

SAN DIEGO AIR POLLUTION CONTROL DISTRICT

AIR TOXICS "HOT SPOTS" PROGRAM PRIORITIZATION PROCEDURES

June 2023

These prioritization procedures have been developed by the San Diego Air Pollution Control District to satisfy requirements of The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588). This is the third revision to the District's prioritization procedures. Previous versions were adopted in 1990 and 1992.

WHAT IS THE AIR TOXICS "HOT SPOTS" PROGRAM?

The California Air Toxics "Hot Spots" Information and Assessment Act (AB2588) was enacted by the Legislature in 1987 to address public concern over the release of toxic air contaminants into the atmosphere. The law requires facilities that emit toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emission sources, location of resulting "hot spots," notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public.

Implementation of the "Hot Spots" Program consists of several distinct elements: toxic emission inventory plans, toxic emission inventory reports, facility prioritizations, health risk assessments, public notification, and risk reduction. The San Diego County Air Pollution Control District is the implementing agency for San Diego facilities required to comply with the law.

WHAT DOES THE LAW REQUIRE IN REGARD TO THE PRIORITIZATION OF FACILITIES?

The law requires air districts to prioritize and then categorize all facilities for purposes of health risk assessment into high, intermediate and low priority categories. The District takes into consideration potency, toxicity, quantity of emissions, the proximity of the facility to potential receptors and any other factor that the District finds may indicate that a facility poses a potential risk to receptors.

WHAT IS THE PURPOSE OF FACILITY PRIORITIZATION?

The purpose of facility prioritization is to identify facilities that warrant a detailed evaluation of facility risk through preparation of a site-specific health risk assessment. Prioritization procedures consider the magnitude of toxic air contaminant emissions from the facilities, the toxicity of those emissions and the proximity of the nearest, potential receptors but do 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, as well as more detailed evaluation of possible public health effects, are considered in a site-specific health risk assessment, if required, based on a facility's prioritization score. The potential risk that a facility poses to the public is based on the results of an approved health risk assessment. Requiring a facility to prepare a health risk assessment does not mean that the facility poses a significant risk to public health, only that its emissions and their possible impacts warrant a more detailed evaluation.

WHAT ARE THE DISTRICT'S GOALS FOR THE PRIORITIZATION PROCEDURES?

- The procedures should be simple.
- The procedures should be applicable to all facilities.
- The procedures should be easily understood by the public.
- The procedures should be designed with inherent conservatism to ensure that high impact facilities will not be excluded.
- The procedures should be consistent with state guidelines.
- The procedures should be revised as necessary to reflect new developments in risk assessment methodology.

HOW DO THESE PRIORITIZATION PROCEDURES DIFFER FROM PREVIOUS VERSIONS OF THE PROCEDURES?

The District's first prioritization procedures were prepared in 1990. These procedures were adopted from the Air Toxics "Hot Spots" Program Facility Prioritization Guidelines (July 1990) prepared by the AB2588 Risk Assessment Committee of the California Air Pollution Control Officers Association (CAPCOA). This committee was comprised of representatives from local air pollution control districts, the Air Resources Board (ARB), and the Department of Health Services (now Office of Environmental Health Hazard Assessment (OEHHA)). Several consultation meetings were held by the committee to solicit input on the basic prioritization guidelines from the public and affected facilities.

In 1992, the District revised the 1990 procedures by increasing the carcinogenic compound prioritization score that would require a health risk assessment from 10 to 100. This change was based on analysis of the results of previously prepared health risk assessments which indicated that it was unlikely that facilities with a carcinogenic compound prioritization score under 100 (based on the procedures in place at that time) would trigger public notification requirements now specified in District Rule 1210.

This newest revisions to the prioritization procedures incorporates a receptor proximity adjustment factor. The receptor proximity adjustment factor may decrease prioritization scores (and potentially priority) for facilities that do not have receptors in close proximity to the facility. These facilities typically have less potential for significant toxic impacts due to the additional dispersion afforded by the greater source-to-receptor distances. Additionally, under the proposed

procedures two separate non-cancer prioritization scores will be calculated instead of a single composite (chronic and acute) score. These revisions are done to make the District's procedures consistent with the procedures of the majority of the other air districts in California.

WHAT METHODOLOGY WILL THE DISTRICT USE TO CALCULATE PRIORITIZATION SCORES?

The magnitude of emissions, each compound's corresponding potency, and the proximity to potential receptors will be used to calculate prioritization scores. Three scores will be calculated for each facility where appropriate; one score for carcinogenic compounds, one score for chronic non-carcinogenic compounds and one score for acute non-carcinogenic compounds.

A) Calculation of Facility Total Score for Carcinogenic Compounds

The emission rate of listed compound would by itself be inadequate for prioritizing facilities because the toxicities vary substantially from compound to compound. A more appropriate method incorporates the total facility emission rate from each device and for each AB2588 listed carcinogen, its unit risk value, a receptor proximity adjustment factor and a normalization factor as demonstrated in the following equation:

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

where,

- TS_{cancer} = total score, sum of scores for all compounds for which a unit risk value is available
- c = specific carcinogenic compound
- E_c = facility-wide or device emissions of substance c , (lbs/yr)
- P_c = unit risk factor for substance c , $\mu\text{g}/\text{m}^3$
- RP = facility-wide or device receptor proximity adjustment factor
- 7700 = carcinogenic (or cancer) normalization factor, and 0.3 applied for worker risk

normalization factor

B) Calculation of Acute and Chronic Non-Cancer Scores

Non-cancer prioritization scores are calculated using data for all substances which have either acute or chronic reference exposure levels (RELs). Separate prioritization scores will be calculated for both chronic and acute non-cancer compounds 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,

Air Toxics "Hot Spots" Program Prioritization Procedures

| | | |
|-----------------------|---|---|
| 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 |
| tc | = | toxic compound with a chronic REL |
| ta | = | toxic compound with an acute REL |
| E_{tc} | = | annual average hourly facility-wide or device emissions of tc, (lbs/hr) |
| E_{ta} | = | maximum hourly facility-wide or device emissions of ta, (lbs/hr) |
| P_{tc} | = | REL of substance tc, ($\mu\text{g}/\text{m}^3$) |
| P_{ta} | = | REL of substance ta, ($\mu\text{g}/\text{m}^3$) |
| RP | = | facility-wide or device receptor proximity adjustment factor |
| 150 | = | chronic normalization factor |
| 1500 | = | acute normalization factor |

Unit risk factors, reference exposure levels, and normalization factors to be used in these calculations (cancer and non-cancer) were developed by the OEHHA and listed in the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993, or listed in any health risk assessment guidelines adopted by OEHHA pursuant to Division 26, Part 6, Chapter 6 of the California Health and Safety Code, that replaces all or part of the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October, 1993. Normalization factors are used to put the scores for carcinogenic effects and non-carcinogenic effects on a more convenient scale for evaluation.

SOURCE-RECEPTOR DISTANCE

Source-receptor distances is one of the factors the District considers when determining prioritization scores. Facilities must report distances to the nearest potential residential and commercial receptors as part of their annual data submittal for emission inventory. If the District does not have, or the facility has not provided, receptor distances then conservative receptor distances will be applied by the District to prioritize facilities.

A potential receptor is a physical location where toxic air emissions from a source could impact an individual. The term receptor, as used in the calculation of cancer and chronic prioritization scores, is defined as a residence, business, school, daycare center, hospital, hotel, government facility, retirement home, or any other location where extended public access is possible. Sensitive receptors as per District Rule 1210(c)(16) is defined as *"include hospitals, healthcare facilities (e.g., community clinics) schools, day care facilities, elderly housing and convalescent facilities, libraries, and other facilities where the occupants are more susceptible to the adverse effects of exposure to toxic air contaminants, as determined by the Air Pollution Control Officer"*

When calculating acute prioritization scores the definition is expanded to also include any location where short-term (one-hour) public access is likely. This typically entails determination of two receptor proximity factors; one for calculation of cancer and chronic prioritization scores and one for calculation of the acute prioritization score.

In the case of a landfill, since any uncontrolled landfill gas may be released from the whole surface fill area of the landfill, fugitive emissions associated with landfill gas should be calculated from the center of the landfill area to each of the closest receptor types, unless there is evidence of leaks closer to receptors as seen in the landfill's AB32 Landfill Methane Rule

Air Toxics "Hot Spots" Program Prioritization Procedures

Annual Report. If leaks are reported, then the District may choose a closer source to receptor distance. This case is only applicable to landfills which actively participate in CARB's AB32 Landfill Methane Rule, and which are a part of the Memorandum of Understanding (MOU) to reduce methane emissions from municipal solid waste landfills¹.

Potential receptor locations may include, but are not limited to:

Residential Receptors: Closest land, property boundary, building, or watercraft used for areas of residence or areas which are under construction for residential use.

Commercial Receptors: Closest land, property boundary or building which is zoned for manufacturing, retail activity, worksites, or industrial sites (light or heavy).

Schools and Daycare Facilities: Closest land, property boundary or building used for the purpose of education, including but not limited to, public or private schools, daycare facilities and/or juvenile detention centers.

Short-term Receptors: Closest areas such as public parks and bus stops (although not including general sidewalks).

For facilities with source-receptor distances greater than 50 meters the receptor proximity adjustment factor will be calculated as follows:

$$RP = 2500/D^2$$

where,

D = source to receptor distance (meters)

Note: source may be a facility or device. Each device may have its own RP.

For devices that are volume sources, the outside edge of the volume source's edge should be used to determine RP.

Source to receptor distance (D) is determined using the definitions specified below:

- 1) the minimum distance between a source and any facility property line added to the minimum distance from any facility property line to any potential receptor, or
- 2) the minimum source-receptor distance from any source to any potential receptor.
- 3) The minimum distance from the facility's nearest property boundary to the nearest potential receptor

The District may request that facilities supply documentation supporting the data used to determine the receptor proximity factor. If a facility believes that their prioritization scores are inaccurate due to incorrect or default receptor distances, then a facility may request a revision within 30 days of receiving the facility draft emission inventory report. If a facility, and/or its sources, is less than 50 meters from a receptor, a default of 50 meters will be used to calculate scores and further evaluation may be required to

¹ <https://ww2.arb.ca.gov/sites/default/files/classic/cc/landfills/docs/stateplan/mou/sandiego.pdf>

assess the facility's risk, as described below.

HOW WILL FACILITIES BE CATEGORIZED?

Facility prioritization scores will be reviewed individually. Each facility is placed in either Category A (high priority), B (intermediate priority) or C (low priority) based upon their total score and thresholds given in Tables 1 and 2.

**TABLE 1
Evaluation of Facility Total Scores for Carcinogenic Compounds**

| Facility Score | Facility Designation (Priority) |
|-----------------------|--|
| TS ≥ 100 | Category A |
| 1 ≤ TS < 100 | Category B |
| TS < 1 | Category C |

**TABLE 2
Evaluation of Facility Total Scores for Non-Carcinogenic Compounds**

| Facility Score | Facility Designation (Priority) |
|-----------------------|--|
| TS ≥ 10 | Category A |
| 1 ≤ TS < 10 | Category B |
| TS < 1 | Category C |

These thresholds are based on conservative air dispersion scenarios which use the ISCST and PTPLU dispersion models to estimate worst-case concentrations. Assumptions include an emission rate of one pound per hour, stack heights ranging from 1 to 100 meters, stack and ambient temperature equal to 293° Kelvin, low flow rate of 0.03 cubic meters per second, conservative meteorology, flat terrain, urban dispersion algorithms, and a minimum receptor proximity or distance of 50 meters.

WHO WILL HAVE TO DO RISK ASSESSMENTS?

If any of the three prioritization scores for a facility equals or exceeds the threshold designated by the District for the Category A rating, the facility will be subject to health risk assessment requirements.

Category B facilities may be subject to health risk assessment requirements based on a review of additional factors which may indicate potential for adverse health impacts. These factors include:

Air Toxics "Hot Spots" Program Prioritization Procedures

- proximity of sensitive receptors near the facility
- receptor proximity less than 50 meters
- elevated receptors or complex terrain
- frequency of nuisance complaints
- potential for public health impacts through non-inhalation exposure pathways

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

Category C facilities will not be required to perform health risk assessments.

COMBINED FACILITY

Pursuant to the California Health and Safety Code, Division 26, Part 6, Chapter 4, the District must prioritize facilities by evaluating the proximity of potential receptors to each source. Per the "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (EICG) Section 2, Subpart J Section 3(c)(ii), if the District has good cause to believe a combination of facilities, or aggregation of emission units, pose a potential threat to public health, then the District will assess the potential risk by calculating the prioritization score of the combined facilities. The District refers to these combination of facilities, or aggregation of emission units which operate on a contiguous or adjacent property, as "Combined Facility".

The creation of the Combined Facility designation was made to assess risk from a combination of facilities, or emission units, which emit toxic air contaminants from shared processes, and which operate on a contiguous or adjacent property. Similar to District Rule 2, a process is any method, reaction, or operation where materials are altered, or from which emissions are generated, and include all the equipment and facilities which are necessary for handling of the materials or the completion of the process.

Facilities which are designated as part of a Combined Facility will be notified by letter of the designation. The District will utilize data, including receptor distances, provided with individual facility emission inventories to create a prioritization score that is unique to the Combined Facility.