

UPDATED INFORMATIVE DIGEST

Sections Affected: Proposed amendments to title 17, California Code of Regulations (CCR), sections 70100.1 and 70200, and document incorporated by reference: “Air Monitoring Quality Assurance Manual, Volume IV: Monitoring Methods for the State Ambient Air Quality Standards.”

Background: Section 39606(a)(2) of the Health and Safety Code requires the ARB to adopt ambient air quality standards in consideration of the public health, safety, and welfare, including but not limited to health, illness, irritation to the senses, aesthetic value, visibility interference and the effects of air pollution on the economy. Ambient air quality standards, as defined in section 39014 of the Health and Safety Code, reflect the relationship between the composition and intensity of air pollution to undesirable effects, and essentially define clean air. Ambient standards relating to health effects, including the nitrogen dioxide (NO₂) standard, are to be based upon the recommendations of the Office of Environmental Health Hazard Assessment (OEHHA). Existing section 70100.1 references California approved methods, samplers, and instruments for measuring and determining compliance with the standards; existing section 70200 sets forth the Table of Standards. The proposed amendments would modify the parts of those sections pertaining to NO₂.

Section 39606(d) of the Health and Safety Code (Children's Environmental Health Protection Act (SB25, Escutia; Stats. 1999, ch. 731, sec. 53)) required the ARB, in consultation with OEHHA, to review all California health-based ambient air quality standards to determine whether they are adequate to protect public health, including the health of infants and children. At its December 7, 2000 meeting, the Board approved a report, “Adequacy of California Ambient Air Quality Standards: Children's Environmental Health Protection Act” (Adequacy Report), prepared by ARB and OEHHA staff, which concluded that health effects may occur in infants and children and other potentially susceptible subgroups exposed to several criteria air pollutants at or near levels corresponding to the current standards. "Criteria air pollutants" are defined as air pollutants for which acceptable levels of exposure can be determined and for which ambient air quality standards have been set. The Adequacy Report identified the standard for NO₂ as having a high priority for further detailed review and possible revision. The current ambient air quality standard for NO₂ is 0.25 ppm, averaged over one hour.

In response to the Adequacy Report's findings and the Board's direction, ARB and OEHHA staffs began an exhaustive review and evaluation of the scientific literature regarding the impacts of NO₂ air pollution on public health. The body of evidence demonstrated significant associations between health effects and NO₂ at the level of the current standard. The health effects from exposure near 0.25 ppm NO₂ for one hour can be significant for asthmatics; they can include increased airway reactivity and enhanced airway inflammatory response to allergen challenge after NO₂ exposure. The health effects from exposure to levels higher than an annual average of 0.030 ppm NO₂

can also be significant, including premature mortality, emergency room visits for asthma in children, and hospitalization for respiratory and cardiovascular disease. Furthermore, epidemiological studies have shown that long-term exposures to NO₂ at such levels may lead to changes in lung function growth in children, symptoms in asthmatic children, and pre-term birth. In addition, infants and children have disproportionately higher exposure to NO₂ than adults due to their greater ventilation rate per unit body weight, and children have developing lungs that may be susceptible to the potential effects of NO₂.

Section 39606(d)(2) of the Health and Safety Code requires that ambient air quality standards be “established at levels that adequately protect the health of the public, including infants and children, with an adequate margin of safety.” The staff review of the literature determined that there are compelling reasons to be concerned about significant adverse health effects associated with NO₂ exposure; that the one-hour standard is not sufficiently protective; and that a multi-hour standard is also needed. Further, aligning the state’s NO₂ measurement methods with federal methods would allow the same NO₂ measurement data to be acceptable to both state and federal air quality agencies.

Two companion documents – a draft Staff Report containing staff’s preliminary findings, and a draft Technical Support Document – were released to the public on April 14, 2006, titled “Review of California Ambient Air Quality Standard for Nitrogen Dioxide.” The draft Staff Report, including staff recommendations for revising the current 1-hour standard and establishing a new annual average standard for NO₂, underwent scientific peer review by the Air Quality Advisory Committee (AQAC), an external peer review committee established in accordance with section 57004 of the Health and Safety Code and appointed by the Office of the President of the University of California. The AQAC held a public meeting on June 12-13, 2006, discussed their review of the draft Staff Report and the draft recommendations, and provided comments for improving the draft Staff Report to the ARB staff. Final AQAC findings were sent on December 5, 2006. The Staff Report was revised in response to comments received from the AQAC and the public. The final Staff Report (Initial Statement of Reasons for the proposed regulatory action), released on January 5, 2007, included the following staff proposal for revising the state ambient air quality standard for NO₂.

Staff Proposal: Based on a review of the scientific evidence on NO₂ health effects and the recommendations of OEHHA, ARB staff proposed and the Board adopted the following revisions on February 22, 2007 to the California ambient air quality standard for NO₂:

1. NO₂ continues to be the pollutant addressed by the standard.
2. NO₂ 1-hour-average standard – lower the 1-hour-average standard for NO₂ from 0.25 ppm to 0.18 ppm, not to be exceeded.
3. NO₂ annual-average standard – establish a new annual-average standard for NO₂ at 0.030 ppm, not to be exceeded. Three decimal places are included in order to ensure that the standard will provide an adequate margin of safety.

4. Monitoring method – retain the current monitoring method for NO₂, which uses the chemiluminescence method for determining compliance with the state ambient air quality standard for NO₂.
5. Incorporate by reference (in title 17, CCR, section 70101) all federally approved chemiluminescence methods (i.e., samplers) as “California Approved Samplers” for NO₂. This will result in no change in air monitoring practices, but will align state monitoring requirements with federal requirements.

Proposed Changes to Title 17, CCR: To effectuate the above recommendations, ARB staff proposes the following revisions to title 17, CCR, sections 70100.1 and 70200:

1. Amend section 70100.1 (Methods, Samplers, and Instruments for Measuring Pollutants) by adding a new subsection (d), "NO₂ Methods."
2. Amend section 70200 (Table of Standards) by revising the 1-hour average ambient air quality standard for NO₂, by adding provisions for an annual average NO₂ standard, by updating the description of the relevant effects of exposure, and by specifying the use of "California Approved Samplers."

Once ARB revises the ambient air quality standards that specify maximum levels of NO₂ that are consistent with healthy air, a second phase of regulatory activity will occur as ARB and the air pollution control and air quality management districts develop, propose, and adopt emission standards and other control measures that will apply to specific source categories of NO₂. The adoption of control measures designed to attain the ambient standards is a separate process conducted pursuant to the Health and Safety Code in accordance with the public notice and comment rulemaking procedures set forth in the California Administrative Procedure Act and other laws. ARB did not propose any control requirements at this hearing.