

Nitrogen Oxide Trace Level Analyzer (NO_x)
Minimum Specifications

1) General instrument specifications:

- a) Electronic temperature and pressure transducers capable of being turned off and on while the instrument is operating.
- b) The instrument must electronically generate zero, full scale and intermediate points for diagnostics and operator generated calibrations and checks without powering down.
- c) Microprocessor controlled using a minimum standard of Motorola 68HC11.
- d) Units will be factory set to 0 to 500 PPB.
- e) Noise at zero will be less than 25 parts per trillion.
- f) Lower detectable limit is 50 parts per trillion.
- g) Electronically store minimum of two weeks of 5-minute averages and diagnostic parameters.
- h) Adjustable intensity front panel digital display- shows instrument's data and internal diagnostics.
- i) Instrument will operate on 120 volts AC, 60 Hz
- j) The instrument must have a carrying handle mounted on the side of the instrument, as opposed to the front or back of the instrument.
- k) Instrument returns to the run mode after one hour of non-use from a diagnostics or calibration status.

2) Communications: all the devices listed in this section will be physically built into the instrument's case.

- a) Two independent 0 to 10 volt single-ended analog outputs.

- b) One bi-directional DB 9F RS232 serial interfaces, capable of daisy chaining with other same brand analyzers, and dataloggers.
- c) One Ethernet RJ-45 jack.
- d) The instrument must communicate with all models of Environmental Systems Corp. Data loggers via analog and digital communications and DR DAS data loggers analog and digital communications.

3) Peripheral items must be included:

- a) A 120 volt 60 Hz AC external mechanical vacuum pump or pumps which are necessary for operation of this instrument.
- b) An instruction manual specifically written for this instrument only. A generic manual covering multiple air monitoring analyzers is not acceptable.
- c) Electrical schematic board layout drawings and electrical schematic diagrams are required.
- d) A 47 millimeter diameter particulate filter assembly which may be mounted internal or external.
- e) Two year's supply of expendable maintenance supplies shall be included. It will consist of:
 - 1. At least 100 each, 47 millimeter diameter particulate filters or filter elements
 - 2. At least 8 DFU filters for Nafion® brand or other air drier, if so equipped
 - 3. 2 sets of replacement pump diaphragms for any internally mounted pumps or maintenance kits for same pump.
 - 4. 1 set of capillaries or orifices with 2 sets sintered filters and O rings, if equipped.

4) External sampling probe as defined in the preamble of 40 CFR Part 58 Appendix E.7:

- a) Vendor must supply an externally mounted, weatherproof sample probe box and fittings, which will contain:
 - 1. Non-rusting, unpainted ASTM 300-314 stainless steel, insulated, weatherproof box.
 - 2. Sample inlet probe with insect filter.
 - 3. Heated molybdenum converter.
 - 4. Thermocouple capable of controlling heat to the converter.

 - b) All fittings will be constructed of non- rusting weatherproof connections.

 - c) Vendor will not supply tower to achieve sample probe elevation.

 - d) 50 feet of flexible non-rusting waterproof metal conduit cable which will extend from the instrument to the sampling manifold probe box as stated in 6 a, above. The conduit will house multiple strands of FEP type tubing and electrical wiring including thermocouple wire.
- 5) **Two-year warranty for parts, labor and return shipping to and from the factory, if the instrument must be returned for factory service.**
Vendor must supply a replacement unit if repairs are expected to take more than 60 days from date of instrument shipment to the factory.
- 6) **Vendor will provide two combined operator training sessions.**
- a) Each session will cover theory of operation, setup, maintenance, software and communications operation, troubleshooting, calibration and routine monitoring procedures.

 - b) Each training session will be 4 hours in duration, for a combined total of 8 hours of training.

 - c) They shall be facilitated by a competent, knowledgeable factory trained instructor.

 - d) The classes will be held at ODEQ offices in Oklahoma City, OK or in another location, such as the air monitoring site where the instrument is installed.

- e) The monitoring manager or his appointee will have expressed and implied discretion to approve or disapprove the training instructor and location where training will be held.
 - f) This requirement must be supplied within 90 days after the vendor has been notified by Central Purchasing of a successful bid award or as determined by the monitoring manager in section 5e.
- 7) **Vendor will provide operator support technical assistance** during normal hours of business, which are 8:00 am to 5:00 pm, Monday to Friday, US Central Standard Time. A toll free telephone number will be provided to ODEQ personnel for this purpose.
- 8) **All costs associated with this instrument bid will be paid by the vendor.** Examples are shipping, operator training costs, training materials, instrument instruction manuals, vendor travel and telephone calls shall be included in the final bid price for this instrument.
- 9) **Vendor must show in writing how each individual item specification on this bid sheet has been met. This includes all subcategories.**
- a) This document will be written on a separate sheet(s) of paper. The following information will be prominently displayed on each page.
 - 1. company's name
 - 2. main street address and post office box
 - 3. telephone number
 - 4. fax number
 - 5. federal identification number
 - 6. the current date when this document was completed
 - b) A copy of the original bid specifications sheet shall be affixed to the above document.
- 10) **Vendors must deliver the instrument within 60 days of notification of bid acceptance by Oklahoma Central Purchasing.** Oklahoma Department of Environmental Quality (ODEQ) shall have the exclusive right to refuse any and all instruments past this date and declare the contract null and void or select the next bidder that meets the minimum specifications as stated in this bid.

