CAPCOA
Air Toxic "Hot Spots" Program

Facility Prioritization Guidelines

CAPCOA
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION

Prepared by:

California Air Pollution Control Officers Association (CAPCOA)

Air Toxics and Risk Managers Committee (TARMAC)

August 2016

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Prepared by:

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Air Toxics and Risk Managers Committee (TARMAC),

in consultation with

The California Air Resources Board
and
Office of Environmental Health Hazard Assessment (OEHHA)

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I. Introduction

A. Who Developed the Guidelines?

The facility prioritization guidelines were developed by the California Air Pollution Control Officers Association (CAPCOA). The Toxics and Risk Managers Committee (TARMAC) of CAPCOA revised these guidelines in 2015 in response to revisions to the State's underlying health risk assessment procedure guidelines. The Committee includes representatives of air pollution control and air quality management districts (districts). The Committee consulted with staff of the Air Resources Board (ARB) and Office of Environmental Health Hazard Assessment (OEHHA) in updating these guidelines.

B. What is the Purpose of the Guidelines?

The purpose of these guidelines is to provide air pollution control and air quality management districts with suggested procedures for use in prioritizing facilities into high, intermediate, and low priority categories as required by the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Air Toxics "Hot Spots" Act) in accordance with Health and Safety Code §44344.4(c). This law established a statewide program for inventory of air toxics emissions from individual facilities as well as requirements for risk assessment and public notification. Appendix A contains a copy of the Air Toxics "Hot Spots" Act.

The prioritization scoring procedures defined herein are only the first step in a conservative risk representation for a facility. The Prioritization Score (PS) for a facility falls into one of three categories; Low Priority, Intermediate Priority and High Priority. For facilities that are designated as High Priority, the next step is a detailed health risk assessment. In some Districts, an Intermediate Priority facility may be required to perform a HRA. The prioritization results are not the final risk result and should be viewed as a preliminary indicator of the facility's potential risk only. For many facilities that go on to perform a detailed health risk assessment, the facility health risk may end up being lower than predicted based on the prioritization results. This is because the prioritization results are only a conservative risk representation and the detailed health risk assessment provides a more accurate risk evaluation.

These guidelines were originally developed in 1990 and are being revised to incorporate the new health risk assessment methodologies determined by the Office of Health Hazard Assessment (revised March 2015). To allow districts to continue to use existing programs and software, the 2015 updated prioritization guidelines were revised to incorporate revised carcinogenic normalization factors to account for the new methodologies. CAPCOA understands the existing approach has limitations and will evaluate the need to expand the prioritization guidelines to better address variations due to source types and changes in air dispersion modeling programs.

In keeping with the purpose of this Facility Prioritization Guideline document, the revised carcinogenic normalization factors were selected to be conservatively high. The final risk evaluation will be based on a detailed health risk assessment for facilities designated as High Priority. In some Districts, an Intermediate Priority facility may be required to perform a HRA. As noted above, for many facilities that go on to perform a detailed health risk assessment, the facility health risk may end up being lower than predicted based on the prioritization results.

The guidelines are available to those districts that choose to use them. However, there is no requirement that the districts use these specific guidelines. Furthermore, it should be recognized that any district may develop prioritization procedures other than those presented in these guidelines.

For instance, any District may adopt prioritization procedures that include adjustments to prioritization scores based on other factors, such as:

- Recent HRA/Risk Reduction activities for that facility
- Recent or upcoming implementation of other enforceable regulations that would reduce risk
- Assessment of prioritization score assumptions relative to facility specific information
- Participation in voluntary risk reduction programs
- Data from ambient monitoring of air toxics
- Additional parameters from OEHHA used to calculate health risks, such as Cancer Potency Factors, 8-hour Chronic Reference Exposure Levels, multi-pathway exposure factors, etc.

It should be noted that any District that develops and utilizes its own prioritization guidelines must still provide public notification for any facility with a risk above the District's notification threshold level that is at least as stringent as those required under the AB2588 (i.e. Health and Safety Code Sections 44300-44394).

C. What Are the Requirements for Facility Prioritization?

The Air Toxics "Hot Spots" Act requires districts to prioritize and then categorize facilities for the purposes of health risk assessment. This categorization process is to be based on examination of the emissions inventory data, in consultation with the State Air Resources Board and the Office of Environmental Health Hazard Assessment. The first facilities subject to the Air Toxics "Hot Spots" Act were required to be prioritized by December 1, 1990. These were the facilities that were required to submit emission inventory plans by August 1, 1989.

The districts are required to designate high, intermediate, and low priority categories and include each facility within the appropriate category based on its individual priority. In establishing priorities, the district is to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, including, but not limited to, hospitals, schools, daycare centers, worksites, and residences, and any other factors that the district finds and determines

may indicate that the facility may pose a significant risk to receptors. The district is required to hold a public hearing prior to the final establishment of priorities and categories.

For the first and subsequent rounds of prioritizing, facilities which are not placed in the high priority category one year may be placed in the high priority category in a later year.

Within 150 days of the designation of priorities and categories, the operator of every facility that has been included within the highest priority category must prepare and submit to the district a health risk assessment prepared pursuant to Health and Safety Code Section 44361. The district may, at its discretion, grant a 30-day extension for submittal of the health risk assessment. In addition, a district may require any facility to prepare and submit a risk assessment according to the district priorities established for the purposes of the Air Toxics "Hot Spots" Program.

For guidance on the risk assessment procedures, refer to the Air Toxics "Hot Spots" Program Guidance Manual for Preparation of Health Risk Assessments (2015) prepared by OEHHA. This document can be found at http://www.oehha.ca.gov/air/hot_spots/hotspots2015.html.

D. How Do Districts Use The Guidelines?

The prioritization guidelines consist of two separate procedures for prioritizing facilities in accordance with the requirements of the Air Toxics "Hot Spots" Act. One is referred to as the emissions and potency procedure and the other is referred to as the dispersion adjustment procedure. Chapter II describes the emissions and potency procedure and Chapter III describes the dispersion adjustment procedure.

There are a number of ways the guidelines may be used by the district for prioritizing facilities. For example, the district may prioritize facilities by using only the emissions and potency procedure or the dispersion adjustment procedure described in Chapters II and III, respectively. Another option is to use both procedures for prioritization. For example, the emissions and potency procedure may serve as a preliminary approach whereby facilities tentatively identified as high priority are reevaluated using the more comprehensive dispersion adjustment procedure to determine if the high priority designation is appropriate.

The guidelines also provide flexibility in where to set cut points or thresholds for high, intermediate, and low priority. Although both procedures include suggested thresholds as examples, the district may select thresholds that are higher or lower than those presented in the procedures.

During the development of the two procedures presented in these guidelines, the Committee recognized that there may be other workable prioritization procedures that the district may choose to develop. The district may use such procedures independently or in conjunction with the procedures presented in the guidelines.

The use of screening models is one other possible approach for prioritizing facilities. However, a detailed discussion of screening models, the necessary inputs as well as the appropriate default values, are beyond the scope of these guidelines.

The district shall hold a public hearing prior to the final establishment of prioritization guidelines.

II. The Emissions and Potency Procedure

A. How Do I Use This Procedure?

This prioritization (categorization) procedure was developed for use in conjunction with the emission data collected and reported pursuant to requirements of the ARB Emission Inventory Criteria and Guidelines Regulations (California Code of Regulations, Title 17, Section 93300.5). These regulations outline requirements for inventory plans and reports. The plans for collecting the emission data, by source testing or emission estimation, must be approved by the district. Following district approval of the plan, data is collected and the Emission Inventory Report is prepared.

This prioritization procedure primarily relies on three parameters to prioritize facilities; emissions, potency or toxicity, and the proximity of potential receptors. Information regarding the emission of toxic substances from facilities is obtained from the Emissions Inventory Report submitted by the facility to the district in accordance with the Air Toxics "Hot Spots" Act. The emissions reported under this program and approved by the district are routine or predictable and include continuous and intermittent releases and predictable process upsets or leaks. Emissions for unpredictable releases (e.g., accidental catastrophic releases) are not reported under this program.

The district may allow use of more current facility emissions data than submitted in the Emissions Inventory Report. Some districts may require that use of updated emissions information be based on an enforceable condition of the facility's permit to operate. Interested facility operators should consult with the district on this provision of the guidelines. Information concerning the potency and toxicity of substances is provided in the Air Toxics "Hot Spots" Program Guidance Manual for Preparation of Health Risk Assessments prepared by OEHHA (OEHHA, 2015) or reflected in the Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values (http://www.arb.ca.gov/toxics/healthval/healthval.htm). Information on the distance of a facility to potential receptors can be obtained from the facility operator and/or other sources such as Google Earth or field inspection.

Facilities that emit substances identified in Appendix B (list of substances for emission quantification) that have carcinogenic effects receive a score that is the sum of emissions for each substance, which is required to be quantified and reported on a reporting form, multiplied by the appropriate potency (unit risk number) as well as a receptor proximity adjustment and normalization factor. The receptor proximity

adjustment factor is used to adjust the score based on the distance to the nearest potential residential or worker receptor. The normalization factor is used to align the prioritization results with a conservative risk representation based on a prior evaluation of example cases over a wide variety of source types and dispersion modeling parameters. The purpose of the normalization factor, which serves as a constant, is to put the scores for carcinogenic effects and non-carcinogenic effects on a more convenient scale for evaluation. With respect to the carcinogenic normalization factor, it was updated to be consistent with the OEHHA's 2015 guidelines and includes the age sensitivity factors, breathing rates, and dispersion modeling changes. Using both the receptor proximity adjustment factor and the normalization factor in the prioritization results enables the calculations to provide a conservative facility score.

The method for establishing the receptor proximity adjustment factor is determined by each District. The following methods may be used to estimate the distance (in meters) for determining receptor proximity adjustment factor:

1. Method 1: Add (a) the distance (in meters) from the facility property line to the nearest potential receptor to (b) the distance (in meters) from the facility's nearest emitting source to the facility property line; or

2. Method 2: Measure the distance (in meters) from the facility's nearest property line to the nearest receptor or potential receptor; or

3. Method 3: Measure the distance (in meters) from the facility's nearest emitting source to the nearest receptor or potential receptor.

Using the receptor proximity in conjunction with the information provided in Appendix C, the appropriate receptor proximity adjustment factor can be determined for each facility.

Facilities that emit substances identified in Appendix B (list of substances for emission quantification) that have acute or chronic non-carcinogenic effects receive scores that are the sum of emissions for each substance, which is required to be quantified and reported on a reporting form, divided by the appropriate toxicity (reference exposure level) and multiplied by the receptor proximity and normalization factors.

A facility will receive three scores (one for carcinogenic effects, one for acute non-carcinogenic effects, and one for chronic non-carcinogenic effects) if: 1) at least one of the substances emitted results in both carcinogenic and non-carcinogenic effects; or 2) the substances emitted include those that result in carcinogenic effects and others that result in non-carcinogenic effects.

Each facility is designated as either high, intermediate, or low priority based on a review of facility scores. For facilities that are not initially identified as high or low priority, additional factors may be considered for prioritization.

The following numbered steps describe how the procedure, including the suggested thresholds, can be used to prioritize facilities. In addition, Figure II-1 illustrates the procedure in a flowchart format.

B. Step 1 - Score Facilities (Carcinogenic Effects)

If substances, as listed in Appendix B (list of substances for emission quantification), with carcinogenic effects are not emitted from the facility, go to step 3. For each facility, multiply the total emissions in pounds per year (lbs/yr) for each substance by the appropriate unit risk factor, receptor proximity and normalization factors.

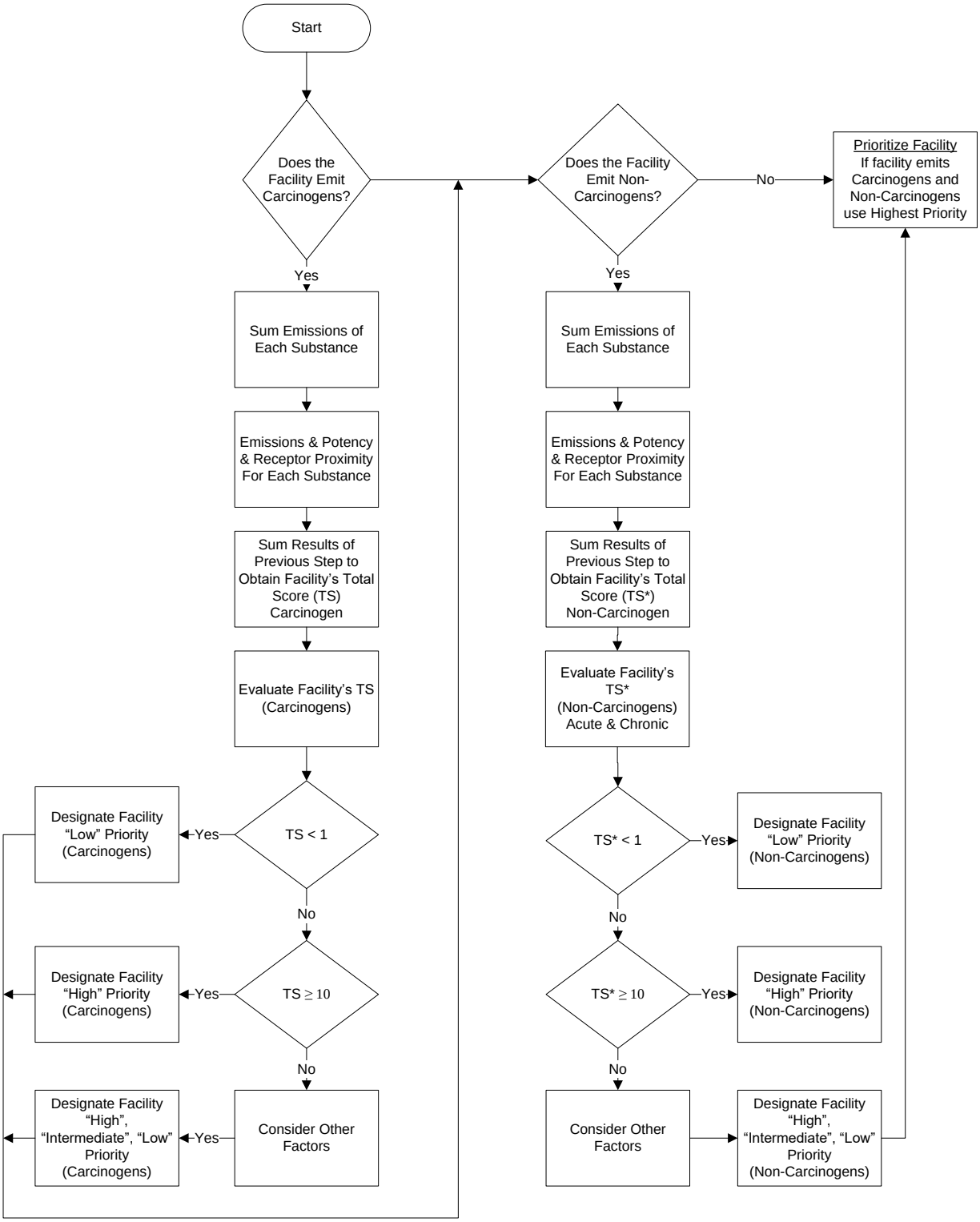


Figure II-1 The Emissions and Potency Procedure [a]

a - The thresholds used in this figure are examples. The district may select thresholds that vary from those presented.

To arrive at a total facility score (TS) for carcinogenic effects, sum the results for each substance emitted. The calculation is expressed by the following equation:

$$TS = \left\{\sum^{C}(E_C)(P_C)\right\}(RP)(7.7 \text{ x } 10^3) \qquad (1)$$

Where: TS = total facility score, the sum of scores for all substances with carcinogenic effects

c = specific carcinogenic substance

E_c = emissions of c (lbs/year)

P_c = unit risk of c

RP = receptor proximity adjustment factor (see Appendix C)

$7.7 \text{ x } 10^3$ = normalization factor

C. Step 2 - Evaluate Facility Scores (Carcinogenic Effects)

Based on the TS for each facility, rank each facility as either high, intermediate or low priority. The primary purposes of the evaluation procedure described below are to: 1) ensure that facilities that may represent a significant concern are designated as high priority; 2) identify facilities that are anticipated to be low priority; and 3) provide for consideration of other factors for facilities not initially designated as high or low priority. This evaluation procedure is conservative because facilities which do not necessarily represent a significant concern may be designated as high priority. Only upon the completion of a comprehensive risk assessment will the risks posed by facilities be accurately characterized.

As part of the evaluation of the facility scores, these procedures suggest a high priority threshold on the order of 10 to 100. However, the district may select a high priority threshold that is lower than 10 or greater than 100. The basis for the suggested thresholds is provided in Appendix D. As an example of how the procedures are to be used, the priority designation suggestions a, b, and c as well as Table II-1 and Figure II-1 use a low priority threshold of 1 and a high priority threshold of 10.

a. If the facility's TS is equal to or greater than 10, designate the facility as high priority. Because the threshold for high priority is based on a conservative modeling scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

b. If the facility's TS is below 1, designate the facility as low priority. Because the threshold is based on a conservative modeling scenario, facilities with TSs below

1 are expected to represent the lower end of the spectrum in terms of receptor impacts. However, because the low priority threshold is based on a conservative scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

c. Evaluate the facilities that have not been designated as high or low priority. Because there may be facilities that: 1) have scores between 1 and 10; and 2) may impact receptors, it is necessary to consider other factors for prioritization. The factors that are provided below, as well as any additional factors identified by the district, may be used to determine if any of the remaining facilities should be designated as high priority. The factors to consider may include:

- population density near the facility
- proximity of sensitive receptors to the facility
- receptor proximity less than 50 meters
- elevated receptors/complex terrain
- frequency of nuisance violations
- importance of non-inhalation pathway for substance(s) emitted by the facility
- presence of non-stack (fugitive) emissions

Determine if any factors or combination of factors justify designating the facility as high priority. The basis for designating such facilities as high priority is provided by the district. The remaining facilities are designated as intermediate priority.

Table II-1
Evaluation of Facility Scores (Carcinogenic Effects) [a]

Facility Score	Facility Designation
TS ≥ 10	High Priority
TS < 1	Low Priority
1 ≤ TS < 10	Consider Other Factors/Intermediate Priority

a - The thresholds in this table are presented as examples. The district may select thresholds that differ from those presented.

D. Step 3 - Score Facilities (Non-carcinogenic Acute & Chronic Effects)

If substances, as listed in Appendix B (list of substances for emission quantification), with non-carcinogenic effects are not emitted from the facility, go to step 5. For each facility, divide total emissions for each substance by the appropriate reference exposure level. The result of this calculation is then multiplied by the receptor proximity and normalization factors. Express emissions in maximum pounds per hour (max. lbs/hr) for substances associated with acute toxicity and average pounds per hour (lbs/hr) for substances associated with chronic toxicity. There are two options for calculating the total score (TS^*).

Option 1: For each substance associated with both acute and chronic toxicity, determine two scores (one for acute toxicity and one for chronic toxicity) to calculate the two total facility scores (TS*) for non-carcinogenic acute (eq.2) or chronic (eq.3) effects. To arrive at a TS*, sum the results for each substance emitted. The calculations are expressed by the following equations:

*Non-Carcinogenic Acute TS**

$$TS^* = \sum^{t} (E_t / P_t) (RP)(1500) \qquad (2)$$

*Non-Carcinogenic Chronic TS**

$$TS^* = \sum^{t} (E_t / P_t) (RP)(150) \qquad (3)$$

Where:
- TS* = total facility score for acute or chronic, is the sum of scores for all substances with non-carcinogenic acute or chronic effects
- t = toxic substance
- E_t = emissions of t (maximum lbs/hr for substances associated with acute toxicity and average lbs/hr for substances associated with chronic toxicity)
- P_t = reference exposure level of t *(*ug/m^3)
- RP = receptor proximity adjustment factor (see Appendix C)
- 1500 = normalization factor for acute exposures
- 150 = normalization factor for chronic exposures

Option 2: For each substance associated with both acute and chronic toxicity, determine and the use only the highest of the two scores (one for acute toxicity and one for chronic toxicity) to calculate the total facility score (TS*) for non-carcinogenic effects. To arrive at a TS*, sum the results for each substance emitted. The calculations are expressed by the two equations listed above. This option results in one total facility score for the facility.

E. Step 4 - Evaluate Facility Scores (Non-carcinogenic Acute & Chronic Effects)

Based on the TS* for each facility, rank each facility as high, intermediate, or low priority. The primary purposes of the evaluation procedure described below are to: 1) ensure that facilities that may represent a significant concern are designated as high priority; 2) identify facilities that are anticipated to be low priority; and 3) provide for consideration of other factors for facilities not initially designated as high or low priority. This evaluation procedure is conservative because facilities which do not present a significant concern may be designated as high priority. Only upon the completion of a comprehensive risk assessment will the risks posed by facilities be accurately characterized.

As part of the evaluation of facility scores, these procedures suggest a high priority threshold on the order of 10 to 100. However, the district may select a high priority threshold that is lower than 10 or greater than 100. The bases for the suggested thresholds are provided in Appendix D. As an example of how the procedures are to be used, the priority designation suggestions a, b, and c as well as Table II-2 and Figure II-1 use a low priority threshold of 1 and a high priority threshold of 10.

a. If the facility's TS*(acute or chronic) is equal to or greater than 10, designate the facility as high priority. Because the threshold for high priority is based on a conservative modeling scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

b. If the facility's TS* (acute and chronic) is below 1, designate the facility as low priority. Because the threshold is based on a conservative modeling scenario, facilities with TS*s below 1 are expected to represent the lower end of the spectrum in terms of receptor impacts. However, because the low priority threshold is based on a conservative modeling scenario, facilities with higher scores may not significantly impact receptors.

c. Evaluate the facilities that have not been designated as high or low priority. Because there may be facilities that: 1) have scores between 1 and 10; and 2) may impact receptors, it is necessary to consider other factors for prioritization. The factors that are provided below, as well as any additional factors identified by the district, may be used to determine if any of the remaining facilities should be designated as high priority. The factors to consider may include:

    - population density near the facility
    - proximity of sensitive receptors to the facility
    - receptor proximity less than 50 meters
    - elevated receptors/complex terrain
    - frequency of nuisance violations
    - importance of non-inhalation pathway for substance(s) emitted by the facility
    - presence of non-stack (fugitive) emissions

Determine if any factors or combination of factors justify designating the facility as high priority. The basis for designating such facilities as high priority is provided by the district. The remaining facilities are designated as intermediate priority.

Table II-2
Evaluation of Facility Scores (Non-Carcinogenic Effects) [a]

Facility Score	Facility Designation
TS* > 10	High Priority
TS* < 1	Low Priority
1 < TS* < 10	Consider Other Factors/Intermediate Priority

a - The thresholds in this table are presented as examples. The district may select thresholds that differ from those presented.

F. Step 5 - Prioritize Facilities

Each facility is prioritized as either high, intermediate or low. If a facility emits only substances with carcinogenic or non-carcinogenic effects, the priority of the facility is that determined during step 2 or 4, respectively. If a facility emits a substance(s) with carcinogenic and non-carcinogenic health effects, the facility is prioritized with the highest of the three priorities received from steps 2 and 4.

III. The Dispersion Adjustment Procedure

A. How Do I Use this Procedure?

This prioritization (categorization) procedure was developed for use in conjunction with the emission data collected and reported pursuant to requirements of the ARB Emission Inventory Criteria and Guidelines Regulations (California Code of Regulations, Title 17, Section 93300.5). These regulations outline requirements for inventory plans and reports. The plans for collecting the emission data, by source testing or emission estimation, must be approved by the district. Following district approval of the plan, data is collected and the Emission Inventory Report is prepared.

This procedure primarily relies on four parameters to prioritize facilities: emissions, potency or toxicity, dispersion, and receptor proximity. Information regarding the emission of toxic substances and release heights from facilities is obtained from the Emissions Inventory Report submitted by the facility to the district in accordance with the Air Toxics "Hot Spots" Act. The emissions reported under this program are routine and predictable and include continuous and intermittent releases and predictable process upsets or leaks. Emissions for unpredictable releases (e.g., accidental catastrophic releases) are not reported under this program.

The district may use more current facility emissions data than submitted in the Emissions Inventory Report. Some districts may require that use of updated emissions information be based on an enforceable condition of the facility's permit to operate. Interested facility operators should consult with the district on this provision of the guidelines. Information concerning the potency and toxicity of substances is provided in the Air Toxics "Hot Spots" Program Guidance Manual for Preparation of Health Risk Assessments prepared by OEHHA (OEHHA, 2015) or reflected in the Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values (http://www.arb.ca.gov/toxics/healthval/healthval.htm). The appropriate dispersion adjustment factor for each release point can be determined from Appendix E. The distance of a facility to potential receptors can be obtained from the facility operator and/or other sources such as Google Earth or field inspection.

Facilities that emit substances identified in Appendix B (list of substances for emission quantification) that have carcinogenic effects receive a score that is the sum of emissions for each substance, which is required to be quantified and reported on a reporting form, by release point multiplied by the appropriate potency (unit risk number) and dispersion adjustment as well as a receptor proximity adjustment and normalization factor. The purpose of the normalization factor, which serves as a constant, is to put the scores for carcinogenic effects and non-carcinogenic effects on a more convenient scale for evaluation.

The method for establishing the receptor proximity adjustment factor is determined by each District. The following methods may be used to estimate the distance (in meters) for determining receptor proximity adjustment factor:

1. Method 1: Add (a) the distance (in meters) from the facility property line to the nearest potential receptor to (b) the distance (in meters) from the facility's nearest emitting source to the facility property line; or

2. Method 2: Measure the distance (in meters) from the facility's nearest property line to the nearest receptor or potential receptor; or

3. Method 3: Measure the distance (in meters) from the facility's nearest emitting source to the nearest receptor or potential receptor.

Using the receptor proximity in conjunction with the information provided in Appendix C, the appropriate receptor proximity adjustment factor can be determined for each facility.

Facilities that emit substances identified in Appendix B (list of substances for emission quantification) that have acute or chronic non-carcinogenic effects receive a score that is the sum of emissions for each substance, which is required to be quantified and reported on a reporting form, by release point divided by the appropriate toxicity (reference exposure level) and multiplied by a dispersion adjustment as well a receptor proximity adjustment and normalization factor.

A facility will receive three scores (one for carcinogenic effects, one for acute non-carcinogenic effects, and one for chronic non-carcinogenic effects) if: 1) at least one of the substances emitted results in both carcinogenic and non-carcinogenic effects; or 2) the substances emitted include those that result in carcinogenic effects and others that result in non-carcinogenic effects.

Each facility is designated as either high, intermediate, or low priority based on a review of facility scores. For facilities that are not initially identified as high or low priority, additional factors may be considered for prioritization.

The following numbered steps describe how the procedure, including the suggested thresholds, can be used to prioritize facilities. In addition, Figure III-1 illustrates the procedure in a flowchart format.

B. Step 1 - Score Facilities (Carcinogenic Effects)

If substances, as listed in Appendix B (list of substances for emission quantification), with carcinogenic effects are not emitted from the facility, go to step 3. For each facility, multiply the emissions in pounds per year (lbs/yr) for each substance and release point by the appropriate unit risk factor, dispersion adjustment, as well as a receptor proximity adjustment and normalization factor. To arrive at a total facility score (TS) for carcinogenic effects, sum the results by release point for each substance emitted.

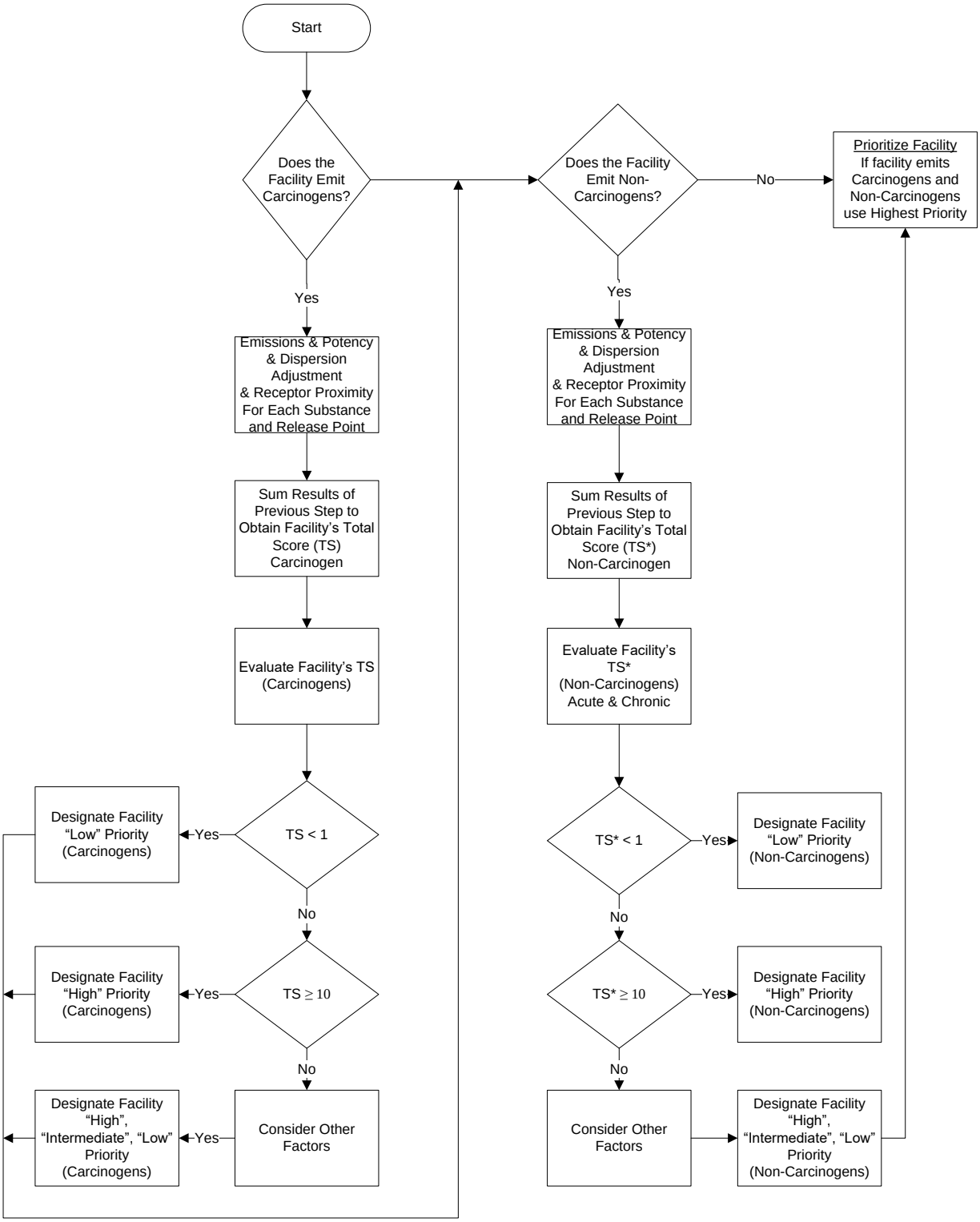


Figure III-1 The Dispersion Adjustment Procedure [a]

a - The thresholds used in this figure are examples. The district may select thresholds that vary from those presented

The calculation is expressed by the following equation:

$$TS = \left\{\sum^{c}(E_{c,h})(P_c)(D_h)(RP_h)\right\}(128) \qquad (4)$$

Where:
- TS = total facility score, the sum of scores for all substances with carcinogenic effects
- c = specific carcinogenic substance
- $E_{c,h}$ = emissions of c (lbs/year) at h
- P_c = unit risk of c
- h = release height
- D_h = dispersion adjustment factor for h (see Appendix E)
- RP_h = receptor proximity adjustment factor for h (see Appendix F)
- 128 = normalization factor

C. Step 2. Evaluate Facility Scores (Carcinogenic Effects)

Based on the TS for each facility, rank each facility as either high, intermediate, or low priority. The primary purposes of the evaluation procedure described below are to: 1) ensure that facilities that may represent a significant concern are designated as high priority; 2) identify facilities that are anticipated to be low priority; and 3) provide for consideration of other factors for facilities not initially designated as high or low priority. This evaluation procedure is conservative because facilities which do not necessarily represent a significant concern may be designated as high priority. Only upon the completion of a comprehensive risk assessment will the risks posed by facilities be accurately characterized.

As part of the evaluation of scores, these procedures suggest a high priority threshold on the order of 10 to 100. However, the district may select a high priority threshold that is lower than 10 or greater than 100. The basis for the suggested thresholds is provided in Appendix D. As an example of how the procedures are to be used, the priority designation suggestions a, b, and c as well as Table III-1 and Figure III-1 use a low priority threshold of 1 and a high priority threshold of 10.

a. If the facility's TS is equal to or greater than 10, designate the facility as high priority. Because the threshold for high priority is based on a conservative modeling scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

b. If the facility's TS is below 1, designate the facility as low priority. Because the threshold is based on a conservative modeling scenario, facilities with TSs below 1 are expected to represent the lower end of the spectrum in terms of receptor impacts. However, because the low priority threshold is based on a conservative

scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

c. Evaluate the facilities that have not been designated as high or low priority. Because there may be facilities that: 1) have scores between 1 and 10; and 2) may impact receptors, it is necessary to consider other factors for prioritization. The factors that are provided below, as well as any additional factors identified by the district, may be used to determine if any of the remaining facilities should be designated as high priority. The factors to consider may include:

- population density near the facility
- receptor proximity less than 50 meters
- elevated receptors/complex terrain
- proximity of sensitive receptors to the facility
- frequency of nuisance violations
- importance of non-inhalation pathway for substance(s) emitted by· the facility
- presence of non-stack (fugitive) emissions

Determine if any factors or combination of factors justify designating the facility as high priority. The basis for designating such facilities as high priority is provided by the district. The remaining facilities are designated as intermediate priority.

Table III-1
Evaluation of Facility Scores (Carcinogenic Effects) [a]

Facility Score	Facility Designation
TS ≥ 10	High Priority
TS < 1	Low Priority
1 ≤ TS < 10	Consider Other Factors/Intermediate Priority

a - The thresholds in this table are presented as examples. The district may select thresholds that differ from those presented.

D. Step 3 - Score Facilities (Non-carcinogenic Acute & Chronic Effects)

If substances, as listed in Appendix B (list of substances for emission quantification), with non-carcinogenic effects are not emitted from the facility, go to step 5. For each facility, divide emissions for each substance and release point by the appropriate reference exposure level. Multiply the result by the appropriate dispersion adjustment as well as the receptor proximity adjustment and normalization factors. Express emissions in maximum pounds per hour (max. lbs/hr) for substances associated with acute toxicity and average pounds per hour (lbs/hr) for substances associated with chronic toxicity. There are two options for calculating the total score (TS^{*}).

Option 1: For each substance associated with both acute and chronic toxicity, determine two scores (one for acute toxicity and one for chronic toxicity) to calculate the

two total facility scores (TS) for non-carcinogenic acute (eq.5) and chronic (eq.6) effects. To arrive at a TS*, sum the results by release point for each substance emitted.

The calculation is expressed by the following equation:

*Non-Carcinogenic Acute TS**

$$TS^* = \sum^{t} (E_{t,h} / P_t)(D_h)(RP_h)(25) \qquad (5)$$

*Non-Carcinogenic Chronic TS**

$$TS^* = \sum^{t} (E_{t,h} / P_t)(D_h)(RP_h)(2.5) \qquad (6)$$

Where:

- TS* = total facility score for acute or chronic, sum of scores for all substances with non-carcinogenic acute or chronic effects
- t = specific toxic substance
- $E_{t,h}$ = emissions of t at h (maximum lbs/hr for substances associated with acute toxicity and average lbs/hr for substances associated with chronic toxicity)
- P_t = reference exposure level of t (ug/m^3)
- h = release height
- D_h = dispersion adjustment factor for h (see Appendix E)
- RP_h = receptor proximity adjustment factor for h (see Appendix F)
- 25 = normalization factor for acute exposure
- 2.5 = normalization factor for chronic exposure

Option 2: For each substance associated with both acute and chronic toxicity, determine and the use only the highest of the two scores (one for acute toxicity and one for chronic toxicity) to calculate the total facility score (TS*) for non-carcinogenic effects. To arrive at a TS*, sum the results for each substance emitted. The calculations are expressed by the two equations listed above. This option results in one total facility score for the facility.

E. Step 4 - Evaluate Facility Scores (Non-carcinogenic Acute & Chronic Effects)

Based on the TS* for each facility, rank each facility as high, intermediate, or low priority. The primary purposes of the evaluation procedure described below are to: 1) ensure that facilities that may represent a significant concern are designated as high priority; 2) identify facilities that are anticipated to be low priority; and 3) provide for consideration of other factors for facilities not initially designated as high or low priority. This evaluation procedure is conservative because facilities which do not present a significant concern may be designated as high priority. Only upon the completion of a

comprehensive risk assessment will the risks posed by facilities be accurately characterized.

As part of the evaluation of facility scores, these procedures suggest a high priority threshold on the order of 10 to 100. However, the district may select a high priority threshold that is lower than 10 or greater than 100. The basis for the suggested thresholds is provided in Appendix D. As an example of how the procedures are to be used, the priority designation suggestions a, b, and c as well as Table III-2 and Figure III-1 use a low priority threshold of 1 and a high priority threshold of 10.

a. If the facility's TS* (acute or chronic) is equal to or greater than 10, designate the facility as high priority. Because the threshold for high priority is based on a conservative modeling scenario, it is possible that facilities with higher scores than the threshold may not significantly impact receptors.

b. If the facility's TS*(acute and chronic) is below 1, designate the facility as low priority. Because the threshold is based on a conservative modeling scenario, facilities with TS below 1 are expected to represent the lower end of the spectrum in terms of receptor impacts. However, because the low priority threshold is based on a conservative scenario, facilities with higher scores may not significantly impact receptors.

c. Evaluate the facilities that have not been designated as high or low priority. Because there may be facilities that: 1) have scores between 1 and 10; and 2) may impact receptors, it is necessary to consider other factors for prioritization. The factors that are provided below, as well as any additional factors identified by the district, may be used to determine if any of the remaining facilities should be designated as high priority. The factors to consider may include:

    - population density near the facility
    - receptor proximity less than 50 meters
    - elevated receptors/complex terrain
    - proximity of sensitive receptors to the facility
    - frequency of nuisance violations
    - importance of non-inhalation pathway for substance(s) emitted by the facility
    - presence of non-stack (fugitive) emissions

Determine if any factors or combination of factors justify designating the facility as high priority. The basis for designating such facilities as high priority is provided by the district. The remaining facilities are designated as intermediate priority.

Table III-2
Evaluation of Facility Scores (Non-Carcinogenic Effects) [a]

Facility Score	Facility Designation
TS* > 10	High Priority
TS* < 1	Low Priority
1 < TS* < 10	Consider Other Factors/Intermediate Priority

a - The thresholds in this table are presented as examples. The district may select thresholds that differ from those presented.

F. Step 5 - Prioritize Facilities

Each facility is prioritized as either high, intermediate, or low. If a facility emits only carcinogens or non-carcinogens the priority is that determined during step 2 or 4, respectively. If a facility emits a substance(s) with carcinogenic and non-carcinogenic effects, the facility is prioritized with the highest of the three priorities received from steps 2, and 4.

APPENDIX A

Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588)

HEALTH AND SAFETY CODE
SECTION 44300-44394

44300. This part shall be known and may be cited as the Air Toxics "Hot Spots" Information and Assessment Act of 1987.

44301. The Legislature finds and declares all of the following:

(a) In the wake of recent publicity surrounding planned and unplanned releases of toxic chemicals into the atmosphere, the public has become increasingly concerned about toxics in the air.

(b) The Congressional Research Service of the Library of Congress has concluded that 75 percent of the United States population lives in proximity to at least one facility that manufactures chemicals. An incomplete 1985 survey of large chemical companies conducted by the Congressional Research Service documented that nearly every chemical plant studied routinely releases into the surrounding air significant levels of substances proven to be or potentially hazardous to public health.

(c) Generalized emissions inventories compiled by air pollution control districts and air quality management districts in California confirm the findings of the Congressional Research Service survey as well as reveal that many other facilities and businesses which do not actually manufacture chemicals do use hazardous substances in sufficient quantities to expose, or in a manner that exposes, surrounding populations to toxic air releases.

(d) These releases may create localized concentrations or air toxics "hot spots" where emissions from specific sources may expose individuals and population groups to elevated risks of adverse health effects, including, but not limited to, cancer and contribute to the cumulative health risks of emissions from other sources in the area. In some cases where large populations may not be significantly affected by adverse health risks, individuals may be exposed to significant risks.

(e) Little data is currently available to accurately assess the amounts, types, and health impacts of routine toxic chemical releases into the air. As a result, there exists significant uncertainty about the amounts of potentially hazardous air pollutants which are released, the location of those releases, and the concentrations to which the public is exposed.

(f) The State of California has begun to implement a long-term program to identify, assess, and control ambient levels of hazardous air pollutants, but additional legislation is needed to provide for the collection and evaluation of information concerning the amounts, exposures, and short- and long-term health effects of hazardous substances regularly released to the surrounding atmosphere from specific sources of hazardous releases.

(g) In order to more effectively implement control strategies for those materials posing an unacceptable risk to the public health, additional information on the sources of potentially hazardous air pollutants is necessary.

(h) It is in the public interest to ascertain and measure the amounts and types of hazardous releases and potentially hazardous releases from specific sources that may

be exposing people to those releases, and to assess the health risks to those who are exposed.

44302. The definitions set forth in this chapter govern the construction of this part.

44303. "Air release" or "release" means any activity that may cause the issuance of air contaminants, including the actual or potential spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of a substance into the ambient air and that results from the routine operation of a facility or that is predictable, including, but not limited to, continuous and intermittent releases and predictable process upsets or leaks.

44304. "Facility" means every structure, appurtenance, installation, and improvement on land which is associated with a source of air releases or potential air releases of a hazardous material.

44306. "Health risk assessment" means a detailed comprehensive analysis prepared pursuant to Section 44361 to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure.

44307. "Operator" means the person who owns or operates a facility or part of a facility.

44308. "Plan" means the emissions inventory plan which meets the conditions specified in Section 44342.

44309. "Report" means the emissions inventory report specified in Section 44341.

44320. This part applies to the following:

(a) Any facility which manufactures, formulates, uses, or releases any of the substances listed pursuant to Section 44321 or any other substance which reacts to form a substance listed in Section 44321 and which releases or has the potential to release total organic gases, particulates, or oxides of nitrogen or sulfur in the amounts specified in Section 44322.

(b) Except as provided in Section 44323, any facility which is listed in any current toxics use or toxics air emission survey, inventory, or report released or compiled by a district. A district may, with the concurrence of the state board, waive the application of this part pursuant to this subdivision for any facility which the district determines will not release any substance listed pursuant to Section 44321 due to a shutdown or a process change.

44321. For the purposes of Section 44320, the state board shall compile and maintain a list of substances that contains, but is not limited to, all of the following:

(a) Substances identified by reference in paragraph (1) of subdivision (b) of Section 6382 of the Labor Code and substances placed on the list prepared by the

National Toxicology Program and issued by the United States Secretary of Health and Human Services pursuant to paragraph (4) of subsection (b) of Section 241 of Title 42 of the United States Code. For the purposes of this subdivision, the state board may remove from the list any substance which meets both of the following criteria:

(1) No evidence exists that it has been detected in air.

(2) The substance is not manufactured or used in California, or, if manufactured or used in California, because of the physical or chemical characteristics of the substance or the manner in which it is manufactured or used, there is no possibility that it will become airborne.

(b) Carcinogens and reproductive toxins referenced in or compiled pursuant to Section 25249.8, except those which meet both of the criteria identified in subdivision (a).

(c) Substances designated by the state board as toxic air contaminants pursuant to subdivision (b) of Section 39657 and substances on the candidate list of potential toxic air contaminants and the list of designated toxic air contaminants prepared by the state board pursuant to Article 3 (commencing with Section 39660) of Chapter 3.5 of Part 2, including, but not limited to, all substances currently under review and scheduled or nominated for review and substances identified and listed for which health effects information is limited.

(d) Substances for which an information or hazard alert has been issued by the repository of current data established pursuant to Section 147.2 of the Labor Code.

(e) Substances reviewed, under review, or scheduled for review as air toxics or potential air toxics by the Office of Air Quality Planning and Standards of the Environmental Protection Agency, including substances evaluated in all of the following categories or their equivalent: preliminary health and source screening, detailed assessment, intent to list, decision not to regulate, listed, standard proposed, and standard promulgated.

(f) Any additional substances recognized by the state board as presenting a chronic or acute threat to public health when present in the ambient air, including, but not limited to, any neurotoxicants or chronic respiratory toxicants not included within subdivision (a), (b), (c), (d), or (e).

44322. This part applies to facilities specified in subdivision (a) of Section 44320 in accordance with the following schedule:

(a) For those facilities that release, or have the potential to release, 25 tons per year or greater of total organic gases, particulates, or oxides of nitrogen or sulfur, this part becomes effective on July 1, 1988.

(b) For those facilities that release, or have the potential to release, more than 10 but less than 25 tons per year of total organic gases, particulates, or oxides of nitrogen or sulfur, this part becomes effective July 1, 1989.

(c) For those facilities that release, or have the potential to release, less than 10 tons per year of total organic gases, particulates, or oxides of nitrogen or sulfur, the state board shall, on or before July 1, 1990, prepare and submit a report to the Legislature identifying the classes of those facilities to be included in this part and specifying a timetable for their inclusion.

44323. A district may prepare an industrywide emissions inventory and health risk assessment for facilities specified in subdivision (b) of Section 44320 and subdivisions (a) and (b) of Section 44322, and shall prepare an industrywide emissions inventory for the facilities specified in subdivision (c) of Section 44322, in compliance with this part for any class of facilities that the district finds and determines meets all of the following conditions:

(a) All facilities in the class fall within one four-digit Standard Industrial Classification Code.

(b) Individual compliance with this part would impose severe economic hardships on the majority of the facilities within the class.

(c) The majority of the class is composed of small businesses.

(d) Releases from individual facilities in the class can easily and generically be characterized and calculated.

44324. This part does not apply to any facility where economic poisons are employed in their pesticidal use, unless that facility was subject to district permit requirements on or before August 1, 1987. As used in this section, "pesticidal use" does not include the manufacture or formulation of pesticides.

44325. Any solid waste disposal facility in compliance with Section 41805.5 is in compliance with the emissions inventory requirements of this part.

44340.

(a) The operator of each facility subject to this part shall prepare and submit to the district a proposed comprehensive emissions inventory plan in accordance with the criteria and guidelines adopted by the state board pursuant to Section 44342.

(b) The proposed plan shall be submitted to the district on or before August 1, 1989, except that, for any facility to which subdivision (b) of Section 44322 applies, the proposed plan shall be submitted to the district on or before August 1, 1990. The district shall approve, modify, and approve as modified, or return for revision and resubmission, the plan within 120 days of receipt.

(c) The district shall not approve a plan unless all of the following conditions are met:

(1) The plan meets the requirements established by the state board pursuant to Section 44342.

(2) The plan is designed to produce, from the list compiled and maintained pursuant to Section 44321, a comprehensive characterization of the full range of hazardous materials that are released, or that may be released, to the surrounding air from the facility. Air release data shall be collected at, or calculated for, the primary locations of actual and potential release for each hazardous material. Data shall be collected or calculated for all continuous, intermittent, and predictable air releases.

(3) The measurement technologies and estimation methods proposed provide state-of-the-art effectiveness and are sufficient to produce a true representation of the types and quantities of air releases from the facility.

(4) Source testing or other measurement techniques are employed wherever necessary to verify emission estimates, as determined by the state board and to the

extent technologically feasible. All testing devices shall be appropriately located, as determined by the state board.

(5) Data are collected or calculated for the relevant exposure rate or rates of each hazardous material according to its characteristic toxicity and for the emission rate necessary to ensure a characterization of risk associated with exposure to releases of the hazardous material that meets the requirements of Section 44361. The source of all emissions shall be displayed or described.

44341. Within 180 days after approval of a plan by the district, the operator shall implement the plan and prepare and submit a report to the district in accordance with the plan. The district shall transmit all monitoring data contained in the approved report to the state board.

44342. The state board shall, on or before May 1, 1989, in consultation with the districts, develop criteria and guidelines for site-specific air toxics emissions inventory plans which shall be designed to comply with the conditions specified in Section 44340 and which shall include at least all of the following:

(a) For each class of facility, a designation of the hazardous materials for which emissions are to be quantified and an identification of the likely source types within that class of facility. The hazardous materials for quantification shall be chosen from among, and may include all or part of, the list specified in Section 44321.

(b) Requirements for a facility diagram identifying each actual or potential discrete emission point and the general locations where fugitive emissions may occur. The facility diagram shall include any nonpermitted and nonprocess sources of emissions and shall provide the necessary data to identify emission characteristics. An existing facility diagram which meets the requirements of this section may be submitted.

(c) Requirements for source testing and measurement. The guidelines may specify appropriate uses of estimation techniques including, but not limited to, emissions factors, modeling, mass balance analysis, and projections, except that source testing shall be required wherever necessary to verify emission estimates to the extent technologically feasible. The guidelines shall specify conditions and locations where source testing, fence-line monitoring, or other measurement techniques are to be required and the frequency of that testing and measurement.

(d) Appropriate testing methods, equipment, and procedures, including quality assurance criteria.

(e) Specifications for acceptable emissions factors, including, but not limited to, those which are acceptable for substantially similar facilities or equipment, and specification of procedures for other estimation techniques and for the appropriate use of available data.

(f) Specification of the reporting period required for each hazardous material for which emissions will be inventoried.

(g) Specifications for the collection of useful data to identify toxic air contaminants pursuant to Article 2 (commencing with Section 39660) of Chapter 3.5 of Part 2.

(h) Standardized format for preparation of reports and presentation of data.

(i) A program to coordinate and eliminate any possible overlap between the requirements of this chapter and the requirements of Section 313 of the Superfund Amendment and Reauthorization Act of 1986 (Public Law 99-499). The state board shall design the guidelines and criteria to ensure that, in collecting data to be used for emissions inventories, actual measurement is utilized whenever necessary to verify the accuracy of emission estimates, to the extent technologically feasible.

44343. The district shall review the reports submitted pursuant to Section 44341 and shall, within 90 days, review each report, obtain corrections and clarifications of the data, and notify the State Department of Health Services, the Department of Industrial Relations, and the city or county health department of its findings and determinations as a result of its review of the report.

44344. Except as provided in Section 44391, emissions inventories developed pursuant to this chapter shall be updated every four years, in accordance with the procedures established by the state board. Those updates shall take into consideration improvements in measurement techniques and advancing knowledge concerning the types and toxicity of hazardous material released or potentially released.

44344.4.

(a) Except as provided in subdivision (d) and in Section 44344.7, a facility shall be exempt from further compliance with this part if the facility's prioritization scores for cancer and noncancer health effects are both equal to or less than one, based on the results of the most recent emissions inventory or emissions inventory update. An exempt facility shall no longer be required to pay any fee or submit any report to the district or the state board pursuant to this part.

(b) Except for facilities that are exempt from this part pursuant to subdivision (a), a facility for which the prioritization scores for cancer and noncancer health effects are both equal to or less than 10, based on the results of the most recent emissions inventory or emissions inventory update, shall not be required to pay any fee or submit any report to the district or the state board pursuant to this part, except for the quadrennial emissions inventory update required pursuant to Section 44344. A district may, by regulation, establish a fee to be paid by a facility operator in connection with the operator's submission to the district of a quadrennial emissions inventory update pursuant to this subdivision. The fee shall not be greater than one hundred twenty-five dollars ($125). A district may increase the fee above that amount upon the adoption of written findings that the costs of processing the emission inventory update exceed one hundred twenty-five dollars ($125). However, the district shall not adopt a fee greater than that supported by the written findings.

(c) For the purposes of this part, "prioritization score" means a facility's numerical score for cancer health effects or noncancer health effects, as determined by the district pursuant to Section 44360 in a manner consistent with facility prioritization guidelines prepared by the California Air Pollution Control Officers Association and approved by the state board.

(d) Notwithstanding subdivision (a) and Section 44344.7, if a district has good cause to believe that a facility may pose a potential threat to public health and that the

facility therefore does not qualify for an exemption claimed by the facility pursuant to subdivision (a), the district may require the facility to document the facility's emissions and health impacts, or the changes in emissions expected to occur as a result of a particular physical change, a change in activities or operations at the facility, or a change in other factors. The district may deny the exemption if the documentation does not support the claim for the exemption.

44344.5.

(a) The operator of any new facility that previously has not been subject to this part shall prepare and submit an emissions inventory plan and report.

(b) Notwithstanding subdivision (a), a new facility shall not be required to submit an emissions inventory plan and report if all of the following conditions are met:

(1) The facility is subject to a district permit program established pursuant to Section 42300.

(2) The district conducts an assessment of the potential emissions or their associated risks, whichever the district determines to be appropriate, attributable to the new facility and finds that the emissions will not result in a significant risk. A risk assessment conducted pursuant to this paragraph shall comply with paragraph (2) of subdivision (b) of Section 44360.

(3) The district issues a permit authorizing construction or operation of the new facility.

44344.6. A district shall redetermine a facility's prioritization score, or evaluate the prioritization score as calculated and submitted by the facility, within 90 days from the date of receipt of a quadrennial emissions inventory update pursuant to Section 44344 or subdivision (b) of Section 44344.4, within 90 days from the date of receipt of an emissions inventory update submitted pursuant to Section 44344.7, or within 90 days from the date of receiving notice that a facility has completed the implementation of a plan prepared pursuant to Section 44392.

44344.7.

(a) A facility exempted from this part pursuant to subdivision (a) of Section 44344.4 shall, upon receipt of a notice from the district, again be subject to this part and the operator shall submit an emissions inventory update for those sources and substances for which a physical change in the facility or a change in activities or operations has occurred, as follows:

(1) The facility emits a substance newly listed pursuant to Section 44321.

(2) A sensitive receptor has been established or constructed within 500 meters of the facility after the facility became exempt.

(3) The facility emits a substance for which the potency factor has increased.

(b) The operator of a facility exempted from this part pursuant to subdivision (a) of Section 44344.4 shall submit an emissions inventory update for those sources and substances for which a particular physical change in the facility or a change in activities or operations occurs if, as a result of the particular change, either of the following has occurred:

(1) The facility has begun emitting a listed substance not included in the previous emissions inventory.

(2) The facility has increased its emissions of a listed substance to a level greater than the level previously reported for that substance, and the increase in emissions exceeds 100 percent of the previously reported level.

(c) Notwithstanding subdivision (b), a physical change or change in activities or operations at a facility shall not cause the facility to again be subject to this part if all of the following conditions are met:

(1) The physical change or change in activities or operations is subject to a district permit program established pursuant to Section 42300.

(2) The district conducts an assessment of the potential changes in emissions or their associated risks, whichever the district determines to be appropriate, attributable to the physical change or change in activities or operations and finds that the changes in emissions will not result in a significant risk. A risk assessment conducted pursuant to this paragraph shall comply with paragraph (2) of subdivision (b) of Section 44360.

(3) The district issues a permit for the physical change or change in activities or operations.

44345.

(a) On or before July 1, 1989, the state board shall develop a program to compile and make available to other state and local public agencies and the public all data collected pursuant to this chapter.

(b) In addition, the state board, on or before March 1, 1990, shall compile, by district, emissions inventory data for mobile sources and area sources not subject to district permit requirements, and data on natural source emissions, and shall incorporate these data into data compiled and released pursuant to this chapter.

44346.

(a) If an operator believes that any information required in the facility diagram specified pursuant to subdivision (b) of Section 44342 involves the release of a trade secret, the operator shall nevertheless make the disclosure to the district, and shall notify the district in writing of that belief in the report.

(b) Subject to this section, the district shall protect from disclosure any trade secret designated as such by the operator, if that trade secret is not a public record.

(c) Upon receipt of a request for the release of information to the public which includes information which the operator has notified the district is a trade secret and which is not a public record, the following procedure applies:

(1) The district shall notify the operator of the request in writing by certified mail, return receipt requested.

(2) The district shall release the information to the public, but not earlier than 30 days after the date of mailing the notice of the request for information, unless, prior to the expiration of the 30-day period, the operator obtains an action in an appropriate court for a declaratory judgment that the information is subject to protection under this section or for a preliminary injunction prohibiting disclosure of the information to the public and promptly notifies the district of that action.

(d) This section does not permit an operator to refuse to disclose the information required pursuant to this part to the district.

(e) Any information determined by a court to be a trade secret, and not a public record pursuant to this section, shall not be disclosed to anyone except an officer or employee of the district, the state, or the United States, in connection with the official duties of that officer or employee under any law for the protection of health, or to contractors with the district or the state and its employees if, in the opinion of the district or the state, disclosure is necessary and required for the satisfactory performance of a contract, for performance of work, or to protect the health and safety of the employees of the contractor.

(f) Any officer or employee of the district or former officer or employee who, by virtue of that employment or official position, has possession of, or has access to, any trade secret subject to this section, and who, knowing that disclosure of the information to the general public is prohibited by this section, knowingly and willfully discloses the information in any manner to any person not entitled to receive it is guilty of a misdemeanor. Any contractor of the district and any employee of the contractor, who has been furnished information as authorized by this section, shall be considered an employee of the district for purposes of this section.

(g) Information certified by appropriate officials of the United States as necessary to be kept secret for national defense purposes shall be accorded the full protections against disclosure as specified by those officials or in accordance with the laws of the United States

(h) As used in this section, "trade secret" and "public record" have the meanings and protections given to them by Section 6254.7 of the Government Code and Section 1060 of the Evidence Code. All information collected pursuant to this chapter, except for data used to calculate emissions data required in the facility diagram, shall be considered "air pollution emission data," for the purposes of this section.

44360.

(a) Within 90 days of completion of the review of all emissions inventory data for facilities specified in subdivision (a) of Section 44322, but not later than December 1, 1990, the district shall, based on examination of the emissions inventory data and in consultation with the state board and the State Department of Health Services, prioritize and then categorize those facilities for the purposes of health risk assessment. The district shall designate high, intermediate, and low priority categories and shall include each facility within the appropriate category based on its individual priority. In establishing priorities pursuant to this section, the district shall consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, including, but not limited to, hospitals, schools, day care centers, worksites, and residences, and any other factors that the district finds and determines may indicate that the facility may pose a significant risk to receptors. The district shall hold a public hearing prior to the final establishment of priorities and categories pursuant to this section.

(b) (1) Within 150 days of the designation of priorities and categories pursuant to subdivision (a), the operator of every facility that has been included within the highest priority category shall prepare and submit to the district a health risk assessment

pursuant to Section 44361. The district may, at its discretion, grant a 30-day extension for submittal of the health risk assessment.

(2) Health risk assessments required by this chapter shall be prepared in accordance with guidelines established by the Office of Environmental Health Hazard Assessment. The office shall prepare draft guidelines which shall be circulated to the public and the regulated community and shall adopt risk assessment guidelines after consulting with the state board and the Risk Assessment Committee of the California Air Pollution Control Officers Association and after conducting at least two public workshops, one in the northern and one in the southern part of the state. The adoption of the guidelines is not subject to Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The scientific review panel established pursuant to Section 39670 shall evaluate the guidelines adopted under this paragraph and shall recommend changes and additional criteria to reflect new scientific data or empirical studies.

(3) The guidelines established pursuant to paragraph (2) shall impose only those requirements on facilities subject to this subdivision that are necessary to ensure that a required risk assessment is accurate and complete and shall specify the type of site-specific factors that districts may take into account in determining when a single health risk assessment may be allowed under subdivision (d). The guidelines shall, in addition, allow the operator of a facility, at the operator's option, and to the extent that valid and reliable data are available, to include for consideration by the district in the health risk assessment any or all of the following supplemental information:

(A) Information concerning the scientific basis for selecting risk parameter values that are different than those required by the guidelines and the likelihood distributions that result when alternative values are used.

(B) Data from dispersion models, microenvironment characteristics, and population distributions that may be used to estimate maximum actual exposure.

(C) Risk expressions that show the likelihood that any given risk estimate is the correct risk value.

(D) A description of the incremental reductions in risk that occur when exposure is reduced.

(4) To ensure consistency in the use of the supplemental information authorized by subparagraphs (A), (B), (C), and (D) of paragraph (3), the guidelines established pursuant to paragraph (2) shall include guidance for use by the districts in considering the supplemental information when it is included in the health risk assessment.

(c) Upon submission of emissions inventory data for facilities specified in subdivisions (b) and (c) of Section 44322, the district shall designate facilities for inclusion within the highest priority category, as appropriate, and any facility so designated shall be subject to subdivision (b). In addition, the district may require the operator of any facility to prepare and submit health risk assessments, in accordance with the priorities developed pursuant to subdivision (a).

(d) The district shall, except where site specific factors may affect the results, allow the use of a single health risk assessment for two or more substantially identical facilities operated by the same person.

(e) Nothing contained in this section, Section 44380.5, or Chapter 6 (commencing with Section 44390) shall be interpreted as requiring a facility operator to prepare a new or revised health risk assessment using the guidelines established pursuant to paragraph (2) of subdivision (a) of this section if the facility operator is required by the district to begin the preparation of a health risk assessment before those guidelines are established.

44361.

(a) Each health risk assessment shall be submitted to the district. The district shall make the health risk assessment available for public review, upon request. After preliminary review of the emissions impact and modeling data, the district shall submit the health risk assessment to the Office of Environmental Health Hazard Assessment for review and, within 180 days of receiving the health risk assessment, the office shall submit to the district its comments on the data and findings relating to health effects. The district shall consult with the state board as necessary to adequately evaluate the emissions impact and modeling data contained within the risk assessment.

(b) For the purposes of complying with this section, the Office of Environmental Health Hazard Assessment may select a qualified independent contractor to review the data and findings relating to health effects. The office shall not select an independent contractor to review a specific health risk assessment who may have a conflict of interest with regard to the review of that health risk assessment. Any review by an independent contractor shall comply with the following requirements:

(1) Be performed in a manner consistent with guidelines provided by the office.

(2) Be reviewed by the office for accuracy and completeness.

(3) Be submitted by the office to the district in accordance with this section.

(c) The district shall reimburse the Office of Environmental Health Hazard Assessment or the qualified independent contractor designated by the office pursuant to subdivision (b), within 45 days of its request, for its actual costs incurred in reviewing a health risk assessment pursuant to this section.

(d) If a district requests the Office of Environmental Health Hazard Assessment to consult with the district concerning any requirement of this part, the district shall reimburse the office, within 45 days of its request, for the costs incurred in the consultation.

(e) Upon designation of the high priority facilities, as specified in subdivision (a) of Section 44360, the Office of Environmental Health Hazard Assessment shall evaluate the staffing requirements of this section and may submit recommendations to the Legislature, as appropriate, concerning the maximum number of health risk assessments to be reviewed each year pursuant to this section.

44362.

(a) Taking the comments of the Office of Environmental Health Hazard Assessment into account, the district shall approve or return for revision and resubmission and then approve, the health risk assessment within one year of receipt. If the health risk assessment has not been revised and resubmitted within 60 days of the district's request of the operator to do so, the district may modify the health risk assessment and approve it as modified.

(b) Upon approval of the health risk assessment, the operator of the facility shall provide notice to all exposed persons regarding the results of the health risk assessment prepared pursuant to Section 44361 if, in the judgment of the district, the health risk assessment indicates there is a significant health risk associated with emissions from the facility. If notice is required under this subdivision, the notice shall include only information concerning significant health risks attributable to the specific facility for which the notice is required. Any notice shall be made in accordance with procedures specified by the district.

44363.

(a) Commencing July 1, 1991, each district shall prepare and publish an annual report which does all of the following:

(1) Describes the priorities and categories designated pursuant to Section 44360 and summarizes the results and progress of the health risk assessment program undertaken pursuant to this part.

(2) Ranks and identifies facilities according to the degree of cancer risk posed both to individuals and to the exposed population.

(3) Identifies facilities which expose individuals or populations to any noncancer health risks.

(4) Describes the status of the development of control measures to reduce emissions of toxic air contaminants, if any.

(b) The district shall disseminate the annual report to county boards of supervisors, city councils, and local health officers and the district board shall hold one or more public hearings to present the report and discuss its content and significance.

44364. The state board shall utilize the reports and assessments developed pursuant to this part for the purposes of identifying, establishing priorities for, and controlling toxic air contaminants pursuant to Chapter 3.5 (commencing with Section 39650) of Part 2.

44365.

(a) If the state board finds and determines that a district' s actions pursuant to this part do not meet the requirements of this part, the state board may exercise the authority of the district pursuant to this part to approve emissions inventory plans and require the preparation of health risk assessments.

(b) This part does not prevent any district from establishing more stringent criteria and requirements than are specified in this part for approval of emissions inventories and requiring the preparation and submission of health risk assessments. Nothing in this part limits the authority of a district under any other provision of law to assess and regulate releases of hazardous substances.

44366. In order to verify the accuracy of any information submitted by facilities pursuant to this part, a district or the state board may proceed in accordance with Section 41510.

44380.

(a) The state board shall adopt a regulation which does all of the following:

(1) Sets forth the amount of revenue which the district must collect to recover the reasonable anticipated cost which will be incurred by the state board and the Office of Environmental Health Hazard Assessment to implement and administer this part.

(2) Requires each district to adopt a fee schedule which recovers the costs of the district and which assesses a fee upon the operator of every facility subject to this part, except as specified in subdivision (b) of Section 44344.4. A district may request the state board to adopt a fee schedule for the district if the district's program costs are approved by the district board and transmitted to the state board by April 1 of the year in which the request is made.

(3) Requires any district that has an approved toxics emissions inventory compiled pursuant to this part by August 1 of the preceding year to adopt a fee schedule, as described in paragraph (2), which imposes on facility operators fees which are, to the maximum extent practicable, proportionate to the extent of the releases identified in the toxics emissions inventory and the level of priority assigned to that source by the district pursuant to Section 44360.

(b) Commencing August 1, 1992, and annually thereafter, the state board shall review and may amend the fee regulation.

(c) The district shall notify each person who is subject to the fee of the obligation to pay the fee. If a person fails to pay the fee within 60 days after receipt of this notice, the district, unless otherwise provided by district rules, shall require the person to pay an additional administrative civil penalty. The district shall fix the penalty at not more than 100 percent of the assessed fee, but in an amount sufficient in its determination, to pay the district's additional expenses incurred by the person's noncompliance. If a person fails to pay the fee within 120 days after receipt of this notice, the district may initiate permit revocation proceedings. If any permit is revoked, it shall be reinstated only upon full payment of the overdue fee plus any late penalty, and a reinstatement fee to cover administrative costs of reinstating the permit.

(d) Each district shall collect the fees assessed pursuant to subdivision (a). After deducting the costs to the district to implement and administer this part, the district shall transmit the remainder to the Controller for deposit in the Air Toxics Inventory and Assessment Account, which is hereby created in the General Fund. The money in the account is available, upon appropriation by the Legislature, to the state board and the Office of Environmental Health Hazard Assessment for the purposes of administering this part.

(e) For the 1997-98 fiscal year, air toxics program revenues for the state board and the Office of Environmental Health Hazard Assessment shall not exceed two million dollars ($2,000,000), and for each fiscal year thereafter, shall not exceed one million three hundred fifty thousand dollars ($1,350,000). Funding for the Office of Environmental Health Hazard Assessment for conducting risk assessment reviews shall be on a fee-for-service basis.

44380.1. A facility shall be granted an exemption by a district from paying a fee in accordance with Section 44380 if all of the following criteria are met:

(a) The facility primarily handles, processes, stores, or distributes bulk agricultural commodities or handles, feeds, or rears livestock.

(b) The facility was required to comply with this part only as a result of its particulate matter emissions.

(c) The fee schedule adopted by the district or the state board for these types of facilities is not solely based on toxic emissions weighted for potency or toxicity.

44380.5. In addition to the fee assessed pursuant to Section 44380, a supplemental fee may be assessed by the district, the state board, or the Office of Environmental Health Hazard Assessment upon the operator of a facility that, at the operator's option, includes supplemental information authorized by paragraph (3) of subdivision (b) of Section 44360 in a health risk assessment, if the review of that supplemental information substantially increases the costs of reviewing the health risk assessment by the district, the state board, or the office. The supplemental fee shall be set by the state board in the regulation required by subdivision (a) of Section 44380 and shall be set in an amount sufficient to cover the direct costs to review the information supplied by an operator pursuant to paragraph (3) of subdivision (b) of Section 44360.

44381.

(a) Any person who fails to submit any information, reports, or statements required by this part, or who fails to comply with this part or with any permit, rule, regulation, or requirement issued or adopted pursuant to this part, is subject to a civil penalty of not less than five hundred dollars ($500) or more than ten thousand dollars ($10,000) for each day that the information, report, or statement is not submitted, or that the violation continues.

(b) Any person who knowingly submits any false statement or representation in any application, report, statement, or other document filed, maintained, or used for the purposes of compliance with this part is subject to a civil penalty of not less than one thousand dollars ($1,000) or more than twenty-five thousand dollars ($25,000) per day for each day that the information remains uncorrected.

44382. Every district shall, by regulation, adopt the requirements of this part as a condition of every permit issued pursuant to Chapter 4 (commencing with Section 42300) of Part 4 for all new and modified facilities.

44384. Except for Section 44380 and this section, all provisions of this part shall become operative on July 1, 1988.

44390. For purposes of this chapter, the following definitions apply:

(a) "Airborne toxic risk reduction measure" or "ATRRM" means those in-plant changes in production processes or feedstocks that reduce or eliminate toxic air emissions subject to this part. ATRRM's may include:

(1) Feedstock modification.

(2) Product reformulations.

(3) Production system modifications.

(4) System enclosure, emissions control, capture, or conversion.

(5) Operational standards and practices modification.

(b) Airborne toxic risk reduction measures do not include measures that will increase risk from exposure to the chemical in another media or that increase the risk to workers or consumers.

(c) "Airborne toxic risk reduction audit and plan" or "audit and plan" means the audit and plan specified in Section 44392.

44391.

(a) Whenever a health risk assessment approved pursuant to Chapter 4 (commencing with Section 44360) indicates, in the judgment of the district, that there is a significant risk associated with the emissions from a facility, the facility operator shall conduct an airborne toxic risk reduction audit and develop a plan to implement airborne toxic risk reduction measures that will result in the reduction of emissions from the facility to a level below the significant risk level within five years of the date the plan is submitted to the district. The facility operator shall implement measures set forth in the plan in accordance with this chapter.

(b) The period to implement the plan required by subdivision (a) may be shortened by the district if it finds that it is technically feasible and economically practicable to implement the plan to reduce emissions below the significant risk level more quickly or if it finds that the emissions from the facility pose an unreasonable health risk.

(c) A district may lengthen the period to implement the plan required by subdivision (a) by up to an additional five years if it finds that a period longer than five years will not result in an unreasonable risk to public health and that requiring implementation of the plan within five years places an unreasonable economic burden on the facility operator or is not technically feasible.

(d) (1) The state board and districts shall provide assistance to smaller businesses that have inadequate technical and financial resources for obtaining information, assessing risk reduction methods, and developing and applying risk reduction techniques.

(2) Risk reduction audits and plans for any industry subject to this chapter which is comprised mainly of small businesses using substantially similar technology may be completed by a self-conducted audit and checklist developed by the state board. The state board, in coordination with the districts, shall provide a copy of the audit and checklist to small businesses within those industries to assist them to meet the requirements of this chapter.

(e) The audit and plan shall contain all the information required by Section 44392.

(f) The plan shall be submitted to the district, within six months of a district's determination of significant risk, for review of completeness. Operators of facilities that have been notified prior to January 1, 1993, that there is a significant risk associated with emissions from the facility shall submit the plan by July 1, 1993. The district's review of completeness shall include a substantive analysis of the emission reduction measures included in the plan, and the ability of those measures to achieve emission reduction goals as quickly as feasible as provided in subdivisions (a) and (b).

(g) The district shall find the audit and plan to be satisfactory within three months if it meets the requirements of this chapter, including, but not limited to, subdivision (f).

If the district determines that the audit and plan does not meet those requirements, the district shall remand the audit and plan to the facility specifying the deficiencies identified by the district. A facility operator shall submit a revised audit and plan addressing the deficiencies identified by the district within 90 days of receipt of a deficiency notice.

(h) Progress on the emission reductions achieved by the plan shall be reported to the district in emissions inventory updates. Emissions inventory updates shall be prepared as required by the audit and plan found to be satisfactory by the district pursuant to subdivision (g).

(i) If new information becomes available after the initial risk reduction audit and plan, on air toxics risks posed by a facility, or emission reduction technologies that may be used by a facility that would significantly impact risks to exposed persons, the district may require the plan to be updated and resubmitted to the district.

(j) This section does not authorize the emission of a toxic air contaminant in violation of an airborne toxic control measure adopted pursuant to Chapter 3.5 (commencing with Section 39650) or in violation of Section 41700.

44392. A facility operator subject to this chapter shall conduct an airborne toxic risk reduction audit and develop a plan which shall include at a minimum all of the following:

(a) The name and location of the facility.

(b) The SIC code for the facility.

(c) The chemical name and the generic classification of the chemical.

(d) An evaluation of the ATRRM's available to the operator.

(e) The specification of, and rationale for, the ATRRMs that will be implemented by the operator. The audit and plan shall document the rationale for rejecting ATRRMs that are identified as infeasible or too costly.

(f) A schedule for implementing the ATRRMs. The schedule shall meet the time requirements of subdivision (a) of Section 44391 or the time period for implementing the plan set by the district pursuant to subdivision (b) or (c) of Section 44391, whichever is applicable.

(g) The audit and plan shall be reviewed and certified as meeting this chapter by an engineer who is registered as a professional engineer pursuant to Section 6762 of the Business and Professions Code, by an individual who is responsible for the processes and operations of the site, or by an environmental assessor.

44393. The plan prepared pursuant to Section 44391 shall not be considered to be the equivalent of a pollution prevention program or a source reduction program, except insofar as the audit and plan elements are consistent with source reduction, as defined in Section 25244.14, or subsequent statutory definitions of pollution prevention.

44394. Any facility operator who does not submit a complete airborne toxic risk reduction audit and plan or fails to implement the measures set forth in the plan as set forth in this chapter is subject to the civil penalty specified in subdivision (a) of Section 44381, and any facility operator who, in connection with the audit or plan, knowingly submits any false statement or representation is subject to the civil penalty specified in subdivision (b) of Section 44381.

APPENDIX B

List of Substances for Emission Quantification

CAS Number	Substance Name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene [PAH-Derivative, POM]
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
7429905	Aluminum
1344281	Aluminum oxide (fibrous forms)
117793	2-Aminoanthraquinone [PAH-Derivative, POM]
92671	4-Aminobiphenyl [POM]
61825	Amitrole
7664417	Ammonia
6484522	Ammonium nitrate
7783202	Ammonium sulfate
62533	Aniline
90040	o-Anisidine
-	Anthracene [PAH, POM], (see PAH)
7440360	Antimony
*	Antimony compounds including but not limited to:
1309644	Antimony trioxide
7440382	Arsenic
1016	Arsenic compounds (inorganic) including but not limited to:
7784421	Arsine
1017	Arsenic compounds (other than inorganic)
-_	Asbestos (see Mineral fibers)
7440393	Barium
*	Barium Compounds
-	Benz[a]anthracene [PAH, POM], (see PAH)
71432	Benzene
92875	Benzidine (and its salts) [POM]
1020	Benzidine-based dyes [POM] including but not limited to:
1937377	Direct Black 38 [PAH-Derivative, POM]
2602462	Direct Blue 6 [PAH-Derivative, POM]
16071866	Direct Brown 95 (technical grade) [POM]
-	Benzo[a]pyrene [PAH, POM], (see PAH)
-	Benzo[b]fluoranthene [PAH, POM], (see PAH)
271896	Benzofuran
98077	Benzoic trichloride {Benzotrichloride}
-	Benzo[j]fluoranthene [PAH, POM] (see PAH)

CAS Number	Substance Name
-	Benzo[k]fluoranthene [PAH, POM] (see PAH)
98884	Benzoyl chloride
94360	Benzoyl peroxide
100447	Benzyl chloride
7440417	Beryllium
*	Beryllium compounds
92524	Biphenyl [POM]
111444	Bis(2-chloroethyl) ether {DCEE}
542881	Bis(chloromethyl) ether
103231	Bis(2-ethylhexyl) adipate
7726956	Bromine
*	Bromine compounds (inorganic) including but not limited to:
7789302_	Bromine pentafluoride
10035106_	Hydrogen bromide
7758012	Potassium bromate
75252	Bromoform
106990	1,3-Butadiene
540885_	t-Butyl acetate
141322	Butyl acrylate
71363	n-Butyl alcohol
78922	sec-Butyl alcohol
75650	tert-Butyl alcohol
85687	Butyl benzyl phthalate
7440439	Cadmium
*	Cadmium compounds
156627	Calcium cyanamide
105602	Caprolactam
2425061	Captafol
133062	Captan
63252	Carbaryl [PAH-Derivative, POM]
1050	Carbon black extracts
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
1055	Carrageenan (degraded)
120809	Catechol
133904	Chloramben
57749	Chlordane
108171262	Chlorinated paraffins (average chain length, C12; approximately 60% Chlorine by weight)
7782505	Chlorine
10049044	Chlorine dioxide
79118	Chloroacetic acid

CAS Number	Substance Name
532274	2-Chloroacetophenone
106478	p-Chloroaniline
1058	Chlorobenzenes including but not limited to:
108907	Chlorobenzene
25321226	Dichlorobenzenes (mixed isomers) including:
95501	1,2-Dichlorobenzene
541731	1,3-Dichlorobenzene
106467	p-Dichlorobenzene {1,4-Dichlorobenzene}
120821	1,2,4-Trichlorobenzene
510156	Chlorobenzilate [POM] {Ethyl-4,4'-dichlorobenzilate}
67663	Chloroform
107302	Chloromethyl methyl ether (technical grade)
1060_	Chlorophenols including but not limited to:
95578_	2-Chlorophenol
120832	2,4-Dichlorophenol
87865	Pentachlorophenol
25167833_	Tetrachlorophenols including but not limited to:
58902	2,3,4,6-Tetrachlorophenol
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
95830	4-Chloro-o-phenylenediamine
76062	Chloropicrin
126998	Chloroprene
95692	p-Chloro-o-toluidine
7440473	Chromium
*	Chromium compounds (other than hexavalent)
18540299	Chromium, hexavalent (and compounds) including but not limited to:
10294403	Barium chromate
13765190	Calcium chromate
1333820	Chromium trioxide
7758976	Lead chromate
10588019	Sodium dichromate
7789062	Strontium chromate
-	Chrysene [PAH, POM], (see PAH)
7440484	Cobalt
*	Cobalt compounds
1066	Coke oven emissions
7440508	Copper
*	Copper compounds
1070	Creosotes
120718	p-Cresidine
1319773	Cresols (mixtures of) {Cresylic acid} including:
108394	m-Cresol
95487	o-Cresol

CAS Number	Substance Name
106445	p-Cresol
4170303	Crotonaldehyde
98828	Cumene
80159	Cumene hydroperoxide
135206	Cupferron
57125_	Cyanide compounds (inorganic) including but not limited to:
74908	Hydrocyanic acid
110827	Cyclohexane
108930	Cyclohexanol
66819	Cycloheximide
	Decabromodiphenyl oxide [POM] (see Polybrominated diphenyl ethers)
1075	Dialkylnitrosamines including but not limited to:
924163	N-Nitrosodi-n-butylamine
1116547	N-Nitrosodiethanolamine
55185	N-Nitrosodiethylamine
62759	N-Nitrosodimethylamine
621647	N-Nitrosodi-n-propylamine
10595956	N-Nitrosomethylethylamine
615054	2,4-Diaminoanisole
1078	Diaminotoluenes (mixed isomers) including but not limited to:
95807	2,4-Diaminotoluene {2,4-Toluene diamine}
334883	Diazomethane
226368	Dibenz[a,h]acridine [POM]
224420	Dibenz[a,j]acridine [POM]
-	Dibenz[a,h]anthracene [PAH, POM], (see PAH)
194592	7H-Dibenzo[c,g]carbazole
-	Dibenzo[a,e]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,h]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,i]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,l]pyrene [PAH, POM], (see PAH)
132649	Dibenzofuran [POM]
-	Dibenzofurans (chlorinated) (see Polychlorinated dibenzofurans) [POM]
96128	1,2-Dibromo-3-chloropropane {DBCP}
96139	2,3-Dibromo-1-propanol
84742	Dibutyl phthalate
-	p-Dichlorobenzene (1,4-Dichlorobenzene) (see Chlorobenzenes)
91941	3,3'-Dichlorobenzidine [POM]
72559	Dichlorodiphenyldichloroethylene {DDE} [POM]
75343	1,1-Dichloroethane {Ethylidene dichloride}
94757	Dichlorophenoxyacetic acid, salts and esters {2,4-D}

CAS Number	Substance Name
78875	1,2-Dichloropropane {Propylene dichloride}
542756	1,3-Dichloropropene
62737	Dichlorovos {DDVP}
115322	Dicofol [POM]
--	Diesel engine exhaust
9901	Diesel engine exhaust, particulate matter {Diesel PM}
9902	Diesel engine exhaust, total organic gas
#	Diesel fuel (marine)
111422	Diethanolamine
117817	Di(2-ethylhexyl) phthalate {DEHP}
64675	Diethyl sulfate
119904	3,3'-Dimethoxybenzidine [POM]
60117	4-Dimethylaminoazobenzene [POM]
121697	N,N-Dimethylaniline
57976	7,12-Dimethylbenz[a]anthracene [PAH-Derivative, POM]
119937	3,3'-Dimethylbenzidine {o-Tolidine} [POM]
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethylhydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol (and salts)
51285	2,4-Dinitrophenol
42397648	1,6-Dinitropyrene [PAH-Derivative, POM]
42397659	1,8-Dinitropyrene [PAH-Derivative, POM]
25321146	Dinitrotoluenes (mixed isomers) including but not limited to:
121142	2,4-Dinitrotoluene
606202	2,6-Dinitrotoluene
123911	1,4-Dioxane
-	Dioxins (Chlorinated dibenzodioxins) (see Polychlorinated dibenzo-p-dioxins) [POM]
630933	Diphenylhydantoin [POM]
122667	1,2-Diphenylhydrazine {Hydrazobenzene} [POM]
1090	Environmental Tobacco Smoke
106898	Epichlorohydrin
106887	1,2-Epoxybutane
1091	Epoxy resins
140885	Ethyl acrylate
100414	Ethyl benzene
75003	Ethyl chloride {Chloroethane}
-	Ethyl-4,4'-dichlorobenzilate (see Chlorobenzilate)
74851	Ethylene
106934	Ethylene dibromide {EDB, 1,2-Dibromoethane}
107062	Ethylene dichloride {EDC, 1,2-Dichloroethane}

CAS Number	Substance Name
107211	Ethylene glycol
151564	Ethyleneimine {Aziridine}
75218	Ethylene oxide
96457	Ethylene thiourea
1101	Fluorides and compounds including but not limited to:
7664393	Hydrogen fluoride
1103	Fluorocarbons (brominated)
1104	Fluorocarbons (chlorinated) including but not limited to:
76131	Chlorinated fluorocarbon {CFC-113} {1,1,2-Trichloro-1,2,2-trifluoroethane}
75456	Chlorodifluoromethane {Freon 22}
75718_	Dichlorodifluoromethane {Freon 12}
75434	Dichlorofluoromethane {Freon 21}
75694	Trichlorofluoromethane {Freon 11}
50000	Formaldehyde
110009	Furan
--	Gasoline engine exhaust including but not limited to:
--	Gasoline engine exhaust (condensates & extracts)
9910	Gasoline engine exhaust, particulate matter
9911	Gasoline engine exhaust, total organic gas
1110	Gasoline vapors
111308	Glutaraldehyde
1115	Glycol ethers and their acetates including but not limited to:
111466	Diethylene glycol
111966	Diethylene glycol dimethyl ether
112345	Diethylene glycol monobutyl ether
111900	Diethylene glycol monoethyl ether
111773	Diethylene glycol monomethyl ether
25265718	Dipropylene glycol
34590948	Dipropylene glycol monomethyl ether
629141	Ethylene glycol diethyl ether
110714	Ethylene glycol dimethyl ether
111762	Ethylene glycol monobutyl ether
110805	Ethylene glycol monoethyl ether
111159	Ethylene glycol monoethyl ether acetate
109864	Ethylene glycol monomethyl ether
110496	Ethylene glycol monomethyl ether acetate
2807309	Ethylene glycol monopropyl ether
107982	Propylene glycol monomethyl ether
108656	Propylene glycol monomethyl ether acetate
112492	Triethylene glycol dimethyl ether
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene

CAS Number	Substance Name
608731_	Hexachlorocyclohexanes (mixed or technical grade) including but not limited to:
319846	alpha-Hexachlorocyclohexane
319857	beta-Hexachlorocyclohexane
58899	Lindane {gamma-Hexachlorocyclohexane}
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
-	Hydrocyanic acid (see Cyanide compounds)
7783064	Hydrogen sulfide
123319	Hydroquinone
-	Indeno[1,2,3-cd]pyrene [PAH, POM], (see PAH)
13463406	Iron pentacarbonyl
1125	Isocyanates including but not limited to:
822060	Hexamethylene-1,6-diisocyanate
101688	Methylene diphenyl diisocyanate {MDI} [POM]
624839	Methyl isocyanate
-	Toluene-2,4-diisocyanate (see Toluene diisocyanates)
-	Toluene-2,6-diisocyanate (see Toluene diisocyanates)
78591	Isophorone
78795	Isoprene, except from vegetative emission sources
67630	Isopropyl alcohol
80057	4,4'-Isopropylidenediphenol [POM]
7439921	Lead
1128	Lead compounds (inorganic) including but not limited to:
301042	Lead acetate
-	Lead chromate (see Chromium, hexalent)
7446277	Lead phosphate
1335326	Lead subacetate
1129	Lead compounds (other than inorganic)
108316	Maleic anhydride
7439965	Manganese
*	Manganese compounds
7439976	Mercury
*	Mercury compounds including but not limited to:
7487947	Mercuric chloride
593748	Methyl mercury {Dimethylmercury}
67561	Methanol
72435	Methoxychlor [POM]
75558	2-Methylaziridine {1,2-Propyleneimine}
74839	Methyl bromide {Bromomethane}
74873	Methyl chloride {Chloromethane}

CAS Number	Substance Name
71556	Methyl chloroform {1,1,1-Trichloroethane}
56495	3-Methylcholanthrene [PAH-Derivative, POM]
3697243	5-Methylchrysene [PAH-Derivative, POM]
101144	4,4'-Methylene bis(2-chloroaniline) {MOCA} [POM]
75092	Methylene chloride {Dichloromethane}
101779	4,4'-Methylenedianiline (and its dichloride) [POM]
78933	Methyl ethyl ketone {2-Butanone}
60344	Methyl hydrazine
74884	Methyl iodide {Iodomethane}
108101	Methyl isobutyl ketone {Hexone}
75865	2-Methyllactonitrile {Acetone cyanohydrin}
80626	Methyl methacrylate
109068	2-Methylpyridine
1634044	Methyl tert-butyl ether
90948	Michler's ketone [POM]
1136	Mineral fibers (fine mineral fibers which are man-made, and are airborne particles of a respirable size greater than 5 microns in length, less than or equal to 3.5 microns in diameter, with a length to diameter ratio of 3:1) including but not limited to:
1056	Ceramic fibers
1111	Glasswool fibers
1168	Rockwool
1181	Slagwool
1135	Mineral fibers (other than man-made) including but not limited to:
1332214	Asbestos
12510428	Erionite
1190	Talc containing asbestiform fibers
1313275	Molybdenum trioxide
-	Naphthalene [PAH, POM], (see PAH)
7440020	Nickel
*	Nickel compounds including but not limited to:
373024	Nickel acetate
3333673_	Nickel carbonate
13463393	Nickel carbonyl
12054487	Nickel hydroxide
1271289	Nickelocene
1313991	Nickel oxide
12035722	Nickel subsulfide
1146	Nickel refinery dust from the pyrometallurgical process
7697372	Nitric acid
139139	Nitrilotriacetic acid
602879_	5-Nitroacenaphthene [PAH-Derivative, POM]
98953	Nitrobenzene

CAS Number	Substance Name
92933	4-Nitrobiphenyl [POM]
7496028	6-Nitrochrysene [PAH-Derivative, POM]
607578	2-Nitrofluorene [PAH-Derivative, POM]
302705	Nitrogen mustard N-oxide
100027	4-Nitrophenol
79469	2-Nitropropane
5522430	1-Nitropyrene [PAH-Derivative, POM]
57835924_	4-Nitropyrene [PAH-Derivative, POM]
86306_	N-Nitrosodiphenylamine
156105	p-Nitrosodiphenylamine [POM]
684935	N-Nitroso-N-methylurea
59892	N-Nitrosomorpholine
100754	N-Nitrosopiperidine
930552	N-Nitrosopyrrolidine
*_	Oleum (see Sulfuric acid and oleum)
--	PAHs (Polycyclic aromatic hydrocarbons) [POM] including but not limited to:
1151	PAHs, total, w/o individ. components reported [PAH, POM]
1150	PAHs, total, with individ. components also reported [PAH, POM]
83329	Acenaphthene [PAH, POM]
208968	Acenaphthylene [PAH, POM]
120127	Anthracene [PAH, POM]
56553	Benz[a]anthracene [PAH, POM]
50328	Benzo[a]pyrene [PAH, POM]
205992	Benzo[b]fluoranthene
192972	Benzo[e]pyrene [PAH, POM]
191242	Benzo[g,h,i]perylene [PAH, POM]
205823	Benzo[j]fluoranthene [PAH, POM]
207089	Benzo[k]fluoranthene [PAH, POM]
218019	Chrysene [PAH, POM]
53703	Dibenz[a,h]anthracene [PAH, POM]
192654	Dibenzo[a,e]pyrene [PAH, POM]
189640	Dibenzo[a,h]pyrene [PAH, POM]
189559	Dibenzo[a,i]pyrene [PAH, POM]
191300	Dibenzo[a,l]pyrene [PAH, POM]
206440	Fluoranthene [PAH, POM]
86737	Fluorene [PAH, POM]
193395	Indeno[1,2,3-cd]pyrene [PAH, POM]
91576	2-Methyl naphthalene [PAH, POM]
91203	Naphthalene [PAH, POM]
198550	Perylene [PAH, POM]
85018	Phenanthrene [PAH, POM]
129000	Pyrene [PAH, POM]

CAS Number	Substance Name
#	PAH-Derivatives (Polycyclic aromatic hydrocarbon derivatives) [POM] (including but not limited to those substances listed in Appendix A with the bracketed designation [PAH-Derivative, POM])
56382	Parathion
1336363	PCBs (Polychlorinated biphenyls), total [POM] including but not limited to:
32598133_	3,3',4,4'-TETRACHLOROBIPHENYL (PCB 77)
70362504_	3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)
32598144_	2,3,3',4,4'-PENTACHLOROBIPHENYL (PCB 105)
74472370_	2,3,4,4',5-PENTACHLOROBIPHENYL (PCB 114)
31508006_	2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118)
65510443_	2,3',4,4',5'-PENTACHLOROBIPHENYL (PCB 123)
57465288_	3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126)
38380084_	2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)
69782907_	2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157)
52663726_	2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167)
32774166_	3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169)
39635319_	2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL (PCB 189)
82688	Pentachloronitrobenzene {Quintobenzene}
79210	Peracetic acid
127184	Perchloroethylene {Tetrachloroethene}
2795393_	Perfluorooctanoic acid {PFOA} and its salts, esters, and sulfonates
108952	Phenol
106503	p-Phenylenediamine
90437	2-Phenylphenol [POM]
75445	Phosgene
7723140	Phosphorus
--	Phosphorus compounds:
7803512	Phosphine
7664382	Phosphoric acid
10025873	Phosphorus oxychloride
10026138	Phosphorus pentachloride
1314563	Phosphorus pentoxide
7719122	Phosphorus trichloride
126738	Tributyl phosphate
78400	Triethyl phosphine
512561	Trimethyl phosphate
78308	Triorthocresyl phosphate [POM]
115866	Triphenyl phosphate [POM]
101020	Triphenyl phosphite [POM]
85449	Phthalic anhydride
2222_	Polybrominated diphenyl ethers {PBDEs}, including but not limited to:

CAS Number	Substance Name
1163195_	Decabromodiphenyl oxide [POM]
--	Polychlorinated dibenzo-p-dioxins {PCDDs or Dioxins} [POM] including but not limited to:
1086_	Dioxins, total, w/o individ. isomers reported {PCDDs} [POM]
1085_	Dioxins, total, with individ. isomers also reported {PCDDs} [POM]
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin {TCDD} [POM]
40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin [POM]
39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [POM]
57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [POM]
19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [POM]
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin [POM]
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin [POM]
41903575	Total Tetrachlorodibenzo-p-dioxin [POM]
36088229	Total Pentachlorodibenzo-p-dioxin [POM]
34465468	Total Hexachlorodibenzo-p-dioxin [POM]
37871004	Total Heptachlorodibenzo-p-dioxin [POM]
--	Polychlorinated dibenzofurans {PCDFs or Dibenzofurans} [POM] including but not limited to:
1080_	Dibenzofurans (Polychlorinated dibenzofurans) {PCDFs} [POM]
51207319	2,3,7,8-Tetrachlorodibenzofuran [POM]
57117416	1,2,3,7,8-Pentachlorodibenzofuran [POM]
57117314	2,3,4,7,8-Pentachlorodibenzofuran [POM]
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran [POM]
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran [POM]
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran [POM]
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran [POM]
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran [POM]
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran [POM]
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran [POM]
55722275	Total Tetrachlorodibenzofuran [POM]
30402154	Total Pentachlorodibenzofuran [POM]
55684941	Total Hexachlorodibenzofuran [POM]
38998753	Total Heptachlorodibenzofuran [POM]
#	POM (Polycyclic organic matter) (including but not limited to those substances listed in Appendix A with the bracketed designation of [POM], [PAH, POM], or [PAH-Derivative, POM])
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur {Baygon}

CAS Number	Substance Name
115071	Propylene
75569	Propylene oxide
-	1,2-Propyleneimine (see 2-Methylaziridine)
110861	Pyridine
91225	Quinoline
106514	Quinone
1165	Radionuclides including but not limited to:
24267569	Iodine-131
1166	Radon and its decay products
50555	Reserpine [POM]
#	Residual (heavy) fuel oils
7782492	Selenium
*	Selenium compounds including but not limited to:
7783075_	Hydrogen selenide
7446346	Selenium sulfide
1175	Silica, crystalline (respirable)
7440224	Silver
*	Silver compounds
1310732	Sodium hydroxide
100425	Styrene
96093	Styrene oxide
*_	Sulfuric acid and oleum
8014957_	Oleum
7446719_	Sulfur trioxide
7664939	Sulfuric acid
100210	Terephthalic acid
79345	1,1,2,2-Tetrachloroethane
-_	Tetrachlorophenols (see Chlorophenols)
7440280	Thallium
*	Thallium compounds
62555	Thioacetamide
62566	Thiourea
7550450	Titanium tetrachloride
108883	Toluene
-	2,4-Toluenediamine (see 2,4-Diaminotoluene)
26471625_	Toluene diisocyanates including but not limited to:
584849	Toluene-2,4-diisocyanate
91087	Toluene-2,6-diisocyanate
95534	o-Toluidine
8001352	Toxaphene {Polychlorinated camphenes}
-	1,1,1-Trchloroethane (see Methyl chloroform)
79005	1,1,2-Trichloroethane {Vinyl trichloride}
79016	Trichloroethylene
-	2,4,6-Trichlorophenol (see Chlorophenols)
96184	1,2,3-Trichloropropane

CAS Number	Substance Name
121448	Triethylamine
1582098	Trifluralin
25551137_	Trimethylbenzenes including but not limited to:
95636	1,2,4-Trimethylbenzene
540841	2,2,4-Trimethylpentane
51796	Urethane {Ethyl carbamate}
7440622	Vanadium (fume or dust)
1314621_	Vanadium pentoxide
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
100403	4-Vinylcyclohexene
75025	Vinyl fluoride
75354	Vinylidene chloride
1206	Wood preservatives (containing arsenic and chromate)
1330207_	Xylenes (mixed) including:
108383	m-Xylene
95476	o-Xylene
106423	p-Xylene
7440666	Zinc
*	Zinc compounds including but not limited to:
1314132	Zinc oxide

APPENDIX C

Receptor Proximity Adjustment Factors
(*The Emissions and Potency Procedure*)

APPENDIX C

Receptor Proximity Adjustment Factors [a, b, c]
(*The Emissions and Potency Procedure*)

Receptor Proximity (R)						
0m < R < 100m	100m ≤ R < 250m	250m ≤ R < 500m	500m ≤ R < 1000m	1000m ≤ R < 1500m	1500m ≤ R < 2000m	R ≥ 2000m
1[c]	0.25	0.04	0.011	0.003	0.002	0.001

a. The receptor proximity adjustment factors provided are based on a release height of 5 meters.

b. Receptor proximity is expressed in meters (m) and can be established by one of the following options:
   1. Method 1: Add (a) the distance (in meters) from the facility property line to the nearest potential receptor to (b) the distance (in meters) from the facility's nearest emitting source to the facility property line; or,
   2. Method 2: Measure the distance (in meters) from the facility's nearest property line to the nearest receptor or potential receptor; or.
   3. Method 3: Measure the distance (in meters) from the facility's nearest emitting source to the nearest receptor or potential receptor.

c. If a receptor or potential receptor is located within approximately 50m of the release point, this receptor proximity adjustment factor may not be conservative.

APPENDIX D

Basis for the Suggested Thresholds

APPENDIX D

Basis for the Suggested Thresholds in the Prioritization Guidelines

The following is an explanation of the basis for the suggested thresholds provided in the draft prioritization guidelines. The explanation pertains to both the emissions and potency and the dispersion adjustment prioritization procedures. In addition to discussing the basis for the suggested thresholds, an explanation of how the receptor proximity adjustment and dispersion adjustment factors were determined is also provided. As stated in the guidelines, the thresholds presented here are suggestions. Thus, the district may select thresholds that differ from those discussed.

The prioritization guidelines describe in detail how to assign scores to facilities using two different prioritization procedures. The guidelines also provide suggestions on how to prioritize facilities based on the scores that they receive. Because facilities vary in terms of several factors including release parameters, it is not possible to determine health risk from a facility's score using either of the procedures discussed in the guidelines. Only upon completion of a comprehensive risk assessment will the risks posed by facilities be adequately characterized. However, it is possible to use a conservative modeling scenario to identify minimum scores associated with given levels of risk. The reality of such an approach is that facilities which do not significantly impact receptors may be designated as high priority. The method used to arrive at the suggested thresholds, as well as its basis, is provided in the following discussion.

What is the Basis for the Suggested Thresholds?

The 1993 suggested thresholds were based on conservative modeling scenarios which use the ISCST and PTPLU dispersion models in conjunction with the following assumptions to first estimate a worst case one-hour concentration: 1) emission rate of 1 lb/hr; 2) stack heights ranging from 1 to 100 meters (m); 3) stack and ambient temperature equal to 293 kelvin; 4) low flow rate (0.03 m^3*/sec);* 5) conservative meteorology; 6) flat terrain; 7) urban dispersion algorithm; and 8) minimum receptor proximity of 50 m.

Forty-nine combinations of wind speed and stability from the PTPLU2 model were used as meteorological input to identify the peak one-hour concentration at the maximum impacted receptor for each of several release heights. The overall peak one-hour concentration of 1,458 $\mu g/m^3$ occurred approximately 50 m downwind of a release height of 1 m for D stability and a wind speed of 0.5 m/sec.

To develop the thresholds for carcinogens, the peak one-hour concentration of 1,458 μg/m^3 was multiplied by the ARB scaling factor of 0.1 to estimate the peak annual average concentration (this concentration may not actually be located 50 meters downwind, but this approach is expected to be conservative). The result of this exercise is the identification of an annual emission rate (approximately 60 lbs/yr) that corresponded to an annual average concentration of 1 μg/m^3. The suggested thresholds for carcinogens presented in the 1993 guidelines rely on this relationship between emission rate and concentration. Under most circumstances we do not expect to see an annual average concentration greater than 1 μg/m^3 resulting from a uniform emission rate of 60 lbs/yr at a distance equal to or greater than 50 m from the release point. For non-carcinogens with chronic health effects, the modeling basis for the determination of thresholds is the same as that used for carcinogens. For non-carcinogens with acute health effects, the thresholds are based on the relationship between emission rate and the peak one-hour concentration of 1,458 μg/m^3.

From the relationship between emission rate and concentration, a minimum score (threshold) can be determined for a specified level of risk. That is to say, facilities with lower scores than the threshold are expected to result in lower risks than that from which the threshold was derived. However, because the threshold was determined using a conservative modeling scenario, facilities with higher scores than the threshold do not necessarily result in higher risks. The advantage of this procedure is that a threshold can be established to ensure that facilities that may present significant concerns will be designated as high priority.

As indicated, the method for identifying a threshold for a specified level of risk relies on a conservative relationship between emission rate and concentration. For example, the score that corresponds to a level of carcinogenic risk of one in one million (for the conservative modeling scenario) is obtained by multiplying 60 lbs/yr by the unit risk number that equates to a risk of one in one million for an exposure to 1 μg/m^3 (1 x 10^{-6} (μg/m^3)$^{-1}$). For non-carcinogens, essentially the same approach can be used based on the relationship between emissions rate and the peak annual average concentration for chronic health effects and peak one-hour concentration for acute health effects to identify the minimum score that corresponds to a given level of risk. To adjust the normalization factors to account for the 2015 OEHHA updated risk methodology that includes age sensitivity factors, breathing rates by age bin, dispersion modeling (ISCST3 to AERMOD) and to put the suggested thresholds on a scale that is more convenient, the scores are multiplied by an updated normalization factor.

The updated normalization factor for carcinogenic pollutants was developed to incorporate OEHHA's new health risk guidance and EPA's updated dispersion model (AERMOD). Specifically, modeling was conducted using the AERMOD dispersion model with 20 meteorological stations, a receptor gridding from 25 meters to ~3020 meters (~500,000 receptors), and 44 sources. These sources include diesel engines, natural gas engines, boilers, and steam generators. An analysis was conducted to: 1) calculate risk using the 2015 OEHHA Health Risk Guidelines, 2) prioritize each source receptor combination modeled, 3) back calculate a normalization factor, for each

modeled source receptors combination, that would correspond to the calculated risk, and 4) select the normalization factor that represents the 95 percentile (7,700) of all the normalization values generated. Because the normalization factor selected represents the 95 percentile of all the normalization factors generated, the normalization factor selected results in a conservative approach to evaluating risk and, in cases where facilities are assigned to high priority categories based on prioritization results, the final health risk evaluation will be based on a detailed health risk assessment. The attachment in Appendix D-1 details this analysis and provides the data points used to model and select the revised normalization factor.

For non-cancer health affects (acute and chronic) normalization factors, the analysis did not indicate a significant change to those currently used and therefore, no changes to the non-cancer normalization factors were proposed.

Why Suggest a High Priority Threshold of 10 to 100?

A score on the order of 10 to 100 as the suggested high priority threshold provides guidance for designating facilities, which may significantly impact receptors, as high priority. However, given the conservative modeling scenario upon which this threshold is based, it should be understood that facilities which do not significantly impact receptors may also be designated as high priority.

For the conservative modeling scenario, a score of 10 approximately translates to a cancer risk of 100 in a million for carcinogens and ten times the reference exposure level for non-carcinogens (a Hazard Index value of 10) while a score of 100 approximately translates to a cancer risk of 1000 in a million for carcinogens and one hundred times the reference exposure level for non-carcinogens (HI = 100). However, facilities with considerably lower risks (over two orders of magnitude) may also receive scores of 100 or more and as a result may be designated high priority. Nevertheless, to ensure that the facilities of greatest concern are designated high priority requires that conservative assumptions such as those presented here be used. It is also possible that facilities of concern may receive scores that are less than 10. To address this case, the guidelines include provisions for considering other factors to prioritize facilities not initially designated as high or low priority.

Why Suggest a Low Priority Threshold of 1?

As with the high priority threshold, the low priority threshold is based on the same conservative modeling scenario. For the low priority threshold, a score of 1 corresponds to a cancer risk of 10 in a million for carcinogens and the reference exposure level for non-carcinogens (HI = 1). With this approach, it is possible that facilities with scores considerably higher than 1 (up to two orders of magnitude higher) may actually result in risks that are below the low priority threshold. Because the threshold is based on a conservative modeling scenario, we do not expect facilities with

scores less than 1 to result in cancer risks that are above 10 in a million for carcinogens and the reference exposure level for non-carcinogens (HI = 1).

How Are Facilities with Scores Between High and Low Priority Treated?

Some facilities with scores between 1 and 10 or 1 and 100 may also significantly impact receptors. Therefore, the guidelines provide for consideration of other factors to determine if such facilities should be designated as high priority.

Receptor Proximity Adjustment Factors

The procedures also include receptor proximity adjustment factors. The factors act to reduce the facility's score if there are not receptors or potential receptors nearby. Because the emissions and potency procedure does not consider release parameters, the receptor proximity adjustment factors are based on the change in concentration with distance for a release height of 5 meters.

The receptor proximity adjustment factors provided in the dispersion adjustment procedure are based on the release height of the emissions. Specifically, the factors were derived by taking the ratio of the maximum concentrations at different distances for a given release height. However, because the effective stack height for an emission source may be considerably greater than the actual release height, the receptor proximity adjustment factors provided in Appendix E may not be conservative for all cases.

Dispersion Adjustment Factors

The dispersion adjustment procedure also considers dispersion based on the release height of the emissions. The factors were determined using information on the concentration at the maximum impacted receptor for a series of release heights. Specifically, the dispersion adjustment factors were determined from the ratio of the concentration at the maximum impacted receptor (at a 50 meter minimum) for several release heights divided by the concentration at the maximum impacted receptor for the 5 meter release height.

APPENDIX D-1

Updated Cancer Normalization Factor Development

In the Cancer Prioritization Equation, *TS=E x Pc x RP x NF*, the prioritization score, TS, is calculated using the mass of the toxic emissions, E, times the Unit Risk Factor, Pc, times the receptor proximity adjustment factor, RP, times the normalization factor. This appendix documents the development of the interim normalization factor to implement the new 2015 Office of Environmental Health Hazard Assessment risk methodologies.

What is purpose of the normalization factor?

The normalization factor attempts to relate the calculated health risks to the emissions from a facility and the toxicity of the emissions. It also places the priority scores on a convenient numerical scale.

How was the new normalization factor developed?

The updated cancer normalization factor was developed to incorporate OEHHA's new guidance and updated dispersion model (AERMOD). Specifically, modeling was conducted using EPA's preferred model AERMOD with 20 meteorological stations, a receptor grid from 25 meters to ~3020 meters (~500,000 receptors), and 44 sources (diesel engines, natural gas engines, boilers, and steam generators). An analysis was conducted to: 1) calculate risk using the 2015 OEHHA guidance, 2) determine the sum of the products of the emissions and unit risk factors for each pollutant, 3) calculate a normalization factor for each modeled source receptor combination, and 4) determine the normalization factor that represents the 95 percentile (7,700) of all the normalization values generated.

The analysis included the calculations for a 30-year risk period since this option is recommended by OEHHA in calculating residential cancer risk. However, to be conservative, the final cancer normalization factor selection is based on the 70-year cancer risk scenario since it ensures that 95% of the evaluated sources (including both 70-year and 30-year periods and the engines and boilers evaluated) are captured.

Step 1: Calculate toxic emissions for each emissions unit.

Using AP-42, emissions unit specific emissions data, or district default toxic emissions factors, the toxic emissions for each emissions unit was calculated with parameters common to the size/capacity of the units.

Step 2: Calculate the products of the emissions and unit risk factors.

Using emissions calculated in Step 1, calculate the product of the emissions in pounds per year and the unit risk factors from OEHHA. Sum the products of all emitted compounds with the following equation: $\{\sum^{C}(E_C)(P_C)\}$, where Ec is the toxic emission (lbs/yr) and Pc is the unit risk.

Step 3: Calculate Risk with new Methodology

Using the new OEHHA methodology and new dispersion modeling (AERMOD), calculate the facility risk for both 70-year and 30-year exposure periods. The 95th percentile breathing rates were used for this evaluation. For the dispersion modeling, concentrations were calculated for 25 meter grid spacing for each emissions unit size/capacity and using meteorological data from 20 met stations. The maximum concentration values for each distance from the 20 met data runs was selected to run the risk calculation comparison. Both Rural and Urban options were evaluated. Modeling inputs follow the graphs. Risk is reported as x in a million population.

Step 4: Normalize the risk

Multiply the risk found in Step 3 by 1,000,000 to normalize the risk. This will put the potential risk on a convenient scale.

Step 5: Associate Risk with Prioritization score.

For each emissions unit, divide the calculated normalized risk by the sum of the products of the emissions and unit risk factors in Step 2. The result is the “normalization factor” that relates the risk to the emissions and potency.

Step 6: Evaluate and Select Normalization Factor

After computing the normalization factor for each of the combinations described in Step 3, above, review the range of normalization factors. Results are shown below for two source categories with graphs to illustrate the distribution of derived normalization factors. Since selecting the maximum would be overly conservative and resulting prioritization score would signify every source a significant risk, the derived normalization factor which would include 95% of the evaluated sources was considered for both the 70-year and 30-year evaluation period. This evaluation focused on diesel IC engines and boilers. After considering the results, the new normalization factor of 7700 was selected as it represented the threshold where at least 95% of the evaluated sources would theoretically have a risk greater than 1 in a million.

Steps 2 through 5 example:

For example, for a 100 HP diesel engine at 200 meters from the receptor, the emissions were estimated as 0.0022 lb/yr of diesel particulate matter. The unit risk factor for diesel particulate matter is 3 x 10^{-4} ($\mu/m3)^{-1}$. The product of the emissions and the unit risk factor is 6.6 x 10^{-7}. The 70-year cancer risk using the 2015 OEHHA guidance was calculated to be 2.07718 x10^{-9} at 200 meters, or 0.00207718 in a million. Dividing the normalized risk by the emissions and unit risk factor gives the new normalization factor: 0.00207718/6.6 x 10^{-7}=3140.

Normalization Factor

Current Normalization Factor (NF)	**1700**
Proposed Normalization Factor (NF)	**7700**

Summary of derived normalization factor for the diesel IC engine category for 70-year and 30-year evaluation periods:

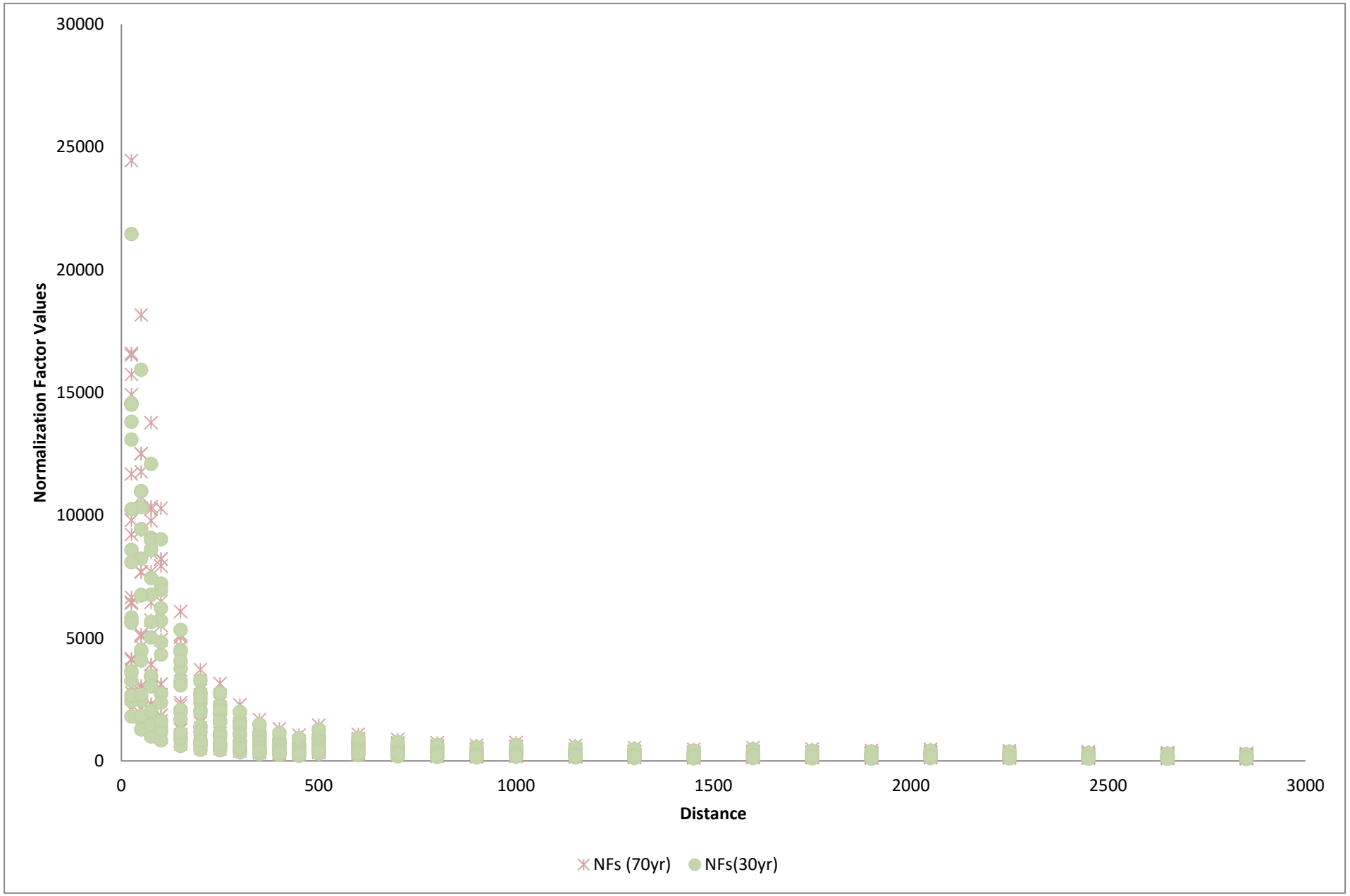
Diesel I.C. Engines

DICE (NF)		
Period	**70 Yr**	**30 Yr**
95th	**7711**	**6767**
80th	1610	1413
Average	1494	1311
Max	24454	21461
Count > 95th	24	24
% of total	5%	5%
Total Rows	476	476

Distribution of derived normalization factors for diesel IC engines:

NF Values (95th)	# Within Ea. Range	% of Total
0 ≥ NF <100	2	0.42%
100 ≥ NF <500	264	55.46%
500 ≥ NF <1000	85	17.86%
1000 ≥ NF < 2000	43	9.03%
2000 ≥ NF < 5000	42	8.82%
5000 ≥ NF < 10000	25	5.25%
10,000 ≥ NF	15	3.15%
Total	476	100.00%

Plot of the DICE NF



Summary of derived normalization factors for boilers using the multi-pathway risk evaluation for 70 year and 30 year evaluation periods.

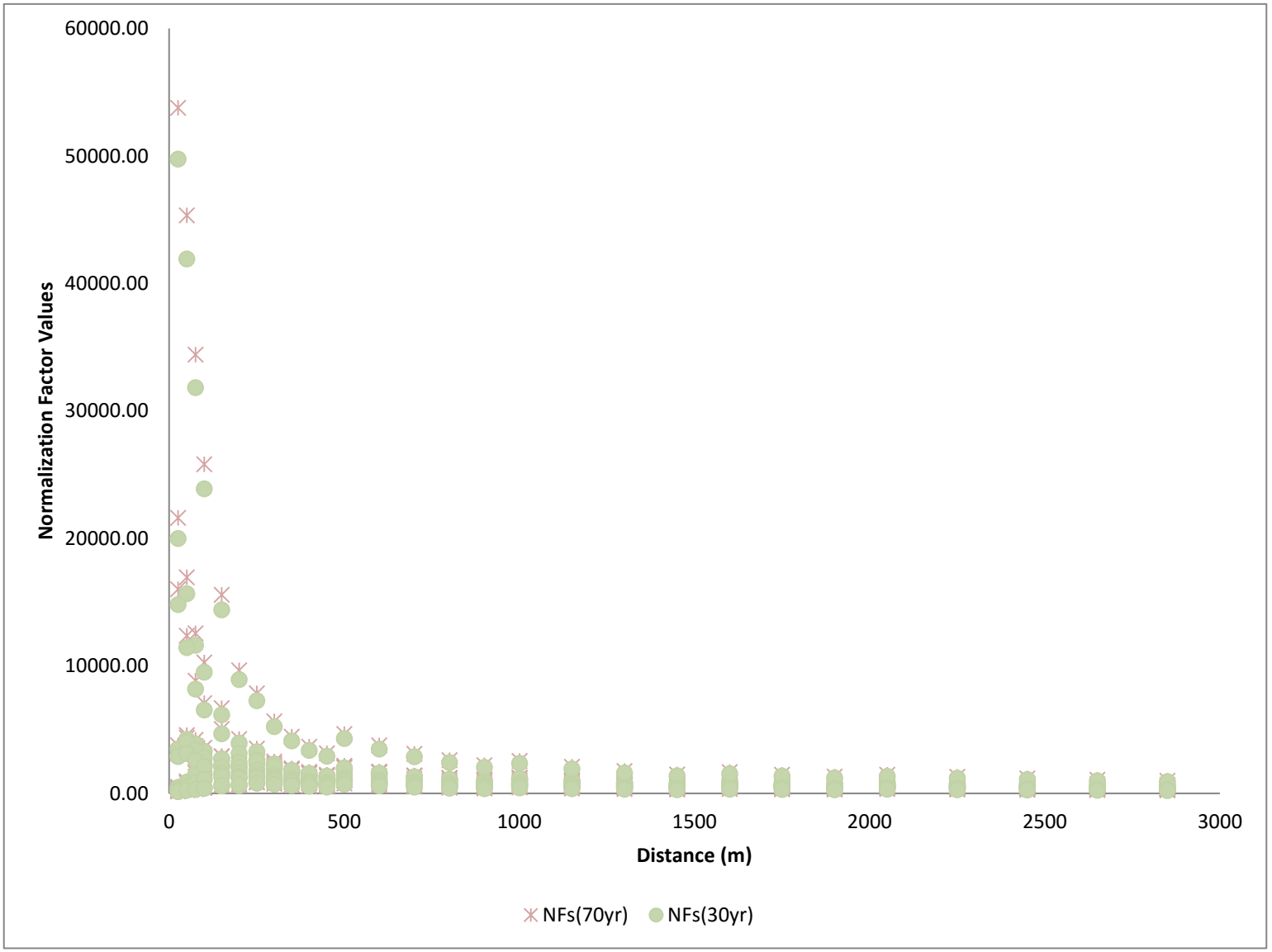
Boilers (Multi-pathway)

Boilers (NF)		
Period	**70 Yr**	**30 Yr**
95th	6321	5847
Max	53780	49747
Average	2101	1944
80th	1974	1826
Count > 95th	16	16
% of total	3%	3%
Total Rows	308	308

Distribution of derived normalization factors for boilers:

NF Values (95th)	# Within Ea. Range	% of Total
0 ≥ NF <100	0	0.00%
100 ≥ NF <500	62	20.13%
500 ≥ NF <1000	116	37.66%
1000 ≥ NF < 2000	69	22.40%
2000 ≥ NF < 5000	43	13.96%
5000 ≥ NF < 10000	7	2.27%
10,000 ≥ NF	11	3.57%
Total	308	100.00%

Plot of the Boiler NF



District Screening Tool Modeling Documentation
Date Prepared: August 1, 2014

Dispersion Model: AERMOD V14134

1. Control Pathway
   1.1. Output type: Concentration
   1.2. Non-Default options: Flat
   1.3. Pollutant type: Other (Toxics)
   1.4. Averaging time options: 1h, 2h, 3h, 4h, 6h, 8h, 12h, 24h, month and period
   1.5. Dispersion coefficients: rural, or urban with a population of 461,116

2. Source Pathway
   2.1. All emissions units centered on coordinate (0,0)
   2.2. Combustion point sources inputs
      2.2.1. Emission rate: 1 g/s

Source ID	Rating	Rating Units	Release Height (m)	Stack Inside Diameter (m)	Gas Exit Temp. (K)	Gas Exit Velocity (m/s)
Diesel Reciprocating Internal Combustion Engines						
50_DE	0 - 50	BHP	2.97	0.07	799.80	52.65
100_DE	50 - 100	BHP	2.92	0.09	756.18	62.93
150_DE	100 - 150	BHP	2.69	0.10	759.49	58.78
175_DE	150 - 175	BHP	2.50	0.10	768.31	63.22
200_DE	175 - 200	BHP	3.04	0.12	765.80	54.28
275_DE	200 - 275	BHP	2.43	0.12	795.31	50.25
300_DE	275 - 300	BHP	3.55	0.13	728.55	54.78
400_DE	300 - 400	BHP	2.42	0.13	754.96	81.71
500_DE	400 - 500	BHP	2.85	0.18	761.90	71.23
550_DE	500 - 550	BHP	3.12	0.15	768.27	91.27
600_DE	550 - 600	BHP	3.71	0.16	793.56	92.45
750_DE	600 - 750	BHP	3.84	0.17	798.16	160.56
825_DE	750 - 825	BHP	6.07	0.19	784.00	87.68
1150_DE	825 - 1150	BHP	3.85	0.24	779.86	71.16
1500_DE	1150 - 1500	BHP	7.26	0.31	758.00	40.51
1850_DE	1500 - 1850	BHP	3.73	0.21	741.24	133.59
2500_DE	1850 - 2500	BHP	6.33	0.45	727.14	40.24
Natural Gas Reciprocating Internal Combustion Engines						
50_NE	0 - 75	BHP	4.39	0.07	847.87	39.43
75_NE	75 - 100	BHP	3.78	0.08	846.44	66.81

Source ID	Rating	Rating Units	Release Height (m)	Stack Inside Diameter (m)	Gas Exit Temp. (K)	Gas Exit Velocity (m/s)
100_NE	100 - 125	BHP	3.22	0.09	761.66	78.25
125_NE	125 – 150	BHP	2.60	0.10	878.51	54.14
150_NE	150 - 175	BHP	3.13	0.14	883.93	53.01
175_NE	175 - 200	BHP	2.80	0.09	866.23	85.26
200_NE	200 – 250	BHP	2.86	0.12	939.36	64.30
250_NE	250 - 500	BHP	5.11	0.19	819.49	59.27
500_NE	500 - 750	BHP	6.50	0.21	770.34	49.81
750_NE	750 - 1000	BHP	5.99	0.24	804.79	60.36
1000_NE	1000 - 1500	BHP	6.78	0.35	745.19	63.90
1500_NE	1500 - 4000	BHP	7.92	0.49	731.79	28.74
Natural Gas Simple Cycle Turbines						
5_TUR	0 - 50	MMBtu/hr	12.60	1.08	425.66	23.24
25_TUR	50 - 300	MMBtu/hr	13.54	3.86	705.68	19.39
50_TUR	300 - 500	MMBtu/hr	27.62	3.48	655.13	32.88
100_TUR	500 - 1000	MMBtu/hr	33.53	4.47	706.88	38.32
Natural Gas Combined Cycle Turbines						
5_COG	0 - 50	MMBtu/hr	10.93	1.19	475.93	20.08
25_COG	50 - 250	MMBtu/hr	18.46	2.27	409.55	22.24
50_COG	250 - 475	MMBtu/hr	21.83	3.21	411.10	20.88
100_COG	475 - 1000	MMBtu/hr	30.88	5.09	427.15	21.24
250_COG	1000 - 1800	MMBtu/hr	38.81	5.26	368.61	21.51
Gaseous Fuel Fired (Natural Gas) Boilers						
5_BLR	0 - 5	MMBtu/hr	9.00	0.41	438.25	5.03
10_BLR	5 - 10	MMBtu/hr	8.40	0.50	464.60	6.87
15_BLR	10 - 15	MMBtu/hr	8.30	0.55	470.83	8.66
20_BLR	15 - 20	MMBtu/hr	10.60	0.69	467.68	6.77
30_BLR	20 - 30	MMBtu/hr	10.00	0.67	468.50	10.65
40_BLR	30 - 40	MMBtu/hr	9.70	0.72	495.39	12.56
50_BLR	40 - 50	MMBtu/hr	11.40	0.88	442.11	8.98
75_BLR	50 - 75	MMBtu/hr	13.40	1.09	440.84	10.41
100_BLR	75 - 100	MMBtu/hr	11.30	1.11	448.30	10.21
150_BLR	100 - 150	MMBtu/hr	11.30	1.41	418.55	6.78
200_BLR	150 - 200	MMBtu/hr	16.30	1.51	430.63	12.31
Gaseous Fuel Fired Oil Production Steam Generator						
58_STM	58.5	MMBtu/hr	9.02	0.98	449.82	9.38
62_STM	62.5	MMBtu/hr	6.90	0.92	399.74	9.47
85_STM	85.5	MMBtu/hr	5.65	1.02	389.85	13.54

District Screening Tool Modeling Documentation
Date Prepared: August 1, 2014

AERMOD Meteorological Preprocessor: AERMET v14134

AERMET options used in the processing of the met data used include:

1. 1-Minute ASOS Wind Data (where available).
2. 1-Minute ASOS Threshold Wind Speed of 0.5 m/s.
3. No other options used, including EPA Beta Options.

Dispersion modeling was conducted for the following sites:

District	Location	Station ID	Elevation (m)	No. of Years	Years
SJVAPCD	Arvin	MM5	267	5	2007-2011
SJVAPCD	Bakersfield	23155	149	5	2008-2012
SJVAPCD	Fellows	MM5	472	5	2004-2008
SJVAPCD	Fresno	93193	101.5	5	2008-2012
SJVAPCD	Hanford	53119	74	5	2008-2012
SJVAPCD	Kettleman	MM5	174	5	2007-2011
SJVAPCD	Lemoore NAS	23110	72	3	2007-2009
SJVAPCD	Los Banos	MM5	42	5	2004-2008
SJVAPCD	Madera	93242	75	3	2009-2011
SJVAPCD	Mendota	MM5	45	5	2007-2011
SJVAPCD	Merced	23257	46	5	2008-2012
SJVAPCD	Missouri Triangle	MM5	268	5	2004-2008
SJVAPCD	Modesto	23258	22	5	2008-2012
SJVAPCD	Porterville	23149	135	2	2011-2012
SJVAPCD	Stockton	23237	8	5	2008-2012
SJVAPCD	Tipton	MM5	64	5	2007-2011
SJVAPCD	Tracy	MM5	158	5	2004-2008
SJVAPCD	Turk	MM5	165	5	2004-2008
SJVAPCD	Visalia	93144	90	4	2007-2010
SJVAPCD	Wasco	MM5	77	5	2007-2011

APPENDIX E

Dispersion Adjustment Factors

APPENDIX E

Dispersion Adjustment Factors for the Dispersion Adjustment Procedure [a]

Release Point [b] Description	Dispersion Adjustment Factor
0m ≤ Release Height < 20m	60
20m ≤ Release Height < 45m	9
Release Height ≥ 45m	1

a. The dispersion adjustment factors were derived by dividing the concentration at the maximum impacted receptor (at a 50 meter minimum) for varying stack heights by the concentration at the maximum impacted receptor for a release height of 5 meters.
b. Release height is expressed in meters (m).

APPENDIX F

Receptor Proximity Adjustment Factors
(*The Dispersion Adjustment Procedure*)

APPENDIX F

Receptor Proximity Adjustment Factors [a, b]
(*The Dispersion Adjustment Procedure*)

Receptor Proximity (R)							
Release Height (RH)	0m[c] < R < 100m	100m ≤ R < 250m	250m ≤ R < 500m	500m ≤ R < 1000m	1000m ≤ R < 1500m	1500m ≤ R < 2000m	R ≥ 2000m
0m ≤ RH < 20m	1	0.25	0.04	0.011	0.003	0.002	0.001
20m ≤ RH < 45m	1	0.85	0.22	0.064	0.018	0.009	0.006
RH[d] > 45m	1	1	0.90	0.4	0.13	0.066	0.042

a. Because the receptor proximity adjustment factors are based on actual release height (not taking into account effective plume rise), they are not necessarily conservative for all emission scenarios.

b. Release height and receptor proximity are expressed in meters (m). The receptor proximity can be established by:
   1. Method 1: Add (a) the distance (in meters) from the facility property line to the nearest potential receptor to (b) the distance (in meters) from the facility's nearest emitting source to the facility property line; or
   2. Method 2: Measure the distance (in meters) from the facility's nearest property line to the nearest receptor or potential receptor; or
   3. Method 3: Measure the distance (in meters) from the facility's nearest emitting source to the nearest receptor or potential receptor.

c. If a potential receptor is located within approximately 50m of the release point, these receptor proximity adjustment factors may not be conservative.

d. The receptor proximity adjustment factors provided in this row are based on a release height of 45 meters.