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Teri Davis Patane
San Jose State University

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**HAZARDOUS MATERIALS REGULATION AND SMALL BUSINESS
COMPLIANCE IN SANTA CLARA COUNTY**

A Thesis

Presented to

The Faculty of the Department of Environmental Studies

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Environmental Studies

By

Teri Davis Patane

May 1999

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APPROVED FOR THE DEPARTMENT OF
ENVIRONMENTAL STUDIES

Dr. Karina Garbesi, Professor of Environmental
Studies Committee Chairperson

Dr. Anne T. Lawrence, Professor of College of
Business

Mrs. Angela Sullivan, Hazardous Materials
Specialist

APPROVED FOR THE UNIVERSITY

ABSTRACT

Hazardous Materials Regulation and Small Business Compliance in Santa Clara County

by Teri D. Patane

Less than 10 percent of small business owners have the resources to hire a consultant or a qualified employee to handle their hazardous materials compliance issues. Since 90 percent of small businesses handle compliance issues in-house, the potential for environmental contamination from those businesses not in compliance is significant.

This study determined the relationship between compliance and education. It identified environmental education options available to business owners, and determine which options established the achieved level of compliance. Additionally, it distinguished which targeted educational methods were most effective in reducing the number of violations from those perceived most effective, and determined which compliance categories were violated most often.

The results indicated that compliance depends on education. More specifically, compliance is dependent upon environmental education. Responsible Parties who attended environmental education had 23 percent higher compliance rates than those who did not. Furthermore, 90 percent of the RP's surveyed said their facility would benefit from an environmental compliance course.

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A special thanks, from the bottom of my heart, goes out to my family and my husband who never fail to stand behind me when times get tough, pick me up when I am down, tell me I can reach the stars and let me know that it's OK if I don't. They are truly the air I breathe.

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Chapter 1

Problem Statement and Objectives

Introduction

Past business practices for the storage and handling of hazardous materials led to wide-spread contamination of soil and groundwater in Santa Clara County, prompting local officials to draft policies that protect the health and safety of the community and the environment (SWRCB 1991/1993, Elliott, et al 1990). The quality of groundwater in the South Bay became a concern in 1979 when IBM discovered contaminated soil near one of its underground solvent tanks (SWRCB 1991/1993). In the same vicinity one year later, Fairchild Camera and Instrument Company reported that close to 60,000 gallons of solvent mixed with water leaked from an underground waste storage tank and migrated off site via abandoned agriculture wells to a local city aquifer (Logsdon 1996, SWRCB 1991/1993). Currently, Santa Clara County contains more Superfund National Priority List (NPL) sites than any other county in the country (SWRCB 1991 / 1993). Sites having the greatest contamination are shown in figure 1.

As scientists began to draw links between adverse health effects, e.g., increases in infant mortality, birth defects and cancer rates, to high concentrations of known chemical releases such as 1,1,1-trichloroethane (TCA), the public lobbied for clean up. This prompted a task force made up of industry representatives, special interest groups, and

Figure 1. Federal Superfund Sites in the South Bay Area.
(California Regional Water Quality Control Board 1991/1993.)

local officials to draft policy to prevent future contamination (Logsdon 1996, Tjeerdema 1995a, Hanson 1994, Elliott, et al 1990). Developed in Santa Clara County, this model ordinance was the beginning for state and federal regulations known today as the Hazardous Materials Business Plan (Logsdon 1996, Elliott, et al 1990). The storage and handling of hazardous materials and the Hazardous Materials Business Plan requirements are governed by several regulatory bodies. The following sources codify the hazardous material storage regulations: Federal regulations are found in Title 40 Federal Code of Regulations (CFR). State regulations are included in Titles 22 & 23 of the California Code of Regulations (CCR), Chapter 6.7 of the Health and Safety Code, Articles 79 and 80 of the Uniform Fire Code (UFC), and Chapters 3 and 5 of the Building Code (UBC). Municipal regulations are found in the respective local Hazardous Materials Storage Ordinances (HMSO). Federal laws set a base line standard. Any state law, regulation, or municipal ordinance adopted must be at least as stringent as the federal laws and regulations (Henderson 1995, Elliott, et al 1990).

The regulations are established to protect "health, life, resources and property through prevention and control of unauthorized discharge of hazardous materials" (Nickel and Viola 1994, Elliott, et al 1990, 2). Due to the nature and toxicity of these regulated chemicals their presence in the environment can endanger human health (Tjeerdema 1995b, Markoff 1992). Prevention of unauthorized discharge is of special concern in industrial manufacturing regions, such as the Santa Clara County, that rely on recharged aquifers for groundwater. In the South Bay, contamination of below ground aquifers

could affect nearly 50 percent of the drinking water sources (Logsdon 1996, SWRCB 1991/1993). By increasing compliance of the facilities regulated under the hazardous materials storage and handling regulations, unauthorized discharge and overall pollution potential may be reduced, thereby increasing public safety (Ember 1992).

Hazardous materials regulations are implemented by different governmental agencies in different geographic areas (Elliott, et al 1990). In Santa Clara County, cities such as Sunnyvale, Gilroy, Milpitas, Mountain View, Palo Alto, and Santa Clara have established their own hazardous materials programs. The hazardous materials programs for the cities of Morgan Hill, Los Gatos, Saratoga, and Campbell are implemented by the Santa Clara County Fire District through a contracted agreement with each city. Unincorporated areas and small towns are regulated by the Santa Clara County Department of Toxic Substances. The term Local Implementing Agency (LIA) is used generically here to reference all entities which implement and enforce hazardous materials storage and handling regulations at the municipal level (Elliott, et al 1990). Table 1 lists all LIA's within Santa Clara County.

Because of the substantial threat to human health and the environment, governments have found it necessary to extend the reach of environmental law to include small as well as large businesses. Programs at the federal, state, and local levels included a focus on small facilities such as dry cleaners, print shops, and service stations (Paddock 1991). Small facilities were included in the body of regulations with the intent of avoiding the cumulative effect of multiple releases of small quantities of chemicals.

Although small businesses do not handle chemical quantities in amounts anywhere near as large as IBM and Fairchild, small releases, either individually or cumulatively, can be hazardous to public health.

Table 1. Cities within Santa Clara County, their respective local implementing agency program title, and their governmental level.

City	LIA Title	Municipal Level
Campbell	Santa Clara County Central Fire	A Santa Clara County fire district
Cupertino	Santa Clara County Central Fire	A Santa Clara County fire district
Los Altos	Santa Clara County Central Fire	A Santa Clara County fire district
Los Gatos	Santa Clara County Central Fire	A Santa Clara County fire district
Morgan Hill	Santa Clara County Central Fire	A Santa Clara County fire district
Saratoga	Santa Clara County Central Fire	A Santa Clara County fire district
Gilroy	Building Life and Environmental Safety Department	A city agency
Milpitas	Milpitas Fire Department	A city agency
Mountain View	Mountain View Fire Department	A city agency
Palo Alto	Palo Alto Fire Department	A city agency
San Jose	San Jose Fire Department	A city agency
Santa Clara	Santa Clara Fire Department	A city agency
Sunnyvale	Sunnyvale Department of Public Safety	A city agency
Unincorporated areas and small towns	Santa Clara County Hazardous Materials Control Department	A county agency

This is clearly illustrated by a case study presented by Paddock (1991) of a small town in central Minnesota where one drum of perchloroethylene (perc) was buried behind a dry cleaning facility. "The groundwater contamination from this one drum forced the closure of the city's well in addition to dozens of private wells. Total remedial costs exceeded one million dollars" (Paddock 1991, 1509).

Cumulative impacts of small releases are perhaps best illustrated by the example of wide spread contamination from spills and overfills during filling of underground tanks at gasoline stations, prior to mandatory installation of spill containers and automatic shut off valves (Paddock 1991). At one time, the Regional Water Quality Control Board (RWQCB) listed over 1,500 registered fuel tanks leaking in the South Bay (SWRCB 1991/1993). In the city of San Jose alone, the RWQCB registered 924 leaking fuel tanks (SCVWD 1996). Cumulative impacts from improper storage and handling of petroleum can be seen in every city in Santa Clara County. The quantities and distribution of contamination vary greatly among sites due to variations in depth to groundwater, lithology of soil, the amount spilled. Table 2 outlines the number of reported sites contaminated with hydrocarbons.

Table 2. Number of sites in Santa Clara County contaminated by fuel leaks as of 12/31/96 (SCVWD 1996).

City	Number of sites contaminated with hydrocarbons	City	Number of sites contaminated with hydrocarbons
Campbell	55	Milpitas	69
Cupertino	47	Mountain View	106
Los Altos	41	Palo Alto	121
Los Gatos	51	San Jose	924
Morgan Hill	22	Santa Clara	203
Saratoga	34	Sunnyvale	129
Gilroy	19	Unincorporated areas and small towns	119

Storage and handling of chemicals are an integral part of many small businesses'

daily operations. Cumulative small quantity discharges from the dry cleaning business also can have significant impacts on groundwater (Izzo 1992, Paddock 1991). A common solvent used in dry cleaning is perchloroethylene (perc). Due to perc's low viscosity and low surface tension it can penetrate very small cracks and pass through most soils quickly. These chemical properties, in addition to its high molecular weight, pose a serious threat to groundwater supplies. Other solvents of concern used in the cleaning industry include stoddard solvent, CFC-113, and 1,1,1-trichloroethane (Dow U.S.A. 1992).

The dry cleaning process works similarly to a washing machine. Clothes are loaded into the washing/drying chamber called a "wheel" where they are washed with a solvent instead of laundry soap and water (Dow U.S.A. 1992). During the spin cycle, the solvent is extracted from the clothing by centrifugal force and drained from the wheel to a holding tank within the machine. Clothing is dried by circulating heat through the wheel. Although most of the solvent used is recovered and reused through vapor recovery and purification, some solvent is released into the environment. Investigations of groundwater contamination in several Central Valley communities indicate there is some degree of groundwater and or soil contamination associated with nearly every dry cleaning plant that has been in operation for more than 10 to 15 years (Izzo, 1992).

Nearly all wastewater discharges from dry cleaners contain detectable concentrations of perc (Izzo 1992). Until recently dry cleaning machines solvent discharge lines were frequently plumbed directly to a drain. This has been identified by the Regional Water Quality Control Board as the principal source of perc to sewer systems

and the most likely cause of groundwater contamination. Floor drains located in process or chemical storage areas can also be avenues for perc spills to the sewer system (Environmental Protection Agency, 1993).

To minimize the cumulative impact of small releases, businesses handling hazardous materials are subject to permits. Permit requirements and related fees are often based on the maximum chemical inventory at any point of the permit cycle. In most jurisdictions inventory is not only considered "stock" materials but also applies to waste and materials in process. There are two reasons why facility permits are evaluated based on maximum quantities. The first reason is consideration of the health and safety of the first responder in the event of an emergency. The second reason is the potential for contamination. Under federal and state regulations, businesses storing or handling at least 55 gallons of a regulated liquid, 500 pounds of a regulated solid, or 200 cubic feet of any compressed gas, are required to file a Hazardous Materials Business Plan (HMBP) with the LIA (Title 40 CFR, Chapter 6.95 Health and Safety Code). At the local level, the Uniform Fire Code and most Hazardous Materials Ordinances also require a HMBP. These controls are usually implemented at lower chemical quantities than federal and state regulations based on the hazard class (UFC 1994). With the number of environmental programs increasing and with the lowering of reportable threshold quantities, the number of facilities subjected to regulations has increased. An example by Conerton and Paddock shows the state of "Minnesota having only a few thousand facilities regulated in the early

1980's, by 1991 close to 100,000 facilities were regulated by state laws alone" (Paddock 1991, 1509).

A facility's available resources will determine whether the permit process is handled by a qualified person. For the purpose of this study, "qualified" means one who has knowledge of, and is familiar with hazardous materials regulations and the Hazardous Materials Business Plan (HMBP). A preliminary survey, conducted by the author prior to this study, indicated that 90 percent of large businesses with more than 100 employees had a qualified employee on staff responsible for the permitting process and overall compliance of the facility. Of businesses employing between 21 and 100 employees, only 20 percent had a qualified staff member and 40 percent hired a consultant to prepare their business plan. Of businesses with 20 or fewer employees, less than 10 percent had the resources to hire a consultant or a qualified staff member responsible for this process. For small businesses without qualified help, multiple and complex regulations and laws, fragmented jurisdictional agencies, and demanding compliance standards often make compliance confusing, inspection objectives unclear, and enforcement difficult for both business owners and inspectors (Reed 1994).

Because a majority of small business handles permitting requirements in-house, without the aid of a professional, small businesses have been selected for this study. Examples of businesses with 20 or fewer employees that are likely to file their own hazardous materials business plans include dry cleaners, photo laboratories, auto body shops, auto repair shops, and furniture repair shops. For a complete list of the types of

businesses surveyed In this study refer to Figure 3, Chapter 4.

Focus and Objectives

This study investigates the relationship between the rate of compliance of small business and the level of education of the person responsible for compliance with regulations governing the storage and handling of hazardous materials. Henceforth that person is referred to as the "responsible party" (RP). The research is broken down into the following six research objectives:

1. To describe the diversity of backgrounds in both general education¹ and targeted education² among the responsible parties.
2. To outline the most common methods of targeted education available in Santa Clara County and to determine which methods of targeted education are most effective and which are perceived by the business owner as most effective.
3. To determine the compliance rates for the selected facilities.
4. To determine which types of educational backgrounds, general and targeted, produce the greatest degree of compliance.
5. To identify which compliance areas give facilities the most difficulty.

¹ General education is all education including high school, undergraduate, and graduate degrees not specifically related to environmental compliance.

² Targeted education is any method that raises the awareness of environmental regulation.

6. To make recommendations to improve the compliance rate of small businesses with the hazardous materials storage and handling regulations.

Implications

If there is a positive correlation between the amount and type of education and the degree of compliance, then it can be reasoned that increasing the RPs' level of education will increase overall compliance rates and decrease environmental contamination. This relationship can be applied to all counties in California thus decreasing the potential of contamination statewide. The compliance categories of this study determined to have the most violations will be used as indicators to show in which areas further education may be most beneficial.

Chapter 2

Related Research and Literature Review

Introduction

The following chapter explores related research and literature, addressing enforcement responsibilities and the consequences of cumulative impacts of small quantity releases.

Relevant Literature

Governments are realizing that in order to ensure a safe and healthy environment, businesses need to accept responsibility for their chemical processes. Even most nations that lack an environmental regulatory system recognize the right to a safe and healthy environment through their constitutions (Nickel and Viola 1994). In the United States, as new chemicals are added to the list of regulated chemicals, environmental policy becomes more encompassing and tends to reduce the practice of unsafe storage and handling of those regulated chemicals, ultimately preserving the quality of life through preventative measures (Hanson 1994).

While major chemical releases from large facilities remain a concern, regulators and municipalities in the United States have realized that serious harm can result from the cumulative impact of small releases (Dow Chemical U.S.A. 1992). Many federal, state, and local laws are aimed at smaller facilities and small releases of pollutants, as can be

seen in the dry cleaning industry (Environmental Protection Agency 1993, UFC 1994). Nearly all wastewater discharge from this industry contains detectable concentrations of perchloroethylene (Izzo 1992).

The changing relationship between federal and local governments in the area of environmental regulation has resulted in a shift of financial and regulatory responsibility from the federal to the local government. With the shortage of federal funding for environmental programs, this shift in responsibility places an even greater strain on the local tax base. Until recently local government had only a small role in the implementation and enforcement of environmental law. That role has grown. This increase in regulatory responsibility at the local level resulted in more staff being made available for code enforcement, interpretation and education. This trend may make enforcement feasible given the findings of Paddock (1991), who postulated that if inspections were conducted only by federal regulators the probability a small quantity hazardous waste generator would be inspected is once in every 100 to 300 years. The importance for local governments to focus on the efficient use of limited financial resources to achieve greater environmental and social benefits is crucial in maintaining healthy environmental programs (Pompili 1995).

Local regulating agencies do not have the ability to be flexible with federal or state regulations, but can be flexible with the implementation and enforcement of local regulations. Pompili (1995) suggests that by allowing flexibility in establishing

environmental priorities, local governments can achieve the greatest social and environmental benefits. Moreover, working with the small business community might avoid a business revolt against current and future environmental regulations (Pompili 1995).

In areas where strict regulation has shown little or no economic feasibility, negative attitudes towards enforcing agencies linger (Pompili 1995, Reed 1994). Reed (1994) emphasizes that enforcing agencies "should avoid enforcing strict laws in the situations where costly actions produce little to no environmental benefit" (Reed 1994, 15). Fines issued on the spot for environmental violations may not always be the best course of action. Violations where immediate actions are not necessary may be more appropriately handled with a warning followed by an educational class. Since a lack of awareness is the source of the majority of violations, using education instead of fines should give the responsible party a better understanding of compliance requirements, reduce negative attitudes, and increase future compliance.

Ember (1992) stated that city and county governments have greatly aided in the reduction of industrial pollution by offering more flexibility in dealing with specific local problems where federal agencies have not. This was achieved by being in a better position to identify the needs and limitations of the local facilities, and by offering workshops tailored to meet the need of the permitted community.

In "Regulatory Negotiation as a Policy Process," Fortino (1988) compares and contrasts conventional rule making versus resolving controversies through consultation,

mediation and negotiation. The latter principle demands great effort from the participating decision making body and provides the opportunity to educate the entire group to all perspectives and concerns. Initially this process is costly; however, more government agencies are realizing the benefits and are investing staff time in business consultation, mediation and negotiation. LIA's could use such meetings to inform new businesses initially, as to the required compliance. Compliance in the beginning ultimately reduces the amount of inspection time spent at a later date by the regulator, thus reducing future cost, increasing compliance rates and lowering potential environmental contamination.

Fortino (1990) argues for a "Risk Based Planning Program". He advocates a comprehensive and integrated ranking approach that combines professional judgment about relative risks with empirical evidence from past studies. The process is designed to pull together relevant information about categories of risks and organize it around a set of problems. The results combine information from a variety of topics such as toxicity, exposures and analytical methods, and present the information through public workshops. This process helped to bridge the differences between expert and lay person perceptions of risks. It also identified weaknesses in information dissemination, methods and strategies. By enabling agencies to engage outside parties in setting priorities for action, decisions have higher degree of ownership because they are usually derived from consensus vote.

An unpublished paper by the Department of Toxic Substances finds that "When training programs successfully prepare employees to perform hazardous waste duties, the

overwhelming result is a better inspection report card, and fewer violations if any” (n.p.). Most employees are willing to comply with regulatory requirements once they are informed how.

Summary and Conclusions

Knowing that the potential impact of small releases either individually or cumulatively can cause serious harm to the environment, the regulation of the storage and handling of hazard materials becomes more critical as the number and amount of chemicals in use increases. As regulatory thresholds governing small quantities of chemicals are lowered, a greater number of facilities are subjected to the permit process. This combined with the shift of enforcement responsibility from the federal level to the local levels gives the LIA's opportunity to educate the small business owners. Working with small facilities, and educating the responsible party regarding the preparation of business plans, the permit process and compliance auditing, the LIA can give the responsible party a better understanding of compliance requirements and reduce negative attitudes.

The majority of literature reviews points towards education of the responsible party as being a key to achieving small business compliance. Education creates an understanding and the understanding stimulates willful compliance.

Chapter 3

Methods and Procedures

Introduction

The following chapter delineates the three data sources for the study, the information acquired from these sources, and the analytical methods used to test hypothesis associated with Objectives 1 through 6.

Data Sources

Different data sources were used to acquire the information necessary to address the six research objectives listed on page 10 and paraphrased below:

1. What are the general and/or targeted educational backgrounds of the responsible parties?
2. What targeted educational opportunities are available to small businesses in Santa Clara County?
 - a) Identify the relative utilization of the different method opportunities.
 - b) Identify which targeted methods are the most effective.
 - c) Identify which methods are perceived as the most effective.

3. What are the hazardous materials compliance rates for the selected facilities?
4. Which types of backgrounds, both general or targeted education, produce the greatest degree of compliance with the hazardous materials storage laws?
5. Which compliance categories are the most often violated?
6. What steps will improve facility compliance?

The data include documentation obtained from LIA's and other organizations on targeted hazardous materials education, a questionnaire for small businesses designed by the author, and a review of hazardous materials compliance files of selected facilities available from the LIA. All of the data obtained were used to test the hypothesis that the level of compliance achieved by the facility is dependent on the level of education (general and targeted) of the responsible party. Figure 2 provides a graphic overview of the method of data acquisition, the types of data acquired, and its breakdown into categories used in the analysis.

In summary the following four core issues were tested for their effectiveness on compliance:

1. Level of general education.
2. Presence or absence of targeted education (given general education).
3. Type of targeted education (given general education).

4. Comparison of compliance between general education only versus targeted education only.

Figure 2. Data sources and categories used in analysis.

Sample Selection

Santa Clara County was selected for the following three reasons: First, this county has a diverse cross-section of businesses. Second, it is the only county in the state where all LIA's meet on a monthly basis to discuss compliance issues, provide training, and establish uniform regulatory guidelines, yielding more uniform enforcement. For this reason, program differences were minimized, enabling a better assessment of the true

relationship between education and compliance. Third, permission to review the LIA's permit files was obtained with no file review fee.

A complete list of permitted businesses in Santa Clara County was compiled from individual lists of permitted facilities for each LIA in Santa Clara County. From this list, businesses were selected via simple random sampling. Once selected, the facility had to meet the following four criteria to be used in the survey: compliance issues were handled in-house without the aid of a consultant; the facility did not belong to a larger corporate chain or franchise; and the responsible party was willing to participate in the study. The goal was to obtain a statistically valid population that was reflective of the small business community in Santa Clara County. Sampling was performed until sufficient businesses were identified for the purpose of conducting a chi square analysis. The final number of facilities used in the study totaled 203.

Targeted Education

In Santa Clara County there are many targeted educational opportunities offered that could assist responsible parties with regulatory compliance issues. For the purpose of this study, any method of education that is designed to raise awareness of compliance issues is referred to as "targeted education." Based on the pilot survey conducted for this study, targeted education opportunities consist of four primary methods. Some methods are more formalized, such as course work completed at a college or university, while other

are less formal, such as conferences and symposia. The four methods of targeted education are:

1. university or university extension course curriculum dealing with hazardous materials compliance issues,
2. workshops or training courses offered by an environmental regulating agency,
3. nonprofit environmental education and permit assistance centers, and
4. conferences and symposia conducted by professional organizations.

A more detailed description of the four targeted methods are outlined in Appendix C.

Data

Data were gathered for the study in two separate efforts: a questionnaire of the selected business RP's and a review of agency files on small business compliance with hazardous materials storage and handling regulations. These are henceforth referred to as the *questionnaire* and the *file review*. The file review was summarized in the form of a compliance matrix. Both survey forms are contained in Appendix C.

The questionnaire and the file review were pilot tested on twenty-five small businesses in Stanislaus County to determine clarity of the questions, the amount of time needed to conduct each interview, and the usefulness of the data in testing the hypothesis.

The preliminary results of the questionnaire indicated that the average time to complete the questions was approximately 7 minutes. Based on the pilot study's results, those parties that attended some form of targeted education had a 20 percent higher compliance

rate than those who did not, and, of the total sample population, 90 percent of the responsible parties felt that attending some form of targeted education would increase their facility's compliance.

Questionnaire

The questionnaire was designed to gather four important pieces of information: first, to establish what type of formalized educational background the responsible party has; second, to assess the knowledge and familiarity of the responsible party regarding routine compliance issues; and third, to establish which, if any, of the four selected methods of targeted education the responsible party had received, and fourth, to determine their perception of helpfulness of the targeted education. Responses were rated on a scale from 1 to 5. A targeted educational method rated one was perceived most helpful. In contrast, methods rated 5 were considered to have provided the student little to no help with compliance issues. The methods perceived the most helpful were then compared with the methods demonstrated the most helpful. One of two possible outcomes was expected. The perceived targeted educational methods are demonstrated as the most effective or the perceived targeted educational methods are not demonstrated as the most effective. An example of the latter would be if respondents rated conferences/symposia, in question 12 of the questionnaire, as the most helpful when in fact a facilities where responsible parties attended courses given by a university had less violations.

The questionnaires were administered by phone. This was the preferable method

of surveying because phone interviews were time efficient for both parties and the need for their participation could be emphasized. This increased the rate of participation and allowed more time to survey a large sample population. Also, the presentation of the questionnaire by phone versus mail ensured the questionnaire was filled out completely and on schedule. Since identification may be of concern by some responsible parties, anonymity was assured at the beginning of each conversation.

Because this study was concerned only with small businesses, question #1 of the questionnaire, number of employees, was used to avoid interviewing a facility that had greater than twenty employees. The number of employees was verified during the second part of the survey when the file review for compliance was conducted. Compliance matrix item #6, documented the number of employees from information provided on the facility's HMBP (Appendix C).

Since there were a few small businesses that did have the resources to hire a consultant, the data collected from questions #2 through #5 were used to distinguish those facilities that handle compliance issues and permitting in-house, as opposed to those using a consultant. Question #2 directly asked if a consultant was hired to handle compliance issues. The purpose of question # 3 was to avoid interviewing an employee that was not responsible for the permitting of the facility. And question # 4 was included to determine how many years the respondent was responsible for permitting issues. To verify that the respondent was indeed the responsible party (question #5) position, title, and name was

checked against those on the HMBP as recorded by item #5 in the compliance matrix during the file review.

Questions #6 and #11 established what level of general and targeted education, respectively, of the responsible party, as set forth in objective 1. Question # 6 divided general education into three levels; less than high school, high school or completion of trade school, and upper level degree. The upper level degrees including associate of arts, Bachelor of Arts and graduate degrees were lumped into a single category.

Questions #7, #8, and #9 also supported Objective 1 yielding data on the RP's perception of their own knowledge of hazardous materials compliance. Question #7 assessed the understanding of the permit reporting requirements. Question # 8 assessed their familiarity with the relevant regulations. Both questions had three response choices: "Yes Well", "Yes Some", and "No". The reason two degrees of yes answers were provided, were to qualify their degree of understanding. Question # 9 simply asked the respondents if they knew where to get a copy of the regulations that pertained to their facility. Two choices were offered, yes or no. This question provided a partial check of the respondents' answers to questions 7 and 8, assuming that understanding the permit process and regulatory requirements "well" required a minimum knowledge of where to get a copy of the regulations.

To meet Objective 2, determining the most common methods of education available in Santa Clara County, questions #10 and #11 were used. Question # 10 established whether the respondent had attended some form of hazardous materials

compliance education. Then Question # 11 further distinguished the type of education by selecting one of the four types identified or an "other category". These methods of targeted education were ranked for perceived effectiveness in question #12.

Data obtained from questions #6 through #12, combined with the compliance rates tallied in the compliance matrix, were used along with data on actual compliance rates to test Objective 4 (which types of educational backgrounds produce the highest compliance rates) and to test the overall hypothesis of this study that; there is a relationship between compliance and education.

Question #13 asked the RP if they felt their compliance would improve with hazardous materials education. This study made the assumption that if the RP felt their facility compliance rate would increase by participation in a hazardous materials compliance course the likelihood of attendance would be accordingly and was therefore used to postulate the respondents' willingness to attend an environmental compliance course.

Compliance Matrix

Compliance was determined by conducting a file review for each facility. A permit file is kept by each LIA for every permitted business. Permit files include documentation such as the HMBP, inspections sheets, any notice of violations or corrections, fines, and all correspondence between the facility and the LIA. Objective 3, to establish compliance rates for the selected facilities, was satisfied by the information collected and recorded on

the compliance matrix during the file review. Because the responsible party's education level may change over a period of years, only the 1997 calendar year inspection sheet was reviewed. This study was designed to compensate for possible errors in individual reporting bias among inspectors by two factors: 1) inspectors in Santa Clara County meet monthly for training and discussion on uniform enforcement and 2) it is estimated the work of approximately 30 inspectors had an equal probability of being sampled, and therefore, assumes no bias in reporting among LIA's.

Since the inspection sheets contained most of the information regarding compliance, they were reviewed in detail. A copy of the inspection sheet of each LIA in Santa Clara County is located in Appendix D. The frequency with which a business was in non-compliance was recorded for each of the following areas: secured area, labeling, records, and monitoring. Secured area refers to the physical parameter in which hazardous materials are being stored or handled. The three compliance requirements- secondary containment, separation of incompatibles, and securing of compressed cylinders- were selected to characterize the safety and environmental quality of the surrounding the chemical storage and processing area. Labeling regulations have several compliance requirements. For this study, all labeling requirements were lumped into two categories: titled placards and general identification. The application of the labeling regulations is to ensure the safety of human health and to preserve the quality of the environment by knowing what types of hazards are associated with an identified product. Records and monitoring requirements force businesses to be diligent in tracking the

storage, handling, and disposal of their hazardous materials. These four categories were selected because they are fundamental to the inspections of all LIA's and because they encompass a majority of the hazardous material storage and handling regulations related to small business.

For the purpose of the file review only, compliance was defined as no corrections needed upon the first facility inspection by the regulating agency. If a facility was required to make corrections for any of the four compliance categories identified in the compliance matrix, the facility was considered out of compliance and a check mark was placed next to the appropriate category. The total number of observed violations for the sample population and each compliance category were tabulated and the results are depicted in Chapter 4, Table 17. This information was used to define the occurrence of overall and category specific compliance versus noncompliance for the purpose of testing the hypothesis objectives.

Analytical Methods

Data from the questionnaire and file review were first compiled, sorted, and categorized. The data were then recompiled in different ways yielding distinct data sets used in the various analyses. To characterize the sample population and to prepare the data for hypothesis testing, the data were broken down by LIA, facility type, education level, and by the role of the responsible party (owner, manager, secretary, etc.). Individual categories were broken down into two subcategories: those in compliance versus those

out of compliance. Arithmetic means of violation rates were also calculated for the various different categories. The following approaches were used to address the specific research objectives.

Objective 1, what type of educational backgrounds do RP's have, was answered by compiling data from questions #6 & #10 of the questionnaire. Question #6 established the RP's (responsible party's) level of general education. Question #10 established if the RP had additional targeted education. These two questions distinguished the background level of education for the purpose of compliance verification. And set the parameters of the educational background for small business owners and operators. Questions #7 through #9 were used to establish a confidence level of the RP's knowledge of the hazardous material regulations.

Objective 2, what targeted educational methods are available in Santa Clara County, and 2(a), the relative utilization of these methods, was determined by compiling responses to Question #11 from the questionnaire. Responses from RP's having checked more than one educational method were divided up and added to the respective targeted groups. Thus the total number of observations for the five targeted groups was greater than the total number of positive answering RP's to question # 11.

Objective 2(b), identification of which targeted educational methods were the most effective, was met by comparing the number of violations of each type of targeted educational method. An ANOVA, tested the null hypothesis (H_0) that: there was no significant difference in compliance rates between the five targeted educational methods.

Because the ANOVA test does not distinguish which categories were significantly different or by how much, t-test were used to test significant differences in means of specific pairs of sub-populations. A given method was considered better than another if its compliance rate was significantly higher than another. The targeted educational methods with the most significant difference, between means were considered the most effective.

Objective 2(c), identification of which methods were perceived the most effective, was met by calculating the arithmetic mean of the RP's rating of each educational category from question #12 of the questionnaire. The rated responses for the respective targeted groups were averaged together and the lowest mean score indicated the most helpful. Again, RP's having attended more than one targeted educational course, responses were rated separately and added to their respective groups.

Objective 3, determined the compliance rates for each selected facility. This was accomplished by conducting a review of the Hazardous Materials Files retained by each LIA for the selected facilities. From the 1997 inspection sheet, contained in the LIA's file, the total number of violations was documented on the data matrix for the selected compliance categories. Violations that were recorded on the 1997 inspection sheets that did not fit into the selected compliance categories such as other permits needed, fire extinguisher service, and electrical violations were not considered part of this study and not counted in the facilities total number of violations. Tables were used to depict the compliance rates per facility type and compliance rates per LIA jurisdiction.

Objective 4, the effects of education on compliance, data were sorted and tested in a number of different ways: using chi-square analyses on data parsed into compliance versus non-compliance for different educational sub-populations; and using analysis of variance (ANOVA) and t-tests to test the significance of differences in mean compliance rates among those sub-populations.

The central hypothesis, there is a relationship between compliance rates and education, was tested using chi-square analysis. Each facility of the entire population (n=203) was first determined to be either in compliance (less than or equal to three violations) or out of compliance (greater than four violations). The data were then grouped by education levels as described below to test the following four sub-hypotheses.

- 1) As an initial test; to see if education was having any effect at all, the data were sorted into six educational categories.
- 2) To test if targeted education affects compliance rates, independent of the level of general education of the respondents, all compliance data were parsed into those who did and did not receive targeted education and the compliance rates of these two categories were calculated.
- 3) To test if general education affects compliance, independent of targeted education, data were selected only for those respondents having *no* targeted education. Those data were then parsed into general education category rates and the compliance rates of the individual categories were calculated.

- 4) To test if targeted education eliminates differences in compliance rates among general education categories, data on respondents *with* targeted education were divided into general education categories and the compliance rates of the individual categories were calculated. Table 3 summarizes the breakdown of data used in the chi-square analyses.

Table 3. Breakdown of data used in the chi-square analysis

Hypothesis	Total population used in the test	Sub-populations (# in category: category type)	Number in sub-populations
1. Does education have any effect?	203 (all)	6: <HS, <HS+TE, HS/TS, HS/TS+TE, ULD, ULD+TE	n1=20, n2=16, n3=47, n4=30, n5=27, n6=63
2. Does targeted education have any effect?	203 (all)	2: Targeted & Non-targeted	n(NT)=94 n(T)=109
3. Does general education alone have an effect?	109 (# general ed. only)	<HS, HS/TS, & ULD	n1=20, n3=47, n5=27
4. Does targeted education eliminate the effect of general education?	94 (# of targeted ed. only)	<HS+TE, HS/TS+TE, ULD+TE	n2=16, n4=30, n6=63

The chi-square analyses were then run on the observed versus expected number of violations in each category. The expected values were determined from the overall compliance rates for the larger population under consideration. Specifically, each subcategory was expected to have the same fractional compliance rate as the larger population. So, if the total population for a given test had a compliance rate of 70 percent, the expected number of violations in the sub-populations was obtained by multiplying the total number of individuals in the sub-populations by 70 percent. The observed and expected compliance rates are tabulated in Chapter 4 along with the results of the statistical tests.

The data on numbers of violations for the educational subcategories were consistently found to be logged normally, and distributed. Therefore, to perform the parametric test (ANOVA and t), the data need to be transformed to normal distributions. This was achieved using the following transformation: $Y_i = \ln(X_i + 1)$, where X_i is the number of violations of an individual business. This procedure was used rather than the usual approach, $Y_i = \ln(X_i)$, to avoid numerical problems taking in (0), for facilities with zero violations.

Objective 5, investigated which compliance categories had the most violations. In this comparison all educational categories were lumped together and the total violations were ranked by compliance category. Calculation of the mean number of violations in a given category determined by ANOVA and t-tests if there is a significant difference in the average number of violations between and among compliance categories

Chapter 4

Results

Introduction

This chapter describes the sample population and summarizes the results of the analysis. The chapter begins with an overview of the data collected, listing general facts such as the percent completion rate and the total sample population. It then describes the facilities and the breakdown by LIA and facility type. Finally it reports the findings of objectives 1 through 5 and test for the main hypothesis.

Sample Description

Overview of facilities sampled in the file review

The Santa Clara County area is made up of thirteen chartered cities and an unincorporated area. Of this area a total of 318 small business were selected for the study.

The actual sample population data was compiled for 203 of the 318 small businesses because of incomplete data for the remainder. The 203 facilities represent nine LIA jurisdictions. The first column in Table 4 indicates the LIA's. The second column shows the sample population completed for each LIA. The third column shows the additional number of permitted small businesses drawn by random selection for which data sources were incomplete for one or more of the following reasons:

1. LIA did not have a file for the facility or it could not be found at the time of the file review. Technically this should not be a barrier to a data source. Any facility that is listed having a permit should have a corresponding file. That file should be readily available to the public under the "Community Right to Know Act". Due to time limitations, only one day was allotted per LIA jurisdiction for the purpose of a file reviews. If a file was missing it was assumed to be checked out with an inspector. A separate study of the efficiency of LIA's would be necessary to determine why some facilities did not have files available.
2. A Hazardous Materials Business Plan (HMBP) was not included in the existing LIA file.
3. No inspections were conducted for the period of time encompassing the 1997 year. In this case a file was present with a HMBP but no inspections had been conducted. This could occur if the facilities were new and an inspector has not had an opportunity to visit their facility. However, it was noted that some facilities had been a self audit program for several years and no inspections were conducted by a regulator. It could be questioned whether these facilities were truly in compliance or not.

4. The RP would not participate in the phone survey. This was the case with the majority of the incomplete data sources. It was apparent that no matter how many times the RP was assured of confidentiality, it was not enough to convince them to participate. Although the survey took less than 10 minutes of the respondents time, they were always found to be too busy no matter how many times they were called back. Some RP's refused to participate once the study's topic was mentioned "education and environmental compliance".
5. The last barrier noted was that the facility was no longer in business and the permit had not been canceled. This is the responsibility of the permit owner to change or cancel permits as necessary. This could be due to one or more of the following reasons: Business owners are not aware of their liability should contamination be found or do not find it important enough to follow through with permit closure procedures. Business owners may also have forgotten they had a hazardous materials permit, or was unaware it was their responsibility to file for permit closure.

Table 4. The number of samples taken from each of the nine LIA's.

LIA	Sample Population	Non Complete Data Sources
Santa Clara County Fire	6	0
Gilroy's Building Life and Environmental Safety	23	3
Milpitas Fire Dept.	20	4
Mountain View Fire Dept.	29	4
Palo Alto Fire Dept.	25	15

Table 4. The number of samples taken from each of the nine LIA's.

LIA	Sample Population	Non Complete Data Sources
San Jose Fire Dept	36	17
Santa Clara Fire Dept	19	11
Sunnyvale Public Safety	25	5
Santa Clara County Hazardous Materials Control Dept	20	56
Total	203	115

The study had a 64 percent completion rate. This is considered a very high response rate for a phone survey. According to a Senior Researcher with a data systems and marketing company, the expected completion rate of phone surveys is between 20 - 30 percent (Doreen Finkelstine, personal communication 1999). This high value is attributed to the persistence of the interviewer and the emphasis that was placed on the importance of the RP's opinion by the interviewer. Some facilities were called several times before the RP was reached with time available to complete the survey.

A wide variety of facility types were selected in the sample population. The amounts and type of facilities give the reader an idea of the cross section of small businesses in the Santa Clara County that are regulated by legislation governing the storage and handling of hazardous materials. The 203 businesses, representing the tested sample population, were categorized into 27 business types. Table 5 displays the number and type of facility surveyed for each LIA. Figure 3 displays the business category and its respective proportion of the total sample population. Auto Repair shops represented the

single largest fraction of the population at 17.7 percent of the population, followed by the manufacturing comprising 14.3 percent.

The number of employees per facility ranged between 1 and 20. The average number of employees was 7.0.

	Santa Clara County Hazardous Materials Dept.	Santa Clara County Fire	San Jose	Gilroy	City of Santa Clara	Sunnyvale	Milpitas	Palo Alto	Mountain View	Total	Percent
AutoBody (AB)	2	0	5	2	3	1	1	0	2	18	7.68
Auto Repair (AR)	3	1	5	4	3	4	4	7	5	36	17.73
Battaries (B)	0	0	0	0	0	0	0	0	1	1	0.49
Brewery (ER)	0	0	0	0	0	0	0	0	1	1	0.49
Cleaners (C)	2	0	4	1	2	2	1	1	2	15	7.39
Contractors (CCN)	0	0	8	2	0	0	1	1	5	17	8.37
Copy, Graphic, Printing (CGP)	0	1	3	0	4	3	1	2	2	18	7.98
Dentist (DDS)	1	0	0	0	0	1	1	2	0	5	2.46
Electronic (E)	0	0	0	0	1	2	1	0	1	5	2.46
Equipment Rental (ER)	0	0	0	0	0	0	1	0	1	2	0.99
Furniture Refinishing (F)	0	0	0	1	0	0	0	1	0	2	0.99
Gas Sales (GS)	0	0	0	0	1	0	1	0	1	3	1.48
Lab (L)	0	1	0	1	0	2	0	0	1	5	2.46
Machine Shop (M)	2	1	4	2	2	1	0	0	0	12	5.91
Manufacturing (MNFG)	3	1	0	0	2	5	5	5	2	29	14.29
Metal Finishing (MF)	0	0	2	2	1	1	0	0	0	6	2.96
Nursery (N)	1	0	0	0	0	0	0	0	0	1	0.49
Pest Control (PC)	0	0	0	0	0	2	0	0	0	2	0.99
Photo (PH)	3	0	1	0	0	1	2	2	1	10	4.93
Pianos (PI)	0	0	0	0	0	0	0	1	0	1	0.49
Pool (PO)	0	0	0	0	0	0	0	1	1	2	0.99
Radiator (RD)	0	0	2	0	0	0	0	2	0	4	1.97
Retail (RT)	0	1	0	1	0	0	0	0	2	4	1.97
Transmission (T)	1	0	0	1	0	0	0	0	0	2	0.99
Upholstery (U)	0	0	0	0	0	0	0	0	1	1	0.49
Vet (V)	0	0	1	0	0	0	0	0	0	1	0.49
Wrecking Yards (WY)	2	0	1	0	0	0	1	0	0	4	1.97
Total	20	6	36	23	19	26	20	25	29	203	100.00

Table 5. This table indicates the frequency of facility type per LIA.

Figure 3. Percent facility type per total sample population.

Results

Objective 1: What are the general and targeted educational backgrounds of the responsible parties?

There was a diversity of backgrounds in both general and targeted education among the RPs. Table 6 presents the data on general education background for the RP's, broken down by LIA jurisdictional area. The general education subcategories lump together those with and without targeted education. Figure 4 lumps together all jurisdictions, but breaks RPs into those having or not having received targeted education in each general education category.

Table 6. Number of observations per educational category per LIA.

LIA	<High School	High School /Trade School	Upper Level Degree	Total
SCC Health Dept. Hazardous Materials Div.	2	11	7	20
SCC Fire Dept	0	4	2	6
San Jose Fire	8	17	11	36
City of Gilroy BLES Div.	7	7	9	23
City of Sunnyvale Public Safety	6	2	17	25
Milpitas Fire Dept	4	5	11	20
Palo Alto Fire Dept	2	12	11	25
Mountain View Fire Dept	1	17	11	29
City of Santa Clara Fire Dept.	6	2	11	19
Total	36	77	90	203
Percent	18%	38%	44%	100%

Figure 4. Percent population per educational category

RP's with less than a four-year degree equaled 56 percent. Eighteen percent of the 56 percent actually had less than a high school education. Forty-four percent of the RP's had a 4 yr. degree or higher. Of the LIA's, Sunnyvale had the largest percentage of Upper Level degrees with 68 percent, Santa Clara County Fire had the largest percentage in the High School/ Trade School category with 67 percent, and the City of Santa Clara had the largest percentage of RP's falling into the less of than high school category with 32 percent.

Although it was not a primary objective of this study, data were available to examine the violation rates attributable to RP's with different role's within the facilities. Position titles offered additional insight as to the RP's job functions, characterizing the sample population in more depth. RP's defined their employment status as one of the following: Owner, Manager, President, Secretary, Engineer, Safety Engineer, and Spouse. Table 7 gives the breakdown of titles, sample sizes and mean number of violations for each. The majority of the sampled population was business owners at 76 percent. The second largest title group was the managerial section at 15 percent. The remaining balance equaled 9 percent. Although the sample was not large enough in most categories to test for significant of differences in violation rates attributable to RP's roles, the result are interesting and suggestive. Those most vested in the companies (owners, presidents, and spouses) appeared to have the least violations, whereas hired help appears to have the greatest. Although not statistically reliable, the "safety engineer" had more violations than the means of any other category. If indeed true, this might be attributable to the fact that

when those with a vested interest in the facility are directly involved in the permitting process, there is a greater focus on this issue among those who also dictate policies and procedures for the business.

Table 7. Titles, observation frequency, and respective mean violation.

Titles	Number of Responsible Parties	Mean Number of Violations
Owner	155	2.51
Manager	31	3.19
President	9	1.67
Secretary	5	4.0
Engineer	1	4.0
Safety Engineer	1	7.0
Spouse	1	3.0
Total	203	

Questions 7 through 9 identified how well versed the RP's felt they were to the storage and handling regulations. The questions are listed below in Table 8 with their respective results:

Table 8. Percent respondents per answer category and mean number of violations for questions 7, 8, and 9.

Q7 -Did you understand the reporting requirements pertaining to your hazardous materials storage permit?

Answer Category	Percent RP's	Mean number of Violations
Yes Well	44	1.56
Yes Some	48	3.48
No	8	3.53

Q8 -Are you familiar with the content of the hazardous materials storage regulations that pertain to your facility?

Answer Category	Percent RP's	Mean number of Violations
Yes, Well	41	1.60
Yes, Some	51	3.27
No	8	4.00

Q9 -Do you know where to get a copy of the laws and ordinances that pertain to your business?

Answer Category	Percent RP's	Mean number of Violations
Yes	66	2.12
No	34	3.64

For question #7, the mean number of violations was highly correlated with their confidence level of knowledge. Forty-four percent of the RP's answered they understood reporting requirements "Well". For these RP's the mean number of violations equaled 1.56, which is half of the studies overall mean violation of 2.56. RP's who qualified their understanding of the reporting requirements with "Some" or "No" had mean violations of 3.48 and 3.53 respectfully, both higher than the total mean of 2.56. For question #8, the

41 percent answering "Yes, Well" had a mean violation of 1.6, one half of the total mean violation of 2.56. The RP's who answered "Yes, Some" and "No" had mean violations of 3.27 and 4.0, again both above the average total mean. Responses to question #9 followed the same pattern. Those RP's answering "Yes" had a mean violation slightly below the total mean violation. The opposite was true for those RP's answering "No". RP's qualifying their knowledge and understanding as "Well" had favorable mean compliance rates.

These three questions served as a pseudo-crosscheck for the validity of the RP's knowledge qualification. The self evaluation portion of the survey was consistent with the recorded data on violation rates. For all three questions the mean number of violations increased as the received level of understanding decreased.

In summary there is a great diversity of educational backgrounds with a large portion of the RP's having less than a four-year degree. A few RP's indicated they did not understand the content of the hazardous materials storage and handling regulations. This portion of the population would benefit from a targeted educational course.

Objective 2

The perceived complexity of the storage and handling of hazardous materials and their permitting requirements, are reduced once there is an understanding of the regulations. This study identified five general sources from which a business owner could obtain information. The sources ranged greatly in the commitment of time required by the

participant and the depth of information obtained. A general description of the four main targeted educational methods/courses offered by a regulating agency, university, nonprofit organization, and or a conference/symposia- is outlined in Appendix C. In addition to the four main categories specified in the questionnaire respondents added additional sources of education for the "other" category. These included:

- "Self education" was the most frequent write-in. This response included library and internet research.
- The second largest response in the other category was "trade associations". The trade associations that appeared to be very supportive and frequently used by their industries included the Dry Cleaning Association, Business/Merchant Association, and the Contractors Association.

Objective 2(a) was to identify the relative utilization of the different targeted educational methods. The number of RP's that had some form of education totaled 109, constituting 54 percent of the total sampled population. Figure 5 shows the percent attendance per educational category. Column two of Table 10 displays the sample number of RP's answering positive to the five targeted educational groups. The total number of observations (145) is larger than the number of RP's having taken a targeted educational course (109) because some RP's utilize more than one source.

Figure 5. Percent attendance per targeted education method where (n=203).

Workshops or courses offered by regulating agencies (RA) had the greatest attendance, totaling 63. The targeted educational method with the least attendance was the Permit Assistance Centers (PAC), totaling 11.

Objective 2(b) was to determine which targeted methods was most effective at reducing violations. Appendix A, item 2(a), shows the outcome of the ANOVA testing the null hypothesis that there was no significant difference in compliance among the targeted educational categories. The calculated F value equaled 34.82. The critical F, with two tails at the 0.05 level of significance, equaled 1.96. The calculated F value is greater than the critical value, proving there is a significant difference between the targeted education categories.

Further analysis of the means through the t-test (Appendix A, item 2(b)) was performed for all combinations of targeted educational pairs, testing the null hypothesis (H_0) that there was no significant difference in compliance means per educational category. This analysis revealed that only conference /symposia (CS) and Other (O) had significantly better results than Regulating Agency (RA) (table 9). All other comparisons were insignificant. It is an interesting result that courses offered by the regulating agencies appeared to be least effective. It is also interesting that the "other" appeared to be one of the most effective means. The latter may be because the "other" category is suggestive of a high level of self-motivation to improve compliance.

Table 9. Targeted educational pair combination, observed t values, and their relative mean significance. Where the following are defined as: U= University, RA= Regulating Agency, PA= Permit Assistance Center, C/S= Conference/ Symposia, and O= Other.

Pair Combination	Observed T	Significant (S) / Non Significant (NS)
U vs. RA	-6.65	NS
U vs. PA	-0.55	NS
U vs. C/S	0.42	NS
U vs. O	0.24	NS
RA vs. PAC	1.23	NS
RA vs. C/S	7.97	S
RA vs. O	8.54	S
PAC vs. C/S	0.90	NS
PAC vs. O	0.76	NS
C/S vs. O	-0.22	NS

Objective 2(c) determined which targeted educational category was *perceived* by the RP as the most effective in reducing the total number of violations. The targeted educational methods perceived the most helpful were the nonprofit assistance center (PAC) and the other category "O". Both mean ratings were less than 2.0. The targeted educational method with the highest mean ratings were university (U) and conference / symposia (CS), inconsistent with the results indicated by actual violations. The list of perceived helpfulness rating is shown below in column four of Table 10.

In summary the targeted educational course attended the most was neither perceived as helpful or the most effective in reducing the number of violations. The only

category that was perceived the most helpful and displayed a significant lower violation mean was the "other" category.

Table 10. Number of observations, mean violations, and mean rating of perceived helpfulness per targeted educational category.

Targeted Educational Category	Number of RP per Educational Category (n=203)	Mean Number of Violations	Mean Rating of perceived helpfulness on a 1-5 scale
Conferences/Symposia lectures conducted by a professional organization (CS)	23	0.71	3.3
Other (O)	27	0.75	1.9
University or university extension course curriculum (U)	22	0.80	3.3
Nonprofit environmental and permit assistance center (PAC)	11	0.94	1.8
Workshop or courses offered by a regulating agency (RA)	63	1.95	2.8

Objective 3

Objective 3 was to determine compliance rates of the selected facilities. In determining facility compliance 203 files were reviewed. The mean number of violations for the total sample population was 2.56. Santa Clara County Fire had the highest mean violation in their jurisdiction with 3.83, followed by Santa Clara County Health Department's Hazardous Materials Division with 3.65. The jurisdiction with the lowest mean violation observed was Palo Alto with 1.68.

Facility types having on average less than 1 violation were dry cleaning facilities, dentist offices, laboratories, pest control, retail and veterinarian. Facility types having greater than three violations were auto body (3.69), furniture refinishing (3.5), auto repair

(3.44), and metal finishing (3.17). The facility type with the highest mean violation was wrecking yards with 9.76.

In summary there is a large cross-section of facility types. Specific businesses have a greater tendency to have a greater amount of violations.

Objective 4

The hypothesis was tested by using the chi-square method of analysis. Table 11 shows the observed values listed in bold face and the expected values in parentheses. The test statistic for chi-square equaled 25.83. The critical value at a 5percent level of significance and 5 degrees of freedom equaled 11.07. The test value for chi-square was greater than the critical value, resulting in the rejection of the null hypothesis and proving education and compliance are related.

Table 11. Values used in Chi-square analysis for independence testing the null hypothesis (H_0) that: compliance is not dependent on education. The observed values are in bold type and the expected values are in parentheses. Percent compliance is indicated for each educational category and for the total.

	<High School (HS)	<HS + 1 or more Targeted Education (TE)	HS/Trade School Degree (TS)	HS/TS+1 or more TE	Upper Level Degree	Upper Level Degree + 1 or more TE	Total
Compliance ≤3 violations	8 (14.19)	11 (11.35)	25 (33.34)	24 (21.28)	22 (19.16)	54 (44.69)	144
Noncompliance ≥4 violations	12 (5.81)	5 (4.65)	22 (13.65)	6 (8.71)	5 (7.84)	9 (18.31)	59
Total Observed	20	16	47	30	27	63	203
Compliance %	40	69	53	80	82	86	71

Three additional chi-square analyses were run to further distinguish the data.

Table 12. tested the null hypothesis that there was no relationship between compliance and participation in a targeted educational method. The test statistic equaled 13.2. The critical value at the 5 percent level of significance with 1 degree of freedom, equaled 3.84. 13.2 is greater than 3.84 thus rejecting the null hypothesis, and demonstrating that there is a relationship between attendance of targeted education and compliance. The percent compliance of these two groups increased from 59 percent for those RP's not attending a targeted educational course to 82 percent for those who did.

Table 12. Chi-square analysis for independence, testing the H_0 : that compliance is not dependent upon the presents or absence of targeted education. The observed values are in bold type and expected values are in parentheses.

	No Targeted Education	Targeted Education	Total
Compliance ≤ 3 violations	55 (66.7)	89 (77.3)	144
Noncompliance ≥ 4 violations	39 (27.3)	20 (31.7)	59
Total	94	109	203
Percent Compliance	59%	82%	

Chi-square Tables 13 & 14 compared the RP's based on their level of general education

Chi-square Tables 13 & 14 compared the RP's based on their level of general education and level of general education with additional targeted education. This resulted in the following: The test statistic in Table 13, where only the three levels of general education were reported, equaled 9.23. The critical value at the 5 percent level of significance with 2 degrees of freedom, equaled 5.99. Since the test statistic is greater than the critical value, the null hypothesis is rejected, proving compliance is dependent upon the level of general education completed. The percent compliance increased from 40 percent for those RP's having less than a high school education to 80 percent for those RP's having an upper level degree. The test statistic in Table 14, where the RP's were divided by levels of general education in addition to targeted education, equaled 2.54. The critical value at the 5 percent level of significance with 2 degrees of freedom, equaled 5.99. Here the test statistic is less than the critical value, accepting the null hypothesis that: compliance is not dependent upon the level of background education once targeted education is present.

The percent compliance is similar for all three general educational categories.

Table 13. Chi-square analysis for independence, testing the H_0 : that compliance is not dependent upon the level of general education. The observed values are in bold type and expected values are in parentheses.

	<HS	HS/TS	ULD	Total
Compliance ≤3 violations	(11.70) 8	(27.50) 25	(15.80) 22	55
Noncompliance ≥4 violations	(8.30) 12	(19.50) 22	(11.20) 5	39
Total	20	47	27	94
Percent Compliance	40%	53%	81%	59%

Table 14. Chi-square analysis for independence, testing the H_0 that: compliance is not dependent upon the level of background education when given targeted education. The observed values are in bold type and expected values are in parentheses.

	<HS+TE	HS/TS+TE	ULD+TE	TOTAL
Compliance ≤3 violations	(13.06) 11	(24.49) 24	(51.44) 54	89
Non compliance ≥4 violations	(2.94) 5	(5.50) 6	(11.56) 9	20
Total	16	30	63	109
Percent Compliance	69%	80%	86%	82%

Objective 4 also investigated which types of educational backgrounds produced the greatest degree of compliance. To determine this mean number of violations for each educational category is shown below in Table 15. The mean number of violations are the lowest for the following educational categories: High School/ Trade School, Upper Level Degree, and Upper Level Degree + Targeted Education. Most notably the high school/trade school population appears very responsive to targeted education, which reduced the mean violation rate by more than half

Table 15. Percent sample population per educational category and their respective mean number of violations.

Educational Category	Average number of violations	Percent of the Sample	Population
Upper Level Degree + Targeted Education (ULD+TE)	1.6	31	31
High School / Trade School + Targeted Education (HS/TS+TE)	1.83	15	14.8
Upper Level Degree (ULD)	2.41	13	13.3
<High School +Targeted Education (<HS+TE)	3.25	8	7.9
<High School (<HS)	3.83	10	9.9
High School / Trade School (HS/TS)	4.02	23	23.2

To determine which types of education produced the greatest degree of compliance the sample population was analyzed three different ways. The first compared the mean number of violations in the form of a t-test between the targeted and non-targeted populations. The mean for the non-targeted equaled 1.23. The mean for the targeted equaled 0.80. For this analysis the observed t equaled 4.13 and the critical t equaled 1.96. Thus, the null hypothesis was rejected, establishing a significant difference in compliance means, between the targeted and non-targeted populations. The second compared the six educational backgrounds using an ANOVA method of analysis. For this analysis the observed F equaled 5.34 and the critical value equaled 2.21. Again the null hypothesis was rejected, indicating a significant difference between educational categories. Table 16 displays the t-test results, showing significant differences in compliance rates of all possible pairs.

Table 16. Observed t-values between educational pair combinations and their relative significance. Where <HS= less than high school, HS/TS= high school/ trade school, ULD=upper level degree, +TE= one of the above general backgrounds with targeted education.

Pair Combination	Observed t	Relative Significance
<HS vs. <HS + TE	0.68	NS
<HS vs. ULD	2.27	S
<HS vs. ULD + TE	4.03	S
<HS vs. HS/TS	0.47	NS
<HS vs. HS/TS + TE	3.58	S
<HS + TE vs. HS/TS	-0.29	NS
<HS+TE vs. HS/TS +TE	2.85	S
<HS + TE vs. ULD	1.57	NS
<HS +TE vs. ULD +TE	3.11	S
HS/TS vs. HS/TS +TE	3.54	S

Pair Combination	Observed t	Relative Significance
HS/TS vs. ULD	2.08	S
HS/TS vs. ULD +TE	4.24	S
HS/TS+TE vs. ULD	-1.27	NS
HS/TS +TE vs. ULD+TE	-0.42	NS
ULD vs. ULD + TE	1.16	NS

A significance difference in mean compliance was found between less than high school and upper level degree and high school trade school and upper level degree. The higher the level of general education the lower the mean violations. This indicates that facility compliance rates significantly benefit from RP's having higher levels of general education. This could be due to the fact that RP's having higher levels of general education have had more practice problem solving and therefore are better prepared to wade through the regulatory requirements. It is not valid to make the assumption that; RP having less than high school education have higher mean violations because they do not care to minimize environmental pollution or they are sloppy business owners.

In summary those RP's that attended targeted education have significantly higher compliance rates than those who did not, regardless of their level of general education.

Objective 5

The following four main compliance areas were selected for the study: secured area, labeling, records, and monitoring. The numbers of violations in the individual categories are outlined in table 17. The compliance category most frequently violated was

secured area with 33.7 percent of the total violations (139 violations). The second highest category facilities violated were records with 117, constituting 28.3 percent of the total violations. The number of facilities violating monitoring and labeling categories rated third and fourth respectively. Table 17, summarizes the number of facilities in violation of the four main compliance categories and their respective percentages were based on the entire sample population. Again the sum of violations is different than the count of facilities because some facilities had more than one occurrence in a given compliance requirement.

In summary, there tends to be compliance areas that are more frequently violated than others. By knowing which areas are frequently violated, targeted courses can then focus on specific regulatory requirements.

Table 17. Number of facilities in violation per compliance category, listing the sum of the total violations and percentages.

Compliance Category	Count of violations	Number of facilities with violations	Percent of the total violations
Secured Area	139	105	68.5
Labeling	85	76	41.9
Records	117	91	57.6
Monitoring	72	58	35.5
Total	413		

Chapter 5

Conclusions and Recommendations

Introduction

This chapter highlights the study's key findings and their implications for improving regulatory compliance. The following section lists the main findings and their implications. The final section gives specific recommendations for actions to improve hazardous materials regulation compliance rates and suggests further research that might be particularly useful in identifying opportunities to further reduce violation rates.

Overview

The results of this study can be broken down into three categories: (1) those that describe the characteristics of the regulated small business community and targeted educational opportunities available, (2) those that describe violation rates among various sub-populations, and (3) those that indicate the importance of education, both targeted and general, on compliance rates with hazardous materials storage and handling requirements. These results, individually and together, suggest important opportunities and efficient pathways for increasing compliance rates. The following section highlights important findings derived from the results of the analysis.

Findings and Implications

Category 1

- The large numbers and many different types of small businesses regulated for hazardous materials handling and storage in Santa Clara County suggest the magnitude of regulatory challenges. The sample population of 203 small businesses represented nine LIA jurisdictions and 27 different facility types. Thirty-three percent of the sample population had less than an upper level degree and no targeted education. Thirteen percent had upper level degrees and no targeted education. Thus, to improve and achieve compliance regulators must address a community of small business people with a broad range of educational backgrounds, who are operating very different kinds of facilities under very different conditions.

Category 2

- There are a number of different types of targeted education available to the regulated community, which is actively utilizing these and receptive to doing so. Fifty-four percent of the sampled population had attended some form of targeted education and achieved 23 percent higher compliance rates overall than RP's who had no targeted education. On the other hand, a substantial fraction of the population has not used these opportunities, although it appears that they could benefit from doing so. Two of this study's findings together indicate that the

greatest increase in compliance rates could be achieved by education programs targeted at those with the least formal education. A large fraction of the regulated community has little formal education and high violation rates, but is clearly responsive to targeted education efforts. Specifically, for the groups with less than high school and high school / trade school education, compliance rates increased 29 percent and 27 percent, respectively, with the addition of targeted education. This implies that the 33 percent of the population having less than an upper level degree and no targeted education could potentially increase compliance rates by almost 30 percent. This study revealed that, regardless of the level of general education, no significance difference in compliance levels was seen between general educational categories once given targeted education. This implies that in geographic areas less affluent than the Silicon Valley, participation in targeted educational courses may have even a greater impact on overall compliance levels and over all reduction of potential contamination. Recognizing and targeting this permitted sub-population state wide, clearly could have large returns.

- It appears that certain methods of targeted education are more effective than others; interestingly, these are not the methods that are perceived to be most effective by those who have partaken. This analysis revealed that "conference / symposia" and the "other" category of education (usually informal) had significantly better results than a course offered by a regulating agency. The latter may be because the "other" category is suggestive of a high level of self motivation

to improve compliance. Since the regulatory agency's training appears less effective than the two other categories, it might benefit regulatory agencies to examine the differences particularly between conference/ symposia and their own classes.

- The effectiveness of self education "other category", at least for some portion of the population, indicates that there might be substantial cost savings possible for the regulatory community by making permitting requirements readily available online, and notifying the regulated community of this service. Although many Internet sites are still "under construction", Internet access is a key component to the dissemination of information now and in the future. Since it is still relatively new it was not a popular response listed in the other category. However, all business owners and operators have Internet access available to them at their local library, if not on their personal computers. Currently, it is estimated by the Santa Clara County Hazardous Materials Forms and Data Committee that 80-90 percent of the information needed by RP's is currently available via Internet. Inspection checklist, permit guidelines, mandated reporting forms and applications are just a few items that can be found at the site address www.unidoc.org. Table 18 lists additional Internet addresses containing information pertinent to the storage and handling of hazardous materials and pollution prevention techniques.

Table 18. Names and website addresses containing hazardous materials permit and storage information.

BEAC	http://www.westp2net.org
CalEPA	http://compliance.org
City of San Jose Fire	www.sjfd.com
City of Sunnyvale	www.ci.sunnyvale.ca.us/
Contra Costa County	www.co.contra-costa.ca.us/
EPA	http://www.epa.gov
New Jersey Business and Industry Association	http://www.njbia.org
North Bay Permit Center	www.nbaypac.com
Santa Clara County Dept. Toxic Substances	www.unidocs.org
University of Riverside	www.unex.ucr.edu/sciences
Water Environment Federation	http://www.wef.org
Western Regional Pollution Prevention Network	www.westp2net.org

Recommendations

Based on the results of this study the following recommendations are presented;

1. Targeted education should be a component of the permit requirements.
2. Regulating agencies that have a large fraction of business owners with less than an upper level degree education can significantly increase compliance rates through implementation of a targeted educational course.
3. Modify or develop targeted educational materials specifically for a less educated sub-population. Regulatory programs should investigate both; what types of information and how information is disseminated, in the categories "other" and conference / symposia, to determine what educational tactics aid in reducing violation rates.
4. If a license program is not required nor is targeted education mandated, an incentive program should be developed by LIA's similar to the County's Self Audit Program where attendance at a training course results in reduced permit fees. It would increase participation in targeted educational courses.

Summary

As in the health care industry, preventive medicine in environmental compliance is more cost effective than treatment. The saying "An ounce of prevention is worth more than a pound of cure" is true for the environmental compliance as well. A more efficient use of LIA resources is to provide education for the RP, rather than to use inspections and threats of citations to effect compliance. This study has proven that education has the

potential to mitigate many compliance problems; however, there will continue to remain businesses profiting from out-of-date management practices and operating standards. These businesses' reluctance to change is great and knowledge is not going to be enough to force them to change. It is for this reason that enforcement must remain the backbone of the regulatory skeleton. Education can then be the sinew that holds the entire environmental body together and keeps it working healthy and uniform.

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APPENDIX A

1. **Objective 1-**
 Educational breakdown of the sample population within Santa Clara County.
 Title of the RP and the breakdown of survey questions number 7-9.
2. **Objective 2-**
 ANOVA analysis of the targeted educational methods available.
 t-test analysis of the targeted educational methods available.
 Rating analysis of the targeted educational methods available.
3. **Objective 4-**
 F test analysis of educational levels.
 t test analysis of targeted and non-targeted educational categories.
 t test analysis between all educational categories

Name	Q6	Q10	Q7	Q6	Q9	Q13	T.Viol
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County

	A	N	N	N	N	Y	3
	A	N	YS	YS	N	Y	3
	B	N	YW	YW	Y	N	1
	B	N	YS	YS	N	Y	3
	B	N	YS	YS	Y	N	4
	B	N	YS	YS	N	Y	5
	B	N	N	N	N	N	6
	B	N	YS	YS	Y	Y	12
	B	N	YS	YS	N	N	23
	B	Y	YW	YW	Y	Y	0
	B	Y	YW	YW	Y	Y	0
	B	Y	YS	YS	N	Y	0
	B	Y	Y	Y	Y	N	1
	C	N	YW	YW	Y	N	0
	C	N	YS	YS	Y	N	0
	C	N	YW	YW	Y	Y	1
	C	N	N	YS	Y	Y	2
	C	N	YS	N	N	Y	8
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	1

Santa Clara County Fire

	C	Y	YW	YW	Y	N	0
	C	Y	YW	YW	Y	Y	1
	B	Y	YW	YW	Y	Y	0
	B	N	N	N	N	No	7
	B	Y	YW	YW	Y	Y	9
	B	Y	YS	YS	Y	Y	6

San Jose

	A	N	YS	YS	N	N	0
	A	N	YS	YS	Y	Y	10
	A	N	N	N	N	Y	4
	A	N	YS	YS	N	Y	4
	A	Y	YS	YS	Y	Y	1
	A	Y	N	N	N	N	0
	A	Y	YS	YS	Y	Y	4
	A	Y	YW	YW	N	Y	7
	B	N	YW	YW	Y	N	6
Name	Q6	Q10	Q7	Q6	Q9	Q13	T.Viol
San Jose							
	B	N	N	YS	N	Y	2
	B	N	YS	YS	N	N	3
San Jose							
	B	N	YS	YS	Y	Y	5
	B	N	YW	YW	Y	Y	0
	B	N	YS	YS	N	Y	11
	B	N	YS	YS	N	Y	8
	B	N	YS	YS	Y	Y	4
	B	N	YW	YW	Y	N	0
	B	N	YS	YS	N	Y	6
	B	N	YW	YW	Y	N	2
	B	N	YS	YS	Y	N	5
	B	Y	N	N	N	Y	3
	B	Y	YS	YS	N	Y	0
	B	Y	YS	YS	Y	Y	0
	B	Y	YS	YS	Y	Y	0
	B	Y	YS	YW	Y	Y	0
	B	Y	YS	YS	Y	Y	5
	C	N	YW	YW	Y	Y	0
	C	N	N	N	N	N	3
	C	N	YW	YW	Y	Y	2
	C	N	YS	YS	N	N	2
	C	Y	YS	YS	Y	Y	3
	C	Y	YW	YW	Y	N	0
	C	Y	YW	YW	Y	Y	4
	C	Y	YW	YW	Y	N	3
	C	Y	YW	YW	Y	Y	4
	C	Y	Y	Y	Y	Y	3
	C	Y	YS	YS	Y	Y	4

Name	Q6	Q10	Q7	Q8	Q9	Q13	T.Viol
Gilroy							
	A	N	YS	YS	N	N	4
	A	Y	N	N	N	N	10
	A	Y	YW	YW	Y	Y	2
	A	Y	YW	YW	Y	Y	2
	A	Y	YW	YW	Y	Y	3
	A	Y	YW	YW	Y	Y	3
	A	Y	Ys	Ys	Y	Y	4
	B	N	YS	YS	N	N	1
	B	N	YS	YS	N	N	1
	B	N	YS	YS	N	Y	2
	B	Y	YW	YS	Y	Y	0
	B	Y	YW	YW	Y	N	0
	B	Y	YW	YW	Y	Y	1
	B	Y	YS	YS	N	Y	11
	C	N	YW	YW	Y	N	0
	C	N	YS	YS	Y	N	3
	C	N	YS	YS	N	N	3
	C	N	YS	YS	Y	N	6
	C	Y	YW	YW	Y	N	0
	C	Y	YW	YW	Y	N	0
	C	Y	YW	YW	Y	Y	1
	C	Y	YS	YS	Y	N	3
	C	Y	YW	YW	Y	Y	5
Santa Clara City Fire							
	A	N	YS	YS	N	Y	3
	A	N	N	N	N	N	7
	A	N	YS	YS	N	N	3
	A	Y	YS	YS	Y	Y	2
	A	Y	YS	YS	N	Y	7
	A	Y	N	N	N	Y	2
	B	Y	YW	YS	N	N	0
	B	Y	YW	YW	Y	Y	5
	C	N	YW	YW	N	Y	0
	C	N	YS	YS	N	Y	0
	C	N	YS	YS	Y	N	0
	C	Y	YW	YW	Y	Y	1
	C	Y	YW	YW	Y	N	2
	C	Y	YS	YS	Y	Y	8
	C	Y	YW	YW	Y	Y	2
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	1
	C	Y	YW	YS	YS	Y	1
Sunnyvale							
	A	N	YS	YS	Y	N	3
	A	N	YS	YS	N	N	5
	A	N	YS	YS	N	Y	5
	A	N	YS	YS	N	Y	4
	A	N	N	N	N	N	5
	A	Y	YW	YW	N	N	3
	B	N	YS	YS	N	Y	3
	B	N	YW	YW	Y	N	0
	C	N	YW	YW	Y	Y	7
	C	N	YS	YS	Y	Y	3
	C	Y	YS	YS	Y	Y	3
	C	Y	YS	YS	Y	Y	0
	C	Y	YW	YW	Y	N	1
	C	Y	YS	YS	Y	N	2
	C	Y	YS	YS	Y	N	2
	C	Y	YS	YS	Y	N	2
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	2
	C	Y	YW	YW	Y	Y	0

Name	Q6	Q10	Q7	Q8	Q9	Q13	T.Viol
Milpitas							
	C	Y	YW	YW	Y	N	1
	C	Y	YW	YW	Y	Y	3
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	1
	A	N	N	N	N	N	4
	A	N	N	N	N	N	0
	A	N	YS	YS	N	Y	4
	A	Y	YW	YS	Y	Y	1
	B	N	YS	YS	Y	Y	11
	B	N	YS	YS	N	Y	1
	B	N	YW	YW	Y	Y	3
	B	N	YS	YS	N	N	2
	B	Y	YS	YS	Y	Y	1
	C	N	YW	YS	Y	Y	0
	C	N	YS	YS	N	Y	3
	C	Y	YS	YS	N	Y	5
	C	Y	YW	YW	Y	Y	0
	C	Y	YS	YS	Y	Y	0
	C	Y	YS	YS	Y	Y	4
	C	Y	YW	YS	Y	Y	0
	C	Y	YS	YS	Y	Y	0
	C	Y	YS	YS	Y	Y	0
	C	Y	YW	YW	Y	Y	2
	C	Y	YW	YW	Y	Y	1

Palo Alto

	A	N	YS	YS	N	N	6
	A	Y	YS	YS	Y	Y	1
	B	N	YS	YS	N	N	5
	B	N	YS	YS	N	Y	5
	B	N	YS	YS	N	Y	3
	B	N	YS	YS	N	Y	2
	B	N	N	N	N	Y	0
	B	Y	YS	YS	Y	N	1
	B	Y	YS	YS	Y	Y	2
	B	Y	YW	YW	Y	Y	0
	B	Y	YS	YS	Y	Y	1
	B	Y	YS	YS	Y	Y	2
	B	Y	YW	YW	Y	Y	0
	B	Y	YW	YW	Y	Y	0
	C	N	YS	YS	Y	Y	8
	C	N	YW	YW	Y	Y	0
	C	N	YS	YS	Y	N	1
	C	Y	YW	YW	Y	Y	1
	C	Y	YW	YW	Y	Y	1
	C	Y	YW	YW	Y	Y	0
	C	Y	YW	YW	Y	Y	1
	C	Y	YS	YS	Y	Y	1
	C	Y	YW	YW	Y	Y	0
	C	Y	YS	YS	Y	Y	1
	C	Y	YW	YW	Y	Y	0

Mountain View

	A	N	YS	YS	N	Y	0
	B	N	YS	YS	N	N	0
	B	N	YS	YS	N	Y	0
	B	N	YS	YS	N	Y	7
	B	N	YS	YS	Y	Y	1
	B	N	YS	YS	Y	N	1
	B	N	YW	YS	N	Y	4
	B	N	YS	YS	N	Y	4
	B	N	YW	YW	N	N	0
	B	N	YS	YS	N	Y	2
	B	N	YW	YW	Y	Y	4
	B	N	YS	YS	Y	Y	5
	B	N	YS	YS	N	N	2
	B	N	YS	YS	Y	Y	7
	B	Y	YS	YS	Y	N	6

	Q8	Q10	Q7	Q8	Q9	Q13	T.Viol
Name							
Mountain View							
	B	Y	YS	YS	Y	Y	0
	B	Y	YS	YS	N	Y	0
	B	Y	YW	YW	Y	Y	1
	C	N	N	N	N	N	2
	C	N	YW	YW	N	N	3
	C	N	YW	YW	N	Y	1
	C	N	YW	YW	Y	Y	7
	C	Y	YW	YW	Y	Y	6
	C	Y	YW	YW	Y	Y	2
	C	Y	YW	YW	Y	Y	2
	C	Y	YW	YW	Y	N	0
	C	Y	YW	YW	Y	Y	3
	C	Y	YW	YW	Y	Y	4
	C	Y	YW	YW	Y	Y	1

	CO	SC Dist	SJ	GIL	SC City	SV	MIL	PA	MV
Count =	20	6	36	23	19	25	20	25	29
Sum of viol	73	23	183	65	44	55	42	42	75
Mean viol	3.65	3.83	5.08	2.83	2.32	2.2	2.1	1.68	2.59
Nontargeted									
A (<HS) =	2	0	4	1	3	5	3	1	1
B (HS/TS) =	7	1	12	3	2	2	4	5	13
C (ULD) =	5	0	4	4	3	2	2	3	4
Targeted									
A (<HS + TE) =	0	0	4	6	3	1	1	1	0
B (HS/TS + TE) =	4	3	5	4	0	0	1	7	4
C (ULD + TE) =	2	2	7	5	8	15	9	8	7
Total =	20	6	36	23	19	25	20	25	29
Total Count	203								

Objective 1 – Educational breakdown of the sample population within Santa Clara County

Objective 2 – ANOVA analysis of the targeted educational methods available.

U	RA	PAC	CS	O
3	2	3	3	1
3	2	1	4	1
3	2	1	4	1
3	2	2	3	1
3	4	2	3	1
4	3	2	4	2
4	4	2	3	2
3	3	2	4	3
2	2	1	4	2
4	1	2	1	2
2	2	2	1	2
5	4		4	2
4	4		3	2
4	3		3	2
3	2		4	2
3	2		3	1
2	2		4	2
5	3		3	3
3	4		5	4
4	2		3	2
3	4		3	2
	2		4	1
	4		2	2
	2			2
	4			3
	1			1
	3			2
	2			
	4			
	4			
	3			
	3			
	3			
	3			
	4			
	3			
	1			
	5			
	2			
	3			
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	1			
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	2			
	2			
	3			
	2			
	3			
	4			
	3			
	4			
	4			
	2			

Rating of targeted courses attended by RP					
	U	RA	PAC	CS	O
Count	21	63	11	23	27
sum	70	174	20	75	51
mean	3.3	2.8	1.8	3.3	1.9

Objective 2 – Rating analysis of the targeted education methods available.

Objective 4- F test analysis of educational levels.

Source of variation	Sum of Squares	df	Mean Square	F	p-value	df1	df2	p-value
Between	107.00	5	21.40	8.76	0.0000	5	197	0.0000
Within	197.00	197	1.00					
Total	304.00	202						

Source of variation	Sum of Squares	df	Mean Square	F	p-value	df1	df2	p-value
Between	107.00	5	21.40	8.76	0.0000	5	197	0.0000
Within	197.00	197	1.00					
Total	304.00	202						

Source of variation	Sum of Squares	df	Mean Square	F	p-value	df1	df2	p-value
Between	107.00	5	21.40	8.76	0.0000	5	197	0.0000
Within	197.00	197	1.00					
Total	304.00	202						

APPENDIX B

- 1) **Abbreviations**
- 2) **Synonymous Words**
- 3) **Definitions**

Abbreviations

SWRCB	State Water Resource Control Board
RWQCB	Regional Water Quality Control Board
TCA	Trichloroethane
PCB	Poly Chlorinated Biphenols
NPL	National Priority List
EPA	Environmental Protection Agency
HMBP	Hazardous Materials Business Plan
HMIS	Hazardous Materials Inventory Statement
DOD	Department of Defense
NPDES	National Pollution Discharge Elimination System
LIA	Local Implementing Agency
PERC	Perchloroethylene
CFC	Chloroflourohydrocarbons

Synonymous Words

Business / Facility
Owner / Operator
Hazardous Materials Program / Local Implementing Agency
Education / Awareness
Spill / Release / Unauthorized Discharge
Chemicals / Hazardous Materials
General Education / Formal Education
Analysis of variance/ ANOVA
Average/Mean

Definitions

Disposal Logs are documents that track hazardous waste cradle to grave through a form known as a manifest report.

Flammable Material is a material that will readily ignite from common sources of heat, and a material that will ignite at a temperature of 600°F or less.

General Identification is hazardous material labeling requirements mandated by the environmental program agency.

General Education is all formal education including high school, undergraduate, and graduate degrees, not specifically related to environmental compliance.

Handling is the deliberate transport of materials by any means to a point of storage or use.

Hazardous Chemical Reaction is a reaction which generates pressure or byproduct which could cause injury, illness or harm, domestic animals, livestock or wildlife.

Hazardous Material is those chemicals or substances which are physical hazards or health hazards.

Hazardous Materials Business Plan (HMBP) is a document containing detailed information on the storage of hazardous materials at a facility. Chapter 6.95 of the California Health and Safety Code requires that facilities which use or store such materials at or above the reporting threshold submit this information.

Hazard Classification of chemicals is what determines the appropriate placard numbers and is based on four criteria; flammability, toxicity, reactivity, corrosivity. The following fire code definitions help further define the four hazard class criteria:

Health Hazard is a classification of a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects could occur in exposed person. Health hazards include chemicals which are carcinogens, toxic or highly toxic materials, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes or mucous membranes.

Flammable Liquid is a liquid having a flash point below 100°F and having a vapor pressure not exceeding 40 psia at 100°F. The category of flammable liquids does not include compressed gasses or cryogenic fluids. Class I liquids include those having:

- a) Class I-A liquids include those having a flash point below 73°F and having a boiling point below 100°F.
- b) Class I-B liquids include those having a flash point below 73°F and having a boiling point at or above 100°F.
- c) Class I-C liquids include those having a flash point at or above 73°F and below 100°F.

Corrosive Liquid is a liquid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action. Examples include acidic, alkaline or caustic material.

Oxidizer is a chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Incompatibles are materials which, when in contact with each other, have the potential to react in a manner that generates heat, fumes, gasses or byproducts which are hazardous to life or property.

Municipality local governments at the county or city level

Physical Hazards are caused by changes in chemicals. They include fire, strong reactions, corrosion and explosions.

Placards are metal signs containing blue, red, yellow, and white spaces indicating a value of 1-4, ranking the highest hazard at a site location. This placard is placed on all possible entry routs of a fire engine for notification purposes of a first responder.

Primary Containment is the first level of containment, consisting of the inside portion of that container which comes into contact on its inner surface with the material being contained.

Secondary Containment is that level of containment that is external to and separate from the primary containment.

Small Business as defined by this study is a facility that has equal to or less than twenty

employees and is not part of a corporate chain or franchise.

Targeted Education is any method that raises the awareness of environmental education.

Training Records are records indicating the type and year of training. These records are required by OSHA to be retained on site for a minimum of three years.

Unauthorized Discharge is a release or emission of material in a manner which does not conform to the provisions of the regulating agency or applicable public health and safety regulations.

APPENDIX C

- 1) **Small business questionnaire**
- 2) **Compliance matrix**
- 3) **General description of targeted education methods used.**

Small Business Questionnaire

Key Number _____

LIA _____

Call History: _____

1. How many employees are in your company? _____
2. Does your facility hire a consultant to prepare your Hazardous Material Business Plan or permit applications forms?

Yes No
3. Are you responsible for facility inspections, permitting, and HMBP forms?

Yes No
4. How long have you been the party responsible for hazardous materials compliance? _____
5. Your Position title _____
6. Highest level of education.

a) Some High School (<HS)
 b) High School / Trade School
 c) Upper level degree
7. Did you understand the paperwork pertaining to your hazardous materials storage permit?

Yes Well Yes Some No
8. Are you familiar with the content of the Hazardous Materials Storage regulations that pertain to your facility?

Yes Well Yes Some No
9. Do you know where to get a copy of the laws and ordinances that pertain to your business?

Yes No
10. Have you attended any workshop, conference, or course that has helped you with environmental compliance issues?

Yes No

Small Business Questionnaire
(continued)

11. Please check which of the following you have participated in through 1996.
- ☐ University or university extension course curriculum
 - ☐ Workshops or courses offered by an environmental regulating agency
 - ☐ Nonprofit environmental educational and permit assistance centers
 - ☐ Conferences/ Symposia lectures conducted by professional organizations
 - ☐ Other _____
12. In the areas of participation, please rate the following on a scale of 1 to 5. 1 being excellent - 5 being of no help in assisting with permitting and compliance issues.
- ☐ University or university extension course curriculum
 - ☐ Workshops or courses offered by an environmental regulating agency
 - ☐ Nonprofit environmental educational and permit assistance centers
 - ☐ Conferences/ Symposia lectures conducted by professional organizations
 - ☐ Other _____
13. Do you feel your businesses compliance would benefit from your attendance of some form of environmental compliance education?
- Yes No

Compliance matrix used for the collection of data from the review of compliance files for the selected businesses.

	Compliance Category	1997	Comments
1	Secured Area		
	Secondary Containment		
	Separation of Incompatibles		
	Securing of Compressed Gasses		
2	Labeling		
	Placards		
	General Identification		
3	Records		
	Failure to File HMBP		
	Failure to Meet Compliance Schedule		
	Disposal Logs		
	Training Records		
	Other		
4	Monitoring		
	Equipment Maintenance		
	Unauthorized Discharge		
5	Title of responsible party		
6	Number of employees		

General Description of Targeted Education Methods Used

General description of the four main targeted educational courses, University or university extension course curriculum. Some universities offer environmental course work pertaining to the storage and handling of hazardous materials and regulatory permitting. Examples within Santa Clara County include the following;

- San Jose States Environmental Studies Department offers courses in Environmental Law and Environmental Impact Analysis. These courses provide a basic understanding of the regulatory structure at the federal, state and local levels and offers insight as to the reasons various laws and regulations were written and implemented. Both courses offer some relevant information and training regarding the storage and handling of hazardous materials.
- UC Extension Santa Cruz offers a hazardous materials certification. This certification program provides a comprehensive and practical curriculum of study for the professional who has hazardous waste regulatory compliance responsibilities and related managerial duties. The program consists of five required courses and two electives. All courses can be taken individually or as part of the certificate program and are offered at various locations within the county. The core courses of this program are the following: Principles of Hazardous

Materials Management, Regulatory Framework for Toxic and Hazardous Materials, Principles of Toxicology, Environmental Fate of Pollutants, and Waste Stream Management Treatment and Disposal. The combination of these courses provide the student with great in-depth information concerning the "what's and why's" of chemicals. This course is perfect for the person who is pursuing a career in the environmental field. The selected topics fail to cover the "how" step. The explanation of the permitting process is the crucial component needed by the inexperienced business owner.

Workshops or training courses offered by environmental regulating agencies

- LIA's offer various workshops on hazardous materials compliance throughout the year. Sometimes these workshops are industry specific such as those for commercial laundry facilities or automotive repair facilities. The City of San Jose offers workshops assisting permit compliance in different languages. Other agencies such as the EPA, CalEPA, Santa Clara Valley Water District, The Regional Water Quality Control Board, and The Department of Toxic Substance Control offer a variety of workshops and training sessions for the responsible party addressing pollution prevention practices and permitting.

Nonprofit environmental education and permit assistance centers

- **Business Environmental Assistance Center (BEAC) is a non profit organization that assists businesses specifically with environmental compliance issues, including educational programs, counseling and site visits. BEAC can also supply examples of forms and applications and aids in interpretation of codes and regulations. A benefit to this organization is that a representative from the BEAC organization is also present at the monthly hazardous materials subcommittee meeting. This participation provides the representative with first hand information on code changes, regulations, and an insight to the concerns and priorities of regulations various cities enforce.**
- **Another type of permit assistance centers available to business owners is funded by Cal EPA and staffed by experts from various state, regional and local agencies. An example of this type of organization are the North Bay and Santa Clara Valley Permit Assistance Centers, projects of Governor Pete Wilson, and the Silicon Valley Small Business Development Center (SBDC) at West Valley-Mission Community College. As non profit entities, their goals and functions are similar to BEAC. These organizations have merit, however, often business owners are**

hesitant to use this type of assistance center for fear of revealing their facilities possible failure with compliance issues to staff members who may be county regulators. On the beneficial side some business owners may prefer to speak with a regulator. How comfortable a business owners feels with the confidentiality of this service remains questionable.

Conferences and Symposia conducted by professional organizations

- Conferences and symposia offered in the county are usually hosted by various professional organizations. The following are examples of larger conferences that meet annually and have educational lectures: Hazmacon, Western Region Pollution Prevention Conference, California Water Environment Association Northern Regional Training Conference, and the Northern California Fire Prevention Conference.

APPENDIX D

- 1) Appendix D contains examples of inspection sheets used by each LIA. These inspection sheets are completed by the designated inspector of each jurisdiction for the purpose of facility inspection of permit compliance. Completed inspection sheets are maintained in LIA archives and available for public review. The information contained on these inspection sheets in the 1997 year will be reviewed and tabulated for the selected compliance matrix categories.

County of Santa Clara
Environmental Resources Agency
Hazardous Materials Compliance Division

2220 Moorpark Avenue
P.O. Box 28070
San Jose, CA 95159-8070
(408) 299-6930
Fax (408) 280-6479

HAZARDOUS MATERIALS STORAGE PROGRAM VIOLATION CODES GENERAL STORAGE PROVISIONS

*Authority Cited: Hazardous Materials Storage Ordinance (SO); Health and Safety Code (H&SC);
California Code of Regulations, Title 8, Div. 4.1 (CCR).*

This document has been prepared to explain Violation Codes associated with the storage of hazardous materials which may have been noted in the attached Santa Clara County Hazardous Materials Compliance Division (HMCD) Official Notice of Inspection. The sections of State Law and local Ordinance corresponding to each Violation Code have been briefly described. For a complete citation of these laws and regulations, it is recommended that you subscribe to a regulatory update service, visit your local library, or visit our office located at 2220 Moorpark Avenue in San Jose, where the complete text of the laws/regulations referenced below can be viewed. Copies of those documents which are not protected by copyright can be obtained at a cost of \$1.70 for the first page and 5 cents for each additional page. A copy of the Hazardous Materials Storage Ordinance (HMSO) may be obtained for \$3.00. If you would like to discuss any interpretations of these laws or regulations, please call our department at (408) 299-6930 and ask for the Hazardous Materials Storage Program Supervisor.

A. Permits, HMBP/HMMP

V	N/A	Violation Code	Regulatory Citation	
☐	☐	2300	SO 301.634, 303.01	Hazardous Materials Storage Permit - Any facility that stores or uses hazardous materials must apply for and obtain a hazardous materials storage permit from HMCD.
☐	☐	2301	H&SC 25503.5	<p>Hazardous Materials Business Plan (HMBP) Submitted/Complete - The owner of a facility must complete a HMBP and submit a copy to HMCD for each site which handles any individual hazardous material or mixture containing a hazardous material which has an aggregate quantity on site at any one time during the reporting year equal to or greater than 500 pounds for solids, 55 gallons for liquids, or 200 cubic feet for gases. It must include:</p> <ul style="list-style-type: none"> ☐ Hazardous materials inventory information (i.e. Non-Waste Hazardous Materials Inventory Statement and, if applicable, Hazardous Waste Inventory Statement); ☐ Emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material, including, but not limited to, notification of local emergency response agencies, HMCD, and the state Office of Emergency Services; procedures for the mitigation of a release or threatened release to minimize any potential harm or damage to persons, property, or the environment; and evacuation plans and procedures, including immediate notice, for the facility. ☐ Training for all new employees and annual training, including refresher courses, for all employees in safety procedures in the event of a release or threatened release of hazardous material, including, but not limited to, familiarity with facility emergency response plans and procedures.

[Notes: (1) There are limited exceptions to the reporting quantities specified above. The exceptions are listed in the Hazardous Materials Business Plan Information Sheet. (2) Any hazardous material in a rail car or rail or marine freight container remaining at a facility longer than 30 days is deemed stored and subject to HMBP requirements. Per H&SC 25501.4(c), HMCD must be notified immediately of such storage.]

Hazardous Materials Storage Program Violation Codes: General Storage Provisions - Page 2 of 5

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V	NA	Violation Code	Regulatory Citation	
☐	☐	2302	H&SC 25505(b) 25510	<p>HMBP Changes Reported - Within 30 days of any one of the following events, a facility shall submit to HMCD an amended HMBP:</p> <ol style="list-style-type: none"> 1. A 100% or more increase in the quantity of a previously disclosed material; 2. Any handling of a previously undisclosed hazardous material in HMBP quantities; 3. Change of business address; 4. Change of business ownership; 5. Change of business name; 6. A substantial change in the handler's operations (e.g. personnel changes, installation or closure of hazardous materials storage/handling systems, etc.) occurs.
☐	☐	2303	H&SC 25505(c)	<p>HMBP Biennial Review - A facility shall review its HMBP at least once every two years to determine if a revision is needed and shall certify to HMCD that the review was made and that any necessary changes were made to the plan. A copy of any changes to the plan shall accompany the certification.</p>
☐	☐	2304	H&SC 25503.6	<p>Written Notice to Property Owner - Any facility which is required to establish and implement a HMBP and is located on leased or rented real property shall notify, in writing, the owner of the property that the business is subject to HMBP requirements (i.e. H&SC, 25503.5) and has complied with its provisions, and shall provide a copy of the HMBP to the owner or the owner's agent within five working days after receiving a request for a copy from the owner or the owner's agent. A copy of this notification should be kept at the facility.</p>
☐	☐	2305	H&SC 25505(d)	<p>Hazardous Materials Inventory Statement (HMIS) Submitted/Complete - Any facility that handles hazardous materials in HMBP quantities shall submit an inventory of those chemicals in a format approved by HMCD. This form must be updated whenever any substantial change to the inventory is made, and, this form must be reviewed and submitted to HMCD annually.</p>
☐	☐	2306	SO 304.01	<p>Hazardous Materials Management Plan (HMMP) Submitted/Complete - Any facility that stores or uses hazardous materials in quantities less than those specified for the HMBP must file a HMMP. The HMMP shall be updated any time there is a significant change in the quantities of hazardous materials or changes in the process in which the hazardous materials are being used. (Note: The Hazardous Materials/Waste Registration Form serves as a Short Form HMMP.)</p>
☐	☐	2307	SO 303.01	<p>Permit for Installation/Construction/Repair/Closure - Any facility which intends to install, construct, upgrade, repair, or close a hazardous materials storage/handling system or area (e.g. tank, room, etc.) must first obtain a permit from HMCD.</p>
☐	☐	2308	SO 303.06(b)	<p>Modifications to a Facility - Any substantial modification to, or repair of, a storage facility, other than minor or emergency repairs, shall be performed in accordance with written plans submitted to and approved by HMCD prior to the initiation of work.</p>
☐	☐	2309	SO 303.04(a) 303.04(c)	<p>Abandoned Facility or Tank - No hazardous materials storage facility may be abandoned. Owners/operators of facilities permanently taken out of service, or which are not monitored in accordance with an approved written monitoring plan, shall submit a closure plan application and obtain a closure permit at least 30 days prior to final closure of the facility or aboveground/underground storage tank. Once the plan has been approved, a final walkthrough inspection must be completed by HMCD.</p>

B. Separation, Containment, Monitoring

V	N/A	Violation Code	Regulatory Citation	
☐	☐	2310	SO 303.03	Secured Storage Areas - Access to hazardous materials storage areas shall be secured by means of fences and/or locks. Gates and doorways to such areas shall be kept securely locked when unattended.
☐	☐	2311	SO 303.02(c)	Separation of Incompatible Materials - Materials which in combination might cause a fire, explosion, or the production of a flammable or toxic gas shall be separated so as to avoid potential intermixing in the event of a release.
☐	☐	2312	SO 303.07(a)	Safe Chemical Handling - Dispensing and mixing of hazardous materials shall not be done in such a manner as to substantially increase the risk of an unauthorized discharge.
☐	☐	2313	SO 303.07(b)	Movement of Materials Within Facility - Hazardous materials shall not be stored in a travel path (e.g. hallway, aisleway, etc.). They may remain in the travel path only for the time reasonably necessary to move them. Such movement shall be in a manner which will not result in an unauthorized discharge.
☐	☐	2314	SO 303.02(c)(1)	Primary Containment Product-Tight - All primary containment (i.e. the container in which a material is stored) used for the storage of hazardous materials shall be product-tight (i.e. not leaking and compatible with the chemical being stored).
☐	☐	2315	SO 303.02(c)	Secondary Containment Provided - Secondary containment (i.e. containment external to and separate from primary containment) constructed so as not to be structurally weakened as a result of contact with the material stored shall be provided. It shall be capable of containing 110% of the volume of the primary container if a single container is used, or in the case of multiple containers, 150% of the volume of the largest container or 10% of the aggregate, whichever is larger. In addition, the secondary containment, if open to rainfall, must be capable of accommodating the volume of a 24-hour rainfall from a 100-year storm (i.e. approximately an additional 4 1/2 inches in depth or height of the secondary containment).
☐	☐	2316	SO 303.02(f)	Removal of Water from Secondary Containment - Any water which has entered the secondary containment shall be removed, analyzed for contamination by hazardous substances, and disposed of properly. A system to prevent uncontrolled removal of such water shall be provided.
☐	☐	2317	SO 303.02(d)	Overfill Protection Provided - Primary containment of tanks holding hazardous materials shall be equipped with a high-level alarm (i.e. an alarm which sounds when the tank is 90% full) and/or other approved overfill protection devices to prevent spills when filling the tank.
☐	☐	2318	SO 303.02(b) 303.05(a)	Monitoring System (Provided) - Each area in which hazardous materials are stored shall be monitored. Monitoring methods shall include at least one system for detecting leakage from the primary containment. Visual inspection of both primary and secondary containment is preferable; however, other methods may be allowed or required by HMCD. Per SO, 303.04(b), facilities which are temporarily out of service, and are intended to be returned to use, shall continue to be monitored and inspected.
☐	☐	2319	SO 303.03 304.01	Monitoring System (Approved) - Procedures and/or equipment used to monitor hazardous materials must be approved by HMCD.

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V	N/A	Violation Code	Regulatory Citation	
☐	☐	2320	SO 303.05(b)	Inspection and Testing of Monitoring Equipment - All monitoring systems shall be tested and inspected monthly, at a minimum, to ensure that they are in working order. Records of all inspection/maintenance/repairs shall be kept on-site and be available for inspection by HMCD.
☐	☐	2321	SO 303.05(a)	Visual/Audible Alarm - Whenever monitoring devices are provided, they shall be connected to attention-getting visual and audible alarms.
☐	☐	2322	SO 303.03 304.02(d) 304.03(b)(4)	Written Monitoring Plan Approved/Implemented - A written monitoring plan must be prepared and submitted to HMCD. The monitoring plan shall describe the location, type, manufacturer specifications (if applicable), and suitability of monitoring methods used in each storage area. Frequency of monitoring must be specified. <i>(Note: Completion of the Aboveground Separation, Containment, and Monitoring Plan appendix to the HMBP will usually satisfy the requirement for a written plan.)</i>
☐	☐	2323	SO 303.05(b)	Monitoring/Maintenance Records - Any facility that stores or uses hazardous materials must test, monitor, and inspect the facility in compliance with the approved written monitoring plan and maintain records adequate to demonstrate compliance therewith. SO, 307.02 requires that the facility maintain an inspection check sheet or log, in a format approved by HMCD, designed to be used in conjunction with routine inspections. A blank copy of this log must be submitted as an attachment to the facility's HMBP.
☐	☐	2324	SO 303.06(a)	Maintenance, Repairs, or Replacement - The facility owner/manager shall carry out all necessary maintenance, ordinary upkeep, and minor repairs needed to keep equipment (e.g. monitoring systems, piping, etc.) in proper operating condition. This work shall be performed in a careful and safe manner. Emergency repairs may be made immediately, but within 5 working days after such repairs have been started, a written plan describing the repairs shall be submitted to HMCD for review and approval.

C. Training, Emergency Response, Unauthorized Discharges

V	N/A	Violation Code	Regulatory Citation	
☐	☐	2325	H&SC 25504(c)	Emergency Response Training - At facilities required to prepare a HMBP, training shall be provided for all new employees in the event of a release or threatened release of a hazardous material, including, but not limited to, familiarity with the facility's emergency response plans and procedures. Annual refresher courses shall be provided for all employees. The training program may take into consideration the position of each employee. It shall include, but not limited to, all of the following: 1. Immediate notification to HMCD and to appropriate local emergency rescue personnel and the State Office of Emergency Services. 2. Procedures for the mitigation of a release or threatened release to minimize any potential harm or damage to persons, property, or the environment. 3. The facility's evacuation plans and procedures.
☐	☐	2326	SO 303.09	Emergency Equipment - Emergency equipment shall be provided, regularly tested, and adequately maintained, and shall be reasonable and appropriate to potential emergencies presented by the stored hazardous materials.
☐	☐	2327	SO 303.10	Posted Emergency Procedures - Any facility which stores hazardous materials shall conspicuously post simplified emergency procedures (i.e. what to do in the case of fire, spill, etc.) in locations where hazardous materials are stored.

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V	N/A	Violation Code	Regulatory Citation	
☐	☐	2328	SO 306.01(a)(1)	<p>Unauthorized Discharge (Recordable) - Any facility which has had a recordable unauthorized discharge, must record it in the facility's monitoring records. A recordable unauthorized discharge is one that:</p> <ul style="list-style-type: none"> • Is from primary containment to secondary containment; and • Is cleaned up before it leaves the secondary containment; and • Results in no increase in the possibility of explosion or fire.
☐	☐	2329	SO 306.01(a)(1)	<p>Unauthorized Discharge (Reportable) - Any facility which has had a reportable unauthorized discharge must report it to HMCD immediately. A reportable discharge is any unauthorized discharge that does not meet the definition of a recordable discharge.</p>
☐	☐	2330	H&SC 25307(a)	<p>Reporting of Unauthorized Discharge - Any employee, authorized representative, agent, or designee of a facility shall, upon discovery, immediately report any release or threatened release of a hazardous material to HMCD.</p>
☐	☐	2331	SO 306.01(a) 306.02	<p>Cleanup of Unauthorized Discharge - Any business or facility which stores or uses hazardous materials shall initiate and complete all actions necessary to remedy the effects of any unauthorized discharge.</p>

D. Record Keeping, Labeling

V	N/A	Violation Code	Regulatory Citation	
☐	☐	2332	SO 307.05	<p>Records (Retention Time) - All records (e.g. maintenance, monitoring, training, unauthorized discharge logs, etc.) shall be maintained for no less than 3 years and must be available for review by HMCD upon request.</p>
☐	☐	2333	8 CCR 5227	<p>Labeling - Hazardous materials containers shall be labeled with either the chemical or common name (not trade name only) of the material and hazard information equivalent to that specified in 8 CCR, 5227(c) and 5228.</p>

E. Urban Runoff

V	N/A	Violation Code	Regulatory Citation	
☐	☐	2549	Ordinance No. NS-517.55 B11.5-3	<p>Illegal Discharge - It is unlawful to discharge, or cause, allow or permit to be discharged into any part of the stormwater system or watercourse any sewage, industrial wastes, petroleum or petroleum products, coal tar, chemicals, detergents, solvents, paints, contaminated or chlorinated swimming pool water, pesticides, herbicides and fertilizers, soil sediments, washwater, cans, bottles, refuse, motor vehicles or parts thereof, or any material that may be deleterious to aquatic life.</p>

HAZARDOUS MATERIALS SAFETY NOTICE

Business Name _____ Business Phone _____
 Business Address _____ Business Contact _____
 Date: _____ Start Time: _____ End Time: _____ Inspector: _____ Inspection #: 1/2 1/3 1/4 1/5

Mountain View City Code Requires Compliance with the Items Indicated Below:

- 1. PERMIT APPLICATIONS:**
- ☐ a. An up to date Environmental Compliance Plan shall be maintained on site at all times. Code Reference
(MVCC 24.4.2)
 - ☐ b. A Closure Plan shall be filed 30 days prior to closing a hazardous materials (hazmat) facility. (MVCC 24.7.2)
- 2. STORAGE AND HANDLING:**
- ☐ a. Backflow Prevention Device/Check Valve shall be provided to prevent backflow of hazmat. (MVCC 24.3.0.6 (b))
 - ☐ b. Gas cylinders not in use shall be chained and capped. Cylinders in use shall be adequately secured. (MVCC 24.3 (c)(2))
 - ☐ c. Construction Permits from the Building Division shall be obtained for new construction. (MVCC 24.3 (c)(1))
 - ☐ d. Defective containers, cylinder tanks or equipment shall be repaired or removed from service. (MVCC 24.3 (f))
 - ☐ i. Piping/ tubing containing Health Hazard 3 or 4 Liquids shall be provided with:
 - ☐ • Welded Connections or be secondarily contained;
 - ☐ • Fail-Safe-To-Close Emergency Shut-Off Valves at the point of use and source;
 - ☐ • Excess Flow Control for pressurized piping.
 - ☐ j. Flammable/oxidizing/phyphoric gas shall be provided with Fail-Safe-To-Close Emergency Shut-Off Valves at the point of use and at the source. (MVCC 24.3 (f)(7))
 - ☐ e. Containers Compatible with the hazardous materials being stored shall be provided. (MVCC 24.3 (d))
 - ☐ f. Approved Labeling shall be provided for the items specified below. (MVCC 24.3 (e))
 - ☐ g. Guard Posts (Bollards) shall be installed to protect the areas specified below. (MVCC 24.3 (g)(1))
 - ☐ h. Grounding rods/strapping straps shall be provided for flammable liquid dispensing. (MVCC 24.3 (g)(2))
 - ☐ i. High-Temperature Shut-Offs shall be provided for temperature-controlled equipment. (MVCC 24.3 (g)(4))
 - ☐ j. Housekeeping of hazardous materials storage/use areas shall be neat, clean, and orderly. (MVCC 24.3 (h))
 - ☐ k. Leak Detection (Monitoring) shall be installed for the materials listed below. (MVCC 24.3 (i)(7))
 - ☐ l. Liquid Level Controls shall be provided for over containers used in filling operations. (MVCC 24.3 (i)(8))
 - ☐ m. Placarding shall be provided at entrances to hazardous material storage/use locations. (MVCC 24.3 (j))
 - ☐ n. Safety Storage Cabinets shall be provided/upgraded as specified below. (MVCC 24.3 (k))
 - ☐ o. Secondary Containment shall be provided/upgraded for hazmat storage/use as described below. (MVCC 24.3 (l))
 - ☐ p. Incompatible hazardous materials shall be Segregated from one another as described below. (MVCC 24.3 (m))
 - ☐ q. Shelf-Bracing/Up Guards shall be provided for shelves storing hazardous materials. (MVCC 24.3 (n))
 - ☐ r. Spills/Leaks shall be cleaned up immediately and safely disposed of. (MVCC 24.3 (o))
 - ☐ s. Backup Temperature Control shall be provided for temperature sensitive materials. (MVCC 24.3 (p))
 - ☐ t. Approved Trucks/Carts shall be used for transport of hazardous materials thru exit corridors. (MVCC 24.3 (q))
 - ☐ u. Hazardous materials shall not be stored in or block any Travel Path. (MVCC 24.3 (r))
 - ☐ v. Ventilation shall be provided/upgraded to meet the conditions specified below. (MVCC 24.3 (s))
- 3. ADMINISTRATIVE**
- ☐ a. Emergency/Evacuation Procedures shall be posted in conspicuous locations. (MVCC 24.3.5)
 - ☐ b. Material Safety Data Sheets shall be kept up to date and readily available. (MVCC 24.3.6)
 - ☐ c. Airborne Solid Clean-Up Equipment shall be maintained at all times. (MVCC 24.3.7)
 - ☐ d. An Inspection Log for hazmat storage locations and safety equipment shall be maintained. (MVCC 24.4.2 (1))

☐ No Violations Observed During this Inspection.

Inspector/Comments _____

☐ A reinspection shall be conducted in Two Weeks. Additional inspections after the first reinspection are billed at \$75.00/hour and may be subject to civil and/or criminal penalties.

☐ All violations have been corrected. Thank You.

OCUPANT'S SIGNATURE _____

CITY OF MOUNTAIN VIEW

Fire Department • Environmental Safety Division • 1000 Villa Street • Mountain View, California 94041-1295
415-903-6378 • FAX 415-903-6122

HAZARDOUS MATERIALS SAFETY NOTICE: EXPLANATION OF VIOLATIONS

This sheet provides an explanation of some of the more common violations listed on your "Hazardous Materials Safety Notice" inspection form. If, after reading the pertinent sections, you still have questions, feel free to call the Environmental Safety Division at 415-903-6378.

2c) Repair/Construction Permits (MVCC 24.3.0.d.1)

The locations or pieces of equipment denoted on your "Safety Notice" have been modified, repaired, or installed without obtaining the proper building, mechanical, electrical, and/or fire permits. If these locations or pieces of equipment use or store hazardous materials, the hazardous materials must be removed immediately. Plans prepared by a registered architect, engineer, or licensed contractor must be submitted to the Building Inspection Division for review and issuance of permits. Hazardous materials may not be returned to these areas until the proper City inspections and releases have been obtained. Contact the Building Inspection Division at 415-903-6313 for information regarding plan check and permitting requirements.

2d) Defective Containers (MVCC 24.3.0(f))

Defective containers (including containers that are bulging, leaking, or weeping), cylinders, tanks, machinery, or other equipment shall be removed from service, repaired or disposed of in an approved manner.

2g) Container Compatibility (MVCC 24.3.0(c))

The containers used for storing your hazardous materials are incompatible with the hazardous materials themselves, and may react with or leak out of their containers. In general, flammable and combustible liquids should be stored in metal containers, and corrosive liquids (acids and bases) should be stored in plastic (polyethylene or polypropylene) containers.

2i) Guard Posts (Bollards) (MVCC 24.3.0(o))

Guard posts (bollards) shall be provided to protect storage tanks and connected piping, valves and fittings in areas subject to vehicular traffic. They shall meet the following criteria:

- 1) Constructed of steel not less than 4 inches in diameter and concrete-filled;
- 2) Spaced not more than 4 feet apart on center;
- 3) Set not less than 3 feet deep in a concrete footing of not less than 15 inch diameter;
- 4) Set with the top of the post not less than 3 feet above ground; and
- 5) Located not less than 5 feet from the tank and associated piping.

2j) Grounding/Bonding (MVCC 24.3.0(j))

Grounding (copper) rods 1/2" thick x 8' long shall be installed into the ground in areas where Class I flammable liquids and Class IIA combustible liquids are dispensed if no other grounding devices exist. Bonding straps shall connect the dispensing container to the grounding rod and the container being dispensed into during dispensing activities.

2k) High-Temperature Shutoffs (MVCC 24.3.0(k))

Process tanks, vapor degreasers, or any other equipment which is temperature-controlled must have a high-temperature shutoff and low liquid level shutoff, or other acceptable limit controls to maintain the temperature and product level within a safe range. This equipment must be inspected at least monthly and maintained in proper working order at all times.

2l) Housekeeping (MVCC 24.3.0(i))

Areas where hazardous or other regulated materials are stored (including empty containers) shall be neat and orderly and shall not obstruct exist or travel pathways.

415-903-6378

2m) Leak Detection (Monitoring) (MVCC 24.3.0(m))

If visual inspection of the entire primary containment of the tank, piping, etc. cannot be performed, an electronic leak detection system must be installed. The leak detection system must be connected to an audible and visual alarm and the alarm must be located in areas normally staffed with personnel trained in emergency response procedures. Leak detection devices must remain fully functional at all times.

2n) Liquid Level Controls (MVCC 24.3.0(n))

Containers used to accumulate hazardous material liquids must be equipped with an electronic liquid level limit control which will shut off the flow of product to the container at a given product height to prevent overflow of the container.

2r) Separation of Incompatibles (MVCC 24.3.0(r))

Materials that in combination may generate heat, cause a fire or explosion, or the production of a flammable, toxic, or poisonous gas, or the deterioration of the primary or secondary container must be separated in both the primary and secondary containment to avoid potential intermixing. For example, acids must be segregated from bases, oxidizers must be segregated from flammables, etc. Incompatible materials may be separated by:

- 1) Segregating incompatible materials storage by a distance of not less than 20 feet and an independent secondary containment system. This 20 foot distance is not required if the secondary containment systems can be shown to completely isolate all possible spillage so that intermixing cannot occur;
- 2) Isolating incompatible materials storage by a noncombustible partition extending not less than 18 inches above and to the sides of the stored material;
- 3) Storing liquid and solid materials in hazardous materials storage cabinets; or
- 4) Storing compressed gases in gas cabinets or exhausted enclosures.

2s) Shelf Bracing/Lip Guards (MVCC 24.3.0(s))

Shelves used for storing hazardous materials shall be of substantial construction and adequately braced. Shelves shall be provided with a non-flexible lip guard or barrier across the front to prevent containers from falling over.

2u) Temperature Control (MVCC 24.3.0(u))

Hazardous materials stored at temperatures other than ambient temperature shall be stored in approved areas or containers which provide a means to maintain the temperature within a safe range. Redundant temperature control (backup power) which will operate upon failure of the primary temperature control system shall be provided.

2x) Ventilation (MVCC 24.3.0(x))

If corrosion of fixtures, high vapor levels, or other signs indicating unacceptable levels of ventilation are present, the fire chief or his designee may require you to hire an independent contractor to inspect the poorly ventilated area and propose adequate improvements.

For vapors and fumes heavier than air, exhaust shall be taken from a point within 12 inches of the floor. Exhaust ventilation shall not be recirculated within the room or building if the materials stored there are capable of emitting hazardous vapors.

3a) Emergency/Evacuation Procedures (MVCC 24.3.5)

Simplified emergency procedures (map showing evacuation route and emergency phone numbers) shall be posted in locations listed on the "Safety Notice".

3c) Spill Equipment (MVCC 24.3.4)

Your company must have the equipment necessary to handle and control a hazardous materials reaction or spill from the hazardous materials you have at your site. At a minimum, this might include absorbent, shovels, personal protective equipment (gloves, goggles), etc.

3d) Inspection Log (MVCC 24.4.2(g))

An ongoing inspection procedure must be established for detecting malfunctions and deterioration of containers and equipment, hazardous materials spills, poor housekeeping practices, proper function of safety equipment (eye washes, safety showers), etc. It is recommended that a log sheet be developed and filled out on a periodic basis which includes, at a minimum: 1) name of inspector; 2) date and time of inspection; 3) problems found; 4) date and time corrective action was implemented; and 5) countersignature of the designated safety manager for the facility.

INS4.1		CITY OF SANTA CLARA - FIRE INSPECTION FORM		Page 1
Location Code:				TIME IN:.....
Number of Businesses:				TIME OUT:
Bus. Name:	Addr:	Phone:		
BLF: _____	Inspect Date: _____	Date Last Inspected: _____		
Inspection Type: _____				
BUSINESS:				
Bus. Name (Unabbreviated)	Bus. Addr	Bus. Phone		

CONTACTS: (Emergency, Building, & Business)				
> > > Emergency: (3 or more)				
Name			Home Phone	
_____			_____	
_____			_____	
> > > Building Owner:				
Name			Bus. Phone	
_____			_____	
> > > Business:				
Name			Bus. Phone	
_____			_____	
Business Description: _____				
Station: _____	Zone: _____	Inspect Freq: _____	Occ. Class: Bus: _____	Blg: _____
FIRE PROTECTION SYSTEMS:				
Extent of Coverage _____			Complex Code:	
Sys. Type	Full Bldg	Full Unit	Spec Haz Only	Special Hazard Description
by				
			Certification Monitoring	
			Cert Date Mon Mon	
HAZARDOUS MATERIALS:				
Haz. Mat. Business Plan		Underground Tanks		
Business Plan Required		Number of Tanks Reported		
Emerg. Resp. Plan Revised		Actual Number On-Site		
Training Plan Revised		Monitoring System Operational		
Monitoring Plan Revised				
Inspector: _____	Rig: _____	Duration of Inspection - Hr. _____ : Min. _____		
Complete: Y or N		BL Expiration Date: _____		
VIOLATIONS:				
Code	Description	Date	Cmt	Comm
FEE ASSESSMENTS:				
Code	Description	Fees		
COMMENTS: (R.A.G.)				

Required Fields shown by solid Underlines
FP209(s)

Admin. fields shown by dashed Underlines
Rev. 7-92

ANNUAL PERMIT FEES
SANTA CLARA FIRE DEPARTMENT
(Authorized by Municipal Ordinance)

SPECIAL OCCUPANCIES

01. Automobile Wrecking Yard	\$30.00	42. Institution (7-49 persons)	\$30.00
46. Welding or Cutting	\$50.00	43. Institution (over 49 persons)	\$90.00
03. Cellulose Nitrate Storage	\$30.00	29. Lumber Yard (over 100,000 board feet)	\$40.00
04. Combustible Fiber Storage	\$20.00	37. Places of Assembly (over 49 persons)	\$40.00
09. Dry Cleaning Plant	\$20.00	44. Tint Recapping	\$30.00
15. Garages (repairs)	\$30.00	45. Waste Material Handling Plant	\$40.00

SPECIAL PROCESSES

14. Print Exposure	\$30.00	35. Organic Coatings	\$40.00
30. Magnesium Working	\$40.00	41. Spraying or Dipping (Flammable Liquids)	\$40.00

SPECIAL EQUIPMENT

36. Ovens (industrial baking & drying)	\$40.00	40. Refrigeration Equipment (Industrial)	\$40.00
--	---------	--	---------

SPECIAL SUBJECTS

05. Combustible Liquids Inside (over 25 gal.)	\$50.00	21. Hypergolic Material (any amount)	\$65.00
06. Combustible Liquids Outside (over 60 gal.)	\$40.00	28. Liquid Petroleum Gas (over 120 water gal.)	\$40.00
08. Compressed Flammable Gas (over 200 cf.)	\$65.00	31. Matches	\$40.00
07. Compressed Non-Flammable Gas (over 6000 cf.)	\$40.00	32. Medical Gas System	\$40.00
50. Corrosives (over 55 gal., 200 cf., 500 lbs.)	\$65.00	34. Nitrate Film	\$40.00
19. Cryogenics (any amount)	\$65.00	23. Organic Peroxides (over 10 lb.)	\$65.00
10. Dust Producing Operations	\$50.00	24. Oxidizing Materials (10 lbs. 200 cf. exempt residential)	\$65.00
11. Explosives or Blasting Agents (Obtain at Fire Prevention Bureau - See (2) Plan Checking/Inspection)	\$100.00	38. Public Fireworks Display	\$90.00
12. Flammable Liquids Inside (over 5 gal.)	\$65.00	26. Pyrophoric Material (any amount)	\$65.00
13. Flammable Liquids Outside (over 10 gal.)	\$50.00	57. Radioactives (Table 4.111)	\$40.00
51. Flammable Solids (10 lbs.)	\$65.00	54. Toxic Material (any amount/includes Highly Toxic)	\$65.00
52. Halogenated Hydrocarbons (over 55 gal.)	\$65.00	55. Underground Tanks (per tank)	\$100.00
27. High Piled Combustible Stock	\$40.00	56. Unusable (Resective) Material (any amount)	\$65.00

OCCUPANCY HAZARD CLASS

93. Extra Hazard	\$75.00	92. Light/Ordinary Hazard	\$20.00
------------------	---------	---------------------------	---------

PERSON CONTACTED

Name: _____ Phone: (____) _____ Ext.: _____

ZONE 4 REQUEST

☐ < Add to Zone 4 Remove from Zone 4 > ☐

Type of Business:

- ☐ Phone Number at an Answering Service ☐ P.O. Box
- ☐ Contract Labor (No property, No equipment) ☐ Other

Description of Business: (If Nature of Business is Contract Labor or Other)

Disapproved _____

Date _____

Approved _____

FF209

Distribution: Original to Administrative Services

Rev. 7-92

TOTAL F.E.S.

San Jose Fire Department
Four North Second Street
Suite 1100
San Jose, CA 95113-1305

RECORD OF INSPECTION
TELEPHONE (408) 277 -

File Number: PAGE OF

GUS. ACCL. REC. GUS. START DATE

San Jose, CA 95113-1365

FS ☐ HX ☐ HSE ☐ PR ☐

Street Number Dr Street Name Type Zip Building Line Metro Page X Y 1st Out C

BUSINESS INFORMATION

Business Name Business Phone Plan Check

Business Owners Name (Last First) Area Code Emergency Phone Number

BILLING INFORMATION

Street Number Dr Street Name Type Area Code Emergency Phone Number

City State Zip Code

BUILDING INFORMATION

Use UBC ☐ CEM UBC ☐ Ring Zone ☐ NFPA ☐ SC ☐ Bldg. ☐ MFR ☐ Yr. Const ☐ Stories ☐ Sc. Pl. G. Fr. ☐

Spill ☐ Seepage ☐ 5 Yr. Test Date ☐ Asmt ☐ Spcc. Sys. ☐ Assembly ☐ Q/L ☐ Dining ☐

HAZ MAT INFORMATION

UG Tanks ☐ Tank Type ☐ Monitor ☐ AG Tanks ☐ Tank Gas ☐ Flammable Gas ☐ Gas Mon. ☐ HMIQC ☐ HMIUP ☐

Initial Inspection ☐ Completion Date ☐ Employee/Company No. ☐ Notes ☐

NOTICE OF FIRE AND SAFETY HAZARDS AND OF PERMITS REQUIRED

You are hereby notified that an inspection of your premises has determined that the following permits are required and/or that correspondence is required for the following violations of the following provisions of Title 18, Title 24 or Title 25 of the California Code of Regulations, the California Health and Safety Code, or the San Jose Municipal Code.

[illegible]

HMMP: DATE RECD: DATE APPROVED: PERMIT STATUS: Z E V

REPRINT THIS INFORMATION
FOR REFERENCE NEXT YEAR

Inspections are billed in 30 minute increments with a 1 hour minimum for initial inspections; e.g. 30 minutes = 1, 1 hour = 2; 1:30 = 3; etc.

[illegible]

TIME						NO FEE []
DATE						
OCC. INIT.						

FILE COF

ORDER TO COMPLY:

As such conditions are contrary to law, you are hereby required to correct said conditions immediately upon receipt of this notice.

An inspection to determine whether or not you have complied with this notice will be conducted on or after _____ days.

Failure to comply with the foregoing order by the date of reinspection may cause a CITATION to be issued for the penalties provided by law for such violations and may also render you liable for all suppression costs that might occur in the event of a fire.

X
Occupiers

X
Inspecting Officer (Print Name, Assignment)

X
Inspecting Officer : (Signature)

7544

San Jose Fire Department:
Four North Second Street
Suite 1130
San Jose, CA 95113-1305

RECORD OF INSPECTION

SUPPLEMENT

FS	MM	LR	PR

File Number:

PAGE OF

Entomology No.

STEEL NUMBER

37.

Street Name

Low

D. Williams / *Int. J. Gerontology* 36 (2002) 103–112

NOTICE OF FIRE AND SAFETY HAZARDS AND/OR PERMITS REQUIRED:

You are hereby notified that an inspection of your premises has disclosed the following permits are required and/or that corrections are required for the following violations of the following provisions of Title 19, Title 24 or Title 25 of the California Code of Regulations, the California Health and Safety Code or the San Jose Municipal Code.

[illegible]

TIME

DATE _____

OCC.

INT.

NO FEE

ORDER TO COMPLY:

As such conditions are contrary to law, you are hereby required to correct said conditions immediately upon receipt of this notice.

An inspection to determine whether or not you have complied with this notice will be conducted on or after _____ day(s).

Failure to comply with this foregoing order before the date of such reinspection may render you liable to the penalties provided by law for such violations.

FILE COPY

x

Occupation

X

Inspecting Officer (Print Name, Assignment):

Y

Inspecting Officer (Signature)

**FIRE DEPARTMENT
SANTA CLARA COUNTY**

14700 Winchester Blvd., Los Galos, CA 95030-1318
(408) 378-4010 (phone) • (408) 378-9342 (fax)

INSPECTION NOTICE

- ☐ Annual - Cycle _____
☐ Reinspection
☐ Construction
☐ Final
- Page _____ of _____

Address	Suite	Occ. Class	Date
Occupancy		Occ. Load	Phone

Memo To: _____ From: _____

ITEM #

This image shows a blank sheet of white paper with horizontal blue or grey ruling lines. A single vertical line runs down the left side, creating a narrow margin. The paper appears to be from a notebook or a standard ruled document. There are no markings, text, or drawings on the page.

21-97 FR: 14:51

PALO ALTO FIRE DEPT.

City of Palo Alto

FIRE PREVENTION BUREAU
250 HAMILTON AVENUE

(415) 329-2184
PALO ALTO CA. 94301

RECORD OF FIRE INSPECTION

FPB-8 REV.8/95

ID NUMBER _____ BUSINESS NAME _____ ADDRESS _____ PHONE _____
EMERGENCY CONTACT _____ PHONE NO _____ S. PIPE _____ ALARM _____ SPRINKLER _____
PROPERTY OWNER _____ ADDRESS _____ PHONE _____ UDC _____ SQ. FT. _____
ENG. CO. _____ SHIFT _____ TYPE _____ DURATION _____ INSPECTION DATE _____ INSPECTOR _____ LEVELS UP _____ DOWN _____

NOTICE OF FIRE & SAFETY HAZARDS: You are hereby notified that an inspection of your premises has revealed the following violations:

GENERAL

- ☐ G1 Address posted and visible
- ☐ G2 Knox box required with current keys
- ☐ G3 Maintain 30" clearance of combustibles to heat producing appliances
- ☐ G4 Repair openings in walls, ceilings, etc., to reduce fire spread
- ☐ G5 Permits required _____
- ☐ G6 Use and Occupancy permit required and posted

ELECTRICAL

- ☐ E1 Discontinue use of extension cords in lieu of permanent wiring
- ☐ E2 Maintain 36" clearance in front of electrical panel
- ☐ E3 Remove extension cords under rugs, furniture, or subject to damage
- ☐ E4 Place unprotected wiring through floor and walls in conduit
- ☐ E5 Cover plates missing

EMERGENCY LIGHTING

- ☐ EL1 Emergency lighting required
- ☐ EL2 Maintain in proper working condition
- ☐ EL3 Adjust to illuminate exit pathways
- ☐ EL4 Additional lighting required

EXITS

- ☐ EX1 Provide or maintain exit sign(s)
- ☐ EX2 Remove storage and obstructions from exit aisles, corridors, and stairways and self-closing doors
- ☐ EX3 Unlock all exit doors when building is occupied
- ☐ EX4 Remove all other locks or latches from doors with panic hardware
- ☐ EX5 Exit doors and paths shall not be obstructed
- ☐ EX6 No storage beneath stairways.
- ☐ EX7 Corridors serving 30+ 1 hr rated with 20 min self-closing doors
- ☐ EX8 Panic hardware required when occupant load exceeds 50

FIRE ALARM SYSTEMS

- ☐ FA1 Maintain Fire Alarm System in operable condition
- ☐ FA2 Inspect and test Fire Alarm System monthly and maintain records
- ☐ FA3 Audible alarm in need of repair or replacement
- ☐ FA4 Connect to an approved U.L. central station
- ☐ FA5 Replace smoke detector battery annually

FIRE PROTECTION EQUIPMENT

- ☐ FP1 Service portable fire extinguisher(s) annually or after each use.
- ☐ FP2 Provide a 2A-10 BC extinguisher(s) within 75' travel distance for every 1000 square feet of area
- ☐ FP3 Provide a 40 BC extinguisher in the commercial kitchen area
- ☐ FP4 Mount extinguishers where ready to use with top not higher than 5'
- ☐ FP5 Post signs indicating where extinguishers are not readily visible
- ☐ FP6 Service hood and duct systems every 6 months and after each use
- ☐ FP7 Identify sprinkler control valves and secure in open position
- ☐ FP8 Maintain access to fire department connections, sprinkler control valves, standpipes, hydrants or other fire protection devices
- ☐ FP9 5 year certification of sprinkler system required
- ☐ FP10 Provide spare automatic sprinkler heads (6 min.) and wrench
- ☐ FP11 Storage shall be at least 18" below sprinkler heads
- ☐ FP12 Sprinkler alarm sounds audibly within 90 seconds of activation
- ☐ FP13 Sprinkler fire alarm requires 24 hour monitoring/supervision

HAZARDOUS MATERIALS

- ☐ HM1 Provide secondary containment
- ☐ HM2 Label all containers and provide placarding in required areas
- ☐ HM3 Separate incompatible materials

FLAMMABLE LIQUIDS AND PROCESSES

- ☐ FL1 Provide flammable liquid cabinet for storage > 10 gals
- ☐ FL2 No storage of flammable liquids in corridors or exits
- ☐ FL3 No storage of Class IA flammables in basements
- ☐ FL4 No cleaning with flammable liquids
- ☐ FL5 Bonding and grounding required for dispensing

COMPRESSED GASES

- ☐ CG1 All cylinders secured by 2 metallic restraints
- ☐ CG2 Damaged cylinders removed from service
- ☐ CG3 Medical gas stored indoors - 1 hour separation, vented to exterior.
- ☐ CG4 Emergency shut off valve necessary for medical gas piping systems
- ☐ CG5 No other material stored with medical gases

REFER TO:

- ☐ Fire Prevention Bureau
- ☐ Hazardous Materials Division

COMMENTS

ORDER TO COMPLY: As such conditions are contrary to law, you are hereby required to correct said conditions immediately upon receipt of this notice. An inspection to determine whether or not you have complied with this notice will be conducted within _____ days. Failure to comply with the foregoing order before the date of such reinspection may render you liable to the penalties provided by law for such violations.

X _____
Occupant's Signature

X _____
Inspector's Signature

White Copy File

Yellow Copy Station File

Pink Copy Contact

FPB 8A

RECORD OF ADDITIONAL INFORMATION

City of Palo Alto

FIRE PREVENTION BUREAU

(415) 328-2184

250 HAMILTON AVENUE PALO ALTO, CALIFORNIA 94301

BUSINESS NAME		BUSINESS ADDRESS	
BUSINESS PHONE		BUSINESS FAX	
BUSINESS TYPE		BUSINESS ROOM	

CONTACT WITH _____

TYPE & SF	DURATION	DESTRUCTION DATE	DESTRUCTOR	DATE	BY
-----------	----------	------------------	------------	------	----

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

HAZARDOUS MATERIALS STORAGE ORDINANCE INSPECTION GUIDE

BUSINESS ADDRESS _____

BUSINESS NAME _____

FACILITY CONTACT _____

PHONE NUMBER _____

Sunnyvale Department of Public Safety
 Fire Prevention Bureau
 700 All America Wy
 Post Office Box 3707
 Sunnyvale, CA 94088-3707
 (408) 730-7212

_____ Annual Inspection _____ 1st Re-Inspection _____ Re-Inspection _____ Re-Inspection Fee Due \$ _____

A. REQUIRED DOCUMENTATION CODE SECTION LOCATION AND/OR COMMENTS

1. Submit a Hazardous Materials Management Plan (HMMMP)	20.16.010 SMC	
_____ Long Form _____ Short Form		
2. Submit MSDS information	20.20.020 SMC	
3. Submit permit fees	20.32.120 SMC	
4. Submit and update Hazardous Materials Inventory Statement	20.20.010 SMC	

B. ABOVEGROUND STORAGE REQUIREMENTS CODE SECTION

1. Provide secondary containment for chemical storage	20.12.020 SMC
2. Establish monitoring program/maintain written log	20.12.050 SMC
3. Maintain required separation for incompatible materials	20.12.020 SMC / 80.301 UFC
4. Provide approved flammable liquid storage cabinet(s)	79.201 UFC
5. Reduce volume of regulated materials in storage area	20.12.010 SMC / 80.301 UFC
6. Provide proper dispensing system for flammable liquids	79.802 UFC
7. Properly secure all compressed gas cylinders	49.104 & 74.107 UFC
8. Submit an Aboveground Storage Closure Plan	20.32.080 SMC

C. HOUSEKEEPING CODE SECTION

1. Thoroughly clean secondary containment/maintain in dry state	20.24.010 SMC
2. Clean asphalt/concrete surface	20.24.010 SMC
3. Properly label regulated chemicals	80.104 UFC
4. Post NFPA #/704 placards	16.52.080 SMC
5. Label waste collection containers/accumulation start date	Title 22 66262.34
6. Properly dispose of hazardous waste within 90-days	Title 22 66262.34

D. UNDERGROUND STORAGE REQUIREMENTS CODE SECTION

1. Provide an approved system for tank monitoring	20.12.050 / 21.24.020 SMC
2. Provide overfill protection for the tank	21.20.010 SMC
3. Provide log for scheduled monitoring results	21.24.020 SMC
4. Submit an Underground Storage Facility Closure Application	20.32.080 / 21.36.020 SMC
5. Submit required monitoring data for underground storage facilities	20.12.030 SMC

E. OTHER

1. All violations are to be corrected immediately
2. Provide a written response within _____ days

Signature of Company Representative _____

HazMat Inspector / Phone Number _____

Date / Time of Inspection _____

PS-292 (R:02/94)

Chemical Control Inspection Report

7351 Rosanna Street, Gilroy, CA 95020
(408) 848-0430 • Fax: (408) 848-0429

Company _____ Contact _____ Phone _____
Address _____ Time _____ Date _____

Type: 1 Pretreatment 3 Scheduled 5 Sampling 7 Follow-up 9 New permit 11 UST
2 Haz Mat 4 Unshed 6 Fld Invest 8 Complaint 10 Swim Pool 12 HAZ WST

PRETREATMENT FACILITY: 13 PMT RQD/PSTD (3.2) 1 2 3 17 pH METER (2.1) 1 2 3
14 GREASE INTRCP (2.13) 1 2 3 18 FLOW MTR (SEC 4) 1 2 3
15 WASH RACK (2.1) 1 2 3 19 SCREENS (4.5) 1 2 3
16 DSCH/STORM DRN (SEC 2) 1 2 3 20 PMT COND (3.3) 1 2 3

HAZARDOUS MATERIALS: 21 PMT RQD/PSTD (8001.3) 1 2 3 25 PLCARD (NFPA 704 A) 1 2 3
22 SEC CNTNMT (8003/7901.8) 1 2 3 26 HSEKPG (7901.7) 1 2 3
23 SEPARATION (8001/7902) 1 2 3 27 LABELING (IV.02/7901.9) 1 2 3
24 AREA SECURE (8001) 1 2 3 28 MONITORING (7901.8) 1 2 3

MANAGEMENT: 29 INP LOGS (VI.02 E) 1 2 3 33 EMRG PLN PSTD (111.10) 1 2 3
30 HZ WST GEN# (CCR 66262.12) 1 2 3 34 TRNG PROG (80.109) 1 2 3
31 HAULER RCP (CCR 66262.12) 1 2 3 35 SIGNAGE (8001.7) 1 2 3

RECORDS: 32 AVAILABLE (IV.02 C) 1 2 3 36 GREASE TRP REMOVAL 1 2 3

UNDERGROUND STORAGE TANK: 37 PMT RQD/PSTD (CCR 2710) 1 2 3 43 LQ/VP (CCR 2646) 1 2 3
38 MNTRG DVC (CCR 2632) 1 2 3 44 VADOZE (CCR 2643) 1 2 3
39 M.D. WRKG (CCR 2632) 1 2 3 45 PIPNG (8004/CCR 2643) 1 2 3
40 LEAK DECT (CCR 2640) 1 2 3 46 FILL BOXES (CCR 6235 B) 1 2 3
41 VISUAL (CCR 2642) 1 2 3 47 DISP PANS (7903) 1 2 3
42 SIRS (CCR 2646.1) 1 2 3 48 EMRG SHUT-OFF (7903) 1 2 3

COMMENTS / CORRECTIONS

pH _____ TDS _____

FOLLOW UP INSPECTION DATE / DUE DATE _____

KEY: (1) SATISFACTORY (2) UNSATISFACTORY (3) NOT APPLICABLE
This document may be used for enforcement purposes. Violation corrections will be made as noted. Signature acknowledges receipt of this report.

Company Representative: _____ Inspector: _____

Pretreatment Program Administered by Chemical Control
Serving the cities of Gilroy and Morgan Hill
for the South County regional Wastewater Authority
CCTD-1/1996

- Fire Department Number 87-0129
- ___ 16. Empty containers and tanks previously used for the storage of hazardous materials shall be free from residual materials and vapor as defined by DOT, RCRA or other regulating authority or maintained as specified for the storage of hazardous materials. [UFC 8001.4.6]
 - ___ 17. Open flames & high-temperature devices shall not be used in a manner which creates a hazardous condition. [UFC 8003.1.3]
 - ___ 18. Material Safety Data Sheets (MSDS) shall be available at the facility for all materials present. [UFC 8001.6]
 - ___ 19. All regulated material waste shall be disposed of in an approved manner. Hazardous materials shall not be released into the sewer, storm drain, ditch, drainage canal, lake, river, or tidal waterway, or upon the ground, sidewalk, street, highway or into the atmosphere. [UFC 8001.5.1]
 - ___ 20. Individual containers, cartons, packages shall be conspicuously marked or labeled in accordance with nationally recognized standards. [UFC 8001.7]
 - ___ 21. Entrances to areas where hazardous materials are stored, and stationary above ground tanks shall be placarded with NFPA 704 Hazard Signal System for the material(s) contained. [UFC 8001.7, 8003.1.2]
 - ___ 22. All above ground piping shall be properly secured and labeled identifying product and direction of flow every 20 feet. [8001.4.3.2 as amended by MMC-V-300-2.01]
 - ___ 23. Process equipment shall be maintained as designed to prevent accidental discharge of hazardous materials. [UFC 8001.7.1]
 - ___ 24. A (revised) Hazardous Materials Business Plan shall be submitted within 10 days. [UFC 8001.3.2]
 - ___ 25. A monitoring method capable of detecting hazardous material leakage from the primary containment into the secondary containment shall be provided. [UFC 8003.1.7.4 as amended by MMC-V-300-2.01]
 - ___ 26. Routine inspections of all hazardous materials storage areas and spills of hazardous materials shall be recorded on a monitoring log. [UFC 8003.1.7.4]
 - ___ 27. All processes new to the facility shall have Fire Department approval prior to installation and use. [UFC 8001.3.1]
 - ___ 28. A permit is required to install, repair, abandon, remove, place temporarily out of service, close or substantially modify a storage facility. [UFC 8001.3.1, 8001.11]

ORDERS:

- ___ 1. _____
- ___ 2. _____

ADDITIONAL INFORMATION:

For your information: If your business handles hazardous waste, Santa Clara County Hazardous Materials Compliance Division may perform an inspection of your business. For more information, contact 299-6930.

A reinspection shall be made on or about the date shown on the first page under "Scheduled 2nd Inspection Date" to determine if violation(s) noted above have been corrected and/or orders complied with.
 If violations remain after the 2nd inspection date, a reinspection shall be made on or about the date shown on the first page under "Scheduled 3rd Inspection Date" to determine if violation(s) have been corrected.
Failure to comply with orders and correct violations may render you liable to the penalties as set forth by law.

The Fire Department prefers compliance be obtained through the willingness of an individual to comply, and as always, remains ready to assist in this process. If you have any questions or wish to discuss this report, please contact this office at (408) 942-2386.

Received By: _____ Inspector: _____

Milpitas Fire Department, Bureau of Fire Prevention, 455 E. Calaveras Blvd., Milpitas, CA 95035

BF #100-62
REV. 11/21/95

Phone (408) 942-2386

FAX (408) 942-5103

Page 2 of 2

Distribution: WHITE - Fire Department Address File
YELLOW - Business Responsible

APPENDIX E

- 1) A completed Hazardous Material Business Plan has been included in this appendix. The facility name, responsible parties, addresses, and phone numbers have been removed for privacy.

CITY OF GILROY
Building, Life and Environmental Safety
7351 Rosanna Street, Gilroy, CA 95020-6141
(408) 848-0430 FAX (408) 848-0429

FACILITY PERMIT

Business Name: [REDACTED]

Business Owner: same

Business Address: [REDACTED]

Mailing Address: same

Permit expiration date: October 31, 1999

HAZARDOUS MATERIALS STORAGE

Range 2

1970413

INDUSTRIAL WASTE DISCHARGE

130416

[Handwritten signature]

Authorized Signature

October 27, 1997

Date

THIS PERMIT MUST BE POSTED AND VISIBLE AT ALL TIMES

ENCLOSURE

COMMUNITY DEVELOPMENT DEPARTMENT

Building, Life and Environmental Safety Division

Chemical Control

Norman S. Allen, P.E.
Director7351 Rosanna Street
Gilroy, CA 95020-6141Robert R. Ledezma
Fire Marshal

Telephone: (408) 848-0430

FAX: (408) 848-0433

PERMIT TO OPERATE APPLICATION

- ☒ Hazardous Materials Storage Ordinance Permit # 1990413
- ☐ Underground Storage Tank Permit # _____
- ☐ Uniform Fire Code Permit # _____
- ☒ Industrial Waste Discharge Permit # 130416

I. Business Name: _____ Telephone #: _____

Address: _____ City: Gilroy Zip: 95020Type of Business: INDUSTRIAL CERAMIC GRINDING SIC: _____

II. Manager/Operator: _____ Telephone #: _____

Address: _____ City: _____ Zip: _____

III. Owner's Name: _____ Telephone #: _____

Address: _____ City: _____ Zip: _____

Emergency Contact Person: _____ Telephone #: _____
(after business hours)Legal Notification & Billing Address: (Check one) I ☒ II _____ III _____

Gilroy City Business License #: _____

*This form has been completed under the penalty of perjury and to the best of my knowledge is true and correct.*Applicant's Signature: NK Date: 9/30/97Applicant's Name: _____ Title: G.M.

Please print

Date received _____ Amount received _____ Date issued _____

CIVIL ENGINEER PLATE # 11990

Pretreatment Program Administered by Chemical Control
serving the cities of Gilroy and Morgan Hill
for the South County Regional Wastewater Authority

7.95

HAZARDOUS MATERIALS BUSINESS PLAN

Section A - General Information

1. Facility Information: (Note: Print or type all information. Instructions are located on the other side of this page.)

Business Name: _____ Business Phone: (____) _____
 Site Address: _____
 City: GILROY State: CA Zip: 95020
 Dunn & Bradstreet No.: 012950846 Primary SIC Code (4 digit): 7389
 Operator Name: _____ Operator Phone: (____) _____

2. Business Owner Information:

Owner Name: _____ Owner Phone: (____) _____
 Owner Mailing Address: _____
If different from site address
 City: _____ State: _____ Zip: _____

3. Environmental Contact:

Contact Name: _____ Contact Phone: (____) _____
 Contact Mailing Address: _____
If different from site address
 City: _____ State: _____ Zip: _____

4. Emergency Contacts:

Primary Emergency Coordinator	Secondary Emergency Coordinator
Name: _____	Name: _____
Title: <u>GENERAL MANAGER</u>	Title: <u>PRESIDENT</u>
Business Phone: (____) _____	Business Phone: (____) _____
24 Hour Phone: (____) _____	24 Hour Phone: (____) _____
Cellular: _____	Cellular: _____
Pager No.: (____) _____	Pager No.: (____) _____

☐ (Check box only if applicable) Additional Emergency Coordinators are listed on page _____ of this HMBP.

5. Acutely Hazardous Materials (AHMs):

Are AHMs Present On-Site? ☐ Yes ☐ No (Note: If yes, contact your local agency regarding an AHM Registration appendix to the HMBP.)

6. Additional Required Information:

EPA ID No.: CA100071662 Principal Type of Business: INDUSTRIAL CERAMIC GRINDING
 Billing Address: _____ City: _____ State: _____ Zip: _____
If different from owner mailing address
 Industrial Waste Discharge Contact: N/A Phone No.: (____) _____
 Property Owner: _____ Phone No.: (____) _____
 Facility Hours of Operation: 7:00 AM - 12:00 PM No. of Employees Per Shift: Day 13; Swing: 4; Grave 0

7. OWNER/OPERATOR CERTIFICATION: I am an officer at the level of Vice-President, General Partner, Sole Proprietor, or higher. I hereby certify under penalty of law that this information was obtained in accordance with applicable requirements. Based upon an inquiry of those individuals responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate, and complete.

Name of HMBP Document Preparer (Print): _____ Title: _____
 Signature of Owner/Operator: _____ Date: ____/____/____ Page 1 of 9
 UN-620 - 3/15 Rev. 09/09

Non-Waste Inhazardous Materials Inventory Statement
For Use By All Jurisdictions Within the County of Santa Clara

Site Address: [REDACTED] #7 0 #B Date: / /

1. Agency Use Only	2. Common/Trade Name	3. Chemical Name Components & Concentration	4. Chemical Abstract Service No.	5. Physical State	6. Quantity Stored	7. Units	8. Days On Site	9. Storage Codes	10. SARA Hazard Class(es)	11. NV
710	ACETONE	X Same as Column 2	000067-64-1	liquid	10	5	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
110	RAVDO HB32 HYDRAULIC OIL	X Same as Column 2	64742-65-0	liquid	15	10	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
	NEOPREN BOWMAN III HYDRAULIC OIL	X Same as Column 2	64741-87-6 64742-65-0 64743-51-6 64744-88-6	liquid	5	4	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
	EPDM PATCH POLYMER RTT EDE LC MEXXER	X Same as Column 2	64742-65-0 64743-51-6 64744-88-6	solid	50	25	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
	W1-40	X Same as Column 2	64742-65-0	liquid	10	5	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
	WAY UNDERCUT PMA	X Same as Column 2	64742-65-0	liquid	5	2.5	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
710	GLASS GRAN 100	X Same as Column 2	7132-18-5	solid	10	5	30	flammable corrosive reactive delayed	flammable corrosive reactive delayed	
710	PROPANE	X Same as Column 2		gas	12	6		flammable corrosive reactive delayed	flammable corrosive reactive delayed	

Hazardous Waste Inventory Statement
 (Hazardous Waste Generator Permit Application/Amendment)
 For Use By All Jurisdictions Within the County of Santa Clara

Site Address: **471 #8** EPA ID No.: **471 #8** Date: **1/10**

1. Agency Use Only	2. Waste Stream Name, Components & Concentration	3. Treatment/Disposal Method(s)	4. California Waste Code	5. Physical State	6. Annual Quantity Generated	7. Quantity Stored Max. Average	8. Units	9. Days On Site	10. Storage Codes Cont. Type Pressure Temp.	11. SARA Hazard Cluster(s)
D	ACETONE - WASTE FLAMMABLE LIQUID	Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal	214	pure mixture solid liquid gas	110 GALLONS	30 15 30	gal. lbs. cu. ft. p. cur.	90	amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
D	NEW PCRA HAZARDOUS LIQUID - OIL	Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal	221	pure mixture solid liquid gas	30 GALLONS	10 5 20	gal. lbs. cu. ft. p. cur.	90	amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
D	Centrifuge Sludge	Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal	249	pure mixture solid liquid gas	250 g/gallons	20 10 20	gal. lbs. cu. ft. p. cur.	20	amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
		Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal		pure mixture solid liquid gas			gal. lbs. cu. ft. p. cur.		amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
		Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal		pure mixture solid liquid gas			gal. lbs. cu. ft. p. cur.		amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
		Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal		pure mixture solid liquid gas			gal. lbs. cu. ft. p. cur.		amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
		Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal		pure mixture solid liquid gas			gal. lbs. cu. ft. p. cur.		amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous
		Recycled on-site. Treated on-site. Shipped off-site for recycling/treatment/disposal		pure mixture solid liquid gas			gal. lbs. cu. ft. p. cur.		amb. > amb. < amb. cryo.	fire pressure reactive corrosive toxic hazardous

Emergency Response/Contingency Plan (Hazardous Materials Business Plan Module)

Authority Cited: H&SC, Section 25304(b); Title 22, Div. 4.5, Ch. 15, Art. 4 CCR

All facilities which handle hazardous materials in specified quantities must have a written emergency response plan. In addition, facilities which generate hazardous waste must prepare a contingency plan. Because the requirements are similar, they have been combined in a single document, provided below, for your convenience. This plan is a required module of the Hazardous Materials Business Plan (HMBP). If you already have a plan which meets these requirements, you are not required to complete the blank plan, below, but you must include a copy of your existing plan as part of your HMBP.

This site-specific Emergency Response/Contingency Plan is the facility's plan for dealing with emergencies and shall be implemented immediately whenever there is a fire, explosion, or release of hazardous materials which could threaten human health and/or the environment. At least one copy of the plan shall be maintained at the facility for use in the event of an emergency and for inspection by the local agency. Within Santa Clara County, hospitals and police agencies have delegated receipt of these plans to the local agencies administering Hazardous Materials Business Plans, so additional copies need not be submitted. However, a copy of the plan and any revisions must be provided to any contractor, hospital, or agency with whom special (i.e. contractual) emergency services arrangements have been made (see section 3, below).

1. Evacuation Plan:

- a. The following alarm signal(s) will be used to begin evacuation of the facility (check all which apply):

☐ Bells; ☐ Horns/Sirens; ☒ Verbal (i.e. shouting); ☐ Other (specify) _____

- b. ☐ Evacuation map is prominently displayed throughout the facility.

Note: The HMBP Site Plan satisfies contingency plan map requirements. This drawing (or any other drawing which shows primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas) must be prominently posted throughout the facility in locations where it will be visible to employees and visitors.

2. a. Emergency Contacts*:

Fire/Police/Ambulance Phone No. 911
State Office of Emergency Services Phone No. (800) 852-7550

b. Post-Incident Contacts*:

Fire Department Hazardous Materials Program Phone No.: (408) 848-0430
Santa Clara County Hazardous Materials Compliance Division Phone No. (408) 299-6930
California EPA Department of Toxic Substances Control Phone No. (510) 540-3739
Cal-OSHA Division of Occupational Safety and Health Phone No. (415) 557-1677
Bay Area Air Quality Management District Phone No. (415) 771-6000
Regional Water Quality Control Board Phone No. (510) 286-1255

* These telephone numbers are provided as a general aid to emergency notification. Be advised that additional agencies may be required to be notified.

c. Emergency Resources:

Poison Control Center Phone No. (408) 885-6000
Nearest Hospital: Name: COLUMBIA SOUTH VALLEY Phone No.: (408) 848-2000
Address: 9400 NORTHEAST UNO STREET City: GILROY

3. Arrangements With Emergency Responders:

If you have made special (i.e. contractual) arrangements with any police department, fire department, hospital, contractor, or State or local emergency response team to coordinate emergency services, describe those arrangements on the lines below:

Emergency Response/Contingency

6. Emergency Equipment:

22 CCR, Section 66265.52(e) and the Hazardous Materials Storage Ordinance require that emergency equipment at the facility be listed. Completion of the following Emergency Equipment Inventory Table meets this requirement.

EMERGENCY EQUIPMENT INVENTORY TABLE

1. Equipment Category	2. Equipment Type	3. Location *	4. Description**
Personal Protective, Equipment, Safety Equipment, and First Aid Equipment	☐ Cartridge Respirators		
	☐ Chemical Monitoring Equipment (describe)		
	☐ Chemical Protective Aprons/Coats		
	☐ Chemical Protective Boots		
	☒ Chemical Protective Gloves	B	Heavy Latex
	☐ Chemical Protective Suits (describe)		
	☐ Face Shields		
	☐ First Aid Kits/Stations (describe)		
	☐ Hard Hats		
	☒ Plumbed Eye Wash Stations		attached to sink
	☐ Portable Eye Wash Kits (i.e. bottle type)		
	☐ Respirator Cartridges (describe)		
	☒ Safety Glasses/Splash Goggles	B	
	☐ Safety Showers		
Fire Extinguishing Systems	☐ Self-Contained Breathing Apparatuses (SCBA)		
	☐ Other (describe)		
	☒ Automatic Fire Sprinkler Systems		THROUGH OUT BUILDING
	☐ Fire Alarm Boxes/Stations		
Spill Control Equipment and Decontamination Equipment	☒ Fire Extinguisher Systems (describe)		(2) ONE EACH SIDE OF BUILDING
	☐ Other (describe)		
	☒ Absorbents (describe)	B	Portable sacks
	☒ Berms/Dikes (describe)	B	
	☐ Decontamination Equipment (describe)		
	☐ Emergency Tanks (describe)		
	☐ Exhaust Hoods		
	☐ Gas Cylinder Leak Repair Kits (describe)		
	☐ Neutralizers (describe)		
	☐ Overpack Drums		
Communications and Alarm Systems	☐ Sumos (describe)		
	☐ Other (describe)		
	☐ Chemical Alarms (describe)		
	☒ Intercoms/ PA Systems		
	☐ Portable Radios		
Additional Equipment (Use Additional Pages if Needed.)	☒ Telephones		
	☐ Underground Tank Leak Detection Monitors		
	☐ Other (describe)		

* If appropriate, use the location code(s) from the Storage Map(s) prepared earlier for your HMBP.

** Describe the equipment and its capabilities. If applicable, specify any testing/maintenance procedures/intervals. Attach additional pages, numbered appropriately, if needed.

Employee Training Plan
(Hazardous Materials Business Plan Module)
Authority Cited: H&SC, Section 2530-4(c); 22 CCR, Section 66263.16

All facilities which handle hazardous materials must have a written employee training plan. This plan is required module of the Hazardous Materials Business Plan (HMBP). A blank plan has been provided below for you to complete and submit if you do not already have such a plan. If you already have a training plan, you are not required to complete the blank plan, below, but you must include a copy of your existing plan as part of your HMBP.

Check all boxes which apply. [Note: Items marked with an asterisk (*) are required.]:

1. Personnel are trained in the following procedures:

☒ Internal alarm/notification *	
☒ Evacuation/re-entry procedures & assembly point locations *	
☐ Emergency incident reporting	
☐ External emergency response organization notification	
☐ Location(s) and contents of Emergency Response/Contingency Plan	
☐ Facility evacuation drills, which are conducted at least (specify)	(e.g. "Quarterly", etc)

2. Chemical Handlers are additionally trained in the following:

☒ Safe methods for handling and storage of hazardous materials *	
☒ Location(s) and proper use of fire and spill control equipment	
☒ Spill procedures/emergency procedures	
☒ Proper use of personal protective equipment *	
☒ Specific hazard(s) of each chemical to which they may be exposed, including routes of exposure (i.e. inhalation, ingestion, absorption) *	
☒ Hazardous Waste Handlers/Managers are trained in all aspects of hazardous waste management specific to their job duties (e.g. container accumulation time requirements, labeling requirements, storage area inspection requirements, manifesting requirements, etc.) *	

3. Emergency Response Team Members are capable of and engaged in the following:

Not Applicable

☐ Personnel rescue procedures	
☐ Shutdown of operations	
☐ Liaison with responding agencies	
☐ Use, maintenance, and replacement of emergency response equipment	
☐ Refresher training, which is provided at least annually *	
☐ Emergency response drills, which are conducted at least (specify)	(e.g. "Quarterly", etc)

Recordkeeping (Hazardous Materials Business Plan Module)

All facilities which handle hazardous materials must maintain records associated with their management. A summary of your recordkeeping procedures is a required module of the Hazardous Materials Business Plan (HMBP). A blank summary has been provided below for you to complete and submit if you do not already have such a document. If you already have a brief written description of your hazardous materials recordkeeping systems which addresses all subjects covered below, you are not required to complete this page, but you must include a copy of your existing document as part of your HMBP.

Check all boxes which apply. The following records are maintained at the facility. [Note: Items marked with an asterisk (*) are required.]:

☒	Current employees' training records (to be retained until closure of the facility) *
☒	Former employees' training records (to be retained at least three years after termination of employment) *
☒	Training Program(s) (i.e. written description of introductory and continuing training) *
☒	Current copy of this Emergency Response/Contingency Plan *
☒	Record of recordable/reportable hazardous material/waste releases *
☒	Record of hazardous material/waste storage area inspections *
☒	Record of hazardous waste tank daily inspections *
☐	Description and documentation of facility emergency response drills

Note: The above list of records does not necessarily identify every type of record required to be maintained by the facility.

A copy of the Inspection Check Sheet(s) or Log(s) used in conjunction with required routine self-inspections of your facility must be submitted with your HMBP. (Exception: Attached, you will find a Hazardous Materials/Waste Storage Area Inspection Form which you may use if you do not already have your own form. If you use the example provided, you do not need to attach a copy.)

Check the appropriate box:

☐	We will use the "Hazardous Materials/Waste Storage Area Inspection Form" to document inspections.
☐	We will use our own documents to record inspections. A blank copy of each document used is attached to this HMBP.

Aboveground Storage and Separation, Containment, and Monitoring Plan
(Appendix to Hazardous Materials Business Plan)

Complete one column for each aboveground storage area shown on the Hazardous Materials Business Plan Storage Map(s). Write the appropriate location code in the box provided at the top of each column, then moving down the column, check all boxes which apply to that location. Make additional copies of this page if needed.

Location Code	B				
Storage Type	☒ Inside building ☐ Outside storage shed ☐ Outdoors	☐ Inside building ☐ Outside storage shed ☐ Outdoors	☐ Inside building ☐ Outside storage shed ☐ Outdoors	☐ Inside building ☐ Outside storage shed ☐ Outdoors	☐ Inside building ☐ Outside storage shed ☐ Outdoors
Primary Containment	☒ Original containers ☐ Safety cans ☐ Inside machinery ☒ Drums/barrels ☐ Pressure vessels ☐ Bulk tanks ☐ Aboveground piping ☐ Other	☐ Original containers ☐ Safety cans ☐ Inside machinery ☐ Drums/barrels ☐ Pressure vessels ☐ Bulk tanks ☐ Aboveground piping ☐ Other	☐ Original containers ☐ Safety cans ☐ Inside machinery ☐ Drums/barrels ☐ Pressure vessels ☐ Bulk tanks ☐ Aboveground piping ☐ Other	☐ Original containers ☐ Safety cans ☐ Inside machinery ☐ Drums/barrels ☐ Pressure vessels ☐ Bulk tanks ☐ Aboveground piping ☐ Other	☐ Original containers ☐ Safety cans ☐ Inside machinery ☐ Drums/barrels ☐ Pressure vessels ☐ Bulk tanks ☐ Aboveground piping ☐ Other
Secondary Containment	☒ Approved cabinets ☒ Secondary drum ☐ Tray ☐ Bermed & coated floor ☐ Tank vault ☐ Secondary piping or piping trench ☐ Other	☐ Approved cabinets ☐ Secondary drum ☐ Tray ☐ Bermed & coated floor ☐ Tank vault ☐ Secondary piping or piping trench ☐ Other	☐ Approved cabinets ☐ Secondary drum ☐ Tray ☐ Bermed & coated floor ☐ Tank vault ☐ Secondary piping or piping trench ☐ Other	☐ Approved cabinets ☐ Secondary drum ☐ Tray ☐ Bermed & coated floor ☐ Tank vault ☐ Secondary piping or piping trench ☐ Other	☐ Approved cabinets ☐ Secondary drum ☐ Tray ☐ Bermed & coated floor ☐ Tank vault ☐ Secondary piping or piping trench ☐ Other
Separation	☒ All materials compatible ☐ One-hour separation wall/partition ☐ Separation by at least 20 feet ☐ Approved cabinets ☐ Other	☐ All materials compatible ☐ One-hour separation wall/partition ☐ Separation by at least 20 feet ☐ Approved cabinets ☐ Other	☐ All materials compatible ☐ One-hour separation wall/partition ☐ Separation by at least 20 feet ☐ Approved cabinets ☐ Other	☐ All materials compatible ☐ One-hour separation wall/partition ☐ Separation by at least 20 feet ☐ Approved cabinets ☐ Other	☐ All materials compatible ☐ One-hour separation wall/partition ☐ Separation by at least 20 feet ☐ Approved cabinets ☐ Other
Monitoring Type	☒ Visual ☐ Continuous (automatic sensors) ☐ Other	☐ Visual ☐ Continuous (automatic sensors) ☐ Other	☐ Visual ☐ Continuous (automatic sensors) ☐ Other	☐ Visual ☐ Continuous (automatic sensors) ☐ Other	☐ Visual ☐ Continuous (automatic sensors) ☐ Other
Monitoring Frequency	☒ Daily ☐ Weekly ☐ Monthly ☐ Other	☐ Daily ☐ Weekly ☐ Monthly ☐ Other	☐ Daily ☐ Weekly ☐ Monthly ☐ Other	☐ Daily ☐ Weekly ☐ Monthly ☐ Other	☐ Daily ☐ Weekly ☐ Monthly ☐ Other

Describe the location, type, manufacturer's specifications (if applicable) and suitability of any monitoring methods used other than visual monitoring:

Uniform Hazardous Materials Business 10

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FACILITY SITE PLAN/STORAGE MAP

A = ELECTRICAL BOX
B = HAZ WRT SOURCE

B= HAZ NET STORAGE

C= Rev. 08/15/95

2=

$\mathcal{D} =$
E2 EXT

W = WATER

Site Address: [REDACTED] #7 ; #8

Date Map Drawn: 10 / 13 / 97

Map Scale: NONE

2015 #3

UNIT 7

REF ID: A670

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IMAGE EVALUATION TEST TARGET (QA-3)

APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

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