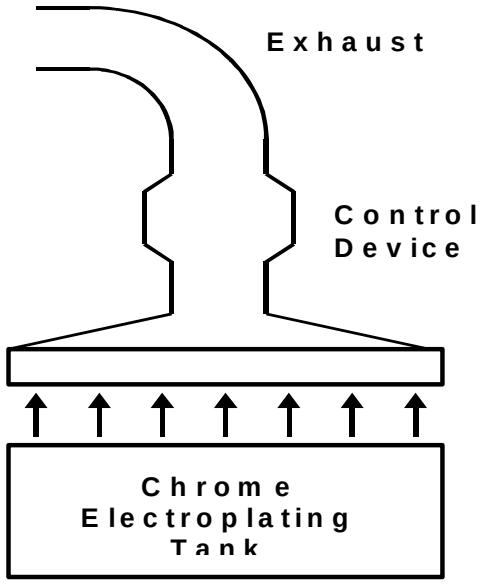
Senate Bill (SB) 1731
Risk Reduction Audits and Plans



Guidelines for Chrome Electroplating Facilities

California Environmental Protection Agency
Air Resources Board

Stationary Source Division
Emissions Assessment Branch

November 1997

Acknowledgments

In appreciation for their participation in developing these guidelines, the Air Resources Board staff extends their thanks to the following members of the workgroup for the Guidelines for Chromium Electroplating Facilities:

George La Barr	Surface Technology Association
Mark Hanson	Metal Finishing Association of Southern California
Jerry Mann	Babbitt Bearing
Carol Foss McCraken	Foss Plating Company Inc.
Dean High	Pacific Environmental Services
Dan Cunningham	K & N Anodizing
Harry Levy	Gene's Plating Works
Kim O'Rourke	Boeing North American, Incorporated
Major Ed Coppola	Tyndall Air Force Base
Josh Scott	Tyndall Air Force Base
Mike Morris	Institute for Research and Technical Assistance
Richard Bode	Air Resources Board
Angela Vasconcellos	Air Resources Board
Randy Frazier	Bay Area Air Quality Management District
Dennis Otani	El Dorado County Air Pollution Control District
Mike Guzzetta	El Dorado County Air Pollution Control District
Phil Towle	Mendicino County Air Pollution Control District
Jorge Deguzman	Sacramento Metropolitan Air Quality Management District
Tony Brentnall	San Diego County Air Pollution Control District
Hashim Navrozali	San Joaquin Valley Unified Air Pollution Control District
Mohan Balagopalan	South Coast Air Quality Management District
Kathy Barwick	Department of Toxic Substances Control
Don Van Dyke	Department of Toxic Substances Control
Gary Nolan	Santa Clara County Pollution Prevention Program

Guidelines Prepared By:

Ms. Lisa J. Jennings

Reviewed and Approved By:

Mr. Robert D. Fletcher, Chief, Emissions Assessment Branch
Mr. Daniel E. Donohoue, Manager, Technical Analysis Section

These guidelines have been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Table of Contents

Appendices

Tables and Figures

Section I
Introduction

In 1987, the Governor signed into law Assembly Bill (AB) 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Hot Spots Program). This law established a statewide program for the inventory of air toxics emissions from individual facilities as well as requirements for risk assessment and public notification of potential health risks (risks). In 1992, the Governor signed into law Senate Bill (SB) 1731. SB 1731 amended AB 2588. Among other things, it adds a risk reduction element to the Hot Spots Program.

The paragraphs below explain the requirements of SB 1731. The purpose of this document is to guide you through the SB 1731 requirements so that you can complete a risk reduction audit and plan and reduce your facility's risk to below the significant risk level. You must work with your air pollution control or air quality management district (district) during this process.

What does SB 1731 require?

This law requires:

> facilities which have risks above a significant risk level, or an unreasonable risk level, to develop Risk Reduction Audits and Plans,
>
> *and*
>
> that the Risk Reduction Plans identify the actions a facility will take to reduce its risk to below the significant risk level within five years.

For your convenience, a copy of SB 1731 is included in Appendix H.

Why am I receiving these guidelines?

You are receiving these guidelines because SB 1731 requires the districts to notify facilities that have been identified as a significant risk or unreasonable risk facility. This notification is based on the facility's toxic air contaminant emissions.

What are these guidelines?

These guidelines will assist you in complying with the requirements of SB 1731. The guidelines contain a self conducted audit and checklist and will help you determine possible actions to reduce risk. A completed self-conducted audit and checklist can serve as a risk reduction plan.

What is a significant risk?

Significant risk levels are risk levels above which emissions from a facility can potentially have adverse impacts on the health of the neighboring community. Any facility above the significant risk level is considered a "significant risk facility." Significant risk levels are established by the district. For example, some districts have identified significant risk levels of 10 per million cancer risk and a noncancer total acute or chronic hazard index of 1.0. Please contact your district to determine the significant risk level for your area.

What is an unreasonable risk?

Unreasonable risk levels may be considered to be more severe then significant risk levels. They are risk levels above which emissions from your facility potentially pose an unreasonable risk to the neighboring community. Unreasonable risk levels are also established by the district. For example, some districts have identified unreasonable risk levels of 100 per million cancer risk with significant risk levels of 10 per million cancer risk. Other districts have identified unreasonable risk levels that are identical to the significant risk levels. The requirements for facilities with an unreasonable risk are slightly different from the requirements for facilities with a significant risk. A facility with an unreasonable risk must reduce the risk as soon as possible. Please contact your district to determine the unreasonable risk level for your area.

How is the risk from my facility estimated?

Either the district will estimate your facility's risk based on an industry-wide risk assessment and inform you of the results, or the district will approve the risk assessment you conducted for the Hot Spots Program. If the district did an industry-wide risk assessment for your facility and you believe your facility's risk is different from the typical facility used, you may have a facility-specific emission inventory and risk assessment done at your own expense.

How do I know if I am a significant risk facility?

Your district will notify you if you are a significant risk facility. The district will probably let you know the following:

what your risk is,
and
what chemicals you are emitting cause the risk,
and
what the district significant risk level is.

Appendix G contains an example notification letter. This will give the districts and facilities an idea of what significant risk notification letters may contain.

How much risk reduction is required to get below the significant risk level?

The required risk reduction for your facility is the difference between the current facility risk and the significant risk level established by the district. The following is an example of how the percent risk reduction is calculated.

$$\text{Risk Reduction Required (\%)} = \frac{\text{Facility Risk - Significant Risk}}{\text{Facility Risk}} \times 100$$

What am I required to do to comply if I am an unreasonable or significant risk facility?

- Initially, you should conduct a risk reduction audit. The risk reduction audit will help you to identify various risk reduction options that are available for your facility. Section II entitled, "Risk Reduction Audit and Plan Instructions, Forms, and Plan Summary" provides additional information on conducting an audit.

- Once you have identified the risk reduction options available for your operation, you need to evaluate them based on:

  √ Risk reduction potential
  √ Technological feasibility
  √ Economic practicability

  Technical feasibility and economic practicability are dependent upon your specific facility. You can work with district staff to help you choose which options are most appropriate for your facility.

- Once you have evaluated the available options, select those options that will reduce your facility's risk below the significant risk level.

- If the district has indicated they will accept the self-conducted audit and checklist in this Risk Reduction Guideline, complete the forms enclosed in Section II, "Risk Reduction Audit and Plan Instructions, Forms, and Plan Summary" and send them to your district.

What risk reduction options are available?

Table 2 lists the risk reduction options for chrome electroplating/anodizing facilities. The risk reduction options include tank modifications, emerging technologies, control devices, and dispersion techniques. (Dispersion techniques should only be considered as a last resort.) If your facility has already implemented the described option, then that option is **not** available to your facility for further risk reduction.

How were the risk reduction options chosen?

The ARB, districts, and industry representatives formed a workgroup. The goal of the workgroup was to research and identify risk reduction options available to chrome electroplating facilities for controlling toxic air contaminant emissions. The risk reduction options that the workgroup identified are those listed in Table 2. If you have identified alternative risk reduction options at your facility, the district will consider these alternatives. Submit these alternative risk reduction options and supporting documentation with your risk reduction audit and plan for district approval.

How do I choose the appropriate risk reduction options?

Section II of this report contains instructions and forms to assist you in choosing risk reduction options. Table 2 (page 14 through 16) lists several possible risk reduction options that may reduce your facility risk to below the significant risk level. Evaluate each option for use at your facility. Risk reduction options selected for the purposes of complying with SB 1731 must be techniques or technologies that reduce risk to below the significant risk level.

If you have identified other risk reduction options not listed in Table 2, please note them on your checklist. The percent of risk reduction allowed will need district concurrence.

Do I estimate the percent risk reduction for each risk reduction option?

For any option that does not have a predetermined amount of risk reduction assigned, the facility owner/operator will need to estimate the expected risk reduction. Write in the percentage of the risk expected to be reduced by the implemented option in the corresponding box in Table 2. Send any supporting documentation to the district with your completed risk reduction plan.

When is my risk reduction plan due to the district?

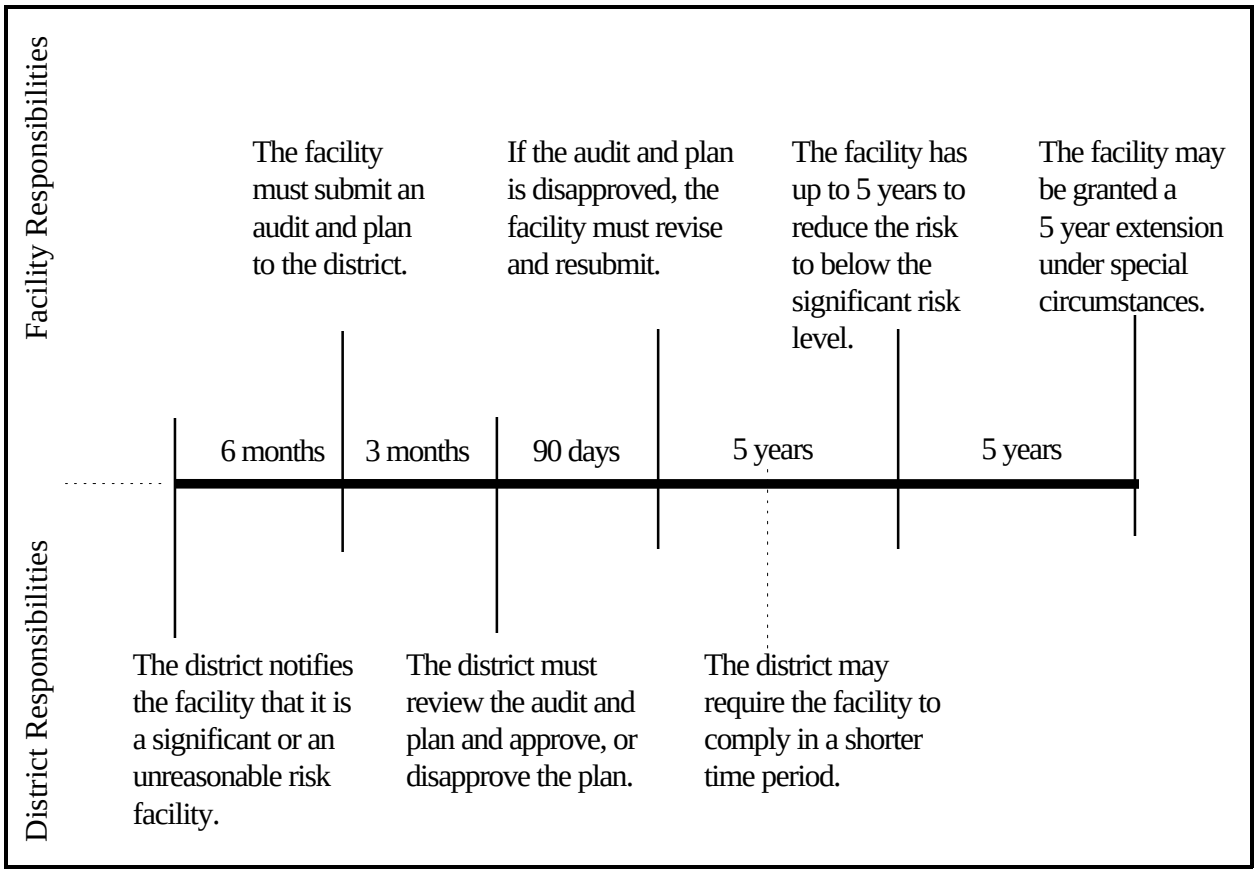
The risk reduction plan must be submitted to the district for approval within six months of receiving notice of being declared an unreasonable or significant risk facility. Figure 1 illustrates the timeline for compliance for SB 1731. Once the risk reduction plan has been submitted to the district, the district has three months to notify you if the plan was approved or not. If the plan was not approved, you have ninety days to resubmit a revised plan to the district.

When must the risk reduction be implemented?

SB 1731 requires that the risk associated with the emissions from your facility be below the district identified significant risk level within five years of the risk reduction plan submittal date. There are provisions for the district to shorten this time frame for technically feasible and

economically practicable risk reduction options. Also, the district may shorten the time frame if the risk associated with the emissions from your facility exceeds a district identified unreasonable risk level. There are also provisions for the district to lengthen this time frame. The district may lengthen the time frame if the risk associated with the emissions from your facility is below the unreasonable risk level identified by the district. The implementation of the risk reduction options must not place an unreasonable economic burden on the facility operator and must be technically feasible. (See Figure 1.)

FIGURE 1: TIMELINE FOR COMPLIANCE



What if the options I have chosen do not get me below the significant risk level?

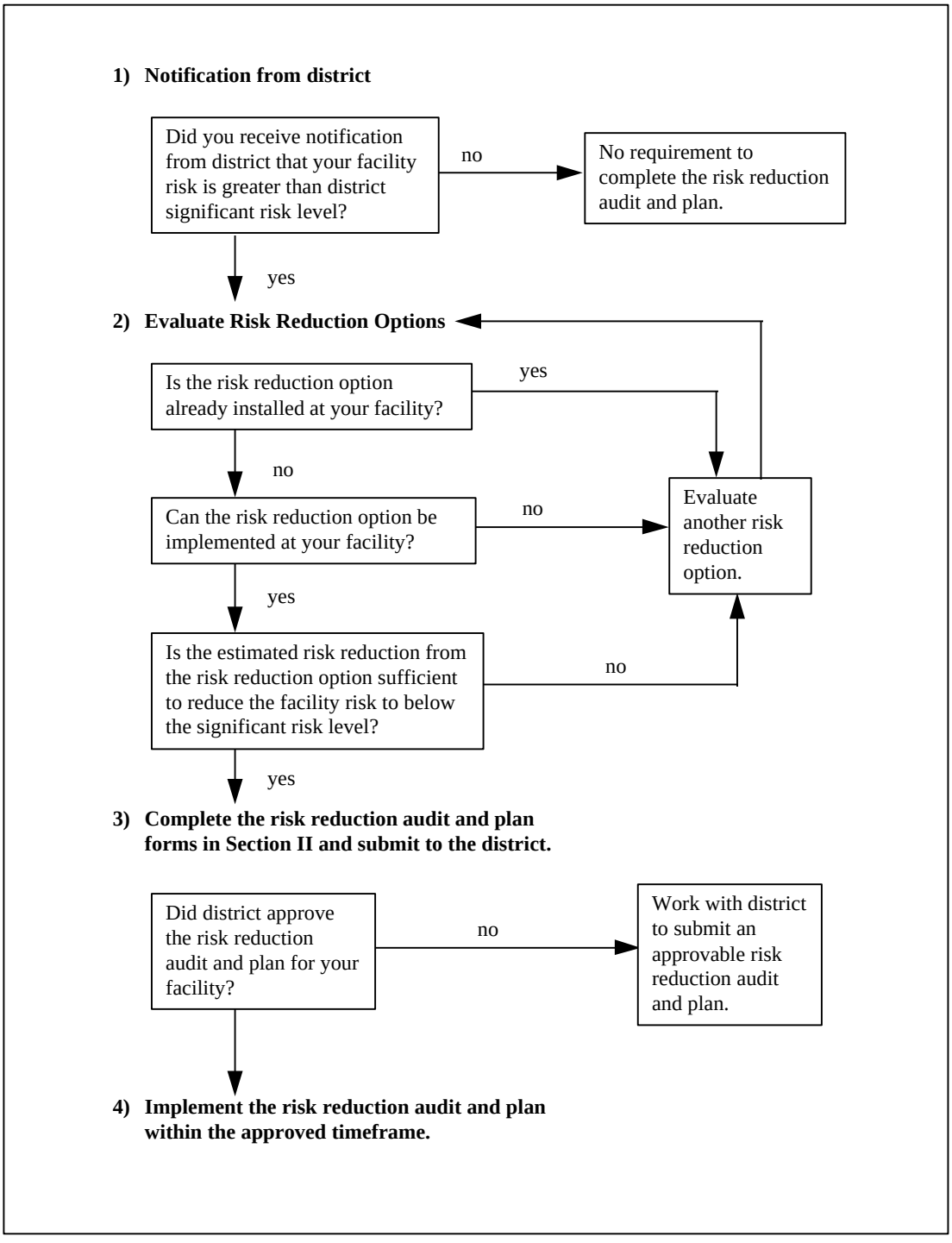
If the options you have selected from Table 2 do not reduce your risk below the significant risk level, there are several things that you can do.

- As mentioned earlier, you can perform a facility specific risk assessment to obtain a more detailed analysis of your facility risk. This risk assessment may indicate that your facility risk is different than previously estimated.

- You can propose control options that will result in greater emission reductions.

- If you are unable to develop a plan that would reduce your risk to below the significant risk level within five years, contact the district for further guidance.

FIGURE 2: HOW TO COMPLY WITH SB 1731



Section II
Risk Reduction Audit and Plan Instructions, Forms, and Plan Summary

Section II contains forms and instructions to assist you in conducting a risk reduction audit and preparing a risk reduction plan. You are required to prepare a plan if the district notifies you that your facility's health risk assessment is above the district significant risk level. You should contact the district to determine if these forms will meet the district's requirements for a plan.

There are five steps in conducting the audit and preparing the plan. These steps are summarized below. Detailed forms and instructions are provided in the following pages.

Step 1- Summarizing the Facility Risk: In this step, identify the current facility risk and the district significant risk levels from the notification letter that you received from the district. Transfer these figures to the appropriate box in Table 1. For example, if the district notifies you that your facility potential cancer risk is 40 per million, write 40 in the box labeled Facility Risk and Cancer Risk Per Million.

Step 2 - Estimating the Risk Reduction Required: This step provides a simple example calculation to help you estimate the risk reduction required for your facility.

Step 3 - Identifying the Risk Reduction Options: In this step, evaluate possible risk reduction options that may reduce your facility risk to below the significant risk level. Circle "Yes or "No" to the question in Table 2, "Was this Risk Reduction Option included in the health risk assessment (HRA)?"

Step 4 - Selecting the Risk Reduction Options: Evaluate the risk reduction options from Table 2 for which you have circled a "No" answer. You may also evaluate risk reduction options not listed on Table 2. The purpose of this evaluation is to determine which risk reduction options you will implement at your facility to further reduce risk. Indicate whether each option is technically feasible and economically practicable at your facility.

Note: If you are considering a risk reduction option that involves substitution of one chemical for another, you should contact your district for guidance.

Step 5 - Completing the Risk Reduction Plan: Complete the "Chrome Electroplating Risk Reduction Audit and Plan Summary" Form. Send completed form with copies of Tables 1 and 2 to the district. This is your Risk Reduction Plan.

Note: You may include risk reduction options implemented subsequent to your facility's health risk assessment on the "Chrome Electroplating Risk Reduction Audit and Plan Summary" on page 18.

STEP 1

SUMMARIZING THE FACILITY RISK

☞ Identify the current facility risk and the district significant risk levels, and write them in Table 1. Note that this information should have been included in the notification letter sent to you by the district.

Table 1: Summary of Facility Risk			
	Facility Risk	**District Significant Risk Level**	**Risk Reduction Required (%)**
Maximum Individual Cancer Risk per Million*			

***** The maximum individual excess cancer risk is the estimated probability of an individual contracting cancer as a result of constant exposure to ambient concentrations that result from facility emissions of carcinogenic toxic air contaminants over a 70 year lifetime. The risk is expressed in chances per million. For example, a value of ten refers to a probability of ten in a million.

STEP 2
ESTIMATING THE RISK REDUCTION REQUIRED

☞ Calculate the risk reduction required using the following equation.

$$\text{Risk Reduction Required (\%)} = \frac{\text{Facility Risk - Significant Risk}}{\text{Facility Risk}} \times 100$$

Then transfer the results to the appropriate box in Table 1.

For example, if the facility cancer risk is 40 per million and the district significant risk is 10 per million, then subtract 10 from 40: (40) - (10) = 30

Then divide by 40: (40-10)/40 = 30/40 = 0.75

Finally multiply by 100:
(40-10)/(40) x 100 = 30/40 x 100 = 0.75 x 100 = 75

The result is the percent risk reduction that is required. In this example, 75 percent risk reduction is required.

Note: The risk you calculate is an estimate. Please work with your district to get an accurate risk assessment. Your district will also make the final risk reduction calculation. The district will then notify you of your actual risk reduction after carrying out the recommendations you have chosen from the checklist.

STEP 3
IDENTIFYING THE RISK REDUCTION OPTIONS

☞ Review Table 2 for processes you have at your facility.

☞ For processes that you have at your facility, review the corresponding risk reduction options.

☞ Circle "Yes" or "No" to the question in Table 2, "Was this Risk Reduction Option included in the health risk assessment (HRA)?"

Yes ☞ If you circled "Yes," go to the next risk reduction option. The risk reduction option will not reduce your facility's health risk assessment. If the risk reduction option was implemented after you submitted your facility health risk assessment (a risk reduction option was implemented and your emissions have been reduced), you may select "No" and include the risk reduction option in the "Chrome Electroplating Risk Reduction Audit and Plan Summary." Make sure to include the date it was implemented and supporting information demonstrating that your emissions were reduced.

No ☞ If you circled "No," then evaluate the risk reduction option for use at your facility. Indicate with a check (✔) if you intend to implement the risk reduction option at your facility.

STEP 4
SELECTING THE RISK REDUCTION OPTIONS

☞ Evaluate the risk reduction options from Table 2 for which you have circled a "No" answer. You may also evaluate risk reduction options not listed on Table 2. The purpose of this evaluation is to determine which risk reduction options you will implement at your facility to further reduce risk. Indicate whether each option is technically feasible and economically practicable at your facility. Appendix D provides more information about the risk reduction items. Note that options identified by the symbol "☞" may be required by air pollution control laws.

Table 2: Risk Reduction Options

Risk Reduction Options	Was this Risk Reduction Option included in the health risk assessment (HRA)? Please circle Yes or No.		Is this risk reduction option technically feasible and economically practicable at your facility? Please circle Yes or No.		Estimated Facility Risk Reduction	Indicate with a check mark if you intend to implement option (✔)
Tank Modifications						
(1) Anti-mist additives ☞	**Yes**	**No**	**Yes**	**No**	95% - 99%	
(1)(a) wetting agents - hard chrome ☞	**Yes**	**No**	**Yes**	**No**		
(1)(b) wetting agents - decorative chrome ☞	**Yes**	**No**	**Yes**	**No**		
(1)(c) foam - hard chrome ☞	**Yes**	**No**	**Yes**	**No**		
(1)(d) foam - decorative chrome ☞	**Yes**	**No**	**Yes**	**No**	77%	
(2) Polyballs ☞	**Yes**	**No**	**Yes**	**No**	70%	
(3) Anti-mist additive plus polyballs ☞	**Yes**	**No**	**Yes**	**No**	96%	
(4) Trivalent chromium ☞	**Yes**	**No**	**Yes**	**No**	100%	

Table 2: Risk Reduction Options						
Risk Reduction Options	**Was this Risk Reduction Option included in the health risk assessment (HRA)? Please circle Yes or No.**		**Is this risk reduction option technically feasible and economically practicable at your facility? Please circle Yes or No.**		**Estimated Facility Risk Reduction**	**Indicate with a check mark if you intend to implement option (✔)**
Control Devices						
(5) Composite Mesh Pad Systems☜	**Yes**	**No**	**Yes**	**No**	60% - 99.5%	
(6) Packed-bed Scrubbers☜	**Yes**	**No**	**Yes**	**No**	50% - 97%	
(7) PBS/CMP System ☜	**Yes**	**No**	**Yes**	**No**	50% -99.5%	
(8) Fiber-bed Scrubber plus De-Mister ☜	**Yes**	**No**	**Yes**	**No**	88% - 98%	
(9) Chrome Dome EED [Merlin Hood]	**Yes**	**No**	**Yes**	**No**	99.9%	
(10) HEPA Filters☜	**Yes**	**No**	**Yes**	**No**	99%	
Emerging Technologies						
(11) Conversion to other plating substitutes	**Yes**	**No**	**Yes**	**No**	up to 100%	
Work Practices						
(12) Self-inspection	**Yes**	**No**	**Yes**	**No**		
(13) Additional Recordkeeping	**Yes**	**No**	**Yes**	**No**		
Dispersion [a]						
(14) Remove Raincaps	**Yes**	**No**	**Yes**	**No**		
(15) Increase Stack Height ☜	**Yes**	**No**	**Yes**	**No**		

Table 2: Risk Reduction Options						
Risk Reduction Options	**Was this Risk Reduction Option included in the health risk assessment (HRA)? Please circle Yes or No.**		**Is this risk reduction option technically feasible and economically practicable at your facility? Please circle Yes or No.**		**Estimated Facility Risk Reduction**	**Indicate with a check mark if you intend to implement option (✔)**
Other (specify)[b]						

Recommendations with this symbol (☜) may be required by air pollution control laws.

a Reduction of emission of toxic compounds is the preferred method for reducing risks. Risks can also be reduced by changing dispersion characteristics.

b Other risk management techniques are encouraged. The % risk reduction should be suggested by the facility with appropriate backup provided. Allowable reduction credits will be determined by the District.

STEP 5
COMPLETING THE RISK REDUCTION PLAN

☞ Write in your facility name, facility location, facility mailing address, and standard industrial code.

☞ Attach Table 1 “Summary of Facility Risk.”
Attach Table 2 “Risk Reduction Options.”

☞ If you have determined that any of the risk reduction options listed are not technically feasible or economically practicable, identify the risk reduction option and state the reasons for your determination.

☞ Print or type the name and title of the responsible individual for your facility.

The responsible individual must certify that all of the information presented in this initial report is accurate and true.

CHROME ELECTROPLATING RISK REDUCTION AUDIT AND PLAN SUMMARY

Facility Name _____

Facility Location _____

_____

_____

Facility Identification Number _____

Standard Industrial Classification (SIC) Code: _____

Facility Characterization (check all that apply):

Hard Chrome Decorative Chrome Anodizing

Implementation Schedule: Please list the risk reduction options that you have chosen to implement and the date by which the option will be implemented.

Risk Reduction Option:	Date of Implementation:	Risk Reduction Expected:

Total Risk Reduction (%) Expected from listed Risk Reduction Options _____

(Total % Risk Reduction Expected must equal or exceed the Risk Reduction Required from Table 1.)

If you have determined that any of the risk reduction options listed are not technically feasible or economically practicable, identify the risk reduction option and state the reasons for your determination.

Process	Risk Reduction Option	Reason/Explanation (attach any support data as needed)

Signature and Authorization of Responsible Individual:

This audit and plan must be reviewed and certified as meeting the requirements of Health and Safety Code (HS&C) section 44390 - 44394 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 registered pursuant to Section 25570.3.

Name _____ Date _____

___I certify that this plan meets the requirements of H&SC section 44390 - 44394.

Appendix A
Definitions

Assembly Bill (AB) 2588: AB 2588 refers to the Air Toxics "Hot Spots" Information and Assessment Act. This law requires stationary sources to report the type and quantity of certain substances their facilities routinely release into the air, and if required by the district, to estimate the health risk resulting from these emissions. Facilities that have risk levels above a district defined **public notification** risk level must notify all exposed persons of the risk assessment results. (SB 1731 amended AB 2588 to require **significant risk** facilities to reduce their risk.)

Notification of Significant/Unreasonable Risk: When a risk assessment is approved by the district, the risk assessment result will be compared to the public notification risk level and the **SB 1731 significant risk** level. Appendix 6 shows an example letter that the districts can follow to notify a facility that their risk is considered significant or unreasonable.

Public Notification: Notifying all individuals who are exposed to the risk associated with the facility. Notification occurs primarily via letters sent to individual residences. Notification can also occur at a public meeting. (See the CAPCOA Air Toxics "Hot Spots" Program Public Notification Guidelines, dated October 1992, and available by calling the Air Resources Board).

Senate Bill (SB) 1731: Legislation signed by Governor Wilson in 1992. This legislation amends AB 2588 by adding a requirement for facilities with **significant risk** or **unreasonable risk** levels to reduce the risk from the facility.

Risk Reduction Audit: A procedure of reviewing all possible risk reduction techniques for a facility. The facility operator identifies those risk reduction techniques that have already been implemented.

Risk Reduction Plan: Documentation of the changes a facility operator is willing to make to a facility in order to reduce emissions and associated risk.

Significant Risk: A risk level, designated by the district, at which a facility must prepare a **risk reduction audit** and a **risk reduction plan** under **SB 1731**. (The designated risk level may or may not be the same as the **public notification** risk level). The facility must then implement the approved risk reduction plan so that the facility risk is reduced to below the **significant risk** level. The facility is given five years to implement the **risk reduction plan**. Under certain

circumstances a five year extension may be granted. Districts are likely to choose either ten per million potential cancer cases or 100 per million potential cancer cases for a **significant risk** level.

This term is also a risk level, designated by the district, at which a facility must notify all exposed individuals of the risk associated with the facility under **AB 2588**. This AB 2588 **significant risk** level is also referred to as the **public notification** risk level.

Unreasonable Risk: A risk level, designated by the district, at which a facility must prepare a risk reduction audit and a risk reduction plan. Other terms may be used including "mitigation level" or "risk reduction level." This risk level is usually set higher than the significant risk level. Other terms used may be 'mitigation level' or 'risk reduction level'.

The facility must then implement the approved risk reduction plan so that the facility risk is reduced to below the **significant risk** level. The facility is given five years to implement the **risk reduction plan**. No extensions will be granted to facilities identified as having an **unreasonable risk**. Districts are likely to choose either 100 per million potential cancer cases or higher for an **unreasonable risk** level.

Appendix B
Processes That May Be Present at a Chrome Electroplating Facility

1. **Material Storage and Handling:** Material storage and handling are the methods by which chemicals are stored, mixed, and handled in the event of a spill.

2. **Parts Preparation:**
   Solvent Cleaning: Cleaning operations that include wiping, soaking, and vapor cleaning.
   Pickling: Oxide removal or descaling accomplished by immersing metal into tanks of acid such that the acid can reach all surfaces.
   Other Cleaning: May include alkaline cleaners in a tank.

3. **Chrome Plating:** Chrome plating occurs in tanks bearing chromic acid and a catalyst ion (usually sulfuric acid). The item to be plated is suspended in the acid bath and connected as the cathode. A low DC voltage applied across the cell causes hexavalent chromium to deposit as metallic chromium on the item. At the same time, water decomposes to produce hydrogen and oxygen gas. This undesired phenomenon consumes 80 to 90 percent of the current. The gas bubbles bursting at the surface of the bath create a mist of chromic acid.

   Hard Chrome: Hard chrome plating is typically carried out at amperages in the thousands and is conducted over the course of hours. The objective of hard chrome plating is to produce a thick, hard, wear resistant layer for mechanical parts in severe services. Chrome thicknesses for hard or engineering chrome plating are between one and 50 microns depending on the end application.

   Decorative Chrome: Decorative chrome plating usually involves plating times ranging from 30 seconds to several minutes at amperages in the thousands while typically producing chrome metal layers less than 0.5 microns.

   Chromic Acid Anodizing: Chromic acid anodizing is the electrolytic process by which an oxide layer is produced on the surface of a base metal for functional purposes (e.g., corrosion resistance or electrical insulation) using a chromic acid solution. In chromium anodizing, the part to be anodized acts as the anode in the electrical circuit. The chromic acid solution, with a concentration typically ranging from 50 to 100 grams per liter (g/L), serves as the electrolyte.

4. **Rinsing:** An operation to dilute the dissolved chemicals on the surface of the work to the point where they are insignificant, not only in their effect on the quality of work being processed, but also with respect to ultimate solution contamination in the continuous operation of a plating line over a long period of time.

Appendix C
Toxic Air Contaminants That May Be Emitted by a Chrome Electroplating Facility

a. Commonly found. Used by many facilities, or used in large amounts.

Acetic Acid	Cadmium
Chromium (VI), or Chromic Acid	Copper, and copper compounds
Cyanide, various compounds	Hydrochloric Acid (Muriatic Acid)
Hydrofluoric Acid	Lead
Nickel, and nickel compounds	Nitric Acid
Perchloroethane	Perchloroethylene
Phosphoric acid	Sodium Hydroxide
Silver	Sulfuric Acid
TCA, or 1,1,1-Trichloroethane	Zinc, and zinc compounds

b. Used in small amounts, or only used by a few facilities

Ammonia	Freons
Fluorides	Formaldehyde
Methylene Chloride	Selenium
Sodium Chlorite	Sodium Saccharin
Thiourea	

c. Release due to natural gas combustion from compressors, boilers and co-generation units.

Acetaldehyde	Acrolein
Benzene	Formaldehyde
Naphthalene	PAHs
Propylene	Toluene
Xylene	

The most notable toxic air contaminant is hexavalent chromium because it is a known human carcinogen. The operations at a chrome electroplating/anodizing facility that can result in emissions of toxic substances include (1) material storage and handling, (2) parts preparation, (3) chrome plating/anodizing, and (4) rinsing. (See Appendix B: Processes at a Chrome Electroplating Facility for a description of each of these processes.)

Appendix D
Risk Reduction Options

The following risk reductions are presented as suggestions that may be useful for your facility. Each suggestion must be carefully evaluated. Not every risk reduction option suggested will be useful for your facility.

1. **Tank Modifications:** Tank modifications involve changes to the plating process to reduce emissions from the plating tank. [See Table 2.]

- **anti-mist additives:** Anti-mist additives operate by reducing the plating bath surface tension or by creating a thick layer of foam on the plating bath surface. Reducing the surface tension of the plating bath reduces the amount of mist formed and a foam blanket traps the mist as it is formed.

  Note: foam used in decorative chrome plating situations sometimes does not have time to become a blanket due to short plating times. As a result foam is not as effective to control chrome emissions.

- **floating polyballs or plastic chips:** Polypropylene spheres which float on the plating solution surface to reduce misting from the tank.

- **combination anti-mist additive plus polyballs:** Polyballs used with foam help to keep the foam blanket spread out over the tank.

- **conversion to trivalent chrome:** Direct plating of trivalent chromium.

2. **Control Devices:** Equipment installed in the ventilation system of chrome electroplating and anodizing tanks for the purposes of collecting and containing chromium emissions from the tank(s). [See Table 2.]

- **Composite Mesh-pad (CMP) System:** An add-on air pollution control device typically consisting of several mesh-pad stages. The purpose of the first stage is to remove large particles. Smaller particles are removed in the second stage, which consists of the composite mesh pad. A final stage may remove any reentrained particles not collected by the composite mesh pad. A composite mesh pad is composed of differing layers of more than one monofilament diameter and/or interlocked fibers densely packed between two supporting grids and can replace packing beds.

- **Packed-bed scrubbers (PBS):** An add-on air pollution control device consisting of a single or double packed-bed that contains packing media on which the chromic acid droplets impinge. The packed-bed section of the scrubber is followed by a mist eliminator to remove any water entrained from the packed-bed section. Also, a packed-bed scrubber is continuously flushed by recirculating water.

- **PBS/CMP System:** A combination of a packed-bed scrubber and a composite mesh pad system.

- **Fiber-bed Mist Eliminator (de-misters):** An add-on air pollution control device that removes contaminants from a gas stream through the mechanisms of inertial impaction and Brownian diffusion. These devices are typically installed downstream of another control device, which serves to prevent plugging, and consist of one or more fiber beds. Each bed consists of a hollow cylinder formed from two concentric screens; the fiber between the screens may be fabricated from glass, ceramic, plastic, or metal. An "impaction" type collector that works by placing a barrier in the path of the aerosol particles in the flowing gas to intercept them and remove them from the gas stream. Frequently added at scrubber outlets to capture water droplets entrained in the exiting gas.

- **Chromium Dome Emission Elimination Device (EED) [Merlin Hood]:** A sealable interconnecting cover for plating tanks that prevents the escape of most metal atoms released from the plating solution and returns them to the solution by force of gravity. Strategically located and appropriately sized membranes allow the free passage of hydrogen gas while effectively blocking the escape of water vapor and chemical mist.

- **High Efficiency Particulate Arresting (HEPA) Filter:** A filter that has a 99.97 percent reduction efficiency for 0.3 micron aerosol.

3. **Emerging Technologies:** New technologies designed to replace existing technologies with the added benefit of reduced environmental hazard. [See Table 2.]

- **conversion to other plating substitutes:**

  - amorphous alloy of nickel, tungsten, and boron with physical and chemical properties that make it an alternative for chromium plating
    For more information contact:
    Amorphous Technologies International
    Laguna Niguel, California

- Takada Process: using nickel, tungsten, and silicon carbide
  For more information contact:
  Barry Meyers
  5050 Dudley Avenue, Suite #3
  McClellan Air Force Base, California 95652-1389
  Phone: (916) 643-0531

- Boric/Sulfuric Acid Anodize: an alternative to chromic acid anodize.
  A Boeing Company patented process, also used by Rohr Industries,
  Riverside, California 92503

- Zero Chrome: an alternative to decorative chrome plating
  For more information contact:
  Bill Kahn
  1621 Pacific Avenue, Unit 121
  Oxnard, California 93033
  Phone: (805) 486-6994
  www.zinex.com

4. Source Reduction Techniques: Techniques that reduce wastes by preventing waste generation. [See Table 3.]

The following suggestions are provided as a service to the chrome plating industry. Many techniques described can be incorporated at your facility to achieve a cost savings. In addition, these techniques further prevent pollution. You may choose to mention the techniques used by your facility in the required AB 2588 public notification letter (for facilities with cancer risk of ten per million) to assure the public that you are working to prevent pollution. Do not include source reduction techniques in the risk reduction plan sent to the district for the purposes of SB 1731.

A. Minimize Drag-out

- **minimize concentration of process bath:** Operating baths at lower concentrations can reduce the amount of drag-out both directly in the amount of chemicals involved, and indirectly because the viscosity will be lower. Fresh baths can be operated at lower concentrations than used baths.

- **optimize temperature of process baths:** Operating baths at temperatures above ambient will reduce the viscosity of the process solution, allowing the solution to drain from the work piece faster. Elevated temperatures also increase the evaporation rate, allowing the addition of water form sprays to maintain the proper chemical concentration. Increasing temperatures can cause volatization of hexavalent chrome and other toxic fumes.

- **increase drip times:** The amount of draining time depends on the size and shape of the parts being plated.

- **improve part racking to allow better solution drainage:** The orientation of the part can be altered to optimize the drainage of plating solution. Adding drain holes and modifying geometry often can be included in parts design to promote better drainage.

- **spray rinse over process bath or drag-out tank:** Spray rinses above heated baths can be used to recover drag-out solutions by draining the drag-out back into the process tank. Use deionized water to maintain bath purity.

- **air knives over process bath or drag-out tank:** Air knives are a better choice when the bath evaporation rate is too low to accommodate the addition of water from the spray nozzles. Air pollution control and protection of operator's health must be considered in the evaluation of air knives.

- **drain boards between process tank and rinse tank:** Drain boards between tanks capture the solution dripping off parts, and route it back to the bath.

- **return drag-out back to process bath:** The concentration of chemicals in drag-out tanks continues to increase as work pieces are passed through. After a time, the concentration will increase to a point where the solution can be used to replenish the process bath. Pretreatment such as filtration can remove contaminants from the drag-out solution before it is added to the process bath.

B. Extend Bath Life

- **use deionized water in process bath:** Impurities are present in most tap waters. Using deionized or distilled water can significantly extend bath life.

- **bath purification:** Electrolytic dummying, carbon filtration, or chemical precipitation are treatment processes that can remove metal contaminants and extend the bath life, which reduces the frequency of mixing new baths and the associated costs. Filtration systems can be used to remove solids that build up in process baths and reduce the effectiveness of the baths. Continuous filtration can remove these contaminants and allow the bath to have a longer service life. Filtrates may have to be managed as hazardous wastes.

- **determine bath changes by laboratory analysis:** Testing the process baths for pH, metal content, and other indicator parameters will allow you to determine the need for adding additional chemicals or removing metal contaminants. Monitoring the process baths can reduce the frequency of dumping process baths.

- **replenish bath (for hard chrome and other metal plating baths):** As the effectiveness of a bath decreases, try dumping only a portion of it and adding fresh chemicals and water to replenish it. This approach will reduce the frequency of bath dumping and the amount of wastes needing disposal.

C. Improve Rinse Techniques

- **splash guards and drain boards:** Installing drain boards and splash guards prevents process chemicals from dripping onto the floor and entering the wastewater treatment system when the floor is washed down.
- **use devices to regulate water flow through rinse tanks:** Rinse water flow control devices can be used to increase the efficiency of the rinse systems and to reduce your water usage. Such devices may include a conductivity flow controller, a timer flow controller, or a contact switch flow controller**.**

- **turn off rinse water when not in use:** Water usage can also be reduced by turning off water flows when an operator is not present at a rinse tank.

- **agitate the rinse solution:** Rinsing can be made more effective by having the water flow quickly past the parts. Air or water may be injected into the rinse tank for this purpose. If these techniques are not feasible, then some degree of turbulence can be created by the operator moving the parts rack in the tank. Ultrasonic vibration of the liquid is also effective.

- **multiple rinse:** Multiple rinse tanks can provide sufficient or even improved rinsing while significantly reducing the volume of rinse water used. The volume of rinse water used in a multi-stage countercurrent rinsing system can be as little as a few percent of that used in a single-stage system. Plan on obtaining a 6:1 to 10:1 reduction in water use for every added stage of rinsing that you install.

D. Employee Training

- **personnel training:** Training personnel on the proper procedures can help you reduce pollution before it is created. The passage of time and the hiring of new personnel make re-emphasis of pollution prevention efforts important.

Appendix E
Source Reduction Audit and Checklist

The following table has been included for the convenience of the facility operator.

Table 3: Source Reduction Options				
Risk Reduction Options	**Do you currently have at your facility? Please circle Yes or No.**		**Is this risk reduction option technically feasible and economically practicable at your facility? Please circle Yes or No.**	
Minimize Drag-out				
(1) minimize concentration of process baths	**Yes**	**No**	**Yes**	**No**
(2) optimize temperature of process baths	**Yes**	**No**	**Yes**	**No**
(3) spray rinse over process bath or drag-out tank	**Yes**	**No**	**Yes**	**No**
(4) drain boards between process tank and rinse tank	**Yes**	**No**	**Yes**	**No**
(5) return drag-out back to process bath	**Yes**	**No**	**Yes**	**No**
Extend Bath Life				
(6) use de-ionized water in process bath	**Yes**	**No**	**Yes**	**No**
(7) bath purification	**Yes**	**No**	**Yes**	**No**
(8) determine bath changes by laboratory analysis	**Yes**	**No**	**Yes**	**No**
(9) replenish bath (for hard chrome and other metal plating baths)	**Yes**	**No**	**Yes**	**No**

Table 3: Source Reduction Options				
Risk Reduction Options	**Do you currently have at your facility? Please circle Yes or No.**		**Is this risk reduction option technically feasible and economically practicable at your facility? Please circle Yes or No.**	
Improve rinse techniques				
(10) splash guards and drain boards	**Yes**	**No**	**Yes**	**No**
(11) devices to regulate water flow through rinse tanks	**Yes**	**No**	**Yes**	**No**
(12) turn off rinse water when not in use	**Yes**	**No**	**Yes**	**No**
(13) agitate the rinse solution	**Yes**	**No**	**Yes**	**No**
(14) multiple rinse	**Yes**	**No**	**Yes**	**No**
Work Practice				
(15) Optimization of air agitation	**Yes**	**No**	**Yes**	**No**
(16) Increase in freeboard height	**Yes**	**No**	**Yes**	**No**
(17) A frequent and thorough inspection and maintenance program	**Yes**	**No**	**Yes**	**No**
(18) Update spill prevention/emergency response plans	**Yes**	**No**	**Yes**	**No**

Appendix F
Some Helpful Information and Contacts

California Air Resources Board (ARB)
Stationary Source Division, Emissions Assessment Branch
(916) 323-4327
http://www.arb.ca.gov

United States Environmental Protection Agency
Technology Transfer Network (TTN 2000)
http://www.epa.gov/ttn

Office of Environmental Health Hazard Assessment
Air Toxicology and Epidemiology Section
(510) 540-3324
http://www.calepa.cahwnet.gov/oehha

Department of Toxics Substances Control (DTSC)
(916) 324-1826

Material Safety Data Sheet Websites
http://haz1.siri.org/msds/index.html
http://haz2.siri.org/msds/index.html
http://www.pdc.cornell.edu/ISSEARCH/MSDSsrch.HTM

Metal Finishing Association of Southern California
(818) 995-7338

Surface Technology Association
(415) 399-9702

National Metal Finishing Resource Center
http://www.nmfrc.org

California Occupational Safety and Health (Cal/OSHA) Consultation Service
(916) 263-2855

Air Pollution Control and Air Quality Management Districts
(please check your phone book's county government listings, or call the **ARB Business Assistance Helpline at (800) 272-4572** for the phone number of your district)

Appendix G
Sample District Notification of Facility Risk Letter

Dear _____:

We are sending you this letter to notify you that the risk associated with air emissions from your facility exceeds the significant risk level established by the _____ [place the district name here]. The cancer risk associated with your facility is listed in the table below. These risk levels were estimated using the risk assessment methodology developed under Assembly Bill (AB) 2588, Air Toxics Hot Spots Information and Assessment Act.

Estimated Facility Risk and District significant and Unreasonable Risk Levels

	Facility Risk[b]	**Significant Risk Level[c]**	**Unreasonable Risk Level[c]**
Maximum Individual Cancer Risk per Million[a]			

[a] The maximum individual cancer risk (MICR) is the estimated probability of an individual contracting cancer as a result of constant exposure to ambient concentrations which result from facility emissions of carcinogenic air contaminants over a 70 year lifetime. The risk is expressed chances per million. For example, a value of 10 refers to a probability of 10 per million.

[b] The facility risk is estimated by the methodology defined in the CAPCOA Air Toxics "Hot Spot" Program Risk Assessment Guidelines or other guidelines that may supersede these guidelines.

[c] Significant and unreasonable risk levels are assigned by the District.

In accordance with Senate Bill (SB) 1731 (Health and Safety Code sections 44390 through 44394), you are required to reduce your facility risk to below the significant risk level within five years.

To reduce your facility risk, related provisions of SB 1731 require you to audit your facility for risk reduction opportunities and create a risk reduction plan. The risk reduction plan will document the options you plan to implement to reduce your risk to below the significant risk level. The risk reduction plan is to be submitted to the district for approval, and then followed when implementing risk reduction options to reduce the risk from your facility.

We have enclosed SB 1731 Risk Reduction Audits and Plans Guidelines for Chrome Electroplating Facilities. This document will assist you in complying with SB 1731 by providing information about the requirements of SB 1731 and by providing forms to use to prepare your risk reduction plan. The completed forms can serve as your facility's risk reduction audit and plan.

If you have any questions, please contact _____ [Put district contact name] at _____[district phone number].

Sincerely,

_____

Enclosure

Appendix H
Senate Bill 1731 Legislation

Senate Bill No. 1731

CHAPTER 1162

An act to amend Section 44360 of, to add Section 44380.5 to, and to add Chapter 6 (commencing with Section 44390) to Part 6 of Division 26 of, the Health and Safety Code, relating to toxic air contaminants, and making an appropriation therefor.

[Approved by Governor September 29, 1992.
Filed with Secretary of State September 30, 1992.]

LEGISLATIVE COUNSEL'S DIGEST

SB 1731, Calderon. Toxic air contaminants.

(1) Existing law required each air quality management district and each air pollution control district, within 90 days of completion of the review of emissions inventory data, but not later than December 1, 1990, to prioritize and categorize facilities for purposes of health risk assessment into high, intermediate, and low priority categories, taking specified matters into account. Existing law further requires the operator of every high-priority category facility, within 150 days of categorization, to prepare and submit to the district a health risk assessment utilizing scientific methodologies, as specified, and specifies what the health risk assessment is to contain and how it is to be prepared.

This bill would require health risk assessments to be prepared in accordance with described guidelines established by the Office of Environmental Health Hazard Assessment, as specified.

The bill would require facility operators to conduct an airborne toxic risk reduction audit and develop a plan to implement airborne toxic risk reduction measures, and would require the facility operator to implement the measures set forth in the plan, as specified. By imposing new duties on the districts with respect to the review of those plans and assisting small businesses with compliance, the bill would impose a state-mandated local program. The bill would authorize the district, the State Air Resources Board, or the office to assess a specified supplemental fee on a facility operator. The bill would subject the facility operator to specified civil penalties for failure to submit a complete audit and plan or to implement the measures set forth in the plan, and for knowingly submitting a false statement or representation in connection with the audit or plan.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

(3) The bill would appropriate $948,000 from the Air Toxics Inventory and Assessment Account in the General Fund for purposes of the bill, with $188,000 to be allocated to the state board and $760,000 to be allocated to the Office of Environmental Health Hazard Assessment

Appropriation: yes.

The people of the State of California do enact as follows:

SECTION 1. Section 44360 of the Health and Safety Code is amended to read:

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 singe 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.

SEC. 2. Section 44380.5 is added to the Health ant Safety Code, to read:

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.

SEC 3. Chapter 6 (commencing with Section 44390) is added to Part 6 of Division 26 of the Health and Safety Code, to read:

CHAPTER 6. FACILITY TOXIC AIR CONTAMINANT RISK REDUCTION AUDIT AND PLAN

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, the requirements of subdivision (f). If the district determines 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 the biennial updates of emission inventories required pursuant to Section 44344.

(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 registered pursuant to Section 25570.3.

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.

49394. 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.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act. Notwithstanding Section 17580 of the Government Code, unless otherwise specified in this act, the provisions of this act shall become operative on the same date that the act takes effect pursuant to the California Constitution.

SEC. 5. The sum of nine hundred forty-eight thousand dollars ($948,000) is hereby appropriated from the Air Toxics Inventory and Assessment Account in the General Fund for the purposes of this act, to be allocated as follows:

(a) One hundred eighty-eight thousand dollars ($188,000) to the State Air Resources Board.

(b) Seven hundred sixty thousand dollars ($760,000) to the Office of Environmental Health Hazard Assessment.