

Comments on the “Risk and  
Exposure Assessment to Support  
the Review of the NO<sub>2</sub> Primary  
National Ambient Air Quality  
Standard: Second Draft”

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# California Ambient Air Quality Standard for Nitrogen Dioxide

- Reviewed by Air Quality Advisory Committee (Peer review committee appointed by University of California, Office of the President)
- Approved by the California Air Resources Board February 22, 2007
- Effective March 20, 2008

# New NO<sub>2</sub> Standard for California

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- Reduced level of current 1-hr standard from 0.25 ppm to 0.18 ppm, not to be exceeded
- Established a new annual average standard of 0.030 ppm, not to be exceeded
- Retained current monitoring method for NO<sub>2</sub> – gas-phase chemiluminescence

# Basis for NO<sub>2</sub> 1-hour Standard of 0.18 ppm

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- Enhanced inflammatory response in asthmatics at 0.26 ppm for 15-30 min, followed by exposure to airborne allergen
- Increased airway reactivity in asthmatics at 0.2 - 0.3 ppm for 30 min- 2 hrs

# Basis for NO<sub>2</sub> 1-hour standard (con't)

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- Added margin of safety for:
  - Children and other susceptible populations (e.g. more severe asthmatics)
  - Possible effects at lower concentrations
  - Proposed 1-hr avg standard but effects observed after 15-30 minutes
- Effects observed in epidemiologic time-series and panel studies may be due to short-term exposures

# Basis for Annual Average Standard of 0.030 ppm

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- Studies of hospital admissions and ER visits for asthma, and asthma exacerbation, particularly in children, in areas with annual averages of 0.023 to 0.037 ppm
- Studies showing long term exposures to NO<sub>2</sub> may lead to changes in lung function growth in children in areas with annual averages of 0.030 to 0.044 ppm
- Potential effects of NO<sub>2</sub> on serious outcomes including mortality, ER, hospitalization for cardiac and respiratory disease and arrhythmias

# Considerations for new standard setting for NO<sub>2</sub> by US EPA

- New scientific evidence since California standard in 2007 may support a lower 1-hour standard than 0.18 ppm
- A new annual average standard may be necessary to protect the public from the effects of long-term exposure to NO<sub>2</sub>
- The 1-hour standard may not ensure adequately low levels for the annual average
  - In the South Coast Air Basin of California the ratio of the 99<sup>th</sup> percentile of the 2004 1-hour maximum to the annual average was 3.80. A 1-hr standard of 0.20 ppm may allow an annual average as high as 0.053. This is higher than the current California annual standard of 0.030 ppm, and long-term effects have been observed in areas with annual averages lower than 0.053 ppm.