Air Monitoring Quality Assurance Manual

Volume IV

Part D: Monitoring Methods for Nitrogen Dioxide

The method for determining compliance with the NO_2 ambient air quality standard shall be the chemiluminescence Federal Reference Method for the determination of NO_2 in the atmosphere (40 CFR, Part 50, Appendix F). California Approved Samplers for NO_2 are set forth in the Air Monitoring Quality Assurance Manual, Volume IV, Part D: Monitoring Methods for NO_2.

The current U.S. EPA "List of Designated Reference and Equivalent Methods" may be obtained through the U.S. EPA Technology Transfer Network Ambient Monitoring Technology Information Center web site at http://www.epa.gov/ttn/amtic/criteria.html. The following method constitutes "California Approved Samplers" for NO_2 for the purposes of determining compliance with California's ambient air quality standard: Gas phase chemiluminescence method for the determination of NO_2 in the atmosphere (40 CFR, Part 50, Appendix F). The specific instruments approved are:

Advanced Pollution Instrumentation, Inc. Model 200 NO_2 Analyzer - *Automated Reference Method*: RFNA-0691-082 "Advanced Pollution Instrumentation, Inc. Model 200 Nitrogen Oxides Analyzer". [Federal Register: Vol. 56, page 27014, 06/12/91]

Beckman Model 952-A $NO/NO_2/NO_x$ Analyzer - *Automated Reference Method*: RFNA-0179-034 "Beckman Model 952-A NO/NO_2/NOx Analyzer". [Federal Register: Vol. 44, page 7806, 02/07/79]

Bendix Model 8101-B Oxides of Nitrogen Analyzer - *Automated Reference Method*: RFNA-0479-038 "Bendix Model 8101-B Oxides of Nitrogen Analyzer". [Federal Register: Vol. 44, page 26792, 05/07/79]

Bendix/Combustion Engineering Model 8101-C Oxides of Nitrogen Analyzer - *Automated Reference Method*: RFNA-0777-022 "Bendix or Combustion Engineering Model 8101-C Oxides of Nitrogen Analyzer". [Federal Register: Vol. 42, page 37435, 07/21/77]

Columbia Scientific Industries Models 1600 and 5600 Analyzers - *Automated Reference Method*: RFNA-0977-025 "CSI Model 1600 Oxides of Nitrogen Analyzer". [Federal Register: Vol. 42, page 46574, 09/16/77]

Dasibi Model 2108 Oxides of Nitrogen Analyzer - *Automated Reference Method*: RFNA-1192-089 "Dasibi Model 2108 Oxides of Nitrogen Analyzer". [Federal Register: Vol. 57, page 55530, 11/25/92]

DKK-TOA Corporation Model GLN-114E Nitrogen Oxides Analyzer – *Automated Reference Method*: RFNA-0798-121 "DKK-TOA Corporation Models GLN-114E and

GLN-114E-1 Nitrogen Oxides Analyzer". [Federal Register: Vol. 63, page 41253, 08/03/98]

Environnement S. A. Model AC31M NO_2 Analyzer - *Automated Reference Method*: RFNA-0795-104 "Environnement S. A. Model AC31M Chemiluminescent Nitrogen Oxide Analyzer". [Federal Register: Vol. 60, page 38326, 07/26/95]

Environnement S. A. Model AC32M NO_2 Analyzer - *Automated Reference Method*: RFNA-0202-146 "Environnement S. A. Model AC32M Chemiluminescent Nitrogen Oxides Analyzer". [Federal Register: Vol. 67, page 15567, 04/02/02]

Horiba Instruments Models APNA-360 or APNA-360-CE NO-NO_2-NO_x Monitor - *Automated Reference Method*: RFNA-0196-111 "Horiba Instruments, Inc. Models APNA-360 or APNA-360-CE Ambient NO-NO_2-NO_x Monitor". [*Federal Register*: Vol. 61, page 11404, 03/20/96]

Horiba Instruments Model APNA-370 NO2 Monitor *Automated Reference Method*: RFNA-0506-157 "Horiba Instruments Incorporated Model APNA-370 Ambient NOx Monitor," standard specification, operated with a full scale fixed measurement range of 0 - 0.50 ppm with the automatic range switching off, at any ambient temperature in the range of 20 ℃ to 30 ℃, and with a 0.3 micrometer sample particulate filter installed. [Federal Register: Vol. 71, page 25587, 05/01/06]

Meloy Model NA530R Nitrogen Oxides Analyzer - *Automated Reference Method*: RFNA-1078-031 "Meloy Model NA530R Nitrogen Oxides Analyzer". [Federal Register: Vol. 43, page 50733, 10/31/78 and Vol. 44, page 8327, 02/09/79]

Monitor Labs Model 8440E Nitrogen Oxides Analyzer - *Automated Reference Method*: RFNA-0677-021 "Monitor Labs Model 8440E Nitrogen Oxides Analyzer". [Federal Register: Vol. 42, page 37434, 07/21/77; Vol. 42, page 46575, 09/16/77; Vol. 46, page 29986, 06/04/81]

Monitor Labs/Lear Siegler Model 8840 Nitrogen Oxides Analyzer - *Automated Reference Method*: RFNA-0280-042 "Monitor Labs or Lear Siegler Model 8840 Nitrogen Oxides Analyzer". [Federal Register: Vol. 45, page 9100, 02/11/80 and Vol. 46, page 29986, 06/04/81]

Monitor Labs/Lear Siegler Model 8841 Nitrogen Oxides Analyzer - *Automated Reference Method*: RFNA-0991-083 "Monitor Labs or Lear Siegler Model 8841 Nitrogen Oxides Analyzer". [Federal Register: Vol. 56, page 47473, 9/19/91]

Philips Model PW9762/02 NO/NO_2/NO_x Analyzer - *Automated Reference Method*: RFNA-0879-040 "Philips Model PW9762/02 NO/NO_2/NO_x Analyzer". [Federal Register: Vol. 44, page 51683, 09/04/79]

Seres Model NOx 2000 G Nitrogen Dioxide Analyzer *Automated Reference Method:* RFNA-0706-163 “Seres Model NOx 2000 G Nitrogen Dioxide Ambient Air Analyzer,” operated with a full scale measurement range of 1 - 0.50 ppm, at any ambient temperature in the range of 20℃ to 30 ℃. [*Federal Register:* Vol. 71, page 42089, 07/25/06]

SIR S.A. Model S-5012 Nitrogen Oxides Analyzer - *Automated Reference Method*: RFNA-0804-152. [Federal Register: Vol. 69, page 47924, 08/06/04]

Teledyne - Advanced Pollution Instrumentation, Inc. Models 200A, 200AU, 200E; Teledyne Analytical Instruments Model 9110A; or Teledyne Monitor Labs sensor-e™ Model TML-41 NO_2 Analyzers - *Automated Reference Method*: RFNA-1194-099 “Teledyne - Advanced Pollution Instrumentation, Inc. Models 200A, 200AU, 9110A, or 200E; Teledyne Analytical Instruments Model 9110A; or Teledyne Monitor Labs, Inc. sensor-e™ Model TML-41 Chemiluminescence Nitrogen Oxides Analyzer”. [Federal Register: Vol. 59, page 61892,12/02/94]

Teledyne Monitor Labs/Casella/Ecotech Models ML9841, ML9841A/EC9841A, Teledyne Monitor Labs/Casella/Ecotech Model ML9841B/EC9841B, or Wedding & Associates Model 1030 NO_2 Analyzers - *Automated Reference Method*: RFNA-1292-090– “Teledyne Monitor Labs, Casella Monitor, or Ecotech Models ML9841, ML9841A/EC9841A, or ML9841B/EC9841B, or Wedding & Associates, Inc. Model 1030 Nitrogen Oxides Analyzers”. [Federal Register: Vol. 57, page 60198, 12/18/92]

Thermo Electron/Thermo Environmental Instruments Model 14 B/E – *Automated Reference Method*: RFNA-0179-035 “Thermo Electron or Thermo Environmental Instruments, Inc. Model 14 B/E Chemiluminescent NO/NO_2/NO_x Analyzer”. [Federal Register: Vol. 44, page 7805, 02/07/79 and Vol. 44, page 54545, 09/20/79]

Thermo Electron/Thermo Environmental Instruments Model 14 D/E – *Automated Reference Method*: RFNA-0279-037 “Thermo Electron or Thermo Environmental Instruments, Inc. Model 14 D/E Chemiluminescent NO/NO_2/NO_x Analyzer”. [Federal Register: Vol. 44, page 10429, 02/20/79]

Thermo Environmental Instruments Models 42, 42C, 42*i* NO/NO_2/NO_x Analyzer - *Automated Reference Method*: RFNA-1289-074 “Thermo Environmental Instruments Inc. Model 42, Model 42C, or Model 42*i* NO-NO_2-NO_x Analyzer”. [Federal Register: Vol. 54, page 50820, 12/11/89]