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### AIR QUALITY MANAGEMENT DISTRICT

#### GUIDE TO AIR QUALITY ASSESSMENT

Determining Significance of Air Quality Impacts Under the **California Environmental Quality Act (CEQA)** -  
*First Edition, February 2002*



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## Chapter 7 Evaluation of Toxic Air Contaminants

### 7.1 Overview

Toxic air contaminants (TACs), or in federal parlance under the Clean Air Act, hazardous air pollutants (HAPs), are pollutants that may be expected to result in an increase in mortality or serious illness or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts will not occur. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs are emitted by a wide range of sources, from industrial plants to households. Since it is not practical to eliminate all TACs from our lives, these compounds are regulated through risk management programs. These programs are designed to ensure that the risk of adverse health effects from exposures to TACs is not significant.

### 7.2 Regulation of TACs

Toxic air contaminants are not considered criteria pollutants in that the federal and California Clean Air Acts do not address them specifically through the setting of National or State Ambient Air Quality Standards. Instead, EPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, they establish the regulatory framework for TACs.

**7.2.1 Federal.** As amended in 1990, the Clean Air Act contained a list of 189 HAPs designated by Congress. EPA's current list consists of 188 compounds (see EPA website at [www.epa.gov/ttn/atw/188polls.html](http://www.epa.gov/ttn/atw/188polls.html)). The EPA has established National Emission Standards for Hazardous Air Pollutants (NESHAPs), as required by the federal Clean Air Act Amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs. See 40 CFR Parts 61 and 63.

**7.2.2 State.** California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB designates a substance as a TAC. To date, CARB has identified 21 TACs, and has also adopted EPA's list of

HAPs as TACs. Most recently, Diesel exhaust particulate was added to the CARB list of TACs. Table 7-1, below, lists TACs associated with common land use activities.

**Table 7.1 Toxic Air Contaminants By Land Use**

Land Use	Toxic Air Contaminant
Aerospace Manufacturing	Hexavalent Chromium
Autobody Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Biomedical Laboratory	Benzene, Carbon Tetrachloride, Chloroform, Formaldehyde, Methylene Chloride
Chemical Manufacturing	Ethylene Dichloride, Asbestos
College/University	Cadmium, Hexavalent Chromium, Ethylene Oxide
Dry Cleaner	Perchloroethylene
Electrical Manufacturing	PCBs, Cadmium, Chromium, Nickel, Trichloroethylene, 1,4-Dioxane
Gasoline Station	Benzene, Methyl-tertiary butyl ether, Toluene, Xylene
Hospital	Dioxins, Dibenzofurans, Cadmium, Ethylene Oxide
Landfill	Benzene, Vinyl Chloride
Medical Equipment Sterilization	Ethylene Oxide
Petroleum Tank	Benzene
Printing Services	1,2,4-Tri-methylbenzene, Ethyl Benzene, Ethylene Glycol Monobutyl Ether, Methylene chloride, Propylene, Xylenes
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Ethylene Dibromide, Chloroform, Perchloroethylene, Trichloroethylene

Once a TAC is identified, CARB’s next step is to adopt an Airborne Toxics Control Measure for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below the threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology for TACs (“T-BACT”) to minimize emissions. All of the TACs identified by CARB to date have no safe threshold. CARB has established formal control measures for 11 TACs to date. See CARB regulations at 17 CCR secs. 93001, where the control measures are incorporated by reference.

The Hot Spots Act requires that existing facilities that emit toxic substances above specified levels:

- Prepare a toxic emissions inventory
- Prepare a risk assessment if emissions are significant
- Notify the public of significant risk levels
- Prepare and implement risk reduction measures

These requirements apply to facilities that: a) either manufacture, formulate, use, or release toxic substances and emit more than 10 tons per year of criteria pollutants; b) fall into facility

categories listed in Appendix E1 or E2 of the State's Emissions Inventory Criteria and Guidelines Regulation; or c) are listed on a District's toxic inventory list. This act is implemented in El Dorado County through criteria and guidelines incorporated into CARB regulations at 17 CCR sec. 93301. Persons interested in identifying facilities that emit TACs in El Dorado County should contact either the District or CARB.

**7.2.3 El Dorado Air Pollution Control District.** Air pollution control districts may adopt and enforce control measures adopted by CARB, to limit TACs locally. The District has adopted control measures for benzene emissions from retail gasoline dispensing (Rule IX, Section A) and for Hexavalent Chromium from Chrome Plating and Chromic Acid Anodizing Operations (Rule IX, Section B).

### **7.3 Asbestos**

Asbestos is listed as a TAC by CARB and a HAP by EPA. It is of special concern in El Dorado County because it occurs naturally in surface deposits of several types of ultramafic minerals. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining.

EPA has adopted a NESHAP for asbestos that sets forth emission standards for mills, roadways, manufacturing, demolition and renovation, spraying, fabricating, insulation materials, and waste disposal (40 CFR Part 61, Subpart M). Similarly, in 1990 CARB adopted an ATCM for asbestos-containing serpentine rock covering the use or sale of materials containing more than 5% asbestos. In 2000, CARB revised its ATCM to apply to the use or sale of materials containing more than 0.25% ultramafic rocks (17 CCR sec. 93106). In July 2001, CARB adopted another ATCM (17 CCR sec. 93105) limiting emissions from construction, grading, quarrying and surface mining in areas with ultramafic rock. Unless they are replaced by a District regulation, these ATCMs must be enforced by the District.

The District has not yet adopted any separate regulation governing asbestos. However, a county-wide ordinance was adopted on January 4, 2000 (Ordinance 4548, codified as Chapter 8.44 of the El Dorado County Ordinance Code) adopting the CARB asbestos content level as a “permissible asbestos content level.” The ordinance requires compliance with this level in the use and sale of asbestos-containing materials within the county. For grading, excavation, and construction activities, the ordinance requires an Asbestos Hazard Dust Mitigation Plan in all areas of the county identified as potentially having asbestiform minerals; the mitigation measures include extensive wetting, covering, and other actions. A similar plan is required for surface mining activities in asbestiform deposits.

## 7.4 Siting Considerations

As discussed in Chapter 2, the siting of a project can largely influence whether it will result in significant air quality impacts. This is especially true with respect to TACs. A public agency should avoid siting a sensitive receptor, such as a school, medical facility, or elder care center near a source of toxic emissions, and vice-versa. The District can be contacted regarding the potential incompatibility of land uses that involve TACs.

The District maintains an inventory of all facilities that emit significant amounts of TACs. If a project involves purchasing a schoolsite or constructing a new elementary or secondary school, Public Resources Code § 21151.8 requires a lead agency to consult with the air district to identify facilities that emit hazardous air pollutants within 1/4 mile of the site. Similarly, under Health & Safety Code § 42301.6(a), if any new or modified source of TACs is located within 1,000 feet of a school, the District is required to send a notice of the proposed project to the parents of all students and to all residences within 1,000 feet of the source. The notice must include a description of the project and a description of the health risks posed by the project. In recognition of these provisions, under its qualitative criteria, the District will require a risk assessment if TACs are or will be emitted within ¼ mile of a school or proposed school site.

## 7.5 Criteria for Significance

If the lead agency determines that the project will emit a TAC, the Initial Study must assess the potential of those toxic emissions to adversely impact nearby populations. Impacts from TACs may be estimated by conducting a health risk assessment (HRA). The California Air Pollution Control Officers Association (CAPCOA) has developed TAC HRA guidelines to provide consistent, statewide procedures for preparing the health risk assessments. The CAPCOA Guidelines can be downloaded from CARB's website at <http://www.arb.ca.gov/ab2588/riskassess.htm>. The HRA procedure involves the use of an air quality model and a protocol approved by the District.

**7.5.1 HRA Criteria.** The District considers the health risk from TACs to be significant if either of the following two criteria is met:

1. the lifetime probability of contracting cancer is greater than one in one million (ten in one million if T-BACT is applied); or
2. the ground-level concentration of non-carcinogenic toxic air contaminants would result in a Hazard Index of greater than 1.

The Hazard Index is determined by dividing the estimated exposure level by the acute (short-term) or chronic (long-term) “reference exposure level” (REL). The exposure level is the hourly or annual average ground-level concentration of a TAC that is estimated to occur as a result of the proposed project. The REL is the dose at or below which no adverse health effects are anticipated. Generally, RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature with an added margin of safety for sensitive individuals.

Applicable RELs may be obtained from CARB or the Office of Environmental Health Hazard Assessment in CalEPA.

The HRA should include mobile source TACs as well as stationary source TACs. In particular, emissions of Diesel particulates from construction activities or project operation involving the use of Diesel-powered vehicles or equipment must be included in the HRA. The District should be consulted for the techniques to be used in estimating these emissions.

**7.5.2. Compliance with Regulatory Requirements.** In addition, the District will consider a project significant, even if the HRA does not exceed the significance criteria above, if the project does not comply with the applicable regulatory requirements. The applicable requirements for asbestos and non-asbestos sources are set forth below.

Asbestos. For both temporary construction activities and long-term facility operations, the use of materials containing asbestos and processes involving the use of asbestos must comply with the applicable EPA NESHAP for asbestos, the CARB ATCMs for asbestos, and Ordinance 4548 of El Dorado County. Where applicable, each of these control measures must be completely met; otherwise, the project will be deemed to have a significant impact on air quality.

Non-Asbestos TACs. For non-asbestos TACs, if the contaminant(s) in question, and the particular use(s) of each TAC are covered by an applicable NESHAP, a CARB ATCM, or a District regulation, complete compliance with all applicable control measures is required to render the air quality impact insignificant.

**7.5.3 Screening Levels.** Based on its experience with modeling results from various types of projects, the District has identified the following levels as conservative indicators that a project will not result in significant emissions of TACs:

- Development projects with Diesel truck traffic less than 10 trucks/day.
- Industrial projects that result in emissions of organic gases, particulates, NO<sub>x</sub>, or oxides of sulfur (SO<sub>x</sub>) below the applicability levels specified under the Toxic Hot Spots Act (AB 2588; see Health & Safety Code sec. 44322 and the applicable CARB regulations implementing that act [see 17 CCR sec. 93300.5 and guidelines incorporated therein]).
- Construction emissions of ROG and NO<sub>x</sub> that meet the screening criteria in Section 4.2.

The District may determine that these screening levels are not appropriate on a project-by-project basis; accordingly, project proponents or the Lead Agency should consult with the District prior to their application.