

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

AIR TOXICS "HOT SPOTS" PROGRAM PRIORITIZATION PROCEDURE

PURPOSE OF PROCEDURE

The California Air Toxics “Hot Spots” Information and Assessment Act (AB 2588) was enacted by the Legislature in 1987 to address public concern over the release of toxic air contaminants into the atmosphere (Health and Safety Code §§ 44300 et. seq.). Under the Air Toxics “Hot Spots” Program, facilities that emit toxic air contaminants are required to prepare a comprehensive inventory of their releases of air toxics. Based on air toxics emissions inventories, the Ventura Air Pollution Control District (District) is required to calculate prioritization scores and then categorize facilities based on those prioritization scores. The purpose of facility prioritization is to identify facilities that warrant a detailed evaluation of facility risks through preparation of a site-specific health risk assessment. Prioritization procedure considers the magnitude of toxic air contaminant emissions from the facilities, the toxicity of those emissions, and the proximity of potential receptors. However, it does not consider the dilution characteristics of the specific facility’s exhaust stacks, elevated receptors or complex terrain, or the expected final health risks posed by the emissions. These latter factors are considered in a site-specific health risk assessment for more detailed evaluation of possible health effects. The potential risk that a facility poses to the public is based on the results of an approved health risk assessment.

PRIORITIZATION PROCEDURE

The procedure used by the District to prioritize facilities is called emissions and potency procedure. The emissions and potency procedure is simple, and applicable to all facilities. It is easily understood by the public. It is also designed with inherent conservatism to ensure that high risk facilities are ranked high priority. It is also consistent with state guidelines.

Emissions and Potency Procedure

The emissions and potency procedure is outlined in the Air Toxics "Hot Spots" Program Facility Prioritization Guidelines, prepared by the California Air Pollution Control Officers Association (CAPCOA), August 2016. These guidelines were developed by a committee comprised of representatives from CAPCOA, California Air Resources Board (CARB), Air Toxics and Risk Managers Committee (TARMAC), and the Cal-EPA Office of Environmental Health Hazard Assessment (OEHHA).

The emissions and potency procedure involves calculation of one or more numerical scores for a facility based on the following factors: emissions, potency or toxicity of compounds emitted, and receptor proximity. Calculated scores include carcinogenic effects, chronic non-carcinogenic effects, and acute non-carcinogenic effects. Facilities are prioritized based on the highest calculated scores.

EMISSIONS AND POTENCY PROCEDURE SCORE CALCULATION

Under the emissions and potency procedure, the quantity of toxic air contaminants, each toxic air contaminant's corresponding potency, and the proximity to potential receptors are used to calculate prioritization scores. Three scores will be calculated for each facility: one score for carcinogenic compounds, one score for chronic non-carcinogenic compounds, and one score for acute non-carcinogenic compounds.

Calculation of Facility Total Score for Carcinogenic Compounds

For facilities that emit carcinogenic compounds, a facility score is calculated for carcinogenic effects by using the following equation:

$$TS_{\text{cancer}} = \sum^c (E_c)(P_c)(RP)(WEF)(7700)$$

Where:

TS_{cancer} = total facility cancer score, sum of scores for all substances for which a unit risk value is available

c = specific carcinogenic substance

E_c = facility-wide or device emissions of substance c (lbs/yr)

P_c = unit risk factor of substance c

RP = facility-wide or device receptor proximity adjustment factor (Table 1)

WEF = workplace exposure factor (0.5 for workplace/commercial receptors, 1 for residential receptors)

7700 = normalization factor

Calculation of Facility Total Scores for Non-Carcinogenic (Chronic and Acute) Compounds

For facilities that emit compounds which have non-cancer health effects with either acute or chronic reference exposure levels (RELs), separate prioritization scores are calculated for both chronic and acute noncancer effects according to the following equations:

$$TS_{\text{chronic}} = \sum^{tc} (E_{tc}/P_{tc})(RP)(150)$$

$$TS_{\text{acute}} = \sum^{ta} (E_{ta}/P_{ta})(RP)(1500)$$

Where:

TS_{chronic} = total score, sum of scores for all substances with chronic RELs

TS_{acute} = total score, sum of scores for all substances with acute RELs

t_c = toxic substance with a chronic REL

t_a = toxic substance with an acute REL

E_{t_c} = annual average hourly facility-wide or device emissions of t_c (lbs/hr)

E_{t_a} = maximum hourly facility-wide or device emissions of t_a (lbs/hr)

P_{t_c} = REL of substance t_c ($\mu\text{g}/\text{m}^3$)

P_{t_a} = REL of substance t_a ($\mu\text{g}/\text{m}^3$)

RP = facility-wide or device receptor proximity adjustment factor (Table 1)

150 = chronic normalization factor

1500 = acute normalization factor

Table 1 Receptor Proximity Adjustment Factors ^{a,b}	
Receptor Proximity (meters)	RP (dimensionless)
$0 < R < 100$	1
$100 \leq R < 250$	0.25
$250 \leq R < 500$	0.04
$500 \leq R < 1000$	0.011
$1000 \leq R < 1500$	0.003
$1500 \leq R < 2000$	0.002
$R \geq 2000$	0.001

- Receptor proximity adjustment factors are based on a release height of 5 meters.
- If a receptor or potential receptor is located within approximately 50m of the release point, this receptor proximity adjustment factor may not be conservative.

Source-Receptor Distance

The receptor proximity factor is based on the distance from the facility to the nearest receptor.

The term receptor, as used in the calculation of cancer and noncancer chronic prioritization scores, is defined as a residence, school, daycare centers, hospital, or workplace/commercial facility; or any area where extended public access is possible. The receptor proximity is determined by taking the distance in meters from the facility's emitting source to the nearest receptor. There are two types of receptors when calculating cancer prioritization scores – residential receptor and workplace/commercial receptor. Residential receptor is defined as land, property, building used for areas of residence or areas which are under construction for residential use. Residential receptor also includes public or private schools, daycare centers, elderly housing and convalescent facilities, and hospitals. Workplace/commercial receptor is defined as land, property or building which is zoned for manufacturing, retail activity, worksites, or industrial sites (light or heavy). If the nearest receptor is a workplace/commercial facility, the distance to the nearest residential receptor must also be determined.

When calculating acute prioritization scores, receptor is expanded to also include any location where short-term (one-hour) public access is granted. This typically entails determination of two receptor proximity adjustment factors: one for calculation of cancer and chronic prioritization scores and one for calculation of acute prioritization scores. Short-term receptors include areas such as public parks, bus stops and agricultural fields (although not including general sidewalks).

Workplace Exposure Factor (WEF)

For receptors identified as workplace/commercial receptors, cancer prioritization score for the facility is multiplied by a receptor exposure factor of 0.5. This factor is used to account for the decreased exposure of offsite workers compared to residents. Early life exposures are not an issue for workplace receptors. Using worst case workplace exposure assumptions, compared to residential exposure, it was determined that workplace exposure will be half or less than residential exposure. Note that the receptor exposure factor does not apply if there is an onsite daycare center or other presence of infants or children.

PRIORITIZATION SCORES CATEGORIES

Facility prioritization scores will be reviewed individually. Each facility is placed in either high priority, intermediate priority, or low priority based upon their scores and thresholds shown in Table 2 and 3.

Table 2 Evaluation of Facility Prioritization Scores (Carcinogenic Compounds)	
Facility Score	Facility Designation
$TS_{cancer} \geq 10$	High Priority
$1 \leq TS_{cancer} < 10$	Intermediate Priority
$TS_{cancer} < 1$	Low Priority

Table 3 Evaluation of Facility Prioritization Scores (Non-Carcinogenic Compounds)	
Facility Score	Facility Designation
$TS_{chronic} \text{ or } TS_{acute} \geq 10$	High Priority
$1 \leq TS_{chronic} \text{ or } TS_{acute} < 10$	Intermediate Priority
$TS_{chronic} \text{ or } TS_{acute} < 1$	Low Priority

High Priority: If any of the three prioritization scores for a facility equals or exceeds the thresholds designated by the District for High Priority, the facility will be subject to health risk assessment requirements.

Intermediate Priority: Intermediate Priority facilities are generally not required to perform health risk assessments. However, they may be subject to health risk assessment requirements based on a review of additional factors which may pose potential adverse health impacts to nearby receptors. These factors include:

- Receptor proximity less than 50 meters
- Release height less than 5 meters
- Proximity of sensitive receptors near the facility
- Elevated receptors or complex terrain near the facility
- Frequency of nuisance violations
- Potential for public health impacts through non-inhalation exposure pathways

The District may also perform a screening risk assessment prior to making a determination concerning the need for further analysis using refined health risk assessment.

Low Priority: Low Priority facilities will not be required to perform health risk assessments.