



County of Santa Cruz

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HEALTH SERVICES AGENCY

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ENVIRONMENTAL HEALTH

November 30, 1999

AGENDA: December 14, 1999

BOARD OF SUPERVISORS
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

SUBJECT: REPORT REGARDING THE NEED FOR A TOXIC GAS ORDINANCE IN COUNTY HAZARDOUS MATERIALS PROGRAM

Dear Board Members:

On June 22, 1999, the Health Service Agency Environmental Health Service (EHS) was directed to report back to the Board on or before December 14, 1999 regarding the need for a Toxic Gas Ordinance for the County of Santa Cruz. This report has been prepared to provide background on the issue, summarize the findings of the Hazardous Materials Advisory Commission, and offer a recommendation to your Board.

Santa Cruz County Code, Chapter 7.100 dealing with Hazardous Materials, Hazardous Waste, and Underground Storage Tanks, predates State Laws that govern these same areas. The Ordinance comprises the findings, declarations, and intent of your Board with regard to environmental protection and the use of the best available practical control technologies. When written in the early 1980's it delegated broad authority to the Local Health Officer and relied heavily on the Health **Officer's** judgement in terms of protection of public and environmental health. The Ordinance was designed to work in conjunction with other existing laws and provides that when in conflict, the stricter shall prevail.

Federal (Title 40, Code of Federal Regulations) and State (Health & Safety Code, Chapter 6.95, Article 2) Codes regulate Acutely Hazardous Materials (**AHM**). These substances are generally described as those which have the potential for off-site consequences, and include toxic gases. These laws require facilities that handle, store, and use **AHMs** to prepare a Risk Management Plan (**RMP**). The facility must evaluate their management of these materials **from** the time they enter the property until the empty container and any waste leaves the site. In this evaluation process, if weaknesses are discovered, mitigation measures are recommended to reduce the risk of release. The regulatory agency has the authority to require the facility to minimize the potential of a release to the maximum extent possible with existing technology.

The Uniform Fire Code (**UFC**) also has requirements that govern how hazardous substances and toxic gases are contained. These requirements are primarily construction and safety standards but fit in well with other existing laws.



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COUNTY OF SANTA CRUZ

HAZARDOUS MATERIALS ADVISORY COMMISSION
701 Ocean Street, Room 312
Santa Cruz, CA 95060

Oct. 28, 1994

Gary Patton, Chair
The Board of Supervisors
County of Santa Cruz
701 Ocean St
Santa Cruz, CA 95060

Dear Mr. Patton:

RE: REPORT ON THE NEED FOR A TOXIC GAS ORDINANCE IN
SANTA CRUZ COUNTY

At your request, our Commission undertook an evaluation of the Sunnyvale toxic gas ordinance (TGO). The evaluation immediately broadened to include other TGO's in Santa Clara County as they were all part of a single package. We also looked at the 1994 Uniform Fire Code (UFC) to be adopted within Santa Cruz County in 1995 and the current UFC used by County fire districts and departments. Previously, we have submitted several interim reports to you.

With this letter, we submit our final report which was approved at our Commission meeting on October 27, 1994. If there are any questions, members of the Commission would be happy to respond.

Thank you for giving us the opportunity to study this issue.

Sincerely,


for Charles Levine, Chair

cc: Members of the Board

REPORT ON THE NEED FOR A TOXIC GAS ORDINANCE
IN SANTA CRUZ COUNTY

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Submitted by the Hazardous Materials Advisory Commission October 1994

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PART ONE. FINDINGS AND RECOMMENDATIONS

We find that:

1. Protecting the public from the accidental release of toxic gas is very important. Santa Cruz County history since 1985 with the passage of state hazardous materials law does not indicate toxic gas incidents currently threaten community residents. While a potential possibility exists, the probability of a significant release has diminished significantly because of existing hazardous materials statutes, regulations, codes, and ordinances.

2. The toxic gas ordinances in place in Santa Clara County meet the needs of that county very well. Their major concern was with semiconductor fabrication facilities. Their TGOs also regulated wastewater treatment plants, water treatment plants, community swimming pools, food processing plants, herb companies, universities and colleges, blueprint shops and chemical warehouses.

3. In Santa Cruz County, unlike Santa Clara, food processors, wastewater treatment plants, water treatments plants, and community and school swimming pools would be the major entities to be regulated. The Santa Clara style TGOs do not seem to deal effectively with the control of toxic gases in food processing plants probably because representatives of that industry were not included in the task force which developed the ordinance.

4. The only chip manufacturer in Santa Cruz County (Silicon Systems) has voluntarily met all the requirements of Santa Clara County's toxic gas ordinances under the auspices of Santa Cruz County's Environmental Health Services.

5. Santa Cruz County and its cities follow the regulations found in Chapter 6.95 of the Health and Safety Code; Chapter 7.100 of the County Code or equivalent City Codes; and the Uniform Fire Code (UFC) when dealing with hazardous and/or acutely hazardous materials. The provisions of these regulations offer a wide range of application and in combination cover nearly, if not all those found in the Santa Clara County toxic gas ordinances.

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6. Because of simple economics most businesses/agencies have reduced the amount of storage of hazardous materials. This is because the more hazardous materials or wastes they “store, use, or handle,” the more control measures must be in place, and the higher the cost for their required permit.

7. Stringent toxic gas regulations can drive companies to replace toxic gas with different materials which have other hazardous properties.

We recommend that:

1. At the present time, a Santa Cruz County toxic gas ordinance is not needed.

2. Those agencies currently responsible for regulating hazardous and/or acutely hazardous materials and wastes within the various jurisdictions in Santa Cruz County continue to use the full range of available regulations, and the established applications, to regulate toxic gas installations.

3. Businesses/ agencies continue to be encouraged to minimize the use of toxic gases, minimize the amounts of toxic gas in storage, increase the training of their personnel in handling toxic gas, and that support for technology to develop harmless economical replacements be encouraged.

4. Fire department/district, Environmental Health, and other emergency services personnel in Santa Cruz County be encouraged to hold periodic training sessions together for response to emergency situations which might be caused by toxic gas leak reports and that inspection of toxic gas installations continue to be carried out in a timely fashion.

5. If, at a later time, development of a toxic gas ordinance is contemplated that the Board of Supervisors convene a broadly based task force much like that in Santa Clara County with representatives of:

- a. businesses/entities to be regulated,
- b. governmental agencies responsible for implementation of regulations ,
- and
- c. interested citizen groups

to design an ordinance which would fit the unique requirements of Santa Cruz County and would be consistent for all enforcement and oversight entities in the county (city fire departments, fire districts, county environmental health).

These recommendations are based on the following information.

PART TWO. HISTORICAL PERSPECTIVE OF SANTA CLARA COUNTY ORDENANCES

The intent of Santa Clara County toxic gas ordinances was “to provide a uniform, county-wide program for the prevention, control, and mitigation of dangerous conditions, to provide building standards, and for emergency response to protect the public from acute exposure due to accidental releases of toxic gases.”

Concern about possible problems initially arose because of the tragic methyl isocyanate disaster at the Union Carbide pesticide plant in Bhopal, India in

December 1984. This event, apparently the result of the interaction of human, organizational, and technological factors, caused at least 1,700 deaths and hundreds of thousands of injuries. The event sparked concern in Santa Clara County about toxic gas installations. In 1985, AB 1021 was passed in the state legislature. This legislation, introduced by Assemblymember Byron Sher, appropriated \$100,000 for the Santa Clara County Fire Chiefs' Association to study problems of toxic gas storage and use, to design a model regulatory program, and to recommend appropriate state legislation by July 1, 1987.

A consulting firm under the oversight of a toxic gas subcommittee of the Fire Chiefs' Association was engaged to prepare the document required by the state legislation. Practicon and Associates completed a model ordinance which was submitted to the state legislature, and the California Air Resources Board by the due date.

The 1987-88 Santa Clara County Grand Jury as part of its examination of emergency preparedness listed on-site use and safe storage of toxic gases in its report. The concern rested on the assumption that "significant releases of toxic gas to the environment as a consequence of natural disasters, such as major earthquakes, would endanger the health and safety of local residents." They were particularly concerned about semiconductor fabrication facilities which routinely store and use toxic gases in the chip manufacturing process.

Public hearings on the document prepared by the consultant highlighted that the technical and economic feasibility of the proposed ordinance met with substantial disagreement in the community. The Intergovernmental Council (IGC) of Santa Clara County asked the Santa Clara County Fire Chiefs Association to form a committee to redraft the TGO. Then the IGC created the "Task Force" composed of the Toxic Gas Subcommittee of the Fire Chiefs Association, representatives from the Santa Clara County Manufacturing Group, the City Managers Association, and the Silicon Valley Toxics Coalition to facilitate resolution of disagreement.

The 1987-88 Grand Jury also recommended that (1) the IGC, through its Toxic Gas Task Force, develop a regulatory ordinance acceptable to industry, citizen groups, and local government by the end of 1988, (2) all jurisdictions consider the adoption of programs such as Computer Aided Management of Emergency Operations (CAMEO) and the Santa Clara Regional Industrial Preparedness Teams (SCRIPT) which provide coordination, mutual aid, radio communication, and training programs, (3) and, further, that the 1988-89 Grand Jury monitor progress of the task force and the subsequent action of the IGC.

The 1988-89 Grand Jury report indicates the proposed ordinance was completed in November of 1988 and was approved by the IGC. It was noted that each of the groups involved with development of the ordinance, were concerned that the ordinance should be adopted uniformly and without modification by the county and all cities. This Grand Jury recommended that (1) the model ordinance for toxic gas regulation written by the ad hoc toxic gas task force be adopted uniformly without modification throughout Santa Clara County. (2) that the 1989-90 Grand Jury continue to monitor the process of adoption by the county and city governments.

There was no mention of activity relative to toxic gas in the Grand Jury Report for 1989-90. The ordinances were adopted by the cities and the county during 1990-1991. All had final compliance dates which ranged from February to August 1993.

PART THREE. THE TOXIC GAS ORDINANCES OF SANTA CLARA COUNTY

These ordinances are identical except for the dates they were incorporated into the existing ordinances of each of the governmental entities. Using the Santa Clara County TGOs as the model, gases are classified on the Material Hazard Index as Class I the most hazardous (e.g. Hydrogen cyanide, phosgene, arsine, methyl isocyanate); Class II of serious concern, but regulated moderately (e.g. chlorine up to 750 lbs., sulfur dioxide up to 2500 lbs.); Class III of lesser concern, limited regulation (e.g. methyl bromide up to 50,000 lbs.); or minimum threshold amount. The safeguards required are based on the class. Minimum amounts regulated are two lbs. or more. Exempt amounts were listed as well as minimum threshold quantities per control area, minimum quantity requirements, the various systems, piping valves and fittings which would be necessary for storage and use of the gases as well as emergency response systems.

One year was allowed for businesses/agencies to submit a plan for compliance and actual compliance was to be in three years although the fire chief could extend the time period for up to two years. Extensions have not occurred frequently.

It is estimated that at least 320 businesses/facilities in the county were affected by these ordinances. Of that number, 106 were identified as being regulated by the ordinance in San Jose and 57 in the city of Santa Clara. These included semiconductor fabs, hospitals, chemical warehouses, blueprint shops, swimming pools (including schools, athletic clubs, hotels, and public pools), cold storage facilities, water and waste water treatment facilities, and pest control (fumigation) companies. Universities can be a special case because of the large number, but small quantities, of toxic gases in their research labs. Stanford University's compliance with the ordinance is monitored by the Santa Clara County Health Department.

In San Jose, according to Dan Firth, San Jose Fire Department Senior Hazardous Materials Inspector, a substantial **majority** of these businesses are now in compliance, but some are not and have been referred for legal action. A few have closed or moved away. Compliance has included removing the regulated gases, reducing the quantities of regulated gases to below the exempt amount, or installing the recommended controls. The silicon chip companies are fulfilling the requirements. The inventories of toxic gases have been reduced because of the economic benefit to companies from the inspection fee schedule for maintaining the minimum amount.

Unanticipated difficulties in San Jose with implementing the TGO related to (1) rail cars (ammonia, methyl bromide etc.) because they are regulated by the department of transportation, and because of the difficulty of the regulation requirements applying to containment. (2) ammonia refrigeration facilities because their representatives had not been included when the ordinance was drafted, and (3) mixtures of regulated gases which were required to be treated as if they were 100 percent toxic instead of only a small fraction within an inert balance. (Consensus guidelines published by the Santa Clara County Fire Chiefs Association now recognize mixtures. This formula has been approved by the International Fire Chiefs Institute for inclusion in the 1995 supplement to the

1994 edition of the UFC.) There is considerable technical expertise and additional training required for enforcement agencies to implement the complex TGO adding to the regulatory cost. One facility in San Jose spent approximately two million dollars.

Jennifer Sparacino, city manager of Santa Clara and a member of the original toxic gas task force, indicated that 57 facilities/businesses are identified in Santa Clara as falling under the ordinance. All the facilities are either in compliance or on schedule (6) to complete compliance actions. One refrigeration plant (ammonia) did leave the city. Santa Clara switched its municipal swimming pool from using chlorine to using hypochlorite. It was an expensive change probably costing about \$200,000. The major unanticipated compliance issues in Santa Clara were cold storage and fumigation plants. It was suggested that an exemption for cold storage and fumigation activities should be considered or that they be dealt with entirely separately. Due to oversight, representatives of those industries had not been included in the task force group. Santa Clara has three hazardous materials Ph.D. chemists on city staff who were responsible for training fire department personnel so no extra cost was involved when toxic gas was added to their responsibilities.

A brief conversation with Ted Smith, Director of the Silicon Valley Toxics Coalition and a member of the Task Force preparing the ordinance, indicated that he was "reasonably happy" with the ordinance.

PART FOUR. CONDITIONS IN SANTA CRUZ COUNTY

Since the passage of AB 2 185 (the hazardous materials law) in 1985, and the subsequent implementation of education, inspection, and enforcement programs by local agencies, toxic gas problems handled by County fire districts and departments have dwindled. Even in the aftermath of the October 1989 earthquake, only two incidents involving toxic gases occurred in the Watsonville area. There were no injuries and the community was not placed in any danger of exposure as a result of these releases. AB 3777 extended the provisions of AB 2 185 to focus on "off-site consequences," of a "worst case" scenario, caused by the release of an "acutely hazardous material." "Risk Management and Prevention Plans" (RMPPs), to prepare for such an event, are submitted to the administering agencies by businesses that "store, use, or handle" acutely hazardous materials above federally established Threshold Planning Quantities (TPQs) and must give explicit consideration to the proximity of schools, general acute care hospitals, or long-term health care facilities.

Currently, the Uniform Fire Code (1991 edition) is used by all fire departments and fire districts in Santa Cruz County. Article 51 Semiconductor Fabrication Facilities and Article 80 Hazardous Materials spell out most of the regulations on toxic gases as well as other hazardous materials in the UFC. These articles cover more than 90 percent of the requirements found in the toxic gas ordinances. Main differences lie in no requirement for secondary containment for toxic gas piping, less stringent requirements for exhausted enclosures or welded connections (required only if health hazard is at Level 3 toxic or 4 highly toxic), and no requirement for seismic shutoff. However, fire code officials feel the excess flow or detection system would pick up a malfunction and shut off in case of an earthquake. While there is some difference in the threshold amount of gases to be controlled, fire code officials feel it is more related to differences in definition (the UFC uses 810 cubic feet of gas--the amount contained in a cylinder of chlorine, the TGOs use

lbs. as the basic measure) and will not seriously lessen the effectiveness of the regulations.

Santa Cruz County Code, Chapter 7.100, dealing with hazardous materials, is written with its intent well defined. The ordinance establishes the responsibility of all businesses to protect their workers and the community through "aggressive efforts" and the avoidance of "technological obsolescence.". It states that "it is technically and economically feasible to design manufacturing and commercial facilities and processes that minimize or eliminate the use of hazardous materials and that minimize or eliminate the release of hazardous contaminants" (7.100.010 A through N). Further, it says that "The health officer shall have the discretion to impose reasonable additional or different requirements in order to better secure the purpose and general obligation of this chapter for protection of public health safety and welfare" (7.100.090). Finally, (7.100.050), "Whenever any provision of this chapter conflicts with the fire code as adopted by the County, the stricter provision shall prevail." This ordinance, when used with the provisions of State Health and Safety Code and Uniform Fire Code, allows very broad interpretation and application.

Santa Cruz County is largely agricultural with only a few computer manufacturing activities. Silicon Systems is the only chip manufacturer in the County and it is complying voluntarily with the Santa Clara County regulations.

Typical additional facilities that might fall under a toxic gas ordinance like Santa Clara County's would include wastewater treatment plants, water treatment plants, community and school swimming pools, food processing plants, herb companies, and universities and colleges plus a few other businesses. The results of this investigation indicate that Santa Clara's toxic gas ordinances have not been designed to regulate cold storage companies.

Local government installations 'could feel severe budget impacts if such an ordinance were to be implemented. Water treatment plants which now use chlorine gas are considering or have made some changes to sodium hypochlorite, but while this lowers possible harm from toxic gas, it might raise the hazard level of the drinking water.

As noted in San Jose, also in Santa Cruz County, a concern involving toxic gas is in its transport, an activity which is regulated by the Federal Department of Transportation. This activity is not affected by local TGOs.

Following is an estimate of the numbers of sites in Santa Cruz County that might be affected by a toxic gas ordinance. Three oversight agencies cover the County. They are: (1) Santa Cruz County Environmental Health (SCCEH) which includes various county fire districts as well as the cities of Capitola and Santa Cruz; (2) the Watsonville Fire Department (WFD); and (3) the Scotts Valley Fire District(SVFD).

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<u>Businesses/agencies</u>	<u>Oversight Agencies</u>			
	SCCEH	SVFD	WFD	TOTAL
Food processing/ cold storage	1	0	27	28
Water treatment	12	0	18	30
Electronic Assembly/ Manufacturing	2	2	5	9
Laboratories	0	0	3	3
Miscellaneous	0	0	4	4
TOTAL	15	2	57	74

REFERENCES

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Reports and Ordinances

California Governor's Office, Hazardous Materials Division of Emergency Services, ***Regulatory Issues in Risk Management: A California Perspective, by Frederic A. Lercari***, January 1991.

City of San Jose: Ordinance No. 23450. ***Ordinance of the City of San Jose Amending Title 17 of the San Jose Municipal Code by adding a New Chapter 17.78 Regulating Facilities where Materials Which Are or Which may become Toxic Gases are found and Amending Chapter 17.68 of Title 17 of the San Jose Municipal Code to Make Corresponding Technical Changes in the Hazardous Materials Storage Ordinance***, April 24, 1990.

_____. Bureau of Fire Prevention - Hazardous Materials Program. ***Toxic Gas Ordinance - Plan Submittal Guidelines, 8-91.***

City of Sunnyvale. Ordinance No. 23 14-90. ***Ordinance of the Council of the City of Sunnyvale Adding Section 16.52.700 to Chapter 16.52 of Title 16 of the Sunnyvale Municipal Code Consisting of an Additional Article to the Uniform Fire Code, 1388 Edition, Regulating Facilities Where Materials Which Are or Which May Become Toxic Gases are Found.*** Feb. 6, 1990.

Santa Clara County Fire Chief's Association. ***A Model Ordinance for Toxic Gas Regulation, Nov.*** 1988.

_____, Toxic Gas Subcommittee. ***Toxic Gas Model Ordinance***, June 29, 1987.

_____, ***TGO Consensus Guidelines***, Rev. March 8, 1994.

Santa Clara County Grand Jury Report. ***Toxic Gas Safety in Santa Clara County***, 1987-88.

_____. ***Follow-up Report on' Toxic Gas Safety in Santa Clara County.*** 1988-89.

_____. ***Addendum Foilow-up Report on Toxic Gas Safety in Santa Clara County.*** June 8, 1989.

Uniform Fire Code, Articles 51 and 80, 1994.

Presentations and Interviews

Presentation by Dan Firth, Senior Hazardous Materials Inspector for the San Jose Fire Department, to the Santa Cruz Hazardous Materials Advisory Commission on March 24, 1994.

Phone interview with Ted Smith, Director, Silicon Valley Toxics Coalition in May 1994.

Phone interview with Betsy Shotwell, senior assistant to Assemblymember Byron Sher, June 1994.

Conversations with various personnel from the Santa Clara County Fire Chiefs Association Hazardous Materials Sub Committee May through September 1994.

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Presentation by Dan Pais, Silicon Systems, to the Hazardous Materials Commission.
July 28, 1994

Phone interview with Ms. Jennifer Sparacino, City Manager, City of Santa Clara
August 15, 1994.

Presentation by Bill Kocher, Director, City of Santa Cruz Water Department, to the Hazardous Materials Commission on Sept. 22, 1994.

INTEROFFICE MEMORANDUM

TO: SANTA CRUZ COUNTY HAZARDOUS MATERIALS ADVISORY COMMISSION
FROM: **ILSE** LOPES, COMMUNITY REP
SUBJECT: TOXIC GAS ORDINANCE
DATE: **12/1/1999**
cc: STEVE SCHNEIDER, SCCEHS HAZARDOUS MATERIALS PROGRAM MANAGER

This report summarizes an analysis and comparison of the County of Santa Cruz hazardous materials ordinance, the Santa Clara County Toxic Gas Ordinance, the Uniform Fire Code, **particularly** article 80 and the Risk Management Program (RMP) regulatory requirements to determine the need for the County to consider enacting its own toxic gas ordinance to safeguard the public health.

Background

When the Toxic Gas Ordinance was first considered and adopted by governmental entities in Santa Clara County it was the result of the emergence of semi conductor facilities throughout the County. At the time, there was an absence of a regulatory framework to control the use of **specialty** gases. Article 80 of the fire code was not in place and the RMP requirements did not exist¹.

Current Status

The Santa Clara County Toxic Gas Ordinance was recently revised. The majority of changes were to definitions to bring them in line with those found in **the Uniform Fire Code** which has undergone a number of revisions to incorporate hazardous materials control requirements as part of Article 80.

Article 80 now requires technical controls, monitoring requirements, response **capabilities**, etc. that do not differ significantly from those specific requirements found in the Toxic Gas Ordinance. The most significant difference exists in the quantity thresholds that exist before requirements kick in.

In addition, Federal and State requirements now exist that require users of hazardous gases, as defined, to implement Risk Management Plans. The RMP Process requires facilities to analyze, in detail, each element in their gas handling process and equipment, from delivery through use and final destruction, to identify potential failure or upset points and to recommend appropriate mitigation's to reduce or eliminate potential risks identified.

¹ Verbal interview with City of Mountain View Fire Marshal

Santa Cruz County Comparison

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Although the current hazardous materials ordinance is not specifically aimed at toxic gas management, by title, it applies to any regulated material - including specialty gases. It has no lower quantity threshold or exemption and is, therefore, potentially more protective of the public than the Toxic Gas Ordinance. It **also** contains language that gives the Health Officer broad authority to require controls that are generally accepted or state of the art without requiring regulatory revision*. In fact, it was used in the past to hold facilities to the toxic gas ordinance requirements without taking regulatory **action**³. It also allows the Health Officer to require third party review of a facility to ensure appropriate safety standards are in **place**⁴.

Commission Recommendation

After review and discussion, the HMAAC does not believe the County needs to pursue a separate toxic gas ordinance at this time. The existing hazardous materials ordinance, with its broad authority, used in conjunction with article 80 of the Uniform Fire Code and the RMP requirements would protect the public from mismanagement of specialty gases.

² Sections 7.100.060 I.; 7.100.160 introductory paragraph; 7.100.170 B.

³ Silicon Systems **Expansion**

⁴ Section 7.100.240 E.