Appendix A:
Brandy Branch Generating Station
Technical Specification B52 and B53 HRSG Silencer Replacement

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1.0 Location of Property

The property on which the work is required by this Specification is at the JEA Brandy Branch Generating Station located at 15701 West Beaver Street, Jacksonville, Florida 32234.

2.0 Scope of Work

This Specification covers the performance, engineering, design, fabrication, and installation of eight (8) new steam start up vent silencer located on the high pressure (HP), intermediate pressure (IP), low pressure (LP), and reheat (RH) piping as described herein. This specification also covers removal and demolition of the existing silencers. The contractor is to furnish labor, supervision, material, cranes, and other equipment to engineer, design, fabricate, deliver to the site, unload, and install eight new replacement silencer and related work for the Nooter Eriksen Heat Recovery Steam Generators (HRSGs). This will be the first time the silencers have been replaced on these units.

2.1. The Contractor shall remove and dispose of the existing exhaust silencer and shall provide all material and labor for installation of the new exhaust silencer. The exterior shell shall be A36 carbon steel, and the inlet pipe to the HP and RH silencers shall be P91. More details of the construction will be provided on the original detail drawings.

2.2. The Contractor shall rig to, cut, and remove the existing eight (8) start up vent silencers (four per unit). Rig to, weld in, and install the new eight (8) start up vent silencers (four per unit). The Contractor shall take every precaution necessary to not damage existing structural steel or other adjacent equipment while performing the beforementioned work.

3.0 Codes and Standards

The following codes and standards, as amended to date, are applicable under this contract:

Codes, Rules and Regulations of the State of Florida

Occupational Safety and Health (OSHA)
29 CFR Parts 1926.1101, 1926.62 and 1926.850 through1926.859

American Society for Testing and Materials (ASTM)

A-36 Structural Steel

A-325 High-Strength Bolts for Structural Steel Joints

Steel Structures Painting Council (SSPC) Surface Preparation as Specified

American Welding Society (AWS) Structural Welding Code, Steel (AWS D1.1)

American Welding Society (AWS) Structural Welding Code
Sheet Metal (AWS D1.3)

American Welding Society (AWS) Welding Processes & Filler Metal Selection for P91/ T91 Steel, Steel (AWS A5.23)

American Welding Society (AWS) Welding Processes & Filler Metal Selection for P91/ T91 Steel, Steel (AWS A5.28)

American Welding Society (AWS) Welding Processes & Filler Metal Selection for P91/ T91 Steel, Steel (AWS A5.5)

American Institute of Steel Construction (AISC)
Manual of Steel Construction, 13th Edition

American Society of Civil Engineers (ASCE)
ASCE Standard ANSI/ASCE 7-2010

American National Standard
ANSI B133.8 "Gas Turbine Installation Sound Emissions"

American Society for Mechanical Engineers (ASME)
ASME B31.1 "The Power Piping Code"

4.0 Existing Exhaust Silencer Description

4.1. The existing start up vent silencers for each Nooter Eriksen HRSG are located at the top of each structure near the drums. There has been deterioration and cracks discovered on some of the silencers. The exhaust silencer system is acoustically designed for sound attenuation. Any damage to a silencer will result in an increase in sound at Brandy Branch Generating Station and for the surrounding areas.

4.2. The general dimensions of the exhaust silencer are shown on the reference drawings by Burgess-Manning. The replacement exhaust silencers shall be designed and fabricated to match the overall dimensions of existing components to insure a proper fit. If the contractor has an improved design that meets the same sound attenuation criteria, please submit it for JEA approval prior to bidding. It is also required that new silencers utilize the existing structural steel support structure. The shell is constructed of ASTM – A36 steel. The inlet pipe to the HP and RH silencers are constructed of P91 steel.

5.0 Demolition and Removal

5.1 Extreme care must be taken so that no damage is done to equipment that will not be removed as part of the demolition work. It is emphasized that equipment located adjacent to and below grade in the working area are very essential elements of the plant. All such adjacent equipment must be kept guaranteed safe during all demolition and installation work.

5.2 The Contractor shall erect and properly maintain danger signs, barricades, lights, and other safeguards to always maintain safe working conditions.

5.3 All materials from the demolition shall become the property of the Contractor and shall be removed promptly from the site. Removal of debris from the site shall be done frequently so as to avoid any collection of debris.

5.4 The Contractor is advised that some of the material to be disposed of will contain various insulation materials such as Birfelt, fiberglass, mineral wool, and fiberglass cloth.

5.5 The Contractor shall submit along with the bid proposal, the names of the sub-contractor(s), if any, who may be used for demolition, disposal, and installation. The Contractor shall also include the proposed disposal location for the material removed. The Contractor shall obtain the required permits necessary for the disposal of the removed material. The Contractor shall provide copies of disposal records/logs and certificate of recycle.

6.0 Hazardous Material Removal

Potential Asbestos Removal

6.1 It is not expected that the Contractor will encounter any asbestos containing material in the demolition of the existing silencer systems. If the Contractor suspects that any components of the silencer systems contain asbestos, the Contractor shall notify the JEA Project Manager. The Contractor is advised that any material suspected of containing asbestos will have to be treated as asbestos containing material until cleared by testing. The contractor shall observe all safety standards and procedures as required to handle potential asbestos in accordance with JEA Safety Procedures. **JEA shall arrange and be responsible for testing any suspected asbestos. JEA shall reimburse the Contractor additional costs associated with the finding of components containing or suspected of containing asbestos. The Contractor shall not include in its bid contingency funds for potential asbestos related work.**

Painted Surfaces

6.2 The Contractor is advised that the existing exhaust silencer system is **not** coated with a lead containing paint system.

7.0 Replacement Exhaust Silencer

7.1 The Contractor shall be fully responsible for the complete design and replacement of the existing start up vent silencers including verification of interface field dimensions, analysis, and structural design. The silencers have supports in place which shall be utilized for the installation of the replacement start up vent silencers. The Contractor shall inspect the condition of the existing structural steel support frame for the replacement silencers. Any modifications or additions to supports require JEA approval.

7.2 The Contractor shall engineer, design, fabricate, deliver to the site and install new replacement start up vent silencers. All current design parameters are listed on each individual drawing, and all new drawings shall include the design parameters of each new silencer.

7.3 The start up vent silencers shall be designed in accordance with the latest "state of the art" design for the sound attenuation replicating the existing number, or an improved design that is approved by JEA prior to bidding. The primary design requirements shall be to attain the sound attenuation criteria outlined herein.

7.4 The Contractor shall paint the exterior sides of the exhaust silencers and select areas of the interior side of the exterior shell. The Contractor shall provide the coatings as per section 11.0

7.5 Lifting Lugs shall be provided with each silencer for ease of lifting, handling, and erection.

8.0 Sound Attenuation Criteria

8.1 At any load at or below the peak load curve and any operating condition, the startup vent silencers shall reduce the noise to an overall noise level of 65 dBA and 75 dB(C) at a distance of 400 feet from the unit while the near acoustic guarantee is 85 dBA at 3 feet above grade. The supplier shall provide detailed acoustic calculations with their proposal noting compliance.

8.2 Measurements and data reporting shall be in accordance with ANSI B133.8 "Gas Turbine Installation Sound Emissions".

8.3 JEA shall schedule post outage testing to ensure the new silencers meet the required sound attenuation.

9.0 Material and Fabrication

9.1 The Contractor is responsible for the design and fabrication of the startup vent silencers. Structural components of the design shall be in accordance with the applicable AISC, ASTM and related codes.

9.2 The following minimum material requirements shall be adhered to in the design and fabrication of the startup vent silencers:

A. Exhaust silencer shell plate shall be ASTM A36
B. HP and RH inlets shall be ASTM P91

9.3 Design shall follow the parameters in the provided drawings, unless changes are approved by JEA.

9.4 The lifting lugs for the shell sections shall be a minimum of ¾" carbon steel. The design shall provide enough lifting lugs to lift and maneuver the components.

9.5 The components shall be properly braced for shipping so that no components are damaged and stressed beyond code allowable stresses and buckling criteria.

9.6 Additional material as required for the fabrication shall be per the Contractor's design and suitable for the given application.

10.0 Welding and Fabrication Tolerances

10.1 Fabrication tolerances shall be in accordance with industrial standards and shall be in accordance with the Contractor's design drawings.

10.2 Quality and appearance of welding is extremely important and shall be in accordance with the practices and procedures of the beforementioned welding codes listed in section 3.0.

10.3 Welding shall be done in a horizontal position in the shop when possible.

All surfaces to be welded shall be suitably prepared and free of all foreign materials detrimental to welding such as grease, oil, dirt, and paint.

Proper welding electrodes shall be selected from AWS keeping in mind the base metal to be welded and the welding process to be used.

10.4 Only certified welders shall perform the welding.

10.5 The Contractor shall ensure to follow proper preheat and post weld heat treatment. For the P91 material proper preheating is essential to remove moisture and ensure uniform heating. Maintaining inter-pass temperatures during welding is required to controlling thermal stress and preventing cracking. Post weld heat treatment is necessary to relieve residual stress and prevent cracking, especially for dissimilar joints. Post weld heat treatment temperature for P91 is typically around 1400°F. Controlled cooling rates after post weld heat treatment are also important to prevent cracking.

11.0 Protective Coatings

11.1 Shop Coating Spec

11.1.1 Remove all grease, oil, and foreign matter with Surface Cleaner # 3 in accordance with SSPC-SP1.

11.1.2 Follow with SSPC-SP10 Near White Blast Cleaning with a 1.0 to 3.0 mil profile.

11.1.3 Prime Coat Interior & Exterior: Carbozinc 11 Inorganic Zinc Green at 2.0 to 3.0 mils dft.

11.1.4 Finish Coat Exterior: Thermaline 4700 Silicone Finish Pearl Grey at 2.0 to 3.0 mils DFT.

11.2 Field Coating of Field Welded Areas

11.2.1 Remove all grease, oil, and foreign matter with Surface Cleaner # 3 in accordance with SSPC-SP1.

11.2.2 Follow with SSPC-SP10 Near White Blast Cleaning with a 1.5 to 2.5 mil profile.

11.2.3 Prime Coat: Thermaline 4765 at 2.0 mils DFT.

11.2.4 Finish Coat Exterior: Thermaline 4700 Silicone Finish Pearl Grey at 2.0 to 3.0 mils DFT.

12.0 Shipment

12.1 The Contractor shall be fully responsible for the safe shipment, storage, and handling of the components of the exhaust silencer stack system. The Contractor shall be fully responsible for the exhaust silencer system on the job site until the system is turned over to the Plant. The contractor is responsible for all shipping costs and for all truck loading and unloading of material at the job site.

12.2 Miscellaneous parts shall be packed in suitable boxes for storage at the job site.

12.3 The Contractor shall ensure all of the new silencers are delivered prior to the scheduled Spring outage, which tentatively begins March 22, 2026.

13.0 Documentation

13.1 Calculations

13.1.1 The Contractor shall submit design calculations for approval, prior to the start of fabrication. The Contractor shall verify the sound attenuation, the structural and thermal design characteristics of the startup vent silencers..

13.1.2 The design calculations, and all other documentation listed herein, shall be submitted to the JEA Project Manager.

13.2 Shop Drawings

13.2.1 The Contractor shall submit to JEA for approval outline component drawings in Auto Cad format. The Contractor shall commence fabrication after the shop drawings are approved.

13.2.2 The Contractor shall submit to JEA for record purposes, three hard copies and one AutoCad electronic file of the entire as built outline drawings.

14.0 Reference Drawings and Manuals

14.1 Drawings:

GE Dwg No	Description
Burgess-Manning, INC S55-4502-002	LP Start-Up Vent Silencer
Burgess-Manning, INC S55-4514-001	RH Start-Up Vent Silencer
Burgess-Manning, INC S55-4513-002	HP Start-Up Vent Silencer
Burgess-Manning, INC S55-4503-004	IP Start-Up Vent Silencer

15.0 Construction

15.1 Temporary Utilities

A. JEA will provide limited 110V - 20 ampere single-phase and 480V - 60 ampere three-phase electrical power at designated locations in the gas turbine area. Contractor shall be responsible for additional power supply (Generator) requirements and transformers to provide any other required voltages. Contractor shall make electrical connections and supply sufficient quantities and lengths of cables and electrical connectors in safe working order.

B. Limited service air for construction activities is available around the generating unit.

C. Isolating and tagging out of equipment prior to work by the Contractor will be provided by JEA.

D. Contractor to provide designated trash dumpsters, labeled by debris type.

E. Contractor responsible for any facilities required during construction activities. (Tool trailers, break rooms, sanitation facilities, etc.)

F. Contractor shall thoroughly clean all areas affected by construction and demolition to assure insulation, metal, debris, etc. are removed before demobilization.

15.2 Laydown & Assembly Area

The Contractor shall notify the JEA Project manager of the size of their required laydown and assembly area. The laydown and assembly location will be determined jointly by the JEA Project Manager and Contractor.

15.3 Project Schedule

A. The tentative outage schedule for the Brandy Branch Units will be provided once the equipment fabrication time, shipping duration and assembly time is known.

B. Contractor shall provide the JEA Project Manager a detailed resource loaded project schedule within 2 weeks of award. Schedule shall outline all project details including but not limited to: Mobilization, Assembly, demobilization.

C. The project schedule for this Contract shall be prepared and maintained by Contractor to provide coordination between subcontractors and suppliers,

to establish the basis for measuring and monitoring Contractor progress and overall Project progress, to detect problems for the purpose of taking corrective action.

15.4 Project Meetings

A. Once Contractor has mobilized to Jobsite, JEA and Contractor representatives shall meet daily to update the following:

Current status of the job progress

Look-Ahead Schedule (requirements listed in Item B. below)

Current and projected manpower

Changes in the Work

Safety and Quality Control issues

Problem areas or concerns

B. The Look-Ahead Schedule shall:

Report all planned work that is to be accomplished during the current week and the next two weeks in support of, and in accordance with, Contractor's detailed Construction Schedule

Be personnel and resource loaded

Report the planned and actual progress of the previous week

Report critical activities that are identified to be completed by others, the delay of which would prevent Contractor from starting and completing its planned work activities in accordance with the detailed Construction Schedule