



# Hues Metal Finishing, Inc.

**Location:** 977 Linda Vista Drive, San Marcos, CA 92069

**Facility Description:** The facility paints a variety of metal and plastic parts.

## Health Risk Assessment Summary

**Year:** 1994  
**Cancer Risk:** 240 in a million  
**Chronic Index:** 1.2  
**Acute Index:** 11.6

## Pollutants of Concern

**Cancer Risk:** Perchloroethylene ([ARB compound summary](#), [EPA hazard summary](#))  
**Acute Non-cancer Risk:** Nickel (endpoint = immune system)  
([ARB compound summary](#), [EPA hazard summary](#))

Air Toxics  
'Hot Spots'  
Program

## 1994 Health Risk Assessment Summary for the Hues Metal Finishing, Inc. Facility

977 Linda Vista Drive, San Marcos, California

### 1.0 Introduction

A health risk assessment (HRA) was performed to estimate potential public health risks for the Hues Metal Finishing facility located at 977 Linda Vista Drive in San Marcos, California. The HRA was prepared in accordance with requirements of the California Air Toxics “Hot Spots” Information and Assessment Act and is based on estimated facility emissions for the 1994 calendar year. Potential cancer as well as non-cancer offsite health impacts were evaluated. The results of the HRA were used to evaluate the applicability of public notification and risk mitigation requirements specified in San Diego Air Pollution Control District Rule 1210. As a result of the HRA, public notification was performed. This document summarizes the HRA and was prepared in response to public requests for information.

### 1.1 Description of the Facility and Emissions

The Hues Metal Finishing facility is located at 977 Linda Vista Drive in San Marcos. The facility paints a variety of metal and plastic parts. Painting and degreasing operations at the facility emit a variety of toxic air contaminants which were quantified by the District for the 1994 calendar year. Table 1 lists the annual and maximum hourly emissions of Toxic Air Contaminants used in the HRA.

### 1.2 Health Risk Assessment Procedure

The refined HRA evaluates cancer risk and non-cancer chronic and acute health hazard indices for the point of maximum impact as well as residential, occupational and sensitive receptors. Adverse health effects are reported as “excess lifetime cancer risk”, “population excess cancer burden”, or as a “total hazard index”. Excess lifetime cancer

Table 1 – 1994 Emission Estimates

| Toxic Compound              | Annual Emissions (lbs/yr) | Maximum Hourly Emissions (lbs/yr) |
|-----------------------------|---------------------------|-----------------------------------|
| Chromium (hexavalent)       | <0.1                      | <0.1                              |
| Glycol Ethers (unspecified) | 94                        | 0.95                              |
| Ethylene Glycol Butyl Ether | 98                        | 2.4                               |
| Isopropyl Alcohol           | 22                        | 3.7                               |
| Methyl Chloroform           | 121                       | 21.9                              |
| Methyl Ethyl Ketone         | 185                       | 2.2                               |
| Methyl Isobutyl Ketone      | 35                        | 0.94                              |
| Methylene Chloride          | 176                       | 2.4                               |
| Nickel                      | 4.8                       | 0.2                               |
| Perchloroethylene           | 6944                      | 3.8                               |
| Xylenes                     | 25                        | 1.3                               |
| Zinc                        | 0.1                       | <0.1                              |

risk is the maximum estimated increased risk of cancer at a specific location following chronic exposure to a chemical suspected of being a human carcinogen, and is expressed as the probability of a person contracting cancer over a lifetime (70 years) of exposure to chemical emissions. Population excess cancer burden is an estimate of the increased number of cancer cases as a result of exposure to emitted substances.

Non-cancer risk is based on the aggregate health impact of toxic air contaminant emissions on specific organs or systems in the body. The potential for health impacts is called

hazard indices (HI) and is calculated as the ratio of the estimated exposure to a particular hazardous air pollutant to the reference exposure level (REL) for that compound. The REL is generally the level at (or below) which no adverse health impacts are expected. The sum of the hazard indices is called the total hazard index (THI) and is an indication of the likelihood of experiencing chronic or acute (non cancer) health effects. A total hazard index of less than one (1.0) is not likely to result in adverse health effects to exposed persons in the population including sensitive individuals. With a THI above one, there is a greater potential that adverse health impacts may result.

Excess individual lifetime cancer risk and total hazard indices were quantified at the point of maximum impact (PMI), and for the maximum exposed individual (MEI). The MEI risk is calculated for both the maximum exposed individual resident (MEIR) and the maximum exposed individual worker in an occupational setting (MEIO). In addition, risks are calculated for sensitive receptors in the study area (if any) and the population excess cancer burden is calculated within the zone of impact (ZOI) of the facility.

The PMI represents the maximum estimated risk value at any offsite receptor location including locations at which human exposure would not be expected. For example, a PMI could occur in a vacant field adjacent to the facility even though there may be no (long term) human exposure at that point. Although the estimated risk values are calculated for the PMI, they are not used to determine public notification or risk reduction requirements. The MEIR and MEIO represent the maximum estimated risk value at any offsite receptor location at which people could be exposed at their residence (MEIR) or place of work (MEIO).

### 1.3 Summary of Health Risk Assessment Results

Table 2 summarizes the cancer risks at the point of maximum impact (PMI) as well as the maximum exposed individual resident (MEIR) and the maximum exposed individual in an occupation setting (MEIO).

The maximum estimated cancer risk at an occupied receptor due to emissions from this facility is 85 in one million at the MEIO. The MEIO occurs at the business immediately south of the Hues Metal Facility. The maximum estimated risk a residential location (MEIR) is 4.9 in one million and is located approximately 1/3 mile to the southeast of the facility on Bent Avenue. A map showing the estimated residential and occupational cancer risk isopleths (areas of equal risk) is presented as Figure 1.

Table 2 – Summary of Estimated Excess Cancer Risk

| Maximum Individual Cancer Risk | Risk Value             | Receptor Location (1983 State Plane Feet - East, North)           |
|--------------------------------|------------------------|---|
| PMI                            | 240 x 10 <sup>-6</sup> | Vacant property southeast of facility (6275515, 1995359)          |
| MEIR                           | 4.9 x 10 <sup>-6</sup> | Residence on Bent Avenue southeast of facility (6275433, 1995359) |
| MEIO                           | 85 x 10 <sup>-6</sup>  | Business south of facility (6276575, 1993767)                     |

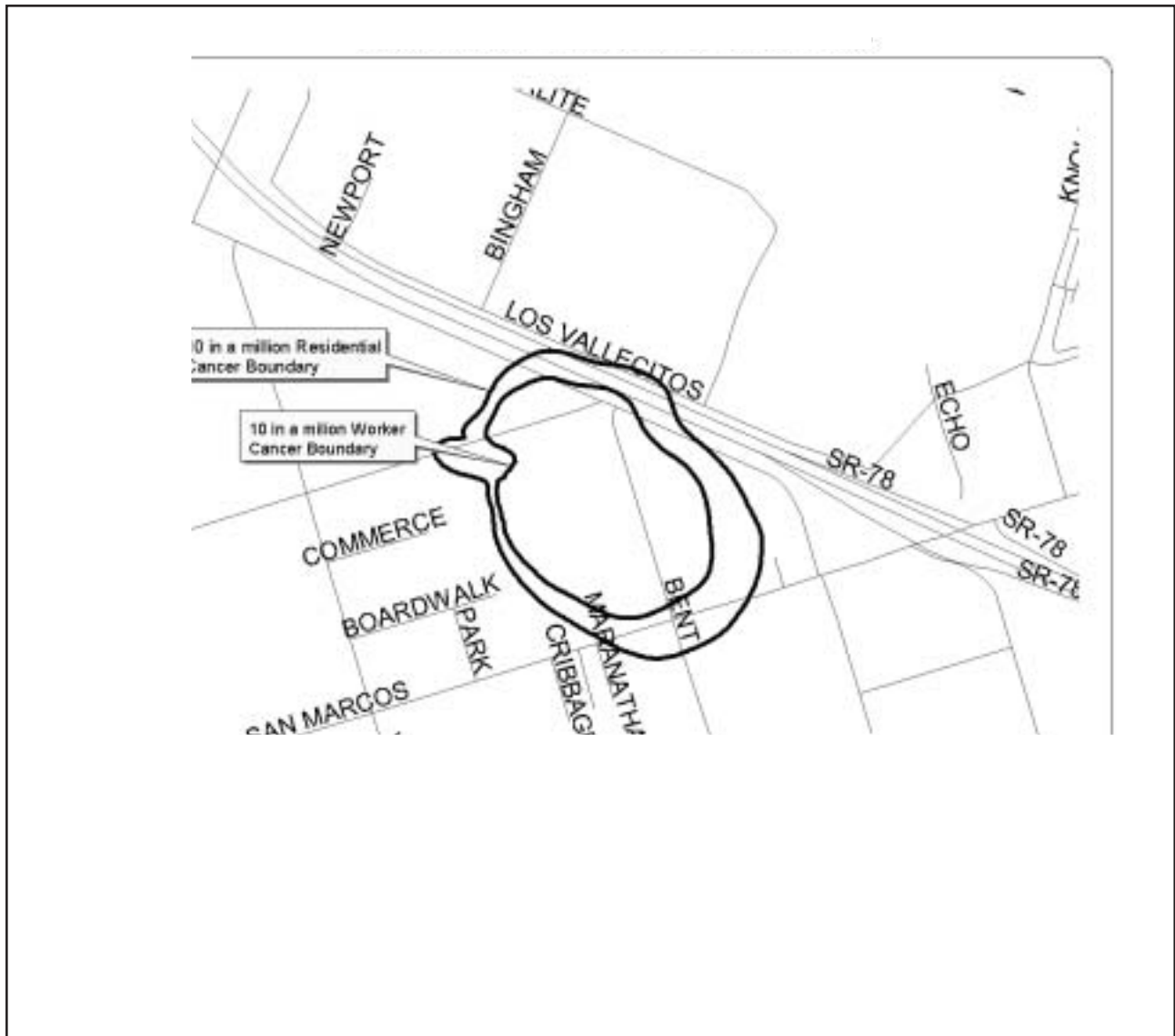


Figure 1 – Cancer Risk Boundaries

The cancer risk is primarily due to emissions of perchloroethylene from a degreasing operation. It should be noted that the perchloroethylene degreaser was replaced with a water-based cleaning operation in July 1998. This essentially eliminated the cancer risk. The estimated risk value at the MEIO and MEIR (based on 1994 emissions) exceed the cancer risk public notification level (10 in one million) specified in District Rule 1200.

Table 3 summarizes the estimated cancer burden. Six census tracts were evaluated. Cancer burden (for both residents and workers) was calculated for each census tract. Estimated cancer burden (0.05) is significantly less than the cancer burden public notification level (1.0) specified in District Rule 1200.

Table 4 summarizes the estimated chronic and acute non-cancer health risks.

**Table 3 – Summary of Estimated Cancer Burden**

| Census Tract | Cancer Risk | Occupational Cancer Risk | Resident Population | Resident Burden | Worker Population | Worker Burden   | Total Burden    |
|--------------|-------------|--------------------------|---------------------|-----------------|-------------------|-----------------|-----------------|
| 200.05       | 6.84E-08    | 4.49E-08                 | 14,205              | 9.72E-04        | 6,611             | 2.97E-04        | 1.27E-03        |
| 200.06       | 1.70E-07    | 1.12E-07                 | 6,753               | 1.15E-03        | 2,639             | 2.95E-04        | 1.44E-03        |
| 200.07       | 1.24E-07    | 8.15E-08                 | 7,839               | 9.72E-04        | 3,154             | 2.57E-04        | 1.23E-03        |
| 200.09       | 2.80E-06    | 1.84E-06                 | 7,605               | 2.13E-02        | 11,141            | 2.05E-02        | 4.18E-02        |
| 200.1        | 2.61E-08    | 1.72E-08                 | 6,486               | 1.69E-04        | 2,359             | 4.05E-05        | 2.10E-04        |
| 203.03       | 1.04E-07    | 6.83E-08                 | 10,507              | 1.09E-03        | 15,292            | 1.05E-03        | 2.14E-03        |
| <b>Total</b> |             |                          |                     | <b>2.56E-02</b> |                   | <b>2.24E-02</b> | <b>4.81E-02</b> |

**Table 4 – Summary of Estimated Chronic and Acute Non-cancer Health Risks**

| Health Risk    | Hazard Index (THI) | Receptor Location, (1983 State Plane Feet - East, North) |
|----------------|--------------------|--|
| <b>Chronic</b> | PMI                | 1.193  |
|                | MEIR               | 0.025  |
|                | MEIO               | 0.66   |
| <b>Acute</b>   | PMI                | 11.6   |
|                | MEIR               | 1.8  |
|                | MEIO               | 11.6   |

The maximum estimated chronic health hazard index at an occupied receptor due to emissions from this facility is 0.66 at the MEIO. The MEIO is located immediately south of the fence line with the adjacent facility. The maximum estimated chronic hazard index at a residential location (MEIR) is 0.025 and is located south of the facility on Bent Avenue. Perchloroethylene emissions from the degreasing operation are the primary contributor to the chronic hazard index. The chronic non-cancer total hazard index does not exceed the public notification level and significant risk mitigation level (1.0 THI) specified in District Rule 1210.

The maximum estimated acute health hazard index at an occupied receptor due to emissions from this facility is 17.0 at the MEIO. The MEIO occurs east of the facility on the fenceline with Port District property. The maximum estimated acute hazard index at a residential location (MEIR) is 1.8 and is located south of the facility on Bent Avenue. A map showing the estimated acute non-cancer risk isopleths (areas of equal risk), is presented as Figure 2. Nickel emissions from painting operations are the primary contributor to the acute hazard index. The toxic endpoint is the immune system.

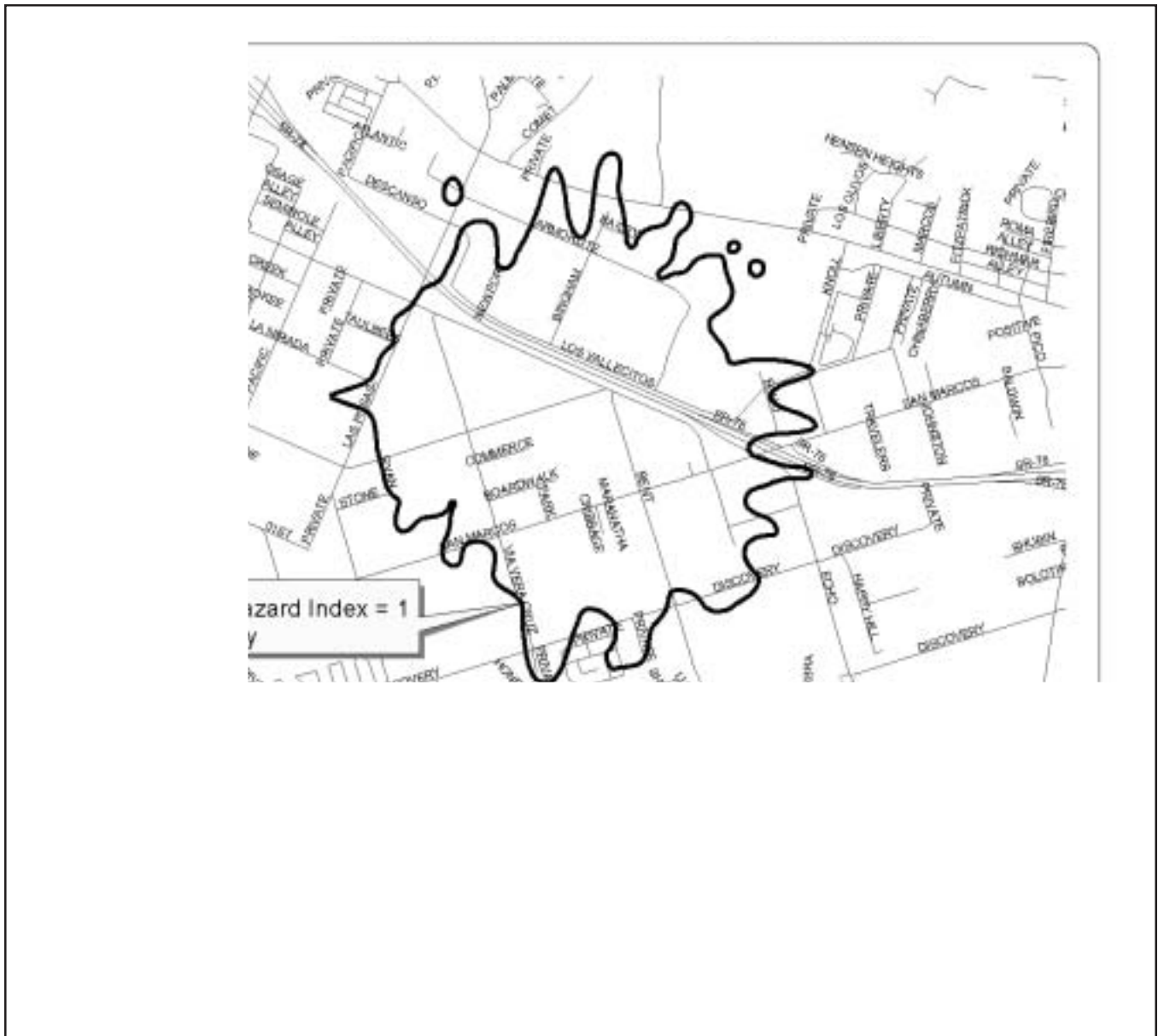


Figure 2 – Non-cancer Risk Boundaries

This acute non-cancer total hazard index exceeds the public notification level and significant risk mitigation level (1.0 THI) specified in District Rule 1210. It should be noted that the facility has eliminated the use of coating materials containing nickel.

#### 1.4 Risk Reduction Efforts

The HRA indicated risk levels for total acute non-cancer health hazard index above significant risk mitigation levels. Therefore a risk reduction audit and plan shall be required. The 1998 emissions inventory is presented in Table 5. Emissions decreases are a result of material substitutions and operational changes. The major changes include eliminating the use of coating materials containing nickel, replacing a perchloroethylene vapor degreaser with a nontoxic aqueous based process, and installation of high efficiency filters on paint spray booths.

**Table 5 – 1999 Emission Estimates**

| Toxic Compound              | Annual Emissions (lb/yr) |
|-----------------------------|--------------------------|
| Acetone                     | 312                      |
| Barium                      | 0.5                      |
| Butanol                     | 6.4                      |
| Chromium (non-hexavalent)   | <0.1                     |
| Ethylene Glycol Butyl Ether | 382                      |
| Formaldehyde                | 0.1                      |
| Glycol Ethers (unspecified) | 0.98                     |
| Methyl Ethyl Ketone         | 65                       |
| Methyl Isobutyl Ketone      | 27                       |
| Methylene Chloride          | 176                      |
| Nickel                      | 0                        |
| Perchloroethylene           | 0                        |
| Xylenes                     | 18                       |
| Zinc                        | 0.04                     |