Technical Specification for Purchase and Installation of NS 1, NS 2, and NS 3 CEMS Analyzers, Umbilical, and Sample Probe

Prepared For: JEA Project Management

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Dates for Mandatory Pre-bid: TBD

Solicitation Number: 1411920646

Buyer: Jason Behr, behrjv@jea.com

Scope of Supply

Contractor shall provide procurement, installation, and commissioning services to update the existing Continuous Emissions Monitoring System (CEMS) analyzers, stack probe, umbilical, and extraction equipment.

Site Information

JEA Northside Generating Station (NGS) is located at 4377 Heckscher Drive, Jacksonville, Florida 32226. NGS includes two Circulating Fluidized Bed (CFB) boilers which are fired by coal, petcoke, biomass, and natural gas. Both units have a Spray Dryer Absorber (SDA) and a baghouse to remove contaminants from flue gas. NGS also has a conventionally design boiler which is fired with primarily natural gas and fuel oil in emergencies.

Codes and Standards

The CEMS must meet the requirements of 40 Code of Federal Regulations (CFR) Part 75 and 40 CFR Part 60. The CEMS will measure SO2, CO2, NOX, and CO and satisfy the applicable requirements of Appendices A and B of Part 75 and Appendices B and F of Part 60. SO2 measurements must also meet the requirements of CFR 40 Part 63 Subpart UUUUU to satisfy the MATS rule.

Project Scope of Work

1. Disconnect and remove the existing analyzers, sample probe, and umbilcials
    a. The opacity analyzers are brand new and do not need to be replaced
2. Install laser analyzer system including rack housing, analyzers, and integrate to current Data Acquisition and Handling Software (DAHS) Programable Logic Controller (PLC)
3. Install new umbilical between rack housing shack and probe on the stack
4. All installations and removal will have to be done during each units' respective outage and not simultaneously except for the NS 1 and NS 2 umbilical installs
    a. NS 1 outage is scheduled for 4/1/26 to 4/30/26
    b. NS 2 outage is scheduled for 11/1/25 to 12/1/25
    c. NS 3 outage is scheduled for 10/1/25 to 10/31/25
5. Turn key from contractor including tear down, installation, start up, calibration, certification testing (RATA), and technician training

Equipment to be Procured

- Three of each of the below will be required to have one system per unit
    - Laser Type Extractive Analyzer System
        - Laser Type rack-mount analyzer(s)
        - Low pressure sampling cell with infrared laser spectrometer
        - NOx range: 0-2000 ppm
        - CO range: 0-100,000 ppm
            - CO does not apply to NS 3
        - CO2 range: 0-100 ppm
        - SO2 range: 0-10,000 ppm
    - Stack probe to extract sample from stack

        - Attached drawing 009331 shows the CEMS nozzle details for NS 1, NS 2, and NS 3
            - NS 3 varies from NS 1 and NS 2 which variations are noted on drawing 009331
    - System display and keyboard for analyzer(s)
    - System specific, similar to existing, self-regulating heated sample line umbilical based on height of stack long cut to length in the field
        - NS 1 and NS 2
            - NS 1 umbilical is approximately 300' to be verified by installer
            - NS 2 umbilical is approximately 320' to be verified by installer
            - Refer to attached drawing 001933 for details of current umbilicals
            - Refer to attached drawing 109219 for current wiring of umbilical
            - Refer to attached drawing 109194 for load center supplying power for both NS 1 and NS 2
        - NS 3
            - Umbilical is approximately 300' to be verified by installer
            - Refer to attached drawing 014849 for details of current umbilical
            - Refer to attached drawing 014841 for current wiring of umbilical
            - Refer to attached drawing 014833 for load center details
    - Teledyne UltraFlow 150 Flowmeter
- Spare laser analyzer of each installed
    - If one type of laser analyzer is used for each application, then only one spare analyzer required
    - If multiple laser analyzers are used for each application, then one set of analyzers will be needed

Installation Details

- Installation of laser analyzer system
    - New analyzer(s) will be installed in the same rack and location of the current Thermo Scientific analyzers
        - Racks are 19" racks with 18.5" center to center between mounting holes
    - See attached Figure 1 showing picture of current rack for NS 1 and NS 2
    - See attached Figure 2 showing picture of current rack for NS 3
    - PLC is a KVB-Enertec SEAL Controller, SC.1 Controller
    - DAHS is NetDAHS Edge CEMTEK KVB-Enertec Data Acquisition Handling System
    - Software version is 9.4.7
    - Analyzer readings are communicated to the SEAL utilizing individual analog inputs
- Installation of analyzer umbilical
    - NS 1 and NS 2
        - Two umbilicals are installed per unit into the current shack
        - The existing mercury umbilical will be removed and the existing sample umbilical will be left in place
        - New umbilical will be routed into the existing shelter utilizing the current ports for the mercury umbilical

        - Units share a common stack with separate ducts
        - Umbilicals are routed from the sample shack, through cable tray inside the stack, and run up the interior of the stack in a cable tray
        - Umbilicals will be tied off every 5'
        - Umbilical routing is shown in Figure 3
        - Umbilical entry into NS 1 and NS 2 CEMS shack is shown in Figure 9
    - NS 3
        - One umbilical currently in service
        - In service umbilical will be removed and replaced with new umbilical being installed
        - Umbilical is routed on the exterior of the stack up to the sample port platform
        - Umbilical will be attached similar to the existing umbilical utilizing existing unistrut and new unistrut clamps approximately every 5'
        - Umbilical routing is shown in Figure 4
        - Umbilical entry into NS 3 CEMS shack is shown in Figure 10
- Installation of sample probe
    - Utilize existing sample ports to install new sample probe
    - Attached drawing 009331 shows the CEMS nozzle details for NS 1, NS 2, and NS 3
        - NS 3 varies from NS 1 and NS 2 which variations are noted on drawing 009331
    - N02 sample probe is shown in Figure 5 and sample probe flange is shown in Figure 6
        - N01 is the same as N02
    - N03 sample probe is shown in Figure 7 and sample probe flange is shown in Figure 8
- Support start up calibration of analyzers
- Provide technician training on operation, calibration, and maintenance of analyzer
- Support certification testing including relative accuracy test audit (RATA) testing
- All contractors personnel shall attend site specific training before being allowed to work at NGS

Removal of Existing Analyzers

- First set of analyzers removed will be retained by JEA as a spare until all new equipment is installed on all three units
    - If NS 3 is the first set of analyzers removed, the first CO analyzer from NS 1 or NS 2 will be retained by JEA as a spare until project is completed on all three units
- Below is a breakdown of the analyzers

Analyte	Range (ppm)	Brand	Model Number	Age (N01/N02)	Age (N03)	QTY to be Salvaged
SO2	0-10,000	Thermo Scientific	43i	2009	2017	2
NOx	0-2000	Thermo Scientific	42i	2009	2014	2
CO	0-100,000	Thermo Scientific	48i	2022	N/A	1
CO2	0-100	Thermo Scientific	410i	2009	2017	2

Minimum Qualifications

- Contractor to provide work history of successfully installing or in the process of installing at least 50 extractive laser analyzer CEMS systems with start up and at least 10 umbilical installs
- Must attend mandatory onsite pre-bid

- Must meet JEA safety contractor safety requirements and be approved by JEA safety department utilizing attached safety form

Evaluated Bids

JEA will not award this contract on a price only basis, but a will award based on how well each bidder meets the evaluation criteria listed below. Price will never be weighted less than the highest non-price factor. JEA will use the evaluation criteria listed in the section below to evaluate the information contained in the Proposal Documents submitted by each bidder. It is in the best interest of the bidders to provide informative, concise, and well-organized technical and business information relative to this installation.

- Price (50 points)

Bidder shall provide a completed quote to perform the installation outlined above. The total proposal price shall show firm fixed prices, not estimates. This will include all profit, taxes, benefits, cost reimbursement, and other items.

- Past Performance/Company Experience (30 points)

The bidder shall submit work experience for evaluation. The projects shall be for industrial utility power generation facilities of the following types and may include minimum qualification projects.

Each project/contract shall be for one of the following types of electric utilities:

  - Solid Fuel Plant
  - Simple or Combined Cycle Plant
  - Circulating Fluidized Bed Plant

Reference shall include the following:

  - Company name
  - Plant location
  - Scope of services performed
  - Plant contact with name, phone, and email

For each reference, the bidder shall submit no more than two pages 8 ½“ X 11” per project reference. Any information after the first two pages will not be considered in evaluation.

- Annual Maintenance Cost and Part Replacement Frequency (20 Points)

The bidder shall submit a recommended maintenance schedule with pricing of replacement parts for the analyzers, umbilical, sample probe, and all other supporting equipment. This shall also include recommended spare equipment which includes a spare analyzer or analyzers.

Figures

Figure 1:NS 1 and NS 2 CEMS Analyzers

Figure 2: NS 3 CEMS Analyzers

Figure 3: N01 and N02 Stack Umbilical Tray Inside of Stack

Figure 4: N03 Stack with Umbilical Tray

Figure 5: N02 Stack Sample Port which is the same as N01

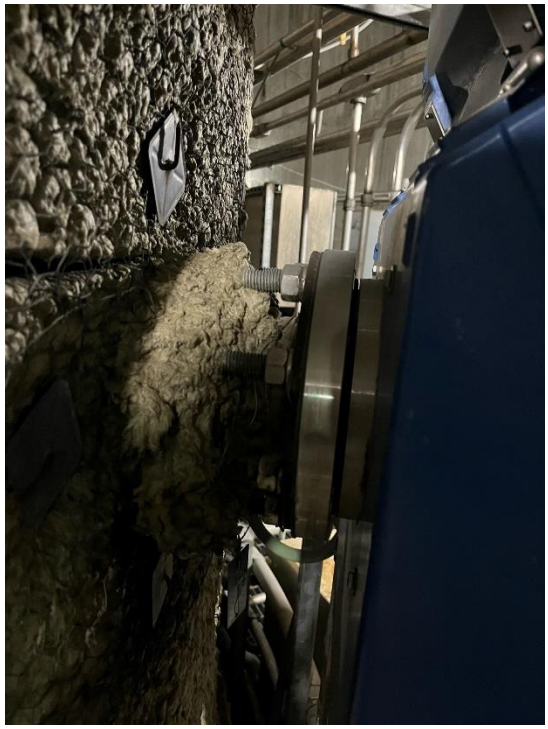

Figure 6: N02 Stack Sample Port Flange which is the same as N01

Figure 7: N03 Stack Sample Port

Figure 8: N03 Stack Sample Port Flange

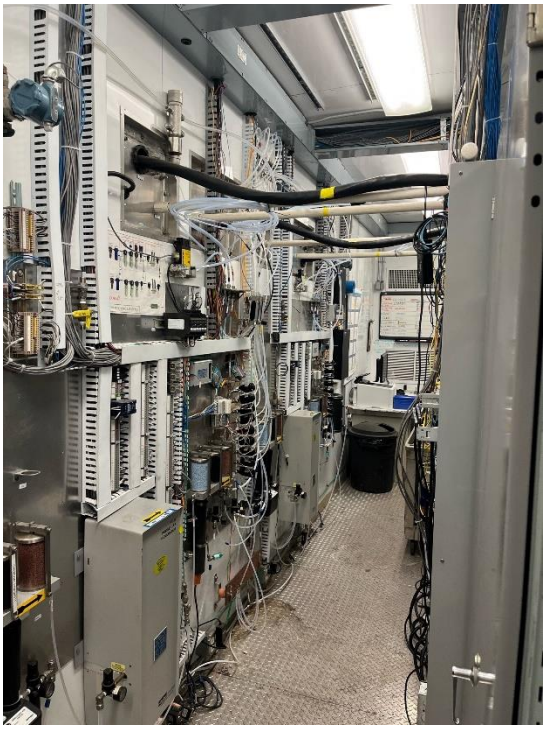

Figure 9: N01 and N02 Backside of Analyzer Racks and Umbilical Entries into CEMS Shack

Figure 10: N03 Umbilical Entry into CEMS Shack