Power supply PS 150 for calibration unit CA 150,

Calibration cells CC 001-X, where X represents various cell lengths from 1 to 900 mm,

Special calibration cells CC 110 or CC 150 (for mounting directly on receiver),

Light meter LM 010.

EQNA-0495-102, Opsis Model AR 500 System, open path (long path) ambient air monitoring system configured for measuring NO<sub>2</sub>, with one detector and movable grating, operated with a measurement range of 0 to 0.5 ppm, an installed monitoring path length between 50 and 500 meters (or 50 and 1000 meters with the ER 150 option), xenon lamp type B (150 watt), fiber optic cable length between 3 to 20 meters; operating within an ambient air temperature range of -50 to +50°C, an analyzer temperature range of 20 to 30°C, a measurement (integrating) time setting between 30 and 120 seconds (0 min:30 sec. to 2 min:00 sec.), and with a complete cycle time of not more than 200 seconds (3 min, 20 sec.). Under this method designation, the Model AR 500 System consists of:

AR 500 opto-analyser, Emitter EM 110 and receiver RE 110 (together identified as ER 110), Optic fibre cable OF 60-S, Power supply PS 150, OPSIS operational software, version 7.0, Initial on-site installation, setup, and limited operator training.

Optional components that can be used in addition to or as alternative to corresponding components listed above

AR 503 opto-analyzer configured as Model AR 500 (only the center detector active, sequential monitoring),

Emitter/receiver ER 150 (for monitoring path lengths up to 1 kilometer),

Xenon lamp type A (higher shortwavelength UV output),

Optic fibre cable OF 60-R (low-loss for short wavelengths),

Multiplexers MX 004 and MX 024, Dataloggers DL 010 and DL 016,

Analogue and digital input/output cards AO 008, AI 016, and DI 032,

Analogue and digital isolation cards IA 008, ID 008, AO 008, and OD 008, Window heaters HF 110 and HF 150, Mirror heaters HM 110 and HM 150, Auto calibration unit CU 007,

Software packages IO 80 version 1.4 (for the analogue and digital input/output adapters), DL10 and DL16 (for data loggers), ComVision, and STAT 500;

and recommended calibration and accuracy audit components (or equivalent);

Wavelength calibration lamp CA 004, Calibration bench CB 100, Receiver unit RE 060 (two required), Calibration unit CA 150, with same type

lamp as used in the monitoring path emitter.

Power supply PS 150 for calibration unit CA 150,

Calibration cells CC 001-X, where X represents various cell lengths from 1 to 900 mm.

Filter GG 400.

Special calibration cells CC 110 or CC 150 (for mounting directly on receiver),

Light meter LM 010.

EQOA-0495-103, Opsis Model AR 500 System, open path (long path) ambient air monitoring system configured for measuring O<sub>3</sub>, with one detector and moveable grating, operated with a measurement range of 0 to 0.5 ppm, an installed monitoring path length between 20 and 500 meters (or 20 and 1000 meters with the ER 150 option), xenon lamp type B (150 watt), fiber optic cable length between 3 to 20 meters; operating within an ambient air temperature range of -50 to  $+50^{\circ}$  C, an analyzer temperature range of 20 to 30° C, a measurement (integrating) time setting between 30 and 120 seconds (0 min:30 sec. to 2 min:00 sec.), and with a complete cycle time of not more than 200 seconds (3 min, 20 sec.). Under this method designation, the Model AR 500 System consists of:

AR 500 opto-analyser, Emitter EM 110 and receiver RE 110 (together identified as ER 110), Optic fibre cable OF 60-S, Power supply PS 150, OPSIS operational software, version 7.0, Initial on-site installation, setup, and limited operator training.

Optional components that can be used in addition to or as alternative to corresponding components listed above

AR 503 optoanalyzer configured as Model AR 500 (only the center detector active, sequential monitoring),

Emitter/receiver ER 150 (for monitoring path lengths up to 1 kilometer), Optic fibre cable OF 60-R (low-loss for

short wavelengths),

Multiplexers MX 004 and MX 024, Dataloggers DL 010 and DL 016, Analogue and digital input/output adapters AO 008, AI 016, and DI 032,

Analogue and digital isolation cards IA 008, ID 008, OA 008, and OD 008, Window heaters HF 110 and HF 150, Mirror heaters HM 110 and HM 150, Auto calibration unit CU 007,

Software packages IO 80 version 1.4 (for the analogue and digital input/output

adapters), DL10 and DL16 (for data loggers), ComVision, and STAT 500; and recommended calibration and accuracy audit components (or equivalent):

Wavelength calibration lamp CA 004, Calibration bench CB 100, Receiver unit RE 060 (two required), Calibration unit CA 150, with same type lamp as used in the monitoring path emitter,

Power supply PS 150 for calibration unit CA 150,

Calibration cells CC 001-X, where X represents various cell lengths from 1 to 900 mm,

Special calibration cells CC 110 or CC 150 (for mounting directly on the

Ozone generator OC 500, Light meter LM 010.

These methods are manufactured by Opsis AB, Furulund, Sweden and are available from ABB Power Plant Controls. Division of Combustion Engineering, Inc., 2 Waterside Crossing, Windsor, CT 06095. Notices of receipt of applications for these methods appeared in the Federal Register, Volume 56, October 29, 1991, page 55673; Volume 56, November 20, 1991, page 58574; and Volume 57, January 29, 1992, page 3429.

A test analyzer representative of these methods has been tested by the applicant, in accordance with the test procedures specified in 40 CFR part 53. After reviewing the results of these tests and other information submitted by the applicant, EPA has determined, in accordance with part 53, that these methods should be designated as equivalent methods. The information submitted by the applicant will be kept on file at EPA's Atmospheric Research and Exposure Assessment Laboratory, Research Triangle Park, North Carolina 27711, and will be available for inspection to the extent consistent with 40 CFR part 2 (EPA's regulations implementing the Freedom of Information Act).

As designated equivalent methods, these methods are acceptable for use by States and other air monitoring agencies under the requirements of 40 CFR part 58, Ambient Air Quality Surveillance. For such purposes, each method must be used in strict accordance with the operation or instruction manual associated with the method and subject to any limitations (e.g., operating range) specified in the applicable designation (see descriptions of the methods above). Users should note that these methods are the first methods designated that use a long path (open path) measurement principle. Amendments to the ambient air monitoring regulations at 40 CFR