are not included below.

CUSTOMER	SYSTEM DESCRIPTION
Village of Wellington	Nano-Filtration Membrane Replacement Project
Seacoast Utilities	LPRO Skid Modification Project
Seminole Immokalee	Skid Modification Project
City of Palm Bay	Two New 2-MGD Trains, Two Existing Train Mods
Bonita Springs	Two New 2-MGD Trains, Two Existing Train Mods

4. **Owners Comment:** Added Business Value Services. This term is used for non-core services, or all services beyond the identified scope. Does the vendor firm net quantifiable benefit derive from business endeavors? Please include any additional material that may assist the City in evaluating the proposals and approach to the project. Pre-printed advertisements, brochures, and promotional material may be attached as additional information, but shall not serve as a substitute for a specific response. Attachment of brochures instead of the written response request will be grounds for disqualification or devaluation. A simple "yes" or "no" answer alone will not be acceptable unless clearly requested; an explanation shall be provided for each question/issue listed in this response outline.

   Aerex Response: Please see responses 1 & 2 for responses specific to this project. Aerex is wholly owned by Consolidated Water Company. Additional details on Aerex can be found on our website at www.aerexglobal.com.

5. **Owners Comment:** Proposed Scope Management Plan is listing of activities, deliverables, and milestones within a project. What is the contractors proposed schedule management for this project? This section shall include timelines showing how the scope of work is controlled using work break down structure for each work activity to produce project deliverables.

   Aerex Response: A project schedule will be developed, review and followed as detailed in item #2 above. Aerex has reviewed the four major phases of work and there anticipated fiscal year completion dates and see no significant issues in achieving these goals.

6. **Owners Comment:** Proposed Quality Control Management: Address the management of the project and the deliverables of the project. Include examples of quality management tools and techniques (checklist and flow charts) with sequence of steps showing decision making analysis.

   Aerex Response: Aerex Industries has two Quality Assurance programs. Nuclear Quality Assurance (NQA-1) and ASME Section VII Boiler and Pressure Vessel. Both programs are at the core of our company influencing the level of quality that is put into each and every one of our products and/or projects. Please find our Quality Control program details inclusive.

7. **Owners Comment:** Proposed Schedule Management Plan: is the process of establishing the documentation for planning, developing, managing, executing, and controlling the project schedule. Provide examples how monitoring project activities and controlling schedule changes. Include flow chart analysis example for backlog items and change requests process for review. *Final project schedule will be negotiated with awarded firm.

   Aerex Response: Upon award Aerex will develop a detailed project schedule using the elements described in item #2 above.

8. **Owners Comment:** Proposed Resources: is the process of identifying and documenting project roles, responsibilities, required skills, reporting relationships. And creating a staff management plan. Provide project roles, and project organization charts, and staffing management including the timetables for staff acquisition and release.

   Aerex Response: Aerex staff will address all components of this project. Project schedule will be submitted for approval prior to beginning work. Please see our project organizational chart inclusive.

9. **Owners Comment:** Has the contractor experienced failing a bacteriological test on a skid with membranes installed? Describe the steps taken to ensure testing was passed the first time or on repeat attempts?

   Aerex Response: Aerex has experienced failing a bacteriological test on a skid with membranes installed. Aerex has found that the keys to passing bacteriological tests are clearing the trains of bacteriological contamination prior to loading membrane elements, good housekeeping during membrane loading and extended flushing and run time during startup.

10. **Owners Comment:** During membrane installation, what steps are taken to prevent O-ring failures, brine seal failures, skid contamination, and remedy of these failures once determined after the skid has been started up.

    Aerex Response: FDA approved seal lubricants are used during final assembly and membrane loading to minimize seal and gasket failures while good housekeeping practices are used to minimize contamination. After initial startup, each train will be profiled and if necessary, probed to confirm the absents of gasket failures.

11. **Owners Comment:** Describe the steps taken when a skid has failed to meet performance testing requirements including identification of the problem, steps to remedy the performance issue, and typical performance testing challenges?

    Aerex Response: If the problem is membrane related, the train will be profiled and if necessary, probed to confirm the absents of gasket failures. Mechanical and electrical failures and findings will be addressed by Aerex and/or the appropriate equipment supplier.

12. **Owners Comment:** When retrofitting a skid with new vessel endcaps, snap rings, bolts, fasteners, or other fittings can experience rust from years of service. Has the contractor experienced rusted sealing equipment and what steps would you take to remove the units safely without damaging the pressure vessels integrity?

    Aerex Response: Aerex has the experience and equipment to address disassembly challenges onsite or at our manufacturing facility. Aerex works closely with all equipment suppliers to fully understand their product, problems there produce has seen and suggested remedies for the various deficiencies.

13. **Owners Comment:** Has the contractor experienced excessive vibration or noise after installation of RO system components? Describe the steps to take when investigating and remedying the excessive vibration or noise within a RO skid.

    Aerex Response: Excessive vibration and noise can be caused by numerous bad actors withing the system. Valve cavitation is one of the most common bad actors we deal with in this industry which can sometimes be solved with the addition of a simple orifice plate. Whatever the issue, Aerex is equipped to handle it.

14. **Owners Comment:** Often parts are ordered and shipped to the contractor for installation. What processes is used by the contractor to ensure that the proper grades of corrosion resistant materials are supplied with the equipment delivered to the site?

    Aerex Response: Aerex is a stainless-steel fabricator and has over 20 years of understanding how to manage the quality of stainless steel. The first and most simple approach is to require

during the purchasing process MTRs for the materials being provided. Another would be to audit the quality program from who is providing the stainless. This would ensure that the MTRs are truly representative to the purchased materials. Finally, if still in question Aerex could perform a PMI on the material to test for which grade of stainless steel has been received.

15. **Owners Comment:** If the specified permeate water quality requirements are not met when the skid is started up, what steps will the contractor take to ensure that the performance conditions are met?

    Aerex Response: As explained in item #11 Aerex will first look for mechanical issues that may be the cause of the water quality issue and address them as needed. Membrane elements for this project are being supplied by the owner with the inclusion of onsite representation from the membrane supplier. Aerex will provide onsite support to the membrane element supplier as required to confirm that the performance conditions are met.

16. **Owners Comment:** This project requires new pressure vessels to be installed within an existing skid. Describe the steps taken to ensure the side ports match up to the piping manifold ports.

    Aerex Response: Aerex will either purchased the same pressure vessels configured in the same manner as the existing vessels or if a different supplier is desired, have the vessels match the existing dimensions. If neither of these options are not available, Aerex can modify in-house stainless-steel piping to match the pressure vessels.

17. **Owners Comment:** Should pressure vessels develop a warranty issue within the first year of operation, the contractor will be asked to remedy the vessel under the warranty claim. Describe the contractor's procedure for addressing the warranty defect, opportunity to expedite a remedy, and steps to take to maintain operation of the skid while the defective vessel is being remedied.

    Aerex Response: The defective vessel can be removed from service by installing Victaulic plugs on feed, concentrate and permeate piping. Aerex is trained in making most required repairs and keeps most replacement parts in stock.

18. **Owners Comment:** Additional 316L stainless steel spool pieces will be required to fit the new control valves and energy recovery devices within the existing trains. Describe the construction methodology for field measurements, pipe fitting, and full immersion pickling and passivation to ensure the pipe constructed will properly fit the new equipment and carry the corrosion resistant characteristics.

    Aerex Response: Aerex employs skilled engineers that will design, in accordance with B31.3, in addition to 3D model the new piping system. Furthermore, Aerex has a stainless-steel manufacturing facility less than 10 miles from the water treatment plant and employs some of the best pipe fitters and welders in South Florida. Full immersion pickling and passivation is also performed at our Fort Pierce facility.

19. **Owners Comment:** Describe the contractor's process for integrating new SCADA program updates within an existing system. Discuss the responsibility for subcontractor performance and overall skid operation.

    Aerex Response: Aerex plans to sub-contract this work to Curry Controls or a different instrumentation and controls contractor as defined in the project specifications.

20. **Owners Comment:** What steps will be taken for performance testing and verification of the v-port ball valve operation and control?

    Aerex Response: V-port bypass valve operation will be confirmed using a doppler flowmeter in both the control and flush positions.

21. **Owners Comment:** Describe the field tests and manufacturer certification to be conducted for the energy recovery devices before and after installation?

    Aerex Response: The energy recovery device is factory tested and certified by the manufacturer using the design conditions provided by the owner and EOR. During performance testing. All pressures and flows will be checked to confirm correct operation.

22. **Owners Comment:** Should disinfection of one skid leak to another membrane skid and the installed membranes get exposed to disinfection chemicals, what steps will the contractor take to prevent this exposure or mitigate membrane damage for the elements exposed to the chemicals?

    Aerex Response: Disinfection chemicals should be immediately flushed from the skid accidently exposed after which the skid should be put back online with the permeate diverted to drain to determine the extent of the damage if any. Current operating conditions should be discussed with the membrane element supplier to determine if further corrective measures are required.

23. **Owners Comment:** How will the contractor ensure piping systems are stable and well supported? Describe your approach to achieving proper support for skid related piping.

    Aerex Response: Aerex will submit a pipe support plan to the EOR that describes the pipe support plan prior to installation. Aerex can custom fabricate virtually any type of pipe support that might be necessary.

24. **Owners Comment:** Should pressure testing indicate a leak within piping, what steps will the contractor use to repair the leak and what timing should be anticipated for a full repair?

    Aerex Response: Our quality assurance program should minimize if not eliminate this potential from happening. If compromised welded piping is found repairs at our Fort Pierce facility that is located within 10 miles of the plant, could be turned around within 24 hours or less if needed.

25. **Owners Comment:** Describe a plan of action to preserve membrane elements on a skid when a piping repair prohibits water flowing through the vessels.

    Aerex Response: Blind flanges and Victaulic plugs will be used to the greatest extent possible to preserve membrane elements during repairs.

26. **Owners Comment:** Provide a description of two completed retrofit and membrane replacement projects that are similar to this contract.

    Aerex Response: Aerex just completed a membrane change out project at the Tropical Farms water treatment plant that included replacement of all membrane elements, pressure vessels and concentrate control valves on four 2-MGD RO trains.

    Aerex recently completed a project for the City of Vero Beach that included providing two new 2-MGD trains with instrumentation and membrane elements.

27. **Owners Comment:** In what ways will the contractor coordinate with the owner prior to skid shut down, during construction repairs, during skid start-up, and after skid start-up?

    Aerex Response: Aerex will request weekly coordination meetings with the EOR and owner and provide written project schedules for approval prior to scheduling any onsite work.

Best regards,
Aerex Industries, Inc.

Owner/Approver:	Kenneth Zeiss — Digitally signed by Kenneth Zeiss Date: 2021.04.21 15:15:02 -04'00'	Effective Date:	4/23/2021
	Quality Assurance Manager		
Reviewer:	Jason Carlson — Digitally signed by Jason Carlson Date: 2021.04.21 14:54:21 -04'00'	Date Reviewed:	4/21/2021
	President		

Revision History

Rev.	Reason for Revision
5	Add revision block, Change policy statement signature, remove organization chart, software list and procedure list, add section 3.5 Design Verification, Replace "this standard" with NQA-1

POLICY STATEMENT ON QUALITY ASSURANCE

The criteria described in this *Quality Assurance Manual* (QAM) include those that ensure compliance with the applicable requirements of the American Society of Mechanical Engineers (ASME) NQA-1, 2008, and NQA-1a 2009, Quality Assurance Requirements for Nuclear Facility Applications, Part I and Part II, Subparts 2.7 and 2.14 and Title 10 CFR part 21, based upon the scope of work performed by Aerex Industries Inc. All employees of Aerex Industries are responsible for complying with the requirements of the QAM. Management is responsible for performing activities, as assigned in this QAM, may delegate the performance of their assigned duties to qualified individuals, but shall retain the responsibility for their assigned activities.

The Quality Assurance (QA)/Quality Control (QC) Manager(s) who support Management and has unencumbered access to the President of Aerex Industries, has the authority for the administration of this QAM. The QA/QC Manager(s) shall have complete authority to identify quality problems; to initiate, recommend, and provide solutions; to verify implementation of solutions; and to ensure that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.

In addition, personnel are encouraged to identify new ideas for improving products, processes, and services. Also, when quality or safety problems occur, all personnel have the responsibility and authority to take necessary corrective actions, including the stoppage of work, when such action is warranted.

When problems or differences of opinion involving quality or safety cannot be resolved within a timely manner, employees will bring the issue to the attention of the QA/QC Manager(s) who will notify the President for final resolution.

Jason Carlson — Digitally signed by Jason Carlson Date: 2021.04.21 14:54:32 -04'00'	4/21/2021
President, Aerex Industries, Inc.	Date

(Signature will only exist on the printed and executed controlled copy, see QA Manager to review copy)

Acronyms

These acronyms may be found either in the Quality Assurance Manual or in any of the Quality Assurance Procedures.

A2LA	American Association for Laboratory Accreditation
AAR	Aerex Attendance Record
ACR	Adverse Condition Report
AE	Acoustic Emission
ARX	Aerex Industries
ALT	Atmospheric Leak Testing
AMR	Lead Auditor Maintenance Record
ANSI	American National Standards Institute
API	American Petroleum Institute
ASA	Aerex Surveillance and Audit Schedule
ASL	Approved Supplier List
ASME	American Society of Mechanical Engineers
ASN	Approved Suppliers List Update Notice
ASNT	American Society of Nondestructive Testing
ASTM	American Society of Testing and Materials
BOL	Bill of Lading
CA	Corrective Action
CAC	Checklist for Checking Analysis-Calculations
CAQ	Conditions Adverse to Quality
CASE	Computer Aided Software Engineering
CD-ROM	Compact Disk Read-Only Memory
CFR	Code of Federal Regulations
CRF	Condition Report Form
CFSI	Counterfeit, Fraudulent or Suspect Items
CRN	Cross Reference Number
COM	Commercial Invoice
DC	Document Control
DCN	Data Change Notice
DRC	Design Review Checklist
DRR	Design Report Review Questions
DRW	Drawing
DSC	Design Specification Review Checklist
DTF	Data Transmittal Form
DWP	Design Work Plan
EAC	Engineering Analysis-Design Calculation
ESE	Engineering Safety Evaluation
ET	Electromagnetic Testing
HYD	Hydrostatic / Soap Bubble / Atmospheric Leak Test Report
IAR	Internal Audit Report
IEC	International Electro Technical Commission
IPC	Inspection Personnel Certification Form
ISO	International Organization for Standardization
ITC	Inspection and Test Personnel Certification Form
LTA	Less Than Adequate
LTR	Load Test Report
MP	Magnetic Particle
MPR	Magnetic Particle Report
MRA	Mutual Recognition Arrangement

N/A	Not Applicable
NCR	Nonconformance Report
NDE	Nondestructive Examination
M&TE	Measuring and Test Equipment
NDT	Nondestructive Testing
NELAC	National Environmental Laboratory Accreditation Conference
NIAC	Nuclear Industry Assessment Committee
NIST	National Institute of Standards and Technology
NQA-1	Quality Assurance Requirements for Nuclear Facility Applications, Part I and Part II
NRC	US Nuclear Regulatory Commission
NRT	Neutron Radiographic Testing
NTR	NIAC and Third-Party Audit Evaluation Report
NVLAP	National Voluntary Laboratory Accreditation Program
PSF	Packing Slip Form
PT	Penetrant Testing
PTR	Penetrant Test Report
PO	Purchase Order
QA	Quality Assurance
QAF	Quality Assurance Form
QAM	Quality Assurance Manual
QAP	Quality Assurance Procedure
QAPP	Quality Assurance Project Plan
QAS	Quality Assurance Surveillance Report
QC	Quality Control
QCR	Lead Auditor Qualification and Certification Record
QER	Auditor Qualification/Equivalency Record
RCR	Review Comment Record
RIR	Receiving Inspection Report
RT	Radiographic Testing
SAR	Supplier Audit Report
SCAQ	Significant Condition Adverse to Quality
SER	Supplier Annual Evaluation Report
SPT	Shop Production Traveler
SUB	Subcontractor’s Contract
TPC	(NDT) Personnel Certification Form
UT	Ultrasonic Testing
VAR	Visual Acuity Record
VT	Visual Testing
VTR	Visual Test Report

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1. ORGANIZATION

1.1. General

1.1.1. Senior management shall ensure responsibilities for the establishment and implementation of the quality assurance (QA) program are defined.

1.1.2. The organizational structure, functional responsibilities, levels of authority, and lines of communications for activities affecting quality shall be documented on an organizational chart.

1.2. Structure

1.2.1. Senior management establishes overall expectations for effective implementation of the QA program and is responsible for obtaining the desired end result.

1.2.2. All personnel assigned responsibility for performing work will ensure quality is achieved and maintained.

1.2.3. Personnel who are not directly responsible for performing the work will verify quality achievement.

1.2.4. The QA/QC Manager is responsible for ensuring that an appropriate QA program has been established and for verifying activities affecting quality. The QA/QC Manager has sufficient authority, direct access to responsible levels of management, organizational freedom, and access to work to perform this function. The QA/QC Manager has sufficient independence from cost and schedule when such considerations conflict with safety function considerations. These verification functions include the following:

1.2.4.1. Identifying quality problems.

1.2.4.2. Initiating, recommending, or providing solutions to quality problems through designated channels.

1.2.4.3. Verifying implementation of solutions.

1.2.4.4. Ensuring that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.

1.3. Delegation

1.3.1. Senior management responsible for establishing and executing a QA program under this QAM may delegate any or all of the work to others but shall retain responsibility.

1.4. Interface Control

1.4.1. Where more than one organization is involved in the execution of activities, management will ensure the responsibilities, interfaces, and authority of each organization is clearly defined and documented.

1.4.2. Management will ensure external interfaces between organizations and the internal interfaces between organizational units, and changes thereto, shall be documented.

2. QUALITY ASSURANCE PROGRAM

2.1. General

2.1.1. Senior management shall ensure a documented QA program is planned, implemented, and maintained in accordance with this QAM, or portions thereof. The program shall apply to the design and manufacture of process equipment, pressure vessels, vessels and general fabrication including the following activities and items:

2.1.1.1. Water and wastewater solutions including purification and recovery processes, construction services, and chemical treatments.

2.1.1.2. Metallic repairs and/or alterations.

2.1.1.3. Welding activities in a variety of materials such as Inconel, aluminum, stainless steel, Alloy 20, Monel, duplex and super duplex, Hastelloy, titanium and nickel alloy.

2.1.1.4. System design.

2.1.1.5. Project management including procurement, fabrication, welding, non-destructive testing, QA/QC inspection, and final finishing for shipment.

2.1.2. The program shall provide control over activities affecting quality to an extent consistent with their importance and with client requirements. Quality levels will be used for the implementation of the Aerex Industries quality program. The following provides the methodology for applying a graded approach to classification of items consistent with their function:

Job ID	Job Classification	
JG	General	apply requirements of Purchaser
JC	Code	apply requirements of QC Manual
JN	General Nuclear	apply requirements of QA Manual
JNCV	Nuclear Code Vessel	apply requirements of QA and QC Manual
JV	Vessel	apply requirements of Purchaser
JCV	Code Vessel	apply requirements of QC Manual
JPS	Piping Systems	apply requirements of Purchaser
JCFV	Code Filter Vessel	apply requirements of QC Manual
JMS	Membrane Systems	apply requirements of Purchaser
JMR	Material Resale	apply requirements of Purchaser
JGF	General Fabrication	apply requirements of Purchaser
JS	Service	apply requirements of Purchaser

2.1.3. Documents prepared shall be controlled by the numbering description identified in ARX-QAP-06.0, *Document Control*.

2.1.4. The program shall include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities affecting quality are performed satisfactorily.

2.1.5. The program shall be established at the earliest time consistent with the schedule for accomplishing the activities.

2.1.6. The program shall provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.

2.1.7. The program shall provide for any special controls, processes, test equipment, tools, and skills to attain the required quality of activities and items and for verification of that quality.

2.1.8. The organization shall establish and implement processes to detect and correct quality problems.

2.1.9. The program shall provide for indoctrination, training, and qualification as necessary of personnel performing or managing activities affecting quality to ensure that suitable proficiency is achieved and maintained.

2.1.10. Management shall regularly assess the adequacy and effective implementation of the QA program.

2.2. Indoctrination and Training

2.2.1. Indoctrination and training shall be commensurate with scope, complexity, importance of the activities, and the education, experience, and proficiency of the person.

2.2.2. **Indoctrination** – Personnel performing or managing activities affecting quality shall receive indoctrination in their job responsibilities and authority that includes general criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and QA program requirements.

2.2.3. **Training** – Management shall determine the need for a formal training program for personnel performing or managing activities affecting quality. Management shall ensure that training is provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities. Management shall ensure that on-the-job training is provided if direct hands-on applications or experience is needed to achieve and maintain proficiency.

2.3. Qualification Requirements

2.3.1. The responsible organization shall designate those activities that require qualification of personnel and the minimum requirements for such personnel

2.3.2. The responsible organization shall establish written procedures for the qualification of personnel and for the assurance that only those personnel who meet the requirements are permitted to perform these activities.

2.4. Nondestructive Examination

2.4.1. Management shall establish procedures that specify requirements for the qualification of personnel who perform radiographic (RT), magnetic particle (MP), ultrasonic (UT), liquid

penetrant (PT), electromagnetic (ET), neutron radiographic (NRT), leak testing (LT), acoustic emission (AE), and visual testing (VT) and to verify conformance to the specified requirements.

2.4.2. The American Society of Nondestructive Testing (ASNT) recommended practices or standards provide acceptable qualification requirements for nondestructive examination (NDE) personnel. Management shall utilize applicable codes and standards or design criteria controlling the qualification of NDE personnel to establish the applicable ASNT qualification requirement and edition or to specify an equivalent alternative requirement.

2.5. **Inspection and Test**

2.5.1. Management shall determine the initial capabilities of a candidate by an evaluation of the candidate's education, experience, training, and either test results or capability demonstration.

2.5.2. Qualified personnel shall re-evaluate the job performance of inspection and test personnel at periodic intervals not to exceed three years.

2.5.3. Re-evaluation shall be by evidence of continued satisfactory performance or redetermination of capability in accordance with the requirements of Section 2.2. If, during this evaluation or at any other time, it is determined by the responsible organization that the capabilities of an individual are not in accordance with the qualification requirements specified for the job, management shall remove that person from that activity until such time as the required capability has been demonstrated.

2.5.4. Management shall re-evaluate any person who has not performed inspection or testing activities in the qualified area for a period of one year.

2.6. **Lead Auditor**

2.6.1. The Lead Auditor organizes and directs audits, reports audit findings, and evaluates corrective actions. An individual shall meet the requirements in Sections 2.6.3 through 2.6.6 prior to being designated a Lead Auditor.

2.6.2. The prospective Lead Auditor shall be capable of communicating effectively, both in writing and orally. These skills shall be attested to in writing by the Lead Auditor's employer.

2.6.3. Prospective Lead Auditors shall receive training to the extent necessary to ensure auditing competence including:

2.6.3.1. Knowledge and understanding of this QAM and other nuclear-related codes, standards, regulations, and regulatory guides, as applicable.

2.6.3.2. General structure of QA programs as a whole and applicable elements as defined in this QAM.

2.6.3.3. Auditing techniques of examining, questioning, evaluating, and reporting; methods of identifying and following up on corrective action items; and closing out audit findings.

2.6.3.4. Planning audits of activities affecting quality.

2.6.3.5. On-the-job training to include applicable elements of the audit program.

2.6.4. Prospective Lead Auditors shall participate in a minimum of five QA audits within a period of time not to exceed three years prior to the date of qualification, one audit of which shall be a nuclear QA audit within the year prior to qualification. Participation in independent assessments including team assessment activities such as operations readiness reviews and regulatory inspections/surveys may be used to satisfy up to four of the five required QA audits, provided that the activities can demonstrate the following:

2.6.4.1. Independence from the functional areas being assessed.

2.6.4.2. Planning that establishes the scope of the activities and associated evaluation criteria.

2.6.4.3. Performance by technically qualified and experienced personnel.

2.6.4.4. Results that are documented and reported to management.

2.6.4.5. Appropriate corrective action initiated and tracked to resolution.

2.6.5. Such participation shall be subject to review and acceptance by the organization responsible for QA audits and/or the certifying authority prior to their use for qualification.

2.6.6. Prospective Lead Auditors shall pass an examination that shall evaluate comprehension of and ability to apply the body of knowledge identified above. The examination may be oral, written, practical, or any combination thereof.

2.6.7. Lead Auditors shall maintain their proficiency through one or more of the following:

2.6.7.1. Regular and active participation in the audit process.

2.6.7.2. Review and study of codes, standards, procedures, instructions, and other documents related to QA programs and program auditing.

2.6.7.3. Participation in training program(s).

2.6.8. Based on annual assessment of the Lead Auditor, management may extend the qualification, require retraining, or require requalification.

2.6.9. Lead Auditors who fail to maintain their proficiency for a period of two years or more shall require requalification. Requalification shall include retraining in accordance with the requirements of Section 2.6.3, re-examination in accordance with Section 2.6.6, and participation as an Auditor in at least one nuclear QA audit.

2.7. **Auditors**

2.7.1. Auditors are participants in an audit. Auditors shall have, or be given, appropriate training or orientation to develop their competence for performing audits.

2.7.2. Competence of personnel for performance of the various auditing functions shall be developed by one or more of the methods described in Sections 2.7.2.1 through 2.7.2.3.

2.7.2.1. Orientation to provide a working knowledge and understanding of this QAM and the auditing organization's procedures for implementing audits and reporting results.

2.7.2.2. General and specialized training in audit performance where the general training shall include fundamentals, objectives, characteristics, organization,

performance, and results of quality auditing and the specialized training shall include methods of examining, questioning, evaluating, and documenting specific audit items and methods of closing out audit findings.

2.7.2.3. On-the-job training, guidance, and counseling under the direct supervision of a Lead Auditor. Such training shall include planning, performing, reporting, and follow-up action involved in conducting audits.

2.8. **Technical Specialists**

2.8.1. The responsible auditing organization shall establish the qualifications and requirements for use of technical specialists to accomplish the auditing of QA programs.

2.9. **Records of Qualification**

2.9.1. Management shall certify the qualification of inspection, test, and Lead Auditor personnel in writing to include the information in Sections 2.9.1.1 through 2.9.1.8.

2.9.1.1. Employer's name

2.9.1.2. Identification of person being certified

2.9.1.3. Activities certified to perform

2.9.1.4. Basis of qualification

2.9.1.4.1. Education, experience, indoctrination, and training

2.9.1.4.2. Test results, where applicable

2.9.1.4.3. Capability demonstration results

2.9.1.5. Results of periodic evaluation

2.9.1.6. Results of physical examinations, when required

2.9.1.7. Signature of employer's designated representative who is responsible for certification

2.9.1.8. Date of certification or recertification and certification expiration

2.9.2. The responsible organization shall identify any special physical characteristics needed in the performance of each activity, including the need for initial and subsequent physical examination.

2.9.3. The employer may delegate qualification examination activities to an independent certifying agency, but shall retain responsibility for conformance of the examination and its administration.

2.9.4. The employer or certifying agency shall maintain the integrity of the examination through appropriate confidentiality of files and, where applicable, proctoring of examinations.

2.9.5. The employer shall retain copies of the objective evidence regarding the type(s) and content of the examination(s) in accordance with the requirements in Section 2.9.

2.10. **Records**

2.10.1. Records of the implementation for indoctrination and training may take the form of attendance sheets, training logs, or personnel training records.

2.10.2. The employer shall establish and maintain records for indoctrination and training, Auditor and Lead Auditor qualification and requalification, and inspection and test personnel qualification and requalification.

3. DESIGN CONTROL

3.1. General

3.1.1. The responsible design organization shall define, control, and verify designs.

3.1.2. Design inputs shall be specified on a timely basis and translated into design documents.

3.1.3. Design interfaces shall be identified and controlled.

3.1.4. Individuals other than those who designed the item shall verify design adequacy.

3.1.5. Design changes shall be governed by control measures commensurate with those applied to the original design.

3.2. Design Input

3.2.1. Applicable design inputs shall be identified and documented, and their selection reviewed and approved.

3.2.2. The design input shall be specified to the level of detail necessary to permit the design activities to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes.

3.3. Design Process

3.3.1. The responsible design organization shall prescribe and document the design activities to the level of detail necessary to permit the design process to be carried out in a correct manner, and to permit verification that the design meets requirements.

3.3.2. Design documents shall support facility design, construction, and operation. Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.

3.3.3. The design methods, materials, parts, equipment, and processes that are essential to the function of the items shall be selected and reviewed for suitability of application. Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.

3.3.4. The final design shall meet the requirements in Sections 3.3.4.1 through 3.3.4.3.

3.3.4.1. Be relatable to the design input by documentation in sufficient detail to permit design verification.

3.3.4.2. Specify required inspections and tests and include or reference appropriate acceptance criteria.

3.3.4.3. Identify assemblies and/or components that are part of the item being designed. When such an assembly or component part is a commercial grade item, the critical characteristics of the item to be verified for acceptance and the acceptance criteria for those characteristics shall meet the requirements of Section 20 (Commercial Grade Items and Services).

3.3.5. Critical characteristics to be verified are those that provide reasonable assurance that the item will perform its intended safety function. If a commercial grade item, prior to its installation, is modified or selected by special inspection and/or testing to requirements that are more restrictive than the Supplier's published product description, the component part shall be represented as different from the commercial grade item in a manner traceable to a documented definition of the difference.

3.4. **Design Analyses**

3.4.1. Design analyses shall be sufficiently detailed such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator.

3.4.2. Use of Computer Programs

3.4.2.1. To the extent required in Sections 3.4.2.1.1 and 3.4.2.1.2, computer program acceptability shall be pre-verified or the results verified with the design analysis for each application. Pre-verified commercial off-the-shelf computer programs shall be controlled in accordance with the requirements of Section 19 of this QAM.

3.4.2.1.1. The computer program shall be verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.

3.4.2.1.2. The encoded mathematical model shall be shown to produce a valid solution to the physical problem associated with the particular application.

3.4.3. Documentation of Design Analyses

3.4.3.1. Documentation of design analyses shall include the requirements in Sections 3.4.3.1.1 through 3.4.3.1.6.

3.4.3.1.1. Objective of the analyses.

3.4.3.1.2. Design inputs and their sources.

3.4.3.1.3. Results of literature searches or other applicable background data.

3.4.3.1.4. Assumptions and indication of those assumptions that must be verified as the design proceeds.

3.4.3.1.5. Identification of any computer calculation, including identification of the computer type, computer program name, and revision, inputs, outputs, evidence of or reference to computer program verification, and the bases (of reference thereto) supporting application of the computer program to the specific physical problem as required by Sections 3.4.2.1.1 and 3.4.2.1.2.

3.4.3.1.6. Review and approval.

3.5. **Design Verification**

3.5.1. The responsible design organization shall identify, and document particular design verification method(s) used.

3.5.2. The results of design verification shall be documented with the identification of the verifier clearly indicated.

3.5.3. Design verification shall be performed by any competent individual(s) or group(s) other than who performed the original design but who may be from the same organization.

3.5.4. This verification may be performed by the originator's supervisor provided

3.5.4.1. The supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or

3.5.4.2. The supervisor is the only individual in the organization competent to perform the verifications.

3.5.5. Cursory supervisory reviews do not satisfy the intent of this standard.

3.5.6. Design verification shall be performed prior to releasing the design for procurement, manufacture, con-struction, or use by another design organization, except where this timing cannot be met, such as when insuffi-cient data exist. In those cases, the unverified portion of the design shall be identified and controlled.

3.5.7. In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.

3.5.8. If the design is modified to resolve verification findings, the modified design shall be verified prior to release or use.

3.5.9. The extent of the design verification shall be a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proved designs. Where the design has been subjected to a verification process in accordance with ASME NQA-1 Part I, Requirement 3, the verification process need not be duplicated for identical designs.

3.5.9.1. The applicability of standardized or previously proven designs, with respect to meeting pertinent design inputs, shall be verified for each application.

3.5.9.2. Known problems affecting the standard or previously proved designs and their effects on other features shall be considered.

3.5.9.3. The original design and associated verification documentation shall be referenced in records of subsequent application of the design.

3.5.10. Acceptable verification methods include, but are not limited to, any one or a combination of the following:

3.5.10.1. Design Reviews

3.5.10.1.1. Design reviews shall provide assurance that the final design is correct and satisfactory by addressing, where applicable, paras. 3.5.10.1.2. through 3.5.10.1.8. of this requirement.

3.5.10.1.2. Were the design inputs correctly selected?

3.5.10.1.3. Are assumptions necessary to perform the design activity adequately described and reasonable? Where necessary, are the assumptions

identified for subsequent reverifications when the detailed design activities are completed?

3.5.10.1.4. Were appropriate design methods and computer programs used?

3.5.10.1.5. Were the design inputs correctly incorporated into the design?

3.5.10.1.6. Is the design output reasonable compared to design inputs?

3.5.10.1.7. Are the necessary design inputs for interfacing organizations specified in the design documents or in supporting procedures or instructions?

3.5.10.1.8. Have suitable materials, parts, processes, and inspection and testing criteria been specified?

3.5.10.2. Alternated Calculations

3.5.10.2.1 Alternate Calculations shall use alternate methods to verify correctness of the original calculations or analyses.

3.5.10.2.1. The appropriateness of assumptions; input data used; and the computer program, its associated computer hardware and system software, or other calculation method used shall also be reviewed.

3.5.10.3. Qualification Testing

3.5.10.3.1. Testing shall demonstrate adequacy of performance under conditions that simu-late the most adverse design conditions.

3.5.10.3.2. Operating modes and environmental conditions shall be consid-ered in determining the most adverse conditions.

3.5.10.3.3. Where the test is intended to verify only specific design fea-tures, the other features of the design shall be verified by other means.

3.5.10.3.4. When tests are being performed on models or mockups, scaling laws shall be established and verified.

3.5.10.3.5. The results of model test work shall be subject to error analysis, where applicable, prior to use in the final design.

3.6. Change Control

3.6.1. Changes to design inputs, final designs, field changes, and temporary and permanent modifications to operating facilities shall be justified and subject to design control measures commensurate with those applied to the original design.

3.6.2. These measures shall include evaluation of effects of those changes on the overall design and on any analysis upon which the design is based.

3.6.3. The evaluation shall include facility configurations that occur during operation, maintenance, test, surveillance, and inspection activities.

3.6.4. Changes shall be approved by the same affected groups or organizations that reviewed and approved the original design documents.

3.6.5. When the organization originally responsible for review and approval of the original design documents is no longer responsible, the owner or his designee shall assume responsibility or designate a new responsible organization.

3.6.6. The design organization approving the change shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.

3.6.7. When a design change is approved other than by revision to the affected design documents, measures shall be established to incorporate the change into these documents, where such incorporation is appropriate.

3.6.8. Where a significant design change is necessary because of an incorrect design, the design process and verification procedure shall be reviewed and modified as necessary.

3.7. Interface Control

3.7.1. Interface controls shall include assignment of responsibility and establishment of procedures among participating design organizations for review, approval, release, distribution, and revision of documents involving design interfaces.

3.7.2. Design information transmitted across interfaces shall identify the status of the design information or documents provided and identify incomplete items that require further evaluation, review, or approval.

3.7.3. Where it is necessary to initially transmit design information orally or by other informal means, the transmittal shall be confirmed promptly by a controlled document

3.8. Documentation and Records

3.8.1. Design documentation and records shall include not only final design documents, such as drawings and specifications, and revisions to those documents, but also documentation that identifies the important steps in the design process, including sources of design inputs that support the final design.

4. PROCUREMENT DOCUMENT CONTROL

4.1. General

4.1.1. Management shall ensure applicable design bases and other requirements necessary to assure adequate quality is included or referenced in documents for procurement of items and services.

4.1.2. To the extent necessary, procurement documents shall require Suppliers to have a QA program consistent with the applicable requirements of this QAM.

4.2. Content of Procurement Documents

4.2.1. Procurement documents issued at all tiers of procurement shall include provisions for the requirements described in Sections 4.3 through 4.9, as deemed necessary by the Purchaser.

4.3. Scope of Work

4.3.1. Procurement documents shall include a statement of the scope of the work to be performed by the Supplier.

4.4. Technical Requirement

4.4.1. Procurement documents shall specify technical requirements.

4.4.2. These requirements shall be specified, as appropriate by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished.

4.4.3. The procurement documents shall identify appropriate test, inspection, and acceptance criteria for determining acceptability of the item or service.

4.5. **Quality Assurance Program Requirements**

4.5.1. Procurement documents shall specify QA program requirements.

4.5.2. Procurement documents shall include previsions for CFSI.

4.5.3. These requirements shall be consistent with importance and/or complexity of the item or service being procured.

4.5.4. The procurement documents shall require the Supplier to incorporate appropriate QA program requirements in sub-tier procurement documents.

4.6. **Right of Access**

4.6.1. The procurement documents shall provide for access to the Supplier's and sub-tier Supplier's facilities and records for surveillance, inspection, or audit by the Purchaser, its designated representative, and others authorized by the Purchaser.

4.7. **Documentation Requirements**

4.7.1. The procurement documents shall identify the documentation required to be submitted for information, review, or approval by the Purchaser.

4.7.2. The time of submittal shall also be established.

4.7.3. When the Purchaser requires the Supplier to maintain specific records, the retention times and disposition requirements shall be prescribed.

4.8. **Nonconformance's**

4.8.1. The procurement documents shall specify the Purchaser's requirements for the Supplier's reporting of nonconformance's.

4.9. **Spare and Replacement Parts**

4.9.1. The procurement documents shall specify the Supplier's requirements to identify spare and replacement parts or assemblies and the related data required for ordering these parts or assemblies.

4.10. **Procurement Document Review**

4.10.1. Procurement documents and associated changes shall be reviewed and documented prior to award to ensure that documents transmitted to prospective Supplier(s) include appropriate provisions to ensure that items or services will meet the specified requirements.

4.10.2. Technical or QA program changes made as a result of bid evaluations or negotiations shall be incorporated into the procurement documents prior to their issuance to the Supplier.

4.10.3. Personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents shall review procurement documents.

4.11. **Procurement Document Changes**

4.11.1. Procurement document changes affecting the technical or QA program requirements shall be subject to the same degree of control as utilized in the preparation of the original documents.

5. PREPARATION AND CONTROL OF INSTRUCTIONS, PROCEDURES, AND DRAWINGS

5.1. **General**

5.1.1. Management shall ensure activities affecting quality and services are prescribed by and performed in accordance with documented instructions, procedures, forms or drawings that include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished.

5.2. **Requirements**

5.2.1. Activities shall be described to a level of detail commensurate with the complexity of the activity and the need to ensure consistent and acceptable results.

5.2.2. The need for, and level of detail in, written procedures or instructions shall be determined based upon complexity of the task, the significance of the item or activity, work environment, and worker proficiency and capability (e.g., education, training, experience).

6. DOCUMENT CONTROL

6.1. **General**

6.1.1. Management shall ensure the preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality such as instructions, procedures, and drawings are controlled to ensure that correct documents are being employed.

6.1.2. Authorized personnel shall review such documents, including changes thereto, for adequacy and approval for release.

6.2. **Document Control**

6.2.1. The controls in Sections 6.2.1.1 through 6.2.1.5 shall be applied to documents and changes thereto.

6.2.1.1. The identification of controlled documents.

6.2.1.2. The specified distribution of controlled documents for use at the appropriate location.

6.2.1.3. The identification of individuals responsible for the preparation, review, approval, and distribution of controlled documents.

6.2.1.4. The review of controlled documents for adequacy, completeness, and approval prior to distribution.

6.2.1.5. A method to ensure the correct documents are being used.

6.3. **Major Changes**

6.3.1. Unless other organizations are specifically designated, organizations that performed the original review and approval of documents shall review and approve changes to those documents, other than those defined as minor changes.

6.3.2. The reviewing organization shall have access to pertinent background data or information upon which to base their approval.

6.4. **Minor Changes**

6.4.1. Minor changes to documents, such as inconsequential editorial corrections, shall not require that the revised documents receive the same review and approval as the original documents.

6.4.2. To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval and the persons who can authorize such a decision shall be clearly delineated.

7. CONTROL OF PURCHASED ITEMS AND SERVICES

7.1. **General**

7.1.1. Management shall ensure the procurement of items and services are controlled to ensure conformance with specified requirements.

7.1.2. Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the Supplier, source inspection, audit, and examination of items or services upon delivery or completion.

7.2. **Supplier Evaluation and Selection**

7.2.1. Prior to award of a contract, the Purchaser shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents.

7.2.2. Supplier evaluation and selection results are to be documented and shall include one or more of the requirements in Sections 7.2.2.1 through 7.2.2.3.

7.2.2.1. Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier's history shall reflect current capability.

7.2.2.2. Supplier's current QA records supported by documented qualitative and quantitative information that can be objectively evaluated.

7.2.2.3. Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the Supplier's QA program.

Note: The above-mentioned evaluation methods shall include a review of the suppliers CFSI controls.

7.3. **Bid Evaluation**

7.3.1. If bids are solicited, the bid evaluation shall include a determination of the Supplier's capability to conform to the technical and QA requirements.

7.3.2. Prior to the award of the contract, the Purchaser shall resolve or obtain commitments to resolve unacceptable technical and QA conditions resulting from the bid evaluation.

7.4. **Control of Supplier-Generated Documents**

7.4.1. Controls shall be implemented to ensure that the submittal and evaluation of Supplier-generated documents and changes are accomplished in accordance with the procurement document requirements.

7.4.2. These controls shall provide for the acquisition, processing, and recorded evaluation of the QA, technical, inspection, and test documentation or data against acceptance criteria.

7.5. **Acceptance of Items or Services**

7.5.1. Prior to offering the item or service for acceptance, the Supplier shall verify that the item or service being furnished complies with the procurement requirements.

7.5.2. The extent of the verification activities by the Purchaser shall be a function of the relative importance, complexity, and quantity of the item or services procured and the Supplier's quality performance.

7.5.3. Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement requirements shall be available at the nuclear facility site prior to installation or use.

7.5.4. Purchaser methods used to accept an item or service from a Supplier shall be a Supplier Certificate of Conformance, source verification, receiving inspection, or post installation test at the nuclear facility site, or a combination of these methods.

7.6. **Certificate of Conformance**

7.6.1. When a Certificate of Conformance is used, the minimum criteria of Sections 7.6.1.1 through 7.6.1.6 shall be met.

7.6.1.1. The certificate shall identify the purchased material or equipment (e.g., purchase order number).

7.6.1.2. The certificate shall identify the specific procurement requirements met by the purchased material or equipment, such as codes, standards, and other specifications. This may be accomplished by including a list of the specific requirements or by providing, on-site, a copy of the purchase order and the procurement specifications or drawings, together with a suitable certificate. The procurement requirements identified shall include any approved changes, waivers, or deviations applicable to the subject material or equipment.

7.6.1.3. The certificate shall identify any procurement requirements that have not been met, together with an explanation and the means for resolving the nonconformance's.

7.6.1.4. The certificate shall be signed or otherwise authenticated by a person who is responsible for this QA function and whose function and position are described in the Purchaser's or Supplier's QA program.

7.6.1.5. The certification system, including the procedures to be followed in filling out a certificate and the administrative procedures for review and approval of the certificates, shall be described in the Purchaser's or Supplier's QA program.

7.6.1.6. Means shall be provided to verify the validity of Supplier certificates and the effectiveness of the certification system, such as during the performance of audits of the Supplier or independent inspection or test of the items. Such verification shall be conducted by the Purchaser at intervals commensurate with the Supplier's past quality performance.

7.7. **Source Verification**

7.7.1. When source verification is used, it shall be performed at intervals consistent with the importance and complexity of the item or service, and shall include monitoring, witnessing, or observing selected activities.

7.7.2. Source verification shall be implemented in accordance with plans to perform inspections, examinations, or tests at predetermined points.

7.7.3. Upon Purchaser acceptance of source verification, documented evidence of acceptance shall be furnished to the receiving destination of the item, to the Purchaser, and to the Supplier.

7.8. **Receiving Inspection**

7.8.1. When receiving inspection is used, purchased items shall be inspected as necessary to verify conformance to specified requirements, taking into account source verification, audit activities, CFSI and the demonstrated quality performance of the Supplier. Receiving inspection shall verify by objective evidence such features as configuration; identification; dimensional, physical, and other characteristics; freedom from shipping damage; and cleanliness.

7.8.2. Receiving inspection shall be coordinated with review of Supplier documentation when procurement documents require such documentation to be furnished prior to receiving inspection.

7.9. **Post Installation Testing**

7.9.1. When post installation testing is used, the Purchaser and Supplier shall mutually establish post installation test requirements and acceptance documentation.

7.10. **Acceptance of Services Only**

7.10.1. In cases involving procurement of services only (such as third-party inspection; engineering and consulting services; auditing; and installation, repair, overhaul, or maintenance work), the Purchaser shall accept the service by any or all of the methods described in Sections 7.10.1.1 through 7.10.1.3.

7.10.1.1. Technical verification of data produced.

7.10.1.2. Surveillance and/or audit of the activity.

7.10.1.3. Review of objective evidence for conformance to the procurement document requirements.

7.11. **Control of Supplier Nonconformance**

7.11.1. Methods for control and disposition of Supplier nonconformance's for items and services that do not meet procurement document requirements shall include Sections 7.11.1.1 through 7.11.1.5:

7.11.1.1. Evaluation of nonconforming items.

7.11.1.2. Submittal of nonconformance notice to Purchaser by Supplier as directed by the Purchaser. These submittals shall include Supplier-recommended disposition (e.g., use-as-is or repair) and technical justification. Nonconformance's to the procurement requirements or Purchaser-approved documents, which consist of one or more of the following, shall be submitted to the Purchaser for approval of the recommended disposition:

7.11.1.2.1. Technical or material requirement is violated.

7.11.1.2.2. Requirement in Supplier documents, which has been approved by the Purchaser, is violated.

7.11.1.2.3. Nonconformance cannot be corrected by continuation of the original manufacturing process or by rework.

7.11.1.2.4. The item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired.

7.11.1.3. Purchaser disposition of Supplier recommendation.

7.11.1.4. Verification of the implementation of the disposition.

7.11.1.5. Maintenance of records of Supplier-submitted nonconformance's.

7.12. Commercial Grade Items

7.12.1. When commercial grade items (including computer software) or services are utilized, the requirements of Section 20 (Quality Assurance Requirements for Commercial Grade Items and Services) shall apply and are an acceptable alternative to Sections 7.2 through 7.6, except that Supplier evaluation and selection, where determined necessary by the Purchaser, shall be in accordance with Section 7.2.

7.13. Records

7.13.1. Records shall be established and maintained to indicate the performance of the following functions:

7.13.1.1. Supplier evaluation and selection.

7.13.1.2. Acceptance of items or services.

7.13.1.3. Supplier nonconformance's to procurement document requirements, including their evaluation and disposition.

8. IDENTIFICATION AND CONTROL OF ITEMS

8.1. General

8.1.1. Management shall establish controls to ensure that only correct and accepted items are used or installed. Identification shall be maintained on the items or in documents traceable to the items, or in a manner that ensures that identification is established and maintained.

8.2. Item Identification

8.2.1. Items of production (batch, lot, component, part) shall be identified from the initial receipt and fabrication of items up to and including installation and use. This identification shall relate an item to an applicable design or other pertinent specifying document.

8.3. **Physical Identification**

8.3.1. Physical identification shall be used to the maximum extent possible. Where physical identification on the item is either impractical or insufficient, physical separation, procedural control, or other appropriate means shall be employed.

8.3.2. Identification markings shall be applied using materials and methods that provide a clear and legible identification and do not degrade the function or service life of the item.

8.3.3. Markings shall be transferred to each part of an identified item when subdivided and shall not be obliterated or hidden by surface treatment or coating unless other means of identification are substituted.

8.4. **Identification and Traceability of Items**

8.4.1. When codes, standards, or specifications include specific identification or traceability requirements (such as identification or traceability of the item to applicable specification and grade of material; heat, batch, lot, part, or serial number; or specified inspection, test, or other records), the program shall provide such identification and traceability control.

8.5. **Limited Life Items**

8.5.1. Items having limited calendar or operating life or cycles shall be identified and controlled to preclude use of items whose shelf life or operating life has expired.

8.6. **Maintaining Identification of Stored Items**

8.6.1. Provisions shall be made for the control of item identification consistent with the planned duration and conditions of storage, such as described in Sections 8.6.1.1 through 8.6.1.3.

8.6.1.1. Provisions for maintenance or replacement of markings and identification records due to damage during handling or aging.

8.6.1.2. Protection of identifications on items subject to excessive deterioration due to environmental exposure.

8.6.1.3. Provisions for updating existing plant records.

9. CONTROL OF SPECIAL PROCESSES

9.1. **General**

9.1.1. Management shall ensure special processes that control or verify quality (such as those used in welding, heat treating, and nondestructive examination) are performed by qualified personnel using qualified procedures in accordance with specified requirements.

9.2. **Special Processes**

9.2.1. Special processes shall be controlled by instructions, procedures, drawings, checklists, travelers, or other appropriate means.

9.2.2. Special process instructions shall include or reference procedure, personnel, and equipment qualification requirements.

9.2.3. Conditions necessary for accomplishment of the process shall be included. These conditions shall include proper equipment, controlled parameters of the process, specified environment, and calibration requirements.

9.3. **Acceptance Criteria**

9.3.1. The requirements of applicable codes and standards, including acceptance criteria for the process, shall be specified or referenced in procedures or instructions

9.4. **Special Requirements**

9.4.1. For special processes not covered by existing codes and standards or where quality requirements specified exceed those of existing codes or standards, the necessary requirements for qualifications of personnel, procedures, or equipment shall be specified or referenced in procedures or instructions.

9.5. **Responsibility**

9.5.1. The organization performing the special process is responsible for adhering to the approved procedures and processes.

9.6. **Records**

9.6.1. Records shall be maintained as appropriate for the currently qualified personnel, processes, and equipment of each special process.

10. INSPECTION

10.1. **General**

10.1.1. Employees shall plan and execute inspections required to verify conformance of an item or activity to specified requirements or continued acceptability of items in service.

10.1.2. Characteristics subject to inspection and inspection methods shall be specified.

10.1.3. Inspection results shall be documented.

10.1.4. Inspection for acceptance shall be performed by qualified persons other than those who performed or directly supervised the work being inspected, shall perform inspections.

10.2. **Inspection Requirements**

10.2.1. Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.

10.3. **Inspection Hold Points**

10.3.1. If mandatory inspection hold points are required beyond which work shall not proceed without the specific consent of the designated representative, the appropriate documents shall specify the hold points.

10.3.2. Consent to waive specified hold points shall be recorded prior to continuation of work beyond the designated hold point.

10.4. **Inspection Planning**

10.4.1. Planning – Characteristics to be inspected, methods of inspection, and acceptance criteria shall be identified during the inspection planning process.

10.4.2. Sampling – Sampling procedures, when used, shall be based upon standard statistical methods with engineering approval.

10.5. **In-Process Inspection**

10.5.1. Inspection of items under construction or otherwise in process shall be performed as necessary to verify quality.

10.5.2. If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment, and personnel shall be provided.

10.5.3. Qualified personnel or automated means shall perform process monitoring.

10.5.4. Both inspection and process monitoring shall be provided when control is inadequate without both.

10.6. **Final Inspection**

10.6.1. Resolution of Nonconformance's – Final inspections shall include a records review of the results and resolution of nonconformance's identified by previous inspections.

10.6.2. Inspection Requirements – Completed items shall be inspected for completeness, markings, calibration, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance of the item to specified requirements.

10.6.3. Modifications, Repairs, or Replacements – Any modification, repairs, or replacements of items performed subsequent to final inspection shall require reinspection or retest, as appropriate, to verify acceptability.

10.6.4. Acceptance – Authorized personnel shall accept the item.

10.7. **Inspection During Operations**

10.7.1. Periodic inspections (e.g., in-service inspections) or surveillances of structures, systems, or components shall be planned and executed to ensure the continued performance of their required functions.

10.8. **Records**

10.8.1. Appropriate records shall be established, maintained, and, as a minimum, identify the item inspected, date of inspection, inspector, type of observation, results or acceptability, and reference to information on action taken in connection with nonconformance's.

11. TEST CONTROL

11.1. **General**

11.1.1. The responsible design organization shall plan and execute tests required to collect data such as for siting or design input, to verify conformance of an item or computer program to specified requirements, or to demonstrate satisfactory performance for service.

11.1.2. Characteristics to be tested and test methods to be employed shall be specified.

11.1.3. Test results shall be documented and their conformance with test requirements and acceptance criteria shall be evaluated.

11.2. **Test Requirements**

11.2.1. The responsible design organization shall provide or approve test requirements and acceptance criteria.

11.2.1.1. Required tests including, as appropriate, prototype qualification tests, production tests, proof tests prior to installation, construction tests, preoperational tests, and operational tests shall be controlled.

11.2.1.2. Required tests shall be controlled under appropriate environmental conditions using the tools and equipment necessary to conduct the test in a manner to fulfill test requirements and acceptance criteria.

11.2.1.3. The tests performed shall obtain the necessary data with sufficient accuracy for evaluation and acceptance.

11.2.2. Test requirements and acceptance criteria shall be based upon specified requirements contained in applicable design documents, or other pertinent technical documents that provide approved requirements.

11.2.3. If temporary changes to the approved configuration of a facility are required for testing purposes, approval by the design authority is required prior to performing the test.

11.2.4. Aerex does not develop software programs; rather, it uses commercial, off-the-shelf software, which will be tested as described in Sections 19 and 20.

11.3. **Test Procedures**

11.3.1. Test procedures shall include or reference the test configuration and test objectives. Test procedures shall also include provisions for ensuring that prerequisites and suitable environmental conditions are met, adequate instrumentation is available and used, appropriate tests and equipment are used, and necessary monitoring is performed. Prerequisites shall include the items in Sections 11.3.1.1 through 11.3.1.6, as applicable:

11.3.1.1. Calibrated instrumentation.

11.3.1.2. Appropriate equipment.

11.3.1.3. Trained personnel.

11.3.1.4. Condition of test equipment and the item to be tested.

11.3.1.5. Suitable environmental conditions.

11.3.1.6. Provisions for data acquisition.

11.3.2. As an alternative to Section 11.3.1, appropriate sections of related documents, such as ASTM methods, Supplier manuals, equipment maintenance instructions, or approved drawings or travelers with acceptance criteria, may be used. Such documents shall include or be supplemented with appropriate criteria from Section 11.3.1 to ensure adequate procedures for the test.

11.4. **Test Results**

11.4.1. Test results shall be documented and maintained.

11.4.2. Test results shall be evaluated by the responsible authority to ensure that test requirements have been satisfied.

11.5. **Test Records**

11.5.1. Test records vary depending on the test type, purpose, and application, but shall contain the following information, as a minimum, for the specified application identified in Section 11.5.2.

11.5.2. Non-Computer Test Records include the items listed in Sections 11.5.2.1 through 11.5.2.7.

11.5.2.1. Item tested.

11.5.2.2. Date of test.

11.5.2.3. Tester or data recorder.

11.5.2.4. Type of observation.

11.5.2.5. Results and acceptability.

11.5.2.6. Action taken in connection with any deviations.

11.5.2.7. Person evaluating test results.

11.6. **Computer Program Test Records**

11.6.1. Computer program tested including system software used

11.6.2. Computer hardware used

11.6.3. Test equipment and calibrations, where applicable

11.6.4. Date of test

11.6.5. Tester or data recorder

11.6.6. Simulation models used, where applicable

11.6.7. Test problems

11.6.8. Results and applicability

11.6.9. Action taken in connection with any deviations noted

11.6.10. Person evaluating test results

11.6.11. Acceptability

12. CONTROL OF MEASURING AND TEST EQUIPMENT

12.1. **General**

12.1.1. Management shall prescribe requirements applicable to ensure tools, gages, instruments, and other measuring and test equipment used for activities affecting quality are controlled, calibrated at specific periods, adjusted, and maintained to required accuracy limits.

12.2. **Selection**

12.2.1. Selection of measuring and test equipment shall be based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements.

12.3. **Calibration**

12.3.1. Measuring and test equipment shall be calibrated at prescribed times or intervals and whenever the accuracy of the measuring and test equipment is suspect.

12.3.2. Calibration shall be against and traceable to certified equipment or reference standards having known valid relationships to nationally recognized standards, or to international standards known to be equivalent to and verified against corresponding nationally recognized standards. Where no such standards exist, the basis for calibration shall be defined.

12.4. **Reference Standards**

12.4.1. Reference standards shall have a minimum accuracy four times greater than that of the measuring and test equipment being calibrated to ensure that the reference standards contribute no more than one-fourth of the allowable calibration tolerance. Where this 4:1 ratio cannot be maintained, the basis for selection of the standard in question shall be technically justified.

12.5. **Control**

12.5.1. Calibration procedures shall identify or reference required accuracy and shall define methods and frequency of checking accuracy.

12.5.2. The calibration method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting performance.

12.5.3. Measuring and test equipment that is overdue for calibration or found to be out-of-calibration shall be tagged and/or segregated, or removed from service, and not used until it has been recalibrated.

12.5.4. Measuring or test equipment consistently found to be out-of-calibration shall be repaired or replaced.

12.5.5. Measuring and test equipment shall be traceable to its application and use.

12.5.6. When measuring and test equipment is lost, damaged, or found to be out-of-calibration, the validity of previous measurement, inspection, or test results, and the acceptability of items previously inspected or tested shall be evaluated. This evaluation shall be from at least the last acceptable calibration of the measuring and test equipment. The evaluation and resulting actions shall be commensurate with the significance of the condition.

12.5.7. Measuring and test equipment shall be properly handled and stored to maintain accuracy.

12.5.8. Measuring and test equipment shall be used and calibrated in environments that are controlled to the extent necessary to ensure that the required accuracy and precision are maintained.

12.5.9. Measuring and test equipment and reference standards submitted for calibration shall be checked and the results recorded before any required adjustments or repairs are made.

12.5.10. Measuring and test equipment shall be suitably marked, tagged, labeled, or otherwise identified to indicate calibration status and establish traceability to calibration records.

12.6. **Commercial Devices**

12.6.1. Calibration and control measures are not required for commercial equipment such as rulers, tape measures, levels, etc., if such equipment provides the required accuracy.

12.7. **Records**

12.7.1. Records shall be established and maintained to indicate calibration status and the capability of measuring and test equipment to satisfactorily perform its intended function.

12.7.2. Calibration reports and certificates reporting the results of calibrations shall include the information and data necessary for interpretation of the calibration results and verification of conformance to applicable requirements.

13. HANDLING, STORAGE AND SHIPPING

13.1. **General**

13.1.1. Employees shall handle, store, clean, package, ship, and preserve items to prevent damage or loss and to minimize deterioration.

13.1.2. These activities shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent documents or procedures specified for use in conducting the activity.

13.2. **Special Requirements**

13.2.1. When required, special equipment (such as containers, shock absorbers, and accelerometers) and special protective environments (such as inert gas atmosphere, specific moisture content levels, and temperature levels) shall be specified and provided and their existence verified.

13.3. **Procedures**

13.3.1. When required for critical, sensitive, perishable, or high-value items, specific procedures for handling, storage, packaging, shipping, and preservation shall be used.

13.4. **Tools and Equipment**

13.4.1. Special handling tools and equipment shall be utilized and controlled where necessary to ensure safe and adequate handling.

13.4.2. Special handling tools and equipment shall be inspected and tested in accordance with procedures at specified time intervals or prior to use.

13.5. **Operators**

13.5.1. Operators of special handling and lifting equipment shall be experienced or trained in the use of the equipment.

13.6. **Marking or Labeling**

13.6.1. Marking or labeling shall be utilized as necessary to adequately maintain and preserve the item, including indication of the presence of special environments or the need for special controls.

14. INSPECTION, TEST, AND OPERATING STATUS

14.1. **General**

14.1.1. Management shall ensure methods are established to indicate the status of inspection and test activities, either on the items or in documents traceable to the items where it is necessary to ensure that required inspections and tests are performed and to ensure that items that have not passed the required inspections and tests are not inadvertently installed, used, or operated.

14.1.2. Status shall be maintained through indicators, such as physical location and tags, markings, shop travelers, stamps, inspection records, or other suitable means.

14.1.3. The authority for application and removal of tags, markings, labels, and stamps shall be specified.

14.1.4. Status indicators shall also provide for indicating the operating status of systems and components of the nuclear facility, such as by tagging valves and switches, to prevent inadvertent operation.

15. CONTROL OF NONCONFORMING ITEMS

15.1. General

15.1.1. Management shall ensure items that do not conform to specified requirements are controlled to prevent inadvertent installation or use.

15.1.2. Controls shall provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.

15.2. Identification

15.2.1. Nonconforming items shall be identified by legible marking, tagging, or other methods not detrimental to the item, on the item, the container, or the package containing the item.

15.3. Segregation

15.3.1. Nonconforming items shall be segregated, when practical, by placing them in a clearly identified and designated hold area until proper disposition is assigned.

15.3.2. When segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, other precautions shall be employed to preclude inadvertent use of a nonconforming item.

15.4. Disposition

15.4.1. Nonconforming items shall be evaluated and recommended dispositions shall be proposed. Further processing, delivery, installation, or use of a nonconforming item shall be controlled pending the evaluation and an approved disposition by authorized personnel.

15.4.2. The responsibility and authority for the evaluation and disposition of nonconforming items shall be defined. Responsibility for the control of further processing, delivery, installation, or use of nonconforming items shall be designated in writing.

15.4.3. Personnel performing evaluations to determine a disposition shall have:

15.4.3.1. Demonstrated competence in the specific area they are evaluating;

15.4.3.2. An adequate understanding of the requirements; and

15.4.3.3. Access to pertinent background information.

15.4.4. A disposition (such as use-as-is, reject, repair, or rework) of nonconforming items shall be made and documented.

15.4.5. Technical justification for the acceptability of a nonconforming item dispositioned repair or use-as-is shall be documented.

15.4.6. Nonconformance's to design requirements dispositioned use-as-is or repair shall be subject to design control measures commensurate with those applied to the original design.

15.4.7. Required as-built records shall reflect the use-as-is or repair condition.

15.5. **Re-examination**

15.5.1. Reworked items shall be reexamined in accordance with applicable procedures and with the original acceptance criteria.

15.5.2. Repaired items shall be reexamined in accordance with applicable procedures and with the original acceptance criteria unless the disposition has established alternate acceptance criteria.

16. CORRECTIVE ACTIONS

16.1. **General**

16.1.1. Management shall ensure that conditions adverse to quality are identified promptly and corrected as soon as practicable.

16.1.2. In the case of a significant condition adverse to quality:

16.1.2.1. The cause of the condition shall be determined and corrective action taken to preclude recurrence.

16.1.2.2. The identification, cause, and corrective action shall be documented and reported to appropriate levels of management.

16.1.3. Completion of corrective actions shall be verified.

17. QUALITY ASSURANCE RECORDS

17.1. **General**

17.1.1. Management shall ensure the establishment of controls for QA records that are consistent with the schedule for accomplishing work activities.

17.1.2. QA records shall furnish documentary evidence that items or activities meet specified quality requirements.

17.1.3. QA records shall be identified, generated, authenticated, and maintained, and their final disposition specified.

17.1.4. Record control requirements and responsibilities for these activities shall be documented.

17.2. **Generation of Records**

17.2.1. Records shall be legible.

17.2.2. Records shall be traceable to associated items and activities and accurately reflect the work accomplished or information required.

17.2.3. Records to be generated, supplied, or maintained shall be specified in applicable documents, such as design specifications, procurement documents, test procedures, and operational procedures.

17.3. **Authentication of Records**

17.3.1. Documents shall be considered valid records only if stamped, initialed, or signed and dated by authorized personnel or otherwise authenticated.

17.3.2. The responsible individual from the originating or authorized organization shall review and approve corrections to documents.

17.3.3. Electronic documents shall be authenticated with comparable information as in Sections 17.3.3.1 and 17.3.3.2, as appropriate.

17.3.3.1. With identification on the media.

17.3.3.2. With authentication information contained within or linked to the document itself.

17.4. **Classification**

17.4.1. The Owner or authorized agent shall classify records as lifetime or nonpermanent, in accordance with the criteria given in Sections 17.4.2 and 17.4.3 and consistent with applicable regulatory requirements.

17.4.2. Lifetime Records – Lifetime records are those that meet one or more of the following criteria:

17.4.2.1. Would be of significant value in demonstrating capability for safe operation.

17.4.2.2. Would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item.

17.4.2.3. Would be of significant value in determining the cause of an accident or malfunction of an item.

17.4.2.4. Would provide required baseline data for in-service inspections.

17.4.3. Nonpermanent Records – Nonpermanent records are those required to show evidence that an activity was performed in accordance with the applicable requirements but need not be retained for the life of the item because they do not meet the criteria for lifetime records.

17.4.4. Nonpermanent records shall be maintained for the identified retention period.

17.5. **Receipt Control of Records**

17.5.1. Each organization responsible for the receipt of records shall designate a person or organization responsible for receiving the records.

17.5.2. The designee shall be responsible for organizing and implementing receipt controls for permanent and temporary storage.

17.5.3. Receipt controls shall provide a method for identifying the records received, receipt and inspection of incoming records, and submittal of records to storage.

17.6. **Storage**

17.6.1. Records shall be stored at a predetermined location(s) in facilities, containers, or a combination thereof, constructed and maintained in a manner that minimizes the risk of loss, damage, or destruction from:

17.6.1.1. Natural disasters such as winds, floods, or fires;

17.6.1.2. Environmental conditions such as high and low temperatures and humidity;

17.6.1.3. Infestation of insects, mold, or rodents;

17.6.1.4. Dust or airborne particles.

17.6.2. Activities detrimental to the records shall be prohibited in the storage area.

17.6.3. Access to the processing, storage, and retrieval of records shall be limited to authorized personnel.

17.6.4. Provisions shall be made to prevent damage from harmful conditions (such as excessive light, stacking, electromagnetic fields, temperature, and humidity), as applicable to the specific media utilized for record storage.

17.6.5. Facility Types -- There are two equally satisfactory methods of providing storage, single or dual.

17.6.5.1. Single storage consists of a storage facility, vault, room, or container(s) with a minimum two-hour fire rating. The design and construction of a single storage facility, vault room, or container shall be reviewed for adequacy by a person competent in fire protection or contain a certification or rating from an accredited organization.

17.6.5.2. Dual facilities, containers, or a combination thereof shall be at locations sufficiently remote from each other to eliminate the chance exposure to a simultaneous hazard. Facilities used for dual storage are not required to satisfy the requirements of Section 17.6.5.1, but shall meet the requirements of Sections 17.6.1 through 17.6.4.

17.6.6. Temporary Storage – When temporary storage of records (such as for processing, review, or use) is required, the storage facility or container shall provide a one-hour fire rating, unless dual storage requirements of Section 17.6.5.2 are met.

17.7. **Retention**

17.7.1. All records are Lifetime

17.8. **Maintenance of Records**

17.8.1. Records shall be protected from damage or loss.

17.8.2. Record controls shall provide for retrievability within planned retrieval times based upon the record type or content.

17.8.3. The methods for record changes shall be documented.

17.8.4. Provisions shall be established to ensure that no unacceptable degradation of the electronic record media occurs during the established retention period.

17.8.5. Provisions shall be made to ensure that the records remain retrievable after hardware, software, or technology changes.

17.8.6. Provisions shall be established to ensure the following when records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:

17.8.6.1. Duplication or transfer is appropriately authorized.

17.8.6.2. Record content, legibility, and retrievability are maintained.

18. AUDITS

18.1. General

18.1.1. The QA/QC Manager shall ensure audits are performed to verify compliance to QA program requirements, to verify that performance criteria are met, and to determine the effectiveness of the program.

18.1.2. Personnel who do not have direct responsibility for performing the activities being audited shall perform audits in accordance with written procedures or checklists.

18.1.3. Audit results shall be documented and reported to and reviewed by responsible management.

18.1.4. Follow-up action shall be taken where indicated.

18.2. Scheduling

18.2.1. Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity.

18.2.2. Scheduled audits shall be supplemented by additional audits of specific subjects when necessary to provide adequate coverage.

18.3. Audit Plan

18.3.1. The auditing organization shall develop an audit plan for each audit.

18.3.2. This plan shall identify the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents, schedule, and written procedures or checklists.

18.4. Personnel

18.4.1. Audit personnel shall have sufficient authority and organizational freedom to make the audit process meaningful and effective.

18.5. Selection of Audit Team

18.5.1. An audit team shall be identified prior to the beginning of each audit.

18.5.2. This team shall contain one or more Auditors, one being designated Lead Auditor who organizes and directs the audit.

18.5.3. The audit team shall have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited.

18.6. Performance

18.6.1. Elements selected for audit shall be evaluated against specified requirements.

18.6.2. Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively.

18.6.3. Conditions requiring prompt corrective action shall be reported immediately to management of the audited organization.

18.7. **Reporting**

18.7.1. The audit report shall be signed or otherwise endorsed by the Lead Auditor and issued to the audited organization.

18.7.2. The contents of the report shall:

18.7.2.1. Describe the audit scope;

18.7.2.2. Identify Auditors and persons contacted;

18.7.2.3. Summarize audit results, including a statement on the effectiveness of the elements audited; and

18.7.2.4. Describe each reported adverse audit finding.

18.8. **Response**

18.8.1. Management of the audited organization or activity shall investigate adverse audit findings, schedule corrective action (including measures to prevent recurrence of significant conditions adverse to quality), and notify the appropriate organization in writing of action taken or planned.

18.8.2. Audit responses shall be evaluated by or for the auditing organization.

18.9. **Follow-Up Action**

18.9.1. Follow-up action shall be taken to verify that corrective action is accomplished as scheduled.

18.10. **Records**

18.10.1. Audit records shall include audit plans, audit reports, written replies, and the record of completion of corrective action.

19. REQUIREMENTS FOR COMPUTER SOFTWARE

19.1. **General**

19.1.1. Aerex does not develop computer software programs; rather, it uses commercial, off-the-shelf software, which will be upgraded in accordance with the requirements of Section 20 of this QAM and controlled as described below.

19.2. **Software Acquisition**

19.2.1. Sections 4 and 7 for items and services shall be applied to the procurement of software and software services. The Purchaser shall be responsible for the appropriate requirements of this Section upon acceptance of the software or related item (e.g., programmable device). Procurement documents shall identify requirements for Supplier's reporting of software errors to the Purchaser and, as appropriate, the Purchaser's reporting of software errors to the Supplier.

19.3. **Exempt Software**

19.3.1. Vendor supplied software that is integral to and provided with commercial-off-the-shelf Measuring and Testing Equipment (M&TE) is exempt from this procedure, provided the M&TE is tested and/or calibrated in accordance with the applicable procedures and software is not altered or otherwise adjusted by the user organization and where the functionality of the system is demonstrated through calibration over the operational range.

19.3.2. System software (e.g., operating systems, administrative and management systems, system utilities, compilers, assemblers, translators, interpreters, query languages, word processing programs, and graphing programs) or system applications that do not generate or maintain data that is used in the design, analysis, testing and operation/maintenance of quality-affecting structures, systems and components. Furthermore, were any intermediate and/or finished product can be verified to meet the design and/or process requirements through the use of such methods as M&TE, troubleshooting analysis, and functional testing.

19.3.3. Single-use spreadsheet applications that are wholly incorporated into technical reports, calculation notes or other documentation where the calculations, mathematical formulas, and input data can be exactly verified during the technical review of the report. Such calculations are treated as and considered to be manual calculations because the assumptions, formulas, inputs and outputs are verified as part of the calculation package technical review.

19.3.4. Commercial-off-the-shelf (COTS) software used for Computer Aided Design (CAD) is exempt.

19.4. **Control of Use and Documentation**

19.4.1. Software shall be inventoried by name, version, date, and owner.

19.4.2. Method(s) for documenting, reporting, evaluating, and correcting software problems shall be established.

19.4.3. Spreadsheets that are generated for a one-time use and treated as a hand calculation because the assumptions, formulas, inputs, and outputs are documented in the calculation package and verified as part of the calculation package technical review. This type of spreadsheet is a workbook file that does not contain any external references (e.g., linked or embedded objects) for data and functions required to perform the required calculation.

19.5. **Computer Program Testing for Usage in Hardware and Operating Systems**

19.5.1. Computer programs will be tested to confirm acceptability of results in use of operating system and hardware being used.

19.5.2. In-use test procedures will be developed and documented to confirm and document acceptability of use.

19.5.3. Test records will be maintained to demonstrate verification of computer test results and in-use verification results.

20. REQUIREMENTS FOR COMMERCIAL GRADE ITEMS AND SERVICES

20.1. **Amplified Requirements**

20.1.1. This Section provides amplified requirements to provide reasonable assurance that a commercial grade item (CGI), computer program, or service will perform its safety function.

20.1.2. Organizations performing commercial grade dedication for accepting items or services shall ensure these requirements are used in conjunction with the applicable requirements of Sections 1 through 19 of the QAM.

20.2. **CGI Definition Applications**

20.2.1. A facility utilizing commercial grade items or services shall utilize the appropriate commercial grade item definitions to determine if the item or service can be procured as commercial grade.

20.2.2. An item or service performing a safety function that does not meet the commercial grade definition is subject to the requirements in Sections 1 through 19 of the QAM.

20.3. **Utilization**

20.3.1. To utilize a commercial grade item or service, controls shall be implemented to provide reasonable assurance that the item or service will perform its intended safety function.

20.3.2. A dedication plan shall be developed for the item or service that identifies the critical characteristics and dedication methods, including acceptance criteria.

20.4. **Technical Evaluation**

20.4.1. In general, the requirements of this Section are only applicable to commercial grade items or services that perform a safety function.

20.4.2. Design output documents, supplier technical information, and other relevant industry technical and operating experience information, as appropriate, shall be utilized to prepare the technical evaluation.

20.4.3. Items may be considered identical or like-for-like if one of the following applies: (a) The item is provided from the original equipment manufacturer (successor companies that maintain equivalent quality controls are acceptable) and has not been subject to design, materials, manufacturing, or nomenclature changes; (b) The item was purchased at the same time and from the same supplier, as determined by the purchase date, shipping date, date code, or batch/lot identification; (c) Evaluation of the item confirms that no changes in the design, materials, or manufacturing process have occurred since the procurement of the original item.

20.4.4. When a difference exists from the original item, an equivalency evaluation is required to determine if any changes in design, material, manufacturing process, form, fit, or function could prevent the replacement item from being interchangeable under the design condition of the original items and performing its required safety function.

20.4.5. The equivalency evaluation shall be documented.

20.5. **Critical Characteristics**

20.5.1. Critical characteristics selected for acceptance shall be identifiable and measurable attributes based on the complexity, application, function, and performance of the item or service for its intended safety function.

20.5.2. In cases where the critical characteristics and acceptance criteria cannot be determined from the manufacturer's documentation or other documentation, the dedicating entity may perform an engineering evaluation, examination, or test (or any combination thereof) of the original item to develop the critical characteristics and acceptance criteria.

20.6. **Methods of Accepting Commercial Grade Items and Services**

20.6.1. Dedication

20.6.1.1. To provide reasonable assurance that a commercial grade item or service will perform its intended safety function, the dedicating entity shall verify that the commercial grade item or service meets the acceptance criteria for the identified critical characteristics by one or more of the four dedication methods described in Sections 20.6.2 through 20.6.5.

20.6.1.2. Prior to classifying the item or service as acceptable to perform its safety function, the dedicating entity shall determine that the following have been successfully performed, as applicable: (a) Damage was not sustained during shipment; (b) The item or service has satisfied the specified acceptance criteria for the identified critical characteristics; (c) Specified documentation was received and is acceptable.

20.6.2. **Method 1: Special test(s), inspection(s), or analyses** either individually or in combination shall be conducted upon or after receipt of an item to verify conformance with the acceptance criteria for the identified critical characteristics.

20.6.3. **Method 2: A commercial grade survey of the supplier** is performed in accordance with a checklist or plan at the supplier's facility and includes or addresses the following: (a) identification of the item(s), or product line, or service included within the scope of the survey; (b) identification of the critical characteristics to be controlled by the supplier; (c) verification that the supplier's processes and quality program controls are effectively implemented for control of the critical characteristics; (d) identification of the survey methods or verification activities performed with results obtained; and (e) documentation of the adequacy of the supplier's processes and controls.

20.6.4. **Method 3: Source verification** is a method of acceptance conducted at the supplier's facility or other applicable location to verify conformance with the identified critical characteristics and acceptance criteria. The scope of the source verifications shall include activities such as witnessing the fabrication and assembly processes, nondestructive examinations, performance tests, or final inspections, as applicable. It shall also include verification of the supplier's design, procurement, calibration, and material process and control methods employed for the particular commercial grade item or service being purchased, as applicable to the identified critical characteristics.

20.6.5. **Method 4: An acceptable supplier item or service performance record** is a method of acceptance to verify conformance with the identified critical characteristics and acceptance criteria of a commercial grade item or service against the supplier's performance record for identical or similar services. An acceptable supplier item or service performance record shall include the following: (a) identification of the supplier item or service being evaluated; (b) identification of previously established critical characteristics specific to the supplier item or service; (c) identification of data examined to evaluate the supplier item or service; (d) identification of basis for determining that performance data substantiates acceptability of the supplier item or service; and (e) documentation of the adequacy and acceptance of the supplier/item/service performance record.

20.6.6. Deficiencies with the supplier's processes and controls identified by the acceptance method(s) shall be corrected by the supplier if it affects the acceptance criteria for critical characteristic(s) utilized for commercial grade dedication. Corrective actions shall be evaluated for acceptability by the dedicating entity. Uncorrected deficiencies in processes or controls may result in the selection of another dedication method for determining acceptance.

20.7. **Commercial Grade Services**

20.7.1. Section 7.7.1 shall be reviewed to determine if this requirement is applicable before considering the dedication of a service.

20.7.2. As an alternative to commercial grade dedication, services may be performed under the dedicating entities or other organization's quality program and procedures that meet the requirements of this QAM.

20.8. **Documentation**

20.8.1. Documentation of the commercial grade item or service dedication process shall be traceable to the item, group of items, or services and shall contain the appropriate types of documents.

21. GLOSSARY

Acceptance criteria—Specified limits placed on the performance, results, or other characteristics of an item, process, or service defined in codes, standards, or other requirement documents.

Acceptance testing also known as *software validation*—The process of exercising or evaluating a system or system component by manual or automated means to ensure that it satisfies the specified requirements and to identify differences between expected and actual results in the operating environment.

Audit—A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

Audit, external—An audit of those portions of another organization's QA program not under the direct control or within the organizational structure of the auditing organization.

Audit, internal—An audit of those portions of an organization's QA program retained under its direct control and within its organizational structure.

Baseline—A specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for use and further development, and that can be changed only by using an approved change control process.

Basic component—A structure, system, component, or part thereof that affects its safety function, that was designed and manufactured in accordance with the requirements of ASME NQA-1, or commercial grade items which have successfully completed the dedication process.

Certificate of Conformance—A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

Certification—The act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements.

Characteristic—Any property or attribute of an item, process, or service that is distinct, desirable, and measurable.

Commercial grade item (for nuclear power plants and activities licensed pursuant to 10 CFR Part 30, 40, 50, 52, or 60)—A structure, system, component, or part thereof that affects its safety function, that was not designed and manufactured as a basic component. Commercial grade items do not include items where the design and manufacturing process require in-process inspections and verifications to ensure that defects or failures to comply are identified and corrected (i.e., one or more critical characteristics of the item cannot be verified).

Commercial grade item [for nuclear facilities and activities licensed pursuant to 10 CFR Part 30, 40, 50 (other than nuclear power plants), 60, 61, 63, 70, 71, or 72] an item satisfying the following:

(a) not subject to design or specification requirements that are unique to those facilities or activities

(b) used in applications other than those facilities or activities

(c) to be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (e.g., a catalog).

Commercial grade item (for U.S. Department of Energy nuclear facilities and activities regulated under 10 DFR 830, Nuclear Safety Management)—A structure, system, component, or part thereof, that affects its safety function, that was not designed and manufactured in accordance with the requirements of ASME NQA-1 2008 and NQA-1a 2009.

Commercial grade service—A service that was not provided in accordance with the requirements of ASME NQA-1 2008 and NQA-1a 2009 and that affects the safety function of a basic component.

Computer program—A combination of computer instructions and data definitions that enables computer hardware to perform computational or control functions.

Condition adverse to quality—An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformance's. A significant condition adverse to quality is one that, if uncorrected, could have a serious effect on safety or operability.

Configuration—The physical, functional, and operational characteristics of the structures, systems, components, or parts of the existing facility.

Configuration item (software)—A collection of hardware or software elements treated as a unit for the purpose of configuration control.

Configuration management—The process that controls the activities, and interfaces, among design, construction, procurement, training, licensing, operations, and maintenance to ensure that the configuration of the facility is established, approved, and maintained.

Configuration management (software)—The process of identifying and defining the configuration items in a system (i.e., software and hardware), controlling the release and change of these items throughout the system's life cycle, and recording and reporting the status of configuration items and change requests.

Control point—A point in the software life cycle at which specified agreements or control (typically a test or review) are applied to the software configuration items being developed, e.g., an approved baseline or release of a specified document or computer program.

Corrective action—A measure taken to rectify conditions adverse to quality and, where necessary, to preclude repetition.

Critical characteristics—Important design, material, and performance characteristics of a commercial grade item or service that, once verified, will provide reasonable assurance that the item or service will perform its intended safety function.

Dedicating entity—The organization that performs the dedication process. Dedication may be performed by the manufacturer of the item, a third-party, dedicating entity, or by the facility.

Dedication—An acceptance process performed in accordance with this Standard to provide reasonable assurance that a commercial grade item or service will perform its intended safety function and, in this respect, is deemed equivalent to an item or service designed and manufactured or provided under the requirements of this Standard. This assurance is achieved by identifying the critical characteristics of the item and verifying their acceptability by inspections, tests, or analyses performed by the purchaser or third-party dedicating entity after delivery, supplemented as necessary by one or more of the following: commercial grade surveys; product inspections or witness at hold-points at the manufacturer's facility, and analysis of historical records for acceptable performance. In all cases, the dedication process must be conducted in accordance with the applicable provisions of NQA-1 2008 and NQA-1a 2009.

Design, final—Approved design output documents and approved changes thereto.

Design authority—The organization having the responsibility and authority for approving the design bases, the configuration, and changes thereto.

Design bases—That information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be:

(a) restraints derived from generally accepted "state of-the-art" practices for achieving functional goals; or

(b) requirements derived from analysis (based on calculations and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals design change: any revision or alteration of the technical requirements defined by approved and issued design output documents and approved and issued changes thereto.

Design input—Those criteria, performance requirements, codes and standards, design bases, regulatory requirements, or other design requirements upon which detailed final design is based.

Design output—Drawings, specifications, and other documents used to define technical requirements of structures, systems, components, and computer programs.

Design process—Technical and management processes that commence with identification of design input and that lead to and include the issuance of design output documents.

Design review—A critical review to provide assurance that the final design is correct and satisfactory.

Deviation—A departure from specified requirements.

Document—Any written, pictorial, or electronic information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results. A document is not considered to be a QA record until it satisfies the definition of a QA record as defined in NQA-1 2008 and NQA-1a 2009.

Document control—The act of assuring that documents are reviewed for adequacy, approved for release by authorized personnel, and distributed to and used at the location where the prescribed activity is performed.

Electronic document—A document stored in a form (i.e., magnetic or optical media) that is typically accessible only by a computer.

Error—A condition deviating from an established baseline, including deviations from the current approved computer program and its baseline requirements.

Guidance—A suggested practice that is not mandatory in programs intended to comply with NQA-1 2008. The word should denote guidance; the word shall denote a requirement.

Inspection—Examination or measurement to verify whether an item or activity conforms to specified requirements.

Inspector—A person who performs inspection activities to verify conformance to specific requirements.

Item—An all-inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, or unit.

Measuring and test equipment (M&TE)—Devices or systems used to calibrate, measure, gage, test, or inspect in order to control or acquire data to verify conformance to specified requirements.

Nonconformance—A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate.

Objective evidence—Any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or activity, based on observations, measurements, or tests that can be verified.

Operating environment—A collection of software, firmware, and hardware elements that provide for the execution of computer programs.

Owner—The organization legally responsible for the construction and/or operation of a nuclear facility including but not limited to one who has applied for, or who has been granted, a construction permit or operating license by the regulatory authority having lawful jurisdiction.

Procedure—A document that specifies or describes how an activity is to be performed.

Procurement document—Purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for purchase.

Purchaser—The organization responsible for establishment of procurement requirements and for issuance or administration, or both, of procurement documents.

Qualification, personnel—The characteristics or abilities gained through education, training, or experience, as measured against established requirements, such as standards or tests, that qualify an individual to perform a required function.

Qualified automated means—Automated methods of controlling or monitoring processes that have been demonstrated to produce required quality within controlled limits.

Qualified procedure—An approved procedure that has been demonstrated to meet the specified requirements for its intended purpose.

Quality assurance (QA)—All those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service.

Quality assurance record—A completed document that furnishes evidence of the quality of items and/or activities affecting quality. Types of record media may include paper, electronic (magnetic or optical), or specially processed media such as radiographs, photographs, negatives, and microforms. The term record, as used throughout the QAM, is to be interpreted as QA record.

Quality standard—A code or standard that provides design inputs, acceptance criteria, or other criteria necessary to assure the quality of the designated item.

Receiving—Taking delivery of an item at a designated location.

Regression testing—Selective retesting to detect errors introduced during modification of the computer program or to verify that the modified computer program still meets its specified requirements.

Repair—The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

Rework—The process by which an item is made to conform to original requirements by completion or correction.

Right of access—The right of a Purchaser or designated representative to enter the premises of a Supplier for the purpose of inspection, surveillance, or QA audit.

Safety function—The performance of an item or service necessary to achieve safe, reliable, and effective utilization of nuclear energy and nuclear material processing.

Service—The performance of activities such as design, fabrication, inspection, nondestructive examination, repair, or installation.

Software—Computer programs and associated documentation and data pertaining to the operation of a computer system.

Software design verification—The process of determining if the product of the software design activity fulfills the software design requirements.

Software development cycle—The activities that begin with the decision to develop a software product and end when the software is delivered. The software development cycle typically includes the following activities:

(a) software design requirements

(b) software design

(c) implementation

(d) test

(e) sometimes installation

Software engineering—The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software; that is, the application of engineering to software.

Software life cycle—The period of time that begins when a software product is conceived and ends when the software is no longer available for use. The life cycle typically includes a concept phase, requirements phase, design phase, implementation phase, test phase, installation and checkout phase, operation and maintenance phase, and, sometimes, retirement phase. These phases may overlap or be performed iteratively, depending on the software development approach used.

Software tool—A computer program used in the development, testing, analysis, or maintenance of a program or its documentation. Examples include comparators, cross-reference generators, compilers, CASE (Computer Aided Software Engineering) tools, configuration and code management software, decompiles, disassemblers, editors, flowcharts, monitor test case generators, and timing analyzers.

Special process—A process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

Supplier—Any individual or organization who furnishes items or services in accordance with a procurement document. An all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, consultant, and their sub tier levels.

Surveillance—The act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

System software—Software designed to enable the operation and maintenance of a computer system and its associated computer programs.

Testing—An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions.

Testing (software)—The process of:

(a) operating a system (i.e., software and hardware) or system component under specified conditions

(b) observing and recording the results

(c) making an evaluation of some aspect of the system (i.e., software and hardware) or system component in order to verify that it satisfies specified requirements and to identify errors

Test case—A set of test inputs, execution conditions, and expected results developed for a particular objective, such as to exercise a particular program path or to verify compliance with a specific requirement.

Test plan (procedure)—A document that describes the approach to be followed for testing a system or component. Typical contents identify the items to be tested, tasks to be performed, and responsibilities for the testing activities.

Traceability—The ability to trace the history, application, or location of an item and like items or activities by means of recorded identification.

Use-as-is—A disposition permitted for a nonconforming item when it has been established that the item is satisfactory for its intended use.

Verification—The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements.

Waiver—Documented authorization to depart from specified requirements.

Membrane Plant Location	Plant Size MGD)	Plant Capacity (m3/d)	Plant Type	Completion Date	Client	Site Location
Blue Hill Bahamas I	7.2 MGD	27200 m3/d	SWRO	Feb-2005	Consolidated Water Co. Ltd.	Nassau, Bahamas
AquaPure	0.1 MGD	300 m3/d	BWRO	Aug-2005	Aquapure Water LTD	Nassau, Bahamas
Hawaii Deep Marine	0.5 MGD	2000 m3/d	SWRO	Nov-2005	Hawaii Deep Marine	73-4460 Queen Kaahumanu, Kailua-Kona, HI 96740
Jupiter Island Club	0.6 MGD	2200 m3/d	BWRO	Nov-2005	Jupitor Island Club	PO Box 375, Hobe Sound, FL 33475
Tropical Farms	8.0 MGD	30200 m3/d	NF	Jan-2006	Martin County	8595 SW Kansas Ave, Stuart, FL 34997
Summer Camp	0.3 MGD	1000 m3/d	LPRO	Apr-2006	Saint Joe Arvida	140 Facility Drive, St. Teresa, FL. 32358
Commonwealth Brewery	0.2 MGD	500 m3/d	Two-Pass SWRO	Aug-2006	Commonwealth Brewery	Clifton Pier, Nassau, Bahamas
St John's County	4.0 MGD	15100 m3/d	LPRO	Dec-2006	St John's County	2160 Water Plant Road, St. Augustine, FL
North Sound Grand Cayman	0.8 MGD	3000 m3/d	Two-Pass SWRO	Mar-2007	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Seminole-Hollywood	3.0 MGD	11300 m3/d	LPRO	Jul-2007	Seminole Tribe of Florida	6300 Stirling Road, Hollywood, FL 33024
City of Ormond Beach	4.0 MGD	15100 m3/d	LPRO	Oct-2007	City of Ormond Beach	22 South Beach Street, Ormond Beach, FL 32174
James E. Anderson	22.5 MGD	85100 m3/d	BWRO	Oct-2007	City of Port St. Lucie	900 S.E. Ogden Lane, Port St. Lucie, FL 34983
Sailfish Point	0.3 MGD	1100 m3/d	BWRO	Oct-2007	Sailfish Point Utilities	6929 SE South Marina Way, Stuart, FL 34996
City of St. Augustine	2.0 MGD	7500 m3/d	LPRO	Dec-2007	City of St. Augustine	75 King Street, St. Augustine, FL 32084
North Side Grand Cayman	2.4 MGD	9000 m3/d	Two-Pass SWRO	Sep-2008	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Governors Harbour II-1	1.0 MGD	3700 m3/d	Two-Pass SWRO	Oct-2008	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
BLDC	0.1 MGD	200 m3/d	SWRO	Mar-2009	Bermuda Land Development	P.O. Box DD 221, St. David's DD BX, Bermuda
Burnt Store	2.3 MGD	8500 m3/d	BWRO	Oct-2009	Burnt Store	17430 Burnt Store Road, Punta Gorda, FL 33955
City of Hollywood	4.0 MGD	15100 m3/d	BWRO	Nov-2009	City of Hollywood	3441 Hollywood Boulevard, Hollywood, FL 33021
Pompano Beach	10.0 MGD	37800 m3/d	NF	Nov-2009	The City of Pompano Beach	1205 N.E. 5th Avenue, Pompano Beach, FL 33060
City of Miramar	2.5 MGD	9400 m3/d	BWRO	Dec-2009	City of Miramar	4100 Flamingo Road, Miramar, FL 33027
Tynes Bay Bermuda	1.2 MGD	4500 m3/d	SWRO	Apr-2011	Consolidated Water Co. Ltd.	Tynes Bay, Bermuda
Bowling Green	3.0 MGD	11300 m3/d	LPRO	May-2011	Bowling Green, OH	17549 West River Road, Bowling Green, OH 43402
Lake Worth	4.0 MGD	15100 m3/d	LPRO	Sep-2011	City of Lake Worth	301 College Avenue, Lake Worth, FL 33460
Blue Hills Bahamas II	4.8 MGD	18100 m3/d	SWRO	Nov-2011	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Seacoast Utility Authority	29.5 MGD	111600 m3/d	LPRO & NF	Mar-2012	Seacoast Utility Authority	4200 Hood Road, Palm Beach Gardens, FL 33410
Davie	8.0 MGD	30200 m3/d	LPRO	Feb-2014	Town of Davie	7351 SW 30th Street, Davie, FL 33328
Myakkahatchee Creek	1.5 MGD	5600 m3/d	LPRO	Mar-2014	City of North Port	5655 North Port Blvd, North Port, FL 34286
Governors Harbour II-2	1.0 MGD	3700 m3/d	Two-Pass SWRO	Jan-2015	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Village of Tequestra	1.2 MGD	4500 m3/d	LPRO	Apr-2015	Village of Tequesta	901 N. Dixie Hwy, Tequestra, FL 33469
Seminole - Big Cypress	0.8 MGD	3000 m3/d	LPRO	Oct-2015	Seminole Tribe of Florida	13200 Hudson Trail, Clewiston, FL 33440
Vero Beach	2.5 MGD	9400 m3/d	BWRO	May-2017	City of Vero Beach	2515 Airport North Drive, Vero Beach, FL 32960
Windsor Bahamas	3.0 MGD	11300 m3/d	Two-Pass SWRO	Mar-2018	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Governors Harbour III-1	1.0 MGD	3700 m3/d	Two-Pass SWRO	Aug-2018	Consolidated Water Co. Ltd.	Grand Cayman, Cayman Islands
Seminole-Brighton	2.0 MGD	7500 m3/d	LPRO	Nov-2018	Seminole Tribe of Florida	1890 Rock Quarry Road, Okeechobee, FL 34974
Palm Bay	2.0 MGD	7500 m3/d	BWRO	Sep-2021	City of Palm Bay	120 Malabar Rd SE, Palm Bay, FL 32907
West Bay II	1.0 MGD	3700 m3/d	SWRO	Dec-2021	Cayman Water Co.	Grand Cayman, Cayman Islands
	139.2 MGD	536000 m3/d				

Ron DeSantis, Governor

Halsey Beshears, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE GENERAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

CARLSON, JASON PAUL

AEREX INDUSTRIES INC
3504 INDUSTRIAL 27TH STREET
FORT PIERCE FL 34946

LICENSE NUMBER: CGC1507464

EXPIRATION DATE: AUGUST 31, 2022

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

ACORD

CERTIFICATE OF LIABILITY INSURANCE

QHE

DATE (MM/DD/YYYY) 01/25/21

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Services, Inc of Florida 1001 Brickell Bay Drive, Suite #1100 Miami, FL 33131-4937	CONTACT NAME: Aon Risk Services, Inc of Florida PHONE (A/C, No, Ext): 833-506-1544 FAX (A/C, No): EMAIL ADDRESS: certs@trinet.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Indemnity Insurance Company of North America	43575
INSURED TriNet HR II-A, Inc. RE AEREX INDUSTRIES, INC 9000 Town Center Parkway Bradenton, FL 34202	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 15284663 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PROJECT ☐ LOC ☐ OTHER						EACH OCCURRENCE	$
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
							PRODUCTS - COMP/OP AGG	$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☐ RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [N] If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WLR_C68954149	3/1/2021	3/1/2022	X PER STATUTE ☐ OTH-ER	
							E.L. EACH ACCIDENT	$ 2,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 2,000,000
							E.L. DISEASE - POLICY LIMIT	$ 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Workers' Compensation is limited to worksite employees of Aerex Industries, Inc. through a co-employment contract with TriNet HR II-A, Inc..

CERTIFICATE HOLDER

AEREX INDUSTRIES, INC.
3504 INDUSTRIAL 27TH STREET
FORT PIERCE, FL 34946

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services, Inc of Florida

000438 90008601800 6 02 02 0 0000 0 000

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/26/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Marsh & McLennan Agency of Florida 9850 N.W. 41st Street Suite 100 Miami FL 33178	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: certsmiami@mma-fl.com
INSURED AEREXINDUS Aerex Industries, Inc 3504 Industrial 27th Street Fort Pierce FL 34946	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Admiral Insurance Company — 24856 INSURER B : Travelers Casualty Ins Co of America — 19046 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 1571336004 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			CA00003088303	10/24/2020	10/24/2021	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300,000
	X 5,000						MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY [ ] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
B	AUTOMOBILE LIABILITY			0N556735BA	5/28/2020	5/28/2021	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	UMBRELLA LIAB [X] OCCUR			GX00000137703	10/24/2020	10/24/2021	EACH OCCURRENCE	$ 5,000,000
	X EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$ 5,000,000
	DED [ ] RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						PER STATUTE [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N/A						E.L. EACH ACCIDENT	$
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Proof of Insurance only.

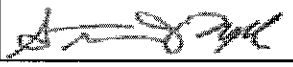
CERTIFICATE HOLDER

Aerex Industries Inc.
3504 Industrial 27th St.
Ft. Pierce FL 34946
USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



"A City for All Ages"

eRFP #20210034
ATTACHMENT F - CONTRACTOR'S CODE OF ETHICS

The City of Port St Lucie ("City), through its Procurement Management Department ("Procurement Management Department") is committed to a procurement process that fosters fair and open competition, is conducted under the highest ethical standards and enjoys the complete confidence of the public. To achieve these purposes, Procurement Management Department requires each vendor who seeks to do business with the City to subscribe to this Contractor's Code of Ethics.

- A Contractor's bid or proposal will be competitive, consistent and appropriate to the bid documents.
- A Contractor will not discuss or consult with other Vendors intending to bid on the same contract or similar City contract for the purpose of limiting competition. A Vendor will not make any attempt to induce any individual or entity to submit or not submit a bid or proposal.
- Contractor will not disclose the terms of its bids or proposal, directly or indirectly, to any other competing Vendor prior to the bid or proposal closing date.
- Contractor will completely perform any contract awarded to it at the contracted price pursuant to the terms set forth in the contract.
- Contractor will submit timely, accurate and appropriate invoices for goods and/or services actually performed under the contract.
- Contractor will not offer or give any gift, item or service of value, directly or indirectly, to a City employee, City official, employee family member or other vendor contracted by the City.
- Contractor will not cause, influence or attempt to cause or influence, any City employee or City Official, which might tend to impair his/her objectivity or independence of judgment; or to use, or attempt to use, his/her official position to secure any unwarranted privileges or advantages for that Vendor or for any other person.
- Contractor will disclose to the City any direct or indirect personal interests a City employee or City official holds as it relates to a Vendor contracted by the City.
- Contractor must comply with all applicable laws, codes or regulations of the countries, states and

localities in which they operate. This includes, but is not limited to, laws and regulations relating to environmental, occupational health and safety, and labor practices. In addition, Contractor must require their suppliers (including temporary labor agencies) to do the same. Contractor must conform their practices to any published standards for their industry. Compliance with laws, regulations and practices include, but are not limited to the following:

- Obtaining and maintaining all required environmental permits. Further, Contractor will endeavor to minimize natural resource consumption through conservation, recycling and substitution methods.

- Providing workers with a safe working environment, which includes identifying and evaluating workplace risks and establishing processes for which employee can report health and safety incidents, as well as providing adequate safety training.

- Providing workers with an environment free of discrimination, harassment and abuse, which includes establishing a written antidiscrimination and anti-bullying/harassment policy, as well as clearly noticed policies pertaining to forced labor, child labor, wage and hours, and freedom of association.

Name of Organization/Proposer Aerex Industries, Inc.

Signature _____

Printed Name and Title Jason Carlson, President

Date 05/25/2021

DISCLAIMER: This Code of Ethics is intended as a reference and procedural guide to contractors. The information it contains should not be interpreted to supersede any law or regulation, nor does it supersede the applicable contractor contract. In the case of any discrepancies between it and the law, regulation(s) and/or contractor contract, the law, regulatory provision(s) and/or vendor contract shall prevail.

ATTACHMENT G - PSL LOCATION FORM

"A City for All Ages"

SUPPLIER LOCATION CERTIFICATION

The undersigned, as a duly authorized representative of the Supplier listed herein, certifies to the best of their knowledge and belief, that the Supplier's location is correctly reflected based upon the below information. For purposes of this section, "Location" shall mean a business which:

a) How far is the Supplier's fixed office or distribution point located from City Hall; and

b) Is the principal offeror who is a single offeror; a business which is the prime contractor and not a subcontractor; or a partner or joint venturer submitting an offer in conjunction with other businesses.

Complete the following and upload this document and the Google Maps print out to the required sourcing platform:

Business Name: Aerex Industries, Inc.	
Current Local Address: 3504 Industrial 27th St., Fort Pierce, FL 34946 Length of time at this address: 30 years	Phone: 772-448-5800 Fax: 772-467-2608
Please provide your prior business address if the above address has been for less than one (1) year, prior to the issuance of this solicitation. N/A Length of time at this address:	
Home Office Address: Length of time at this address:	Phone: Fax:

(Signed) _____

(Title) President

STATE OF FLORIDA }
COUNTY OF ST. LUCIE} SS:

The foregoing instrument was acknowledged before me this *(Date)* 05/25/2021

by: Jason Carlson who is personally known to me or who has produced _____ as identification and who did (did not) take an oath.

DONNA L. SUMMERFIELD
Notary Public - State of Florida
Commission # HH 097980
My Comm. Expires May 18, 2025
Bonded through National Notary Assn.

Donna Summerfield
Notary (print & sign name)

Commission No. HH097980

DRUG-FREE WORKPLACE FORM
eRFP # 20210034

The undersigned Contractor in accordance with Florida Statute 287.087 hereby certifies that

Aerex Industries, Inc. does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under proposal a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 Florida Statutes or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Bidder's Signature

05/25/2021
Date:

ATTACHMENT I

"A City for All Ages"

E-Verify Form

Supplier/Consultant acknowledges and agrees to the following:

1. Shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Supplier/Consultant during the term of the contract; and

2. Shall expressly require any subcontractors performing work or providing services pursuant to the state contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term.

E-Verify Company Identification Number Not Applicable

Date of Authorization Not Applicable

Name of Contractor Aerex Industries, Inc.

Name of Project John E. Anderson RP WTP Membrane Replacement

Solicitation Number (If Applicable) _____

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on May, 25, 2021 in Fort Pierce (city), FL (state).

_____
Signature of Authorized Officer

Jason Carlson, President
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE 25th DAY OF May, 2021.

NOTARY PUBLIC Donna Summerfield

My Commission Expires: 05/18/2025

DONNA L. SUMMERFIELD
Notary Public - State of Florida
Commission # HH 097980
My Comm. Expires May 18, 2025
Bonded through National Notary Assn.

ATTACHMENT J

"A City for All Ages"

NON-COLLUSION AFFIDAVIT

Solicitation 20210034

State of Florida

County of St. Lucie }

Jason Carlson, being first duly sworn, disposes and says that:

(Name/s)

1. They are President of Aerex Industries, Inc. the Proposer that

(Title) (Name of Company)

has submitted the attached PROPOSAL;

2. He is fully informed respecting the preparation and contents of the attached proposal and of all pertinent circumstances respecting such PROPOSAL;

3. Such Proposal is genuine and is not a collusive or sham Proposal;

4. Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the contract for which the attached proposal has been submitted or to refrain from proposing in connection with such Contract or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices in the attached Proposal or of any other Proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Port St. Lucie or any person interested in the proposed Contract; and

5. The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title) President

"A City for All Ages"

STATE OF FLORIDA }
COUNTY OF ST. LUCIE} SS:

The foregoing instrument was acknowledged before me this *(Date)* 05/25/2021

by: Jason Carlson who is personally known to me or who has produced

_____ as identification and who did (did not) take an oath.

Commission No. HH097980

Notary Print: Donna Summerfield

Notary Signature: Donna L. Summerfield

DONNA L. SUMMERFIELD
Notary Public - State of Florida
Commission # HH 097980
My Comm. Expires May 18, 2025
Bonded through National Notary Assn.

ATTACHMENT K - CONE OF SILENCE

"A City for All Ages"

NOTICE TO ALL PROPOSERS:

To ensure fair consideration is given for all Proposers, it must be clearly understood that upon release of the proposal and during the proposal process, firms and their employees of related companies as well as paid or unpaid personnel acting on their behalf shall not contact or participate in any type of contact with City employees, department heads or elected officials, up to and including the Mayor and City Council. The "Cone of Silence" is in effect for this solicitation from the date the solicitation is advertised on DemandStar, until the time an award decision has been approved by City Council and fully executed by all parties. Information about the Cone of Silence can be found under the City of Port St. Lucie Ordinance 20-15, Section 35.13. Contact with anyone other than the Issuing Officer may result in the vendor being disqualified. All contact must be coordinated through Mr. Jason Bezak, Issuing Officer, for the procurement of these services.

All questions regarding this Solicitation are to be submitted in writing to Jason Bezak, Procurement Agent I with the Procurement Management Department via e-mail JBezak@cityofpsl.com, or by phone 772-344-4068. Please reference the Solicitation number on all correspondence to the City.
All questions, comments and requests for clarification must reference the Solicitation number on all correspondence to the City. Any oral communications shall be considered unofficial and non-binding.

Only written responses to written communication shall be considered official and binding upon the City. The City reserves the right, at its sole discretion, to determine appropriate and adequate responses to the written comments, questions, and requests for clarification.

**NOTE: All addendums and/or any other correspondence before bid close date (general information, question and responses) to this solicitation will be made available exclusively through the DemandStar's Website for retrieval. All notice of intent to award documentation will be published on the City Clerk's Website. Proposers are solely responsible for frequently checking these websites for updates to this solicitation.*

I understand and shall fully comply with all requirements of City of Port. St. Lucie Ordinance 20-15, Section 35.13.

Typed Name: Jason Carlson
Signed: _____
Company and Job Title: Aerex Industries, Inc., President
Date: 05/25/2021

"A City for All Ages"

TRUTH-IN-NEGOTIATION CERTIFICATE

Solicitation# 20210034

Pursuant to Section 287.055(5)(a), Florida Statutes, for any lump-sum or cost-plus-a-fixed fee professional services contract over the threshold amount provided in Section 287.017, Florida Statutes for CATEGORY FOUR, the City of Port St. Lucie, Florida requires the Consultant to execute this certificate and include it with the submittal of the Technical Proposal, or as prescribed in the contract advertisement.

The Consultant hereby certifies, covenants, and warrants that wage rates and other factual unit costs supporting the compensation for this project's agreement are accurate, complete, and current at the time of contracting.

The Consultant further agrees that the original agreement price and any additions thereto shall be adjusted to exclude any significant sums by which the City determines the agreement price was increased due to inaccurate, incomplete, or non-current wage rates and other factual unit costs. All such agreement adjustments shall be made within (1) year following the end of the contract. For purposes of this certificate, the end of the agreement shall be deemed to be the date of final billing or acceptance of the work by the City, whichever is later.

Aerex Industries, Inc.
Name of Firm

Jason Carlson
President or Designee (Printed)

President or Designee (Signed)

The foregoing instrument was acknowledged before me by Jason Carlson who is personally known to me. WITNESS my hand and official seal in the St. Lucie County, Florida last aforesaid this 25th day of May, 2021.

(SEAL)

DONNA L. SUMMERFIELD
Notary Public - State of Florida
Commission # HH 097980
My Comm. Expires May 18, 2025
Bonded through National Notary Assn.

Signature

Donna Summerfield
Notary Name (typed or printed)

Notary Name (signed)

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CONTRACTOR'S QUESTIONNAIRE
eRFP # 20210022
Solicitation Name: Design & Permitting of the Western 30" & 24" Raw Water Main Projects

It is understood and agreed that the following information is to be used by the City of Port St. Lucie to determine the qualifications of Contractors to perform the work required. The Contractor waives any claim against the City that might arise with respect to any decision concerning the qualifications of the Consultant.

The undersigned attests to the truth and accuracy of all statements made on this questionnaire. Also, the undersigned hereby authorizes any public official, Consultant, surety, bank material or equipment manufacturer, or distributor, or any person, firm, or corporation to furnish the City of Port St. Lucie any pertinent information requested by the City deemed necessary to vary the information on this questionnaire.

1. ORGANIZATIONAL PROFILE- COMPANY NAME: Aerex Industries, Inc.

PHYSICAL ADDRESS: 3504 Industrial 27th St., Fort Pierce, FL 34946

MAILING ADDRESS: 3504 Industrial 27th St., Fort Pierce, FL 34946

TELEPHONE NUMBER: 772-448-5800 FAX NO. 772-467-2608

CONTACT PERSON Montroe Hopkins E-MAIL : mhopkins@aerexglobal.com

Is the firm incorporated? Yes--No If yes, in what state? Provide a list of officers for this entity.

2. **COMPLETION OF FORM** - An authorized representative of the firm offering this Proposal must complete this form in its entirety. Terms entered herein shall not be subject to withdrawal or escalation by Contractor. The City reserves the right to hold proposals for a period not to exceed one hundred twenty (120) calendar days after the date of the proposal opening stated in the Invitation to Proposal before awarding the Contract. Contract award constitutes the date that City issues an executed Purchase Order.

3. **CONTRACT** - Contractor agrees to comply with all requirements stated in the specifications for this RFP.

4. **AGREEMENT** - Contractor agrees to comply with all requirements stated in the specifications for this RFP.

CERTIFICATION:

This RFP is submitted by: Name (print) Jason Carlson who is an officer of the above firm duly authorized to sign proposals and enter into contracts. I certify that this solicitation

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response is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a proposal for the same materials, supplies, or equipment, and is in all respects fair and without collusion or fraud.

The Contractor understands that information contained in this Solicitation Reply will be relied upon by City in awarding the proposed Contract and such information is warranted by the proposer to be true. The undersigned Contractor agrees to furnish such additional information, prior to acceptance of any solicitation relating to the qualifications of the proposer, as may be required by the City.

I certify that the information and responses provided on this Solicitation are true, accurate and complete. The City may contact any entity or reference listed in this Proposal. Each entity or reference may make any information concerning the Contractor available to the City.

I agree to abide by all conditions of this RFP:

Signature _____ President
Title

If a corporation renders this Proposal, the corporate seal attested by the secretary shall be affixed below. Any agent signing this Proposal shall attach to this form evidence of legal authority.

Witnesses:

Donna Summerfield
Print name
Donna Summerfield

Montroe Hopkins
Print name

If Individual:

N/A
Signature
N/A
Print Name

If Partnership:

N/A
Print Name of Firm

By: N/A
(General Partner)

If Corporation:

Aerex Industries, Inc.
Print Name of Corporation

By: _____
(President)

Attest: _____
(Secretary)

AEREX INDUSTRIES, INC. CORPORATE SEAL FLORIDA

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Aerex Industries, Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☒ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☑ Other (see instructions) ▶ **Municipality**

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
3504 Industrial 27th St.

Requester's name and address (optional)

6 City, state, and ZIP code
Fort Pierce, FL 34946

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			-		-				

or

Employer identification number
6	5	-	0	2	5	8	7	0	8

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** ▶ *Jason Carlson* **Date** ▶ *04/08/2121*

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*