

**SAMPLE SPECIFICATIONS
CONTINUOUS EMISSION MONITORING DATA
ACQUISITION SYSTEM**

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PART 1 - GENERAL REQUIREMENTS

A. PURPOSE OF THIS SPECIFICATION

1. To define a Data Acquisition System (DAS) for Continuous Emission Monitoring which meets all federal and state regulatory monitoring requirements.

B. RELATED DOCUMENTS (To Be Attached)

1. State, and local requirements as applicable.
2. Operating Permit
3. Installation site drawings

C. SUMMARY OF SPECIFICATION

1. Part 2 of this Specification includes a description of the plant, process, and installation site conditions including composition of gas to be measured.
2. Part 3 of this section of the Specification contains the technical and performance requirements of the Data Acquisition system.
3. Part 4 of this section contains the requirements for services to be provided. This includes but is not limited to:
 - a. Services to be provided by DAS supplier
 - b. Work and material by others:

D. SUPPLIER QUALIFICATIONS

1. All suppliers of equipment supplied by this specification shall have an acceptable history of supplying satisfactory reliable systems in use for a period of at least five years.
2. Acceptable bidders must be analyzer manufactures as well as system suppliers.
3. Acceptable bidders must have ISO 9001: 2008 quality certification.
4. Acceptable bidders must be financially solvent and be able to show upon demand a net worth of at least ten times the value of the bid for this system.
5. The supplier must maintain a regulatory expertise and be committed to developing software solutions to meet future regulatory changes and requirements.

E. DELIVERY

1. The supplier shall deliver equipment to the project site in accordance with manufacturer's shipping requirements. Project schedule requirements include:

- a. Drawing delivery _____
- b. Hardware delivery to site: _____
- c. Installation supervision: _____
- d. Startup of DAS: _____

PART 2- PROCESS AND APPLICATION CONDITIONS

A. PLANT

B. PROCESS AND FUEL(S)

C. EMISSION CONTROL EQUIPMENT

D. CEMS INSTALLATION SITE

Probe location _____

Analyzer cabinet _____

Sample line
length _____

E. GAS CONDITIONS AT INSTALLATION SITE

1. Gases to be measured and measurement ranges

NOx: typ concentration _____, max concentration _____, range _____

SO2: typ concentration _____, max concentration _____, range _____

CO2/O2 : typ concentration _____, max concentration _____, range _____

PART 3 - DAS SPECIFICATIONS

A. FEDERAL REGULATORY REQUIREMENTS

1. The DAS shall comply with US EPA 40CFR60, 40 CFR75, State of *[Insert State]* Regulations, and any other requirements of the attached permit.

B. DATA ACQUISITION SYSTEM

1. The DAS shall provide for automatic data acquisition, data processing, report generation, graphical display of data, printing and/or storing reports in electronic format, email transmission of reports and alarms, archival storage of data, and providing remote access to the system via network connection or modem.

2. The system shall utilize Windows 2003® as the operating system. No hybrid Unix/Windows systems will be considered. The Data Acquisition System (DAS) shall be designed from the ground up as a Windows application taking full advantage of the inherent connectivity allowed by ODBC compliant applications. The DAS must be designed around a Microsoft® SQL Database.

3. Software and operating system requirements: The system shall:

- a. Have a user-friendly Windows® interface.
- b. Offer password protection on multiple levels.
- c. Allow the authorized operators to edit data, reason codes, and corrective actions using a user friendly editing program that allows for filtering and block editing of the data.
- d. Allow the authorized operator to log the CEMS out of service, out of control or off-line.
- e. Allow the authorized operators to archive data automatically or on demand.
- f. Allow authorized operators to create assorted graphical displays of real time or historical data.
- g. Allow authorized operators to create graphical displays which can display measured or calculated data as well as process signal direct from the PLC.
- h. Prepare reports automatically or on demand.
- i. Allow for user design and/or modification of reports.
- j. Allow remote access to all system functions via network or modem.
- k. Allow expansion to accommodate revised regulations and/or measurement/calculation requirements.
- l. Be designed with server-client architecture.
- m. Be capable of interfacing and communicating with workstations via the plant LAN/WAN.
- n. Be capable of transmitting alarm messages, reports, etc. via email.

- o. Include a report generation program which is browser based and can be accessed from any network connected computer.
- p. Allow for easy sharing of data with common Microsoft software products such as Word®, Excel®, and Access®.
- q. The DAS shall maintain the one-minute data in databases from which higher averages are computed and stored.
- r. . The DAS shall compute all data averages greater than one-minute as soon as data becomes available.
- s. One minute data shall be stored for at least 135 days (user configurable) and then automatically be deleted.
- t. Higher level calculated data shall remain on the system until manually deleted.

4. System hardware: The contractor shall provide a complete system designed for the best operation of the supplied DAS. The configuration of the hardware will be the supplier's responsibility but the hardware must have state of the art speed and capacity ratings. The computer should have the at least the following specifications:

- a. Processor shall be a Quad Core Intel® Xeon® or Better
- b. System shall have at least 2 GB of RAM
- c. 4 Hot-swappable Hard Drives
- d. Sound Card
- e. External Hard Drive (for Back-up)
- f. Laser Printer
- g. Color Flat Panel Monitor, 21" SVGA or larger

5. System Controller: The CEMS shall interface with the DAS and be controlled from a commercially available programmable logic controller (PLC), (GE Fanuc or Allen Bradley). The PLC/DAS shall be capable of automatic data storage and automatic retrieval in the event of an interruption of communications between the DAS and PLC. Data storage shall be for at least 168 hours. The PLC shall pass one-minute data to the DAS.

6. Performance

- a. The contractor will guarantee the DAS/software will meet permitted reporting requirements.
- b. The supplier shall have successfully installed at least 50 DAS systems using the quoted software architecture.

PART 4 - SERVICES

A. SERVICES TO BE PROVIDED BY CEMS SUPPLIER

1. Installation Verification and Start-up
 - a. Provide instruction and guidance to the installing contractor for the equipment supplied under this specification.
 - b. Inspect the installed DAS equipment after the installation is complete. Provide the owner with confirmation that the equipment is properly installed and is ready for start-up.
 - c. Perform start up and verify correct operation of all equipment supplied under this specification.
2. Certification Testing
 - a. Perform all necessary tests (if required) to ensure compliance with regulatory requirements.
3. Maintenance Services
 - a. Provide a 1 year maintenance contract to commence upon successful completion of the certification testing:
 - 1) Provide 1 year remote software maintenance agreement.
 - 2) Provide optional onsite maintenance agreement to cover the DAS and the existing CEMS.
4. Training Services
 - a. Provide factory training for () of the owners technicians. Training shall be for a minimum of 16 classroom hours and cover the operation and maintenance of all components furnished.

B. WORK AND MATERIAL BY OTHERS

1. Installation of equipment and components.
2. Installation of all cable and conduit exterior to any hardware furnished by this contract.