

## MEMORANDUM

**TO:** Alan C. Lloyd, Ph.D.  
Agency Secretary  
California Environmental Protection Agency

**FROM:** Joan E. Denton, Ph.D.  
Director

**DATE:** February 2, 2006

**SUBJECT:** Environmental Tobacco Smoke As A Toxic Air Contaminant To Which Infants And Children May Be Especially Susceptible

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The Children's Environmental Health Protection Act (Health and Safety Code, Section 39669.5; SB25, Escutia, 1999) requires the Office of Environmental Health Hazard Assessment (OEHHA) to review substances listed as Toxic Air Contaminants (TAC) and to list those which may cause infants and children to be especially susceptible to illness. In accordance with the requirements of that Act, an initial list of five such TACs was established in September 2001. OEHHA is further required to add additional substances to that list when identified by subsequent reviews or new identifications.

The California Air Resources Board (CARB) identified Environmental Tobacco Smoke (ETS) as a TAC on January 26, 2006, following the procedures laid down in Health and Safety Code section 39650 *et seq.* (AB 1807, Tanner, 1983), and based on reports by OEHHA and CARB staff and findings of the Scientific Review Panel (SRP) on TACs. The report on health effects of ETS prepared by OEHHA staff describes a number of adverse health effects (summarized in the attached table), including several specific to infants and children, or to which infants or children may be especially susceptible. These include low birthweight and decrease in birthweight, Sudden Infant Death Syndrome, pre-term delivery, acute lower respiratory tract infections, asthma induction and exacerbation, chronic respiratory symptoms, and middle ear infections. ETS exposure is also associated with increased risk of cancer. Infants and children exposed to carcinogens experience a greater risk of cancer later in life, compared to the risk experienced by those exposed as adults. Further details are provided in the staff report, which is available at <http://www.arb.ca.gov/regact/ets2006/ets2006.htm>. The Health Effects Assessment and the proposal to list ETS as a TAC that disproportionately impacts infants and children were specifically approved by the SRP and noted in their findings.

Accordingly, OEHHA hereby formally adds ETS to the list of TACs which may cause infants and children to be especially susceptible to illness. This listing requires that any Air Toxic Control Measures which CARB determines to be necessary for ETS shall be adequate to protect the health of infants and children.

Should you have any questions, please contact me at (916) 322-6325.

Attachment

**Effects Causally Associated with ETS Exposure**

**Developmental Effects**

Fetal growth: Low birthweight and decrease in birthweight  
Sudden Infant Death Syndrome (SIDS)  
Pre-term delivery

**Respiratory Effects**

Acute lower respiratory tract infections in children  
(*e.g.*, bronchitis and pneumonia)  
Asthma induction and exacerbation in children and adults  
Chronic respiratory symptoms in children  
Eye and nasal irritation in adults  
Middle ear infections in children

**Carcinogenic Effects**

Lung cancer  
Nasal sinus cancer  
Breast cancer in younger, primarily pre-menopausal women

**Cardiovascular Effects**

Heart disease mortality  
Acute and chronic coronary heart disease morbidity  
Altered vascular properties

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**Effects with Suggestive Evidence of a Causal Association  
with ETS Exposure**

**Reproductive and Developmental Effects**

Spontaneous abortion, Intrauterine Growth Retardation  
Adverse impact on cognition and behavior  
Allergic sensitization  
Decreased pulmonary function growth  
Adverse effects on fertility or fecundability

**Cardiovascular and Hematological Effects**

Elevated risk of stroke in adults

**Respiratory Effects**

Exacerbation of cystic fibrosis  
Chronic respiratory symptoms in adults

**Carcinogenic Effects**

Cervical cancer  
Brain cancer and lymphomas in children  
Nasopharyngeal cancer  
All cancers – adult and child

### TACs that may disproportionately impact infants and children.

Toxic Air Contaminant	Endpoints of Most Concern	Major Reasons Why Chosen
Acrolein	Respiratory Irritant	Exacerbation of asthma; modeling predictions indicate concentrations in urban air above cREL
Chlorinated dioxins and dibenzofurans (dioxins)	Developmental toxicity, immunotoxicity, endocrine disruption; thyroid effects	Widespread exposure; endocrine disruption, thyroid and immuno-toxicity at low body burden; young animals more susceptible than older animals
<b>Environmental Tobacco Smoke</b>	<b>Developmental effects, including low birthweight and decrease in birthweight, Sudden Infant Death Syndrome, pre-term delivery. Respiratory effects, including acute lower respiratory tract infections, asthma induction and exacerbation, Chronic respiratory symptoms, middle ear infections in children. Cancer.</b>	<b>Widespread exposure; numerous adverse health effects; several known effects are specific to children, and other known effects to which infants and children may be more susceptible.</b>
Lead and compounds	Developmental neurotoxicity/CNS effects	Children the most susceptible subpopulation due to developmental neurotoxicity.
Particulate Emissions from Diesel-fueled Engines (Diesel exhaust particulate matter)	Enhancement of allergic response; exacerbation of asthma; developmental effects, genotoxicity and lung cancer.	Enhancement of allergic response and implications for exacerbation and possible induction of asthma; Major source of ambient PAHs, PM10; exacerbation of asthma by PM10; PAH developmental toxicity and genotoxicity a concern.
Polycyclic Organic Matter (POM)	Developmental effects, genotoxicity and lung cancer	Animal studies indicate teratogenicity, and fetotoxicity; human studies indicate greater genotoxicity following in utero exposures.