

RIGHT TO BREATHE/RIGHT TO KNOW:

INDUSTRIAL AIR POLLUTION IN GREENPOINT-WILLIAMSBURG

A special report by the Community Environmental Health Center

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RIGHT TO BREATHE/RIGHT TO KNOW: INDUSTRIAL AIR POLLUTION IN GREENPOINT-WILLIAMSBURG

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This report is published by the Community Environmental Health Center at the Hunter College. The Center is based at the Hunter College School of Health Sciences. Supported primarily with foundation grants, the Center assists community organizations in low-income, African-American and Latino neighborhoods in New York City to protect their communities against environmental health hazards such as lead poisoning, asbestos, air and water pollution and toxic wastes.

The Center works with community groups to develop effective organizing strategies that will protect their neighborhoods from environmental health problems. The Center provides technical assistance, training and consulting services. It can help groups obtain relevant information from public officials, scientists, health professionals and industry, evaluate whether a suspected hazard poses a health danger, and develop effective strategies for community education and action.

The Center's projects include the Youth Environmental Action Project (YEAP) which assists already established community-based youth groups in the development of environmental health projects and the Northern Manhattan Project which provides comprehensive assistance to community groups in Washington Heights, East, West and Central Harlem. The Center also has lead poisoning prevention projects in Harlem and in Bedford-Stuyvesant, Brooklyn, the heart of the New York City "lead belt." The Center provides internships that help to train the environmental health professionals of the future to work with community organizations.

The Community Environmental Health Center is located at 425 East 25th Street, Box 596, New York, New York 10010 and can be reached at (212) 481-4355. Nicholas Freudenberg is the Executive Director and Marjorie Moore is the Program Director of the Community Environmental Health Center. The Center's former Program Director, Carol Steinsapir is one of the authors of this report.

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The Center wants to express its appreciation for general support to the Charles Stewart Mott Foundation, the Norman Foundation and Fund for the City of New York.

Finally, we want to express our continued support to the residents of Greenpoint-Williamsburg in their undaunting fight against environmental hazards. We are confident that they will continue to be an inspiration to us and other neighborhoods as well.

PREFACE

by

Jose Morales, Adviser, Toxic Avengers at El Puente in Williamsburg

Power to the people!! I heard this phrase when I was a young person: it's a phrase that has particular significance in today's world. The people of the Commonwealth of Independent States (formerly the Soviet Union), Southern Africa, Chile and Europe amongst others, have recently expressed their outrage at the conditions in which they live and the attempts to take from them their right to determine their way of life. These peoples have then courageously demanded the right to their self-determination and have acted. I say the people of Greenpoint-Williamsburg are moved by the same spirit of outrage and self-determination in regards to the environment in which they live.

A commitment to environmental self-determination resonates with the political atmosphere at the grassroots in this country. There is a growing shift in the political atmosphere of environmentalism--a move away from solely conservation and preservation to include and emphasize battling environmental injustice, in otherwords, human centered environmental concerns. Beginning with the Love Canal incident, what has been called the grassroots anti-toxics/environmental justice movement has grown dramatically. There are a variety of estimates that there are thousands of grassroots groups confronting environmental issues in their neighborhoods. The communities of Williamsburg/Greenpoint are not different; each has its own list of environmentally conscious groups growing everyday--from the Toxic Avengers of El Puente to RAW, WABBA, GASP and Concerned Citizens of Greenpoint. The impact that these groups in Brooklyn and elsewhere have had is a shift and expansion in the agenda of the environmental movement in the USA, a more inclusive agenda that is growing to include the concerns of many constituencies.

It is precisely groups like these that have been the focus of the charge of the Hunter College Community Environmental Health Center. For the last six years, the Center has provided advise and consultation on environmental hazards to low income community groups in New York City.

"Right to Breathe/Right to Know is an example of what our movement must do. To gather, assess and present information that is relevant to the movement is essential. Furthermore, it must be said that a report like this arises as a response to the neglect of official authorities. Right to Breathe/Right to Know shows that linkages can and must be forged between grassroots groups and environmental professionals.

In the political arena, where credibility is a valuable commodity, environmental activists must produce evidence to back their claims or they stand on a rug that may be pulled from under them. Right to Breathe/Right to Know is the kind of documentation that catalogs the

issue of toxic emissions with reliable data from which the people can base their concerns, claims and demands. In this way, Right to Breathe/Right to Know is also a step towards the democratization of scientific/technical information. The movement must be conversant with the scientific and technical information necessary to make credible claims about the impacts on human health and the environment. Most of the time, this information has either not been generated or it has not been disseminated and is hence inaccessible. This report shows how lay people and CEHC staff collaborated to present the information in an accessible way, the most valuable of efforts for the movement.

The Hunter College Community Environmental Health Center, through its reports, provides tools for a community's self determination, a seed for a true environmental democracy that can lead community residents to move to determine what kind of environment they live in. This means that we pass through the phases of NIMBY to NIABY, from Not In My Back Yard to Not In Anybody's BackYard. This growth in our thinking moves from a forced, narrow, local way of thinking and self interest to a broader sense of everyone having a backyard.

North Brooklyn is a lesson in this process where we all suffer from different types of environmental degradation, we all look for support and alliances with each other and we have the experience of working together. It seems that if we look to each other as allies, we can't look at each other as another backyard to have our problems dumped into. Rather, we look at each other and declare: not in my backyard, not my friend's and for that matter not anybody's!!

This way of thinking may eventually lead us to ask the questions: why does this stuff have to be in anybody's backyard or air? What is our society doing creating hazardous materials and pollution in the first place? For what reasons are they doing it? Is it the right to profits? At whose expense are they creating these things? Doesn't the whole society pay the price of health care and clean up for the messes made? With this type of thinking, questions and hopefully their answers, we may move away from the slow but sure destruction of our communities and beyond, towards real solutions to these problems and the long term health of our bodies, communities, society and planet.

Jose Morales is an adviser to the Toxic Avengers. This group is based at El Puente which is a holistic multi-service youth center in Williamsburg Brooklyn.

EXECUTIVE SUMMARY

Using publicly available data, the Community Environmental Health Center at Hunter College (CEHC) has prepared the first estimate of the aggregate toxic air pollution load from industrial sources in the Brooklyn communities of Greenpoint and Williamsburg. CEHC's projections indicate that, in 1987, an estimated 2.9 million pounds of toxic chemicals were emitted into the air by 201 companies in the area. This is equivalent to an emission rate of 580,000 pounds of toxic chemicals per square mile per year.

This estimate is limited to emissions of the 326 chemicals and chemical categories reportable to the Toxic Release Inventory (TRI) program established by the federal Emergency Planning and Community Right-To-Know Act. Moreover, it does not include emissions from the Greenpoint Incinerator, the Newtown Creek Sewage Treatment Plant or from the heavy motor vehicle traffic that crosses the neighborhood on the Brooklyn-Queens Expressway as well as local streets.

The aggregate air pollution estimate was developed from two sources of air emissions data: the TRI program itself and the New York State Air Pollution Source Management System (APSMS). The companies regulated by the TRI program must annually report their total emissions into the environment of a selected group of toxic chemicals; those chemicals have been determined by the United States Environmental Protection Agency to be hazardous to the environment or to cause acute or chronic health effects. The APSMS contains a broader range of emission data for all companies that have state or city air emissions permits.

Analysis of the data from both sources leads to the following conclusions:

- o TRI reports reveal that eleven companies in Greenpoint-Williamsburg emitted 220,494 pounds of toxic chemicals into the air in 1987. In 1988, a slightly different group of eleven companies reported air emissions of 252,853 pounds of toxic chemicals.
- o Analysis of the 1987 and 1988 TRI data indicate that in both years only thirteen percent of the emissions were deliberate releases from facility stacks. The other eighty-seven percent were fugitive emissions which are discharges resulting from leaky valves, faulty equipment, evaporation from spills or during normal production processes. Since these discharges typically occur close to the ground, it is estimated that they can have a health impact ten to forty times greater than stack emissions. (US - EPA, NATICH newsletter)
- o Toxic emissions into the air in Greenpoint-Williamsburg, as reported to the TRI program, were sixty times greater per square mile than the average for the United States as a whole.

- o The data from the New York State APSMS reveal that an additional group of 190 companies, in just two of the zip code areas in Greenpoint-Williamsburg, reported annual stack emissions of some 351,689 pounds of toxic chemicals. (This figure includes only those chemicals reportable to the TRI program; APSMS emissions data for other pollutants were not included in the analysis).
- o Extrapolating the eighty-seven percent fugitive emissions rate from the TRI data and applying it to the APSMS stack emissions results in an estimated total emissions of some 2.7 million pounds of toxic chemicals from the 190 companies listed in the APSMS.
- o Adding the 1987 TRI emissions of 220,494 pounds to the estimated APSMS emissions of 2.7 million pounds results in an estimated total of some 2.9 million pounds in 1987 alone for Greenpoint-Williamsburg.

The 2.9 million pound estimate understates the actual toxic air emissions in the community. First, it does not include APSMS emission data for those companies in two zip code areas which are only partially located in Greenpoint-Williamsburg. Second, it is possible that some companies have failed to report their toxic air emissions to either the APSMS or the TRI program. Finally, this analysis considers only industrial sources for which emission data are available through the APSMS or the TRI Program. A more complete assessment of air quality in the area would have to consider the emissions from the Greenpoint Incinerator and the Newtown Creek Sewage Treatment plant, as well as the background pollution from the heavy vehicular traffic around and through the area.

When the TRI data alone is compared to TRI data for the rest of the country (see the table below), it becomes clear that Greenpoint-Williamsburg experiences far greater pollution per square mile. Indeed, as noted earlier, the aggregate load in these Brooklyn communities is nearly sixty times greater than the average for the United States as a whole. At the same time, the population density is 400 times the national average. So a large number of people are potentially exposed to a relatively high concentration of toxic air pollution.

**POPULATION AND TOXICS PER SQUARE MILE
(1987 Toxic Release Inventory Data)**

Area	Pop./Sq.Mile	Lbs.Toxics/Sq.Mile
United States	64	750
New York State	371	2,001
New York City	23,416	4,182
Kings County	31,872	9,292
Grnpnt./Wllmsbrg.	28,400	44,099

As they have begun to address the problem of toxic industrial air pollution, environmental regulatory agencies have tended to focus their concern on large industrial facilities that individually emit hundreds of

thousands or even millions of pounds of pollutants each year. By contrast, this report spotlights an urban community where a large number of relatively small pollution sources are concentrated in a small, densely populated area.

Evaluating the potential impact of industrial air pollution on the health of Greenpoint-Williamsburg residents would be a complex process far beyond the scope of this study. Projecting the risk of population health effects requires identifying the number of people potentially exposed as well as estimating the intensity and duration of exposure. Making such an exposure estimate requires consideration of a variety of factors. For example, weather, topography (in an urban setting this includes the height of buildings), stack height and a host of other variables can affect the speed with which pollutants are dispersed. The degree of dispersal will, in turn, affect the potential exposure of community residents and workers to toxins in the air. The health risk to an individual will reflect the amount and potency of toxins actually absorbed into the body but also will be influenced by factors such as health status and age, which can produce a range of individual vulnerability to health effects from a particular dose of toxic chemicals.

While we cannot estimate in this study the number of cases of cancer, reproductive health damage or other illnesses that may occur as a result of exposure to air pollution in Greenpoint-Williamsburg, there is no question that the toxic chemicals emitted into the community's air can be dangerous to human health. In 1987, sixty-one percent of the TRI emissions in the study area were carcinogens or reproductive toxins or both. In 1988 this figure rose to seventy-eight percent of the total. It is important to take steps to minimize exposure to these dangerous chemicals.

A previous report prepared by the Community Environmental Health Center at Hunter College, "Hazardous Neighbors? Living Next Door to Industry in Greenpoint-Williamsburg", addressed the question of whether it is possible for an accidental release of hazardous chemicals to endanger the health of the community's workers and residents. This report focuses instead on the less dramatic but no less serious issue of the daily threat posed to the community's health by the routine emissions of toxic chemicals.

Greenpoint-Williamsburg was selected for these studies because of its special characteristics: a large industrial base, co-existing with a densely populated residential community. The neighborhoods of Greenpoint and Williamsburg, which together comprise Brooklyn Community District #1, are located in the northwest corner of the borough.

The district encompasses only five square miles, but supports a population density of 28,000 people per square mile (1980 census) as compared to 23,400 for the City as a whole. The area has the highest proportion of industrial land use of any community district in the City; twelve percent as compared to 2.2 percent for the borough and 1.9 percent

for the City. This figure is higher still for Greenpoint alone where fully forty percent of the land is zoned for industrial use.

Because Greenpoint-Williamsburg was settled in the latter half of the nineteenth century, before New York City adopted its first zoning resolution, residential, commercial and industrial uses often co-exist in close proximity. This means that residents are likely to be exposed to toxic chemical emissions from local factories.

Cleaning up the air in Greenpoint-Williamsburg will require action by state and local government and by industry and community residents. Necessary steps include:

1. Developing an accurate, comprehensive picture of air pollution in the area.

The New York City Department of Environmental Protection should update the analysis in this report using 1989 and 1990 TRI reports and the latest APSMS data. It should supplement that information with the results of the door-to-door industrial survey it is conducting in Greenpoint-Williamsburg with the New York State Department of Environmental Conservation as well as with ambient air quality data from the monitoring station that was established in the community in 1990.

2. Enforcing existing air pollution controls more aggressively.

Companies lacking required permits and those failing to comply with permit requirements should be punished to the full extent of the law; enforcement actions should be publicized as a deterrent to other violators. The Greenpoint Incinerator should not be allowed to operate in violation of federal air quality regulations. Community residents should advocate for greater funding for enforcement efforts.

3. Enacting new regulations to dramatically reduce fugitive emissions.

Unregulated fugitive emissions may represent the bulk of the toxic pollution load in Greenpoint-Williamsburg and may pose a greater threat to public health than stack emissions. Federal and/or state regulations should be developed to require that companies redesign production processes, improve maintenance and housekeeping, and reduce their use of toxic chemicals in order to minimize their fugitive emissions.

4. Reducing air pollution by preventing it at the source.

Pollution prevention -- accomplished by reducing the use of toxic materials in production -- can be more effective and economical than controls designed to capture toxic wastes before they enter the environment. Government can require that companies implement pollution prevention plans and can foster

compliance by providing financial incentives and technical assistance. Community residents can confront local industries directly and push them to cut their discharges to zero within a negotiated timetable. Area residents also can support legislation to make pollution prevention state policy as it is in Massachusetts.

5. Developing new regulatory tools to protect communities against the cumulative impact of air pollution from multiple sources.

Changes in zoning regulations, adoption of a community-initiated land use plan as provided for in the New York City Charter, and enforcement of new "fair share" rules developed by the City Planning Commission to guide allocation of public facilities among city neighborhoods may help to protect Greenpoint-Williamsburg from the introduction of new air pollution sources.

6. Declaring a moratorium on the construction of any new sources of environmental pollution.

New York City Department of Environmental Protection (DEP) recently has begun a comprehensive environmental assessment of Greenpoint-Williamsburg as part of a commitment to remediate environmental problems in the area. New York City government should support the demand by local residents for a moratorium on construction or expansion of any facilities that might add to existing environmental hazards until the DEP assessment is completed. The DEP report should contain a remedial plan that includes regulations and other measures to prevent further environmental damage.

7. Revising the TRI program requirements to provide more useful air pollution information.

Federal Right-To-Know regulations should be revised to require reporting of a more extensive list of toxic chemicals by a larger number of companies. Short term, as well as annual emission totals, should be reported.

These recommendations focus on steps that must be taken by government and industry to reduce air pollution in Greenpoint-Williamsburg. Those responsible for the pollution must clean it up. But community residents have a critical role to play in the process as well. As residents of Greenpoint-Williamsburg already know, neither government agencies nor local industries are likely to address the environmental problems in Greenpoint-Williamsburg in an effective manner unless vocal and knowledgeable residents ensure that they do so. Those residents who have already become environmental watchdogs should continue to monitor government and local industries. With the help of their neighbors, they can win the fight for a safer and healthier community.

Although the recommendations in this report are directed toward cleaning up the air in Greenpoint-Williamsburg, their implementation would protect many other communities as well. Industrial air pollution in Greenpoint-Williamsburg may be particularly severe but its situation is by no means unique. There are other communities in New York City and throughout the country where a concentration of industrial facilities emitting toxic pollutants poses a potential threat to the health of area residents. The problem of unregulated fugitive emissions also is a national one, although Greenpoint-Williamsburg may suffer more than other communities since eighty-seven percent of toxic discharges there appear to be fugitive emissions as compared with the national average of thirty-two percent. It is critical that federal, state and local environmental agencies direct more attention to the problems of fugitive and cumulative emissions and implement regulatory reforms to protect public health. New programs that will foster pollution prevention offer the best hope for clean air and healthier communities.

SECTION I INTRODUCTION

In 1989, the Community Environmental Health Center at Hunter College published its first report on the Brooklyn communities of Greenpoint and Williamsburg: "Hazardous Neighbors? Living Next Door to Industry in Greenpoint-Williamsburg." The report was prepared in response to a 1984 chemical accident in Bhopal, India, which left 2,500 nearby residents dead and as many as 200,000 others suffering from lingering health effects. "Hazardous Neighbors" addressed the question of whether or not an industrial accident affecting area residents as well as plant employees could occur in New York City. The communities of Greenpoint and Williamsburg which comprise Brooklyn Community District # 1, were selected for the study for several reasons. The area has more land devoted to industry than any other district in the City. Many of these local industries store and use toxic, highly flammable, or explosive substances. And, because of the historic development patterns of the area and its small size (five square miles), the industries operate in close proximity to residential and commercial areas.

The "Hazardous Neighbors" report profiled twenty-eight facilities in Greenpoint-Williamsburg. Twelve of the twenty-eight store materials that the U.S. Environmental Protection Agency (EPA) has labelled "extremely hazardous substances", and store them in quantities designated as being potentially dangerous in the event of an accidental release. One of these facilities also stores low-level radioactive waste materials. The sixteen remaining facilities store large quantities of highly flammable fuels such as heating oil, gasoline, and natural gas. The 1990 Annual Report prepared by the New York City Department of Environmental Protection (NYC-DEP) in fulfillment of the New York City Community Right-to-Know Law (see Section III following for a description of this law) can be used to update "Hazardous Neighbors." It shows that 121 companies in the Greenpoint-Williamsburg area have reported that they handle large quantities of hazardous chemicals. Of these, 31 report that they store "extremely hazardous" chemicals in quantities large enough to pose a health threat in the event of an accident. This is more than twice as many such companies as are found in any other New York City community district. (New York City Department of Environmental Protection, "1990 Annual Report in Fulfillment of the New York City Community Right-to-Know Law.")

Such a high concentration of industries handling toxic chemicals in such a small geographic area highlights the need for the development of accident prevention and emergency preparedness plans. It also raises questions about the possible effect on local air quality of the industries' routine air emissions. Accident prevention was the focus of "Hazardous Neighbors? Living Next Door to Industry in Greenpoint-Williamsburg." This report, "Right to Breathe/Right to Know," addresses the less dramatic but no less serious issue of the chronic threat to public health posed by the routine emissions of toxic chemicals.

As they have begun to address the problems of toxic industrial air pollution, the environmental regulatory agencies have tended to focus their concern on large industrial facilities that individually discharge hundreds of thousands or even millions of pounds of pollutants each year. By contrast, this report spotlights an urban community where a large number of relatively small pollution sources are concentrated in a densely populated area. The report also highlights the existing problem of unregulated fugitive emissions which, in Greenpoint-Williamsburg, far exceed the stack emissions that are regulated through a permit system. "Right to Breathe/Right to Know" finds that existing environmental regulations are not adequate to protect public health and recommends a series of reforms to address the problem of toxic air pollution.

As explained later in the report, this attempt to estimate the total amount of toxic chemicals being emitted into the air in Greenpoint-Williamsburg by industrial sources is made possible by access to the information gathered under the 1986 federal Emergency Planning and Community Right-to Know Act as well as the data collected in New York State's Air Pollution Source Management System. However, the pollutants regulated by these programs represent only a portion of the total pollutant load in Greenpoint-Williamsburg. Other contributors to poor air quality include trucks and automobiles, a large municipal garbage incinerator and a sewage treatment plant.

SECTION II

GREENPOINT-WILLIAMSBURG

Greenpoint-Williamsburg is a five square mile community located in the northwest corner of Brooklyn. It is an area in which industrial facilities are interspersed among homes and schools. Large quantities of flammable fuels are stored in huge tanks across the street from rows of houses. Large housing projects are surrounded by factories that store and use great quantities of toxic chemicals. The routine or accidental release of these substances into the air takes on particular significance in a neighborhood such as this, where the health of so many people stands to be affected.

A. LAND USE AND ZONING

The area studied in this report as well as in "Hazardous Neighbors? Living Next Door to Industry in Greenpoint-Williamsburg" (the Community Environmental Health Center's earlier report on the same community) is defined by the boundaries of Brooklyn Community District #1. It is bounded by the East River on the west, Newtown Creek and the Brooklyn-Queens border on the north and east, and Flushing Avenue on the south. (See Figure 1 following.) Williamsburg lies to the south of Greenpoint. Its western portion is divided into the smaller neighborhoods of the Northside and the Southside.

Greenpoint-Williamsburg has the highest proportion of land devoted to industrial use of any community board in New York City. Twelve percent of the tax lots are zoned for manufacturing use as compared to 0.2 - 5.3 percent for other districts in Brooklyn, 2.2 percent for the Borough as a whole, and 1.9 percent for New York City. (See Figure 2 following.) The bulk of the remaining land in Greenpoint-Williamsburg is zoned for residential use with smaller areas allocated for commercial uses.

The proportion of land devoted to non-residential uses is higher still for Greenpoint alone. Of the 950 acres in the area, fully forty percent is industrial, thirty percent residential, and the remaining 30 percent public works and roads. (NYC Dept. of City Planning, "Community District Needs") The high percentage of land allocated for public works and roads has a significant impact on the area's environment. Public works in the area include the Greenpoint Incinerator and the Newtown Creek Sewage Treatment Plant. The large numbers of roadways traversing the area include sections of the Brooklyn-Queens Expressway as well as several major truck routes.

Industrial development of Greenpoint-Williamsburg began in the mid-1800's, with residential development following soon after. Because there were no mass transportation facilities, people needed to live close to their jobs. When the Williamsburg Bridge opened in 1903, a very large working class neighborhood developed. Immigrants from the over-crowded

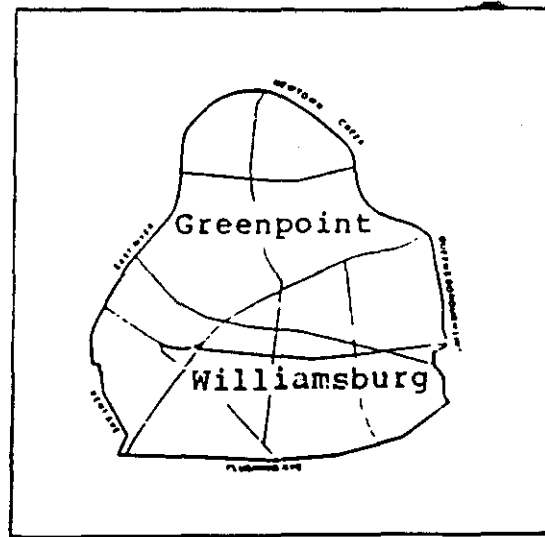
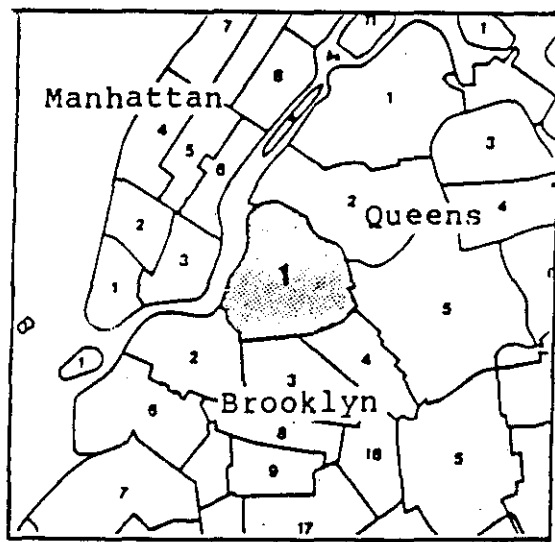


FIGURE 1. Community District 1.

From: New York City Department of City Planning. Fiscal Year 1988 Statements of Community District Needs. August 1986. p. 7.

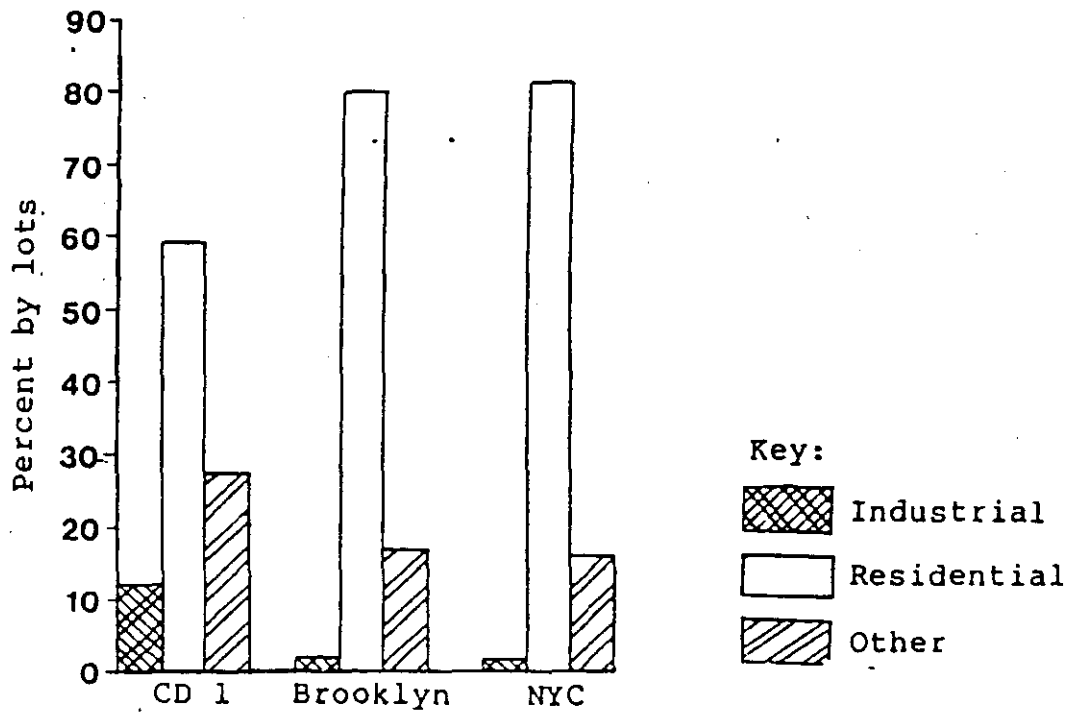


FIGURE 2 Land usage, 1985

From: New York City Department of City Planning. Fiscal Year 1988 Statements of Community District Needs. August 1986.

Lower East Side moved to the less crowded new neighborhood across the river and found work in the area's many factories and small businesses.

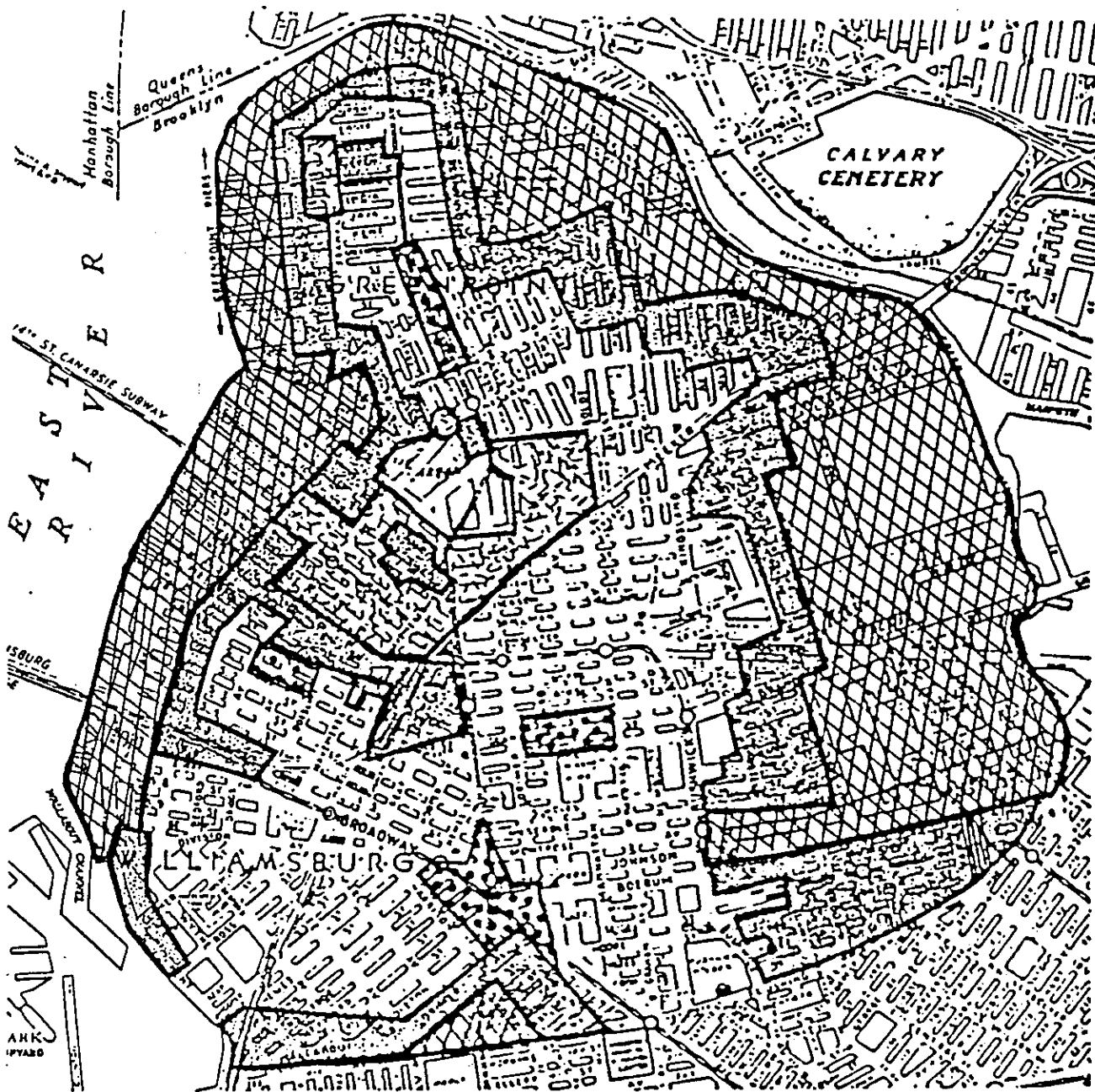
Much of the housing in the neighborhood dates from this period. Since the residential areas of Greenpoint-Williamsburg were developed hand-in-hand with local industry, even today the neighborhood is characterized by the close proximity of homes and factories.

Generally, zoning regulations seek to segregate residential and industrial land uses. This is done to permit industrial activity while minimizing as much as possible its adverse impacts such as noise, truck traffic, and air pollution. Because Greenpoint-Williamsburg was developed prior to the adoption of New York City's first zoning resolution, and because pre-existing uses are routinely exempted from new or modified zoning regulations, the residents of Greenpoint-Williamsburg do not benefit from the full protection zoning can provide. (See Appendix A of "Hazardous Neighbors" for a discussion of the NYC zoning regulations.)

Greenpoint-Williamsburg's zoning reflects both the importance of industry to the area and the historic importance of industry's access to water. A heavy manufacturing zone (M3), several blocks wide, hugs the East River and Newtown Creek and widens out on the eastern border of the district. (See Figure 3 following.) This zone contains large industrial facilities, most of the area's petroleum storage facilities, the Greenpoint Incinerator, and the Newtown Creek Sewage Treatment Plant. The central residential and commercial areas are separated from this heavy manufacturing district by an area zoned for light manufacturing (M1). Most of the facilities identified in "Hazardous Neighbors" as using or storing large quantities of hazardous chemicals are located in this M1 zone.

To accommodate the historical mixing of industry and residences, the City Planning Commission has created two special "mixed use" districts in the area. The Franklin Street Special District, located on Franklin Street between Eagle and Java Streets, protects the existing mix of industrial and residential uses, allowing expansion of both residential and light manufacturing if specified criteria are met. The Northside Special District, created in 1976, runs from North Fourth Street to North Tenth Street and from Wythe to Meeker Avenues. The zoning in this district again protects the existing mix, but allows expansion of industrial uses in some areas and residential uses in others. (NYC Zoning Resolution, Article IX, Chapt. 7, and Article X, Chapter 8)

FIGURE 3 Zoning Map of Greenpoint-Williamsburg. Those areas not shaded are for residential use.



KEY:



M1 - Light manufacturing



Commercial



M3 - Heavy manufacturing



Special mixed-use districts

B. THE PEOPLE

According to the 1980 Census, 142,000 people live in the Greenpoint-Williamsburg area, Brooklyn Community Board #1. This reflected a twenty percent drop in population from the data in the 1970 Census, as compared to a ten percent decline city-wide. The population density is some 28,000 persons per square mile, as compared to 23,416 persons per square mile in New York City as a whole.

The area's population is primarily white (49%) and Latino (42%), with African-Americans, Asians, and other groups composing the remainder. The Latino population lives primarily in the Southside area of Williamsburg, which it shares with a tightly-knit community of orthodox Jews, the Satmarer Hasidim. The Northside area and Greenpoint are largely Irish, Italian, and Polish. (NYCDCP, "Community District Needs")

It is likely that analysis of the 1990 Census will reveal more recent changes in the composition of the area's population. A new influx of Polish immigrants has arrived since the early 1980's. In addition, Manhattanites looking for lower-cost housing, quieter neighborhoods, and a more close-knit community have discovered Greenpoint and Williamsburg. These and other regional housing trends have created enormous housing pressures in the community.

Greenpoint-Williamsburg is a predominantly working class community. Sixty percent of the area's workforce is blue collar and semi-skilled. Approximately thirty-three percent of the population receive some sort of income support, such as Public Assistance. Many people who live in the area also work there. About ten percent of the workforce walks to work, while another forty percent commutes only ten to fifteen minutes.

C. LOCAL INDUSTRY

In 1981 Interface, a non-profit research group, estimated that Brooklyn Community Board #1 was home to nearly 1000 industrial firms, employing approximately 35,000 people. In 1983, the Department of City Planning conducted a detailed study of a 240-block area, comprising the western half of the community district. This study identified 778 industrial firms. A survey of 578 of these indicated that 16,009 workers were employed: 11,370 in manufacturing; 1,570 in wholesale trade; 1,125 in transportation; 594 in construction; and 1,350 in other jobs. (NYCDCP, "Greenpoint-Williamsburg")

Important industries in Greenpoint-Williamsburg include metal fabricating, printing, food processing, electronic manufacturing, apparel, and, most recently, waste handling. A few large industrial firms have plants in the area, including Pfizer Pharmaceutical, Amstar (sugar refining), Leviton and Dialight (manufacturers of electronic equipment). However, for the most part, the companies operating in the area are small.

A number of the local industries serve the entire city as well as the region. The Lumber Exchange at the mouth of Newtown Creek serves as the wholesale hub for lumber products for the five boroughs and much of the metropolitan region. The Radiac Research Corporation, located half a block from a public elementary school and two blocks from the Amstar sugar refinery is a radioactive waste storage and transfer facility. The company collects low-level radioactive waste from small generators and stores it until sufficient quantities accumulate to make it economical to ship to final disposal facilities. Plans are currently being considered by New York State to increase Radiac's permitted storage capacity until a permanent radioactive waste disposal facility can be sited and constructed in the state. Radiac also stores non-radioactive but hazardous waste materials in an adjacent building. (See Chapter 5 of "Hazardous Neighbors" for a complete description of Radiac's operations, community concerns, and legal actions which have been brought against the company.)

Greenpoint-Williamsburg is also a major storage and distribution center for petroleum products and natural gas. The sixteen largest such facilities in the area together have the capacity to store 89 million gallons of oil and gasoline, 32 million cubic feet of natural gas, and 20 million gallons of liquefied natural gas. Three of the facilities, Brooklyn Union Gas, Con Edison, and Mobil Oil, can each store more than 20 million gallons of fuel products. Most of these petroleum storage facilities are connected to inter-state pipelines, many of which traverse the community underground.

Historically, the petroleum industry has been the source of several environmental problems in the area. In April, 1988, a Mobil Oil pipe leaked 60,000 gallons of gasoline into the ground. In 1990, a Con Edison fuel pipeline cracked under a major thoroughfare, leaking oil into a residential area. In addition, a massive underground oil spill originally estimated at 17 million gallons underlies a broad area adjacent to Newtown Creek and the Brooklyn-Queens Expressway. This spill dates from the 1950's, was discovered by the Coast Guard in 1978, and is currently being pumped out by Mobil Oil and Amoco. (See "Hazardous Neighbors" for further information regarding these facilities.)

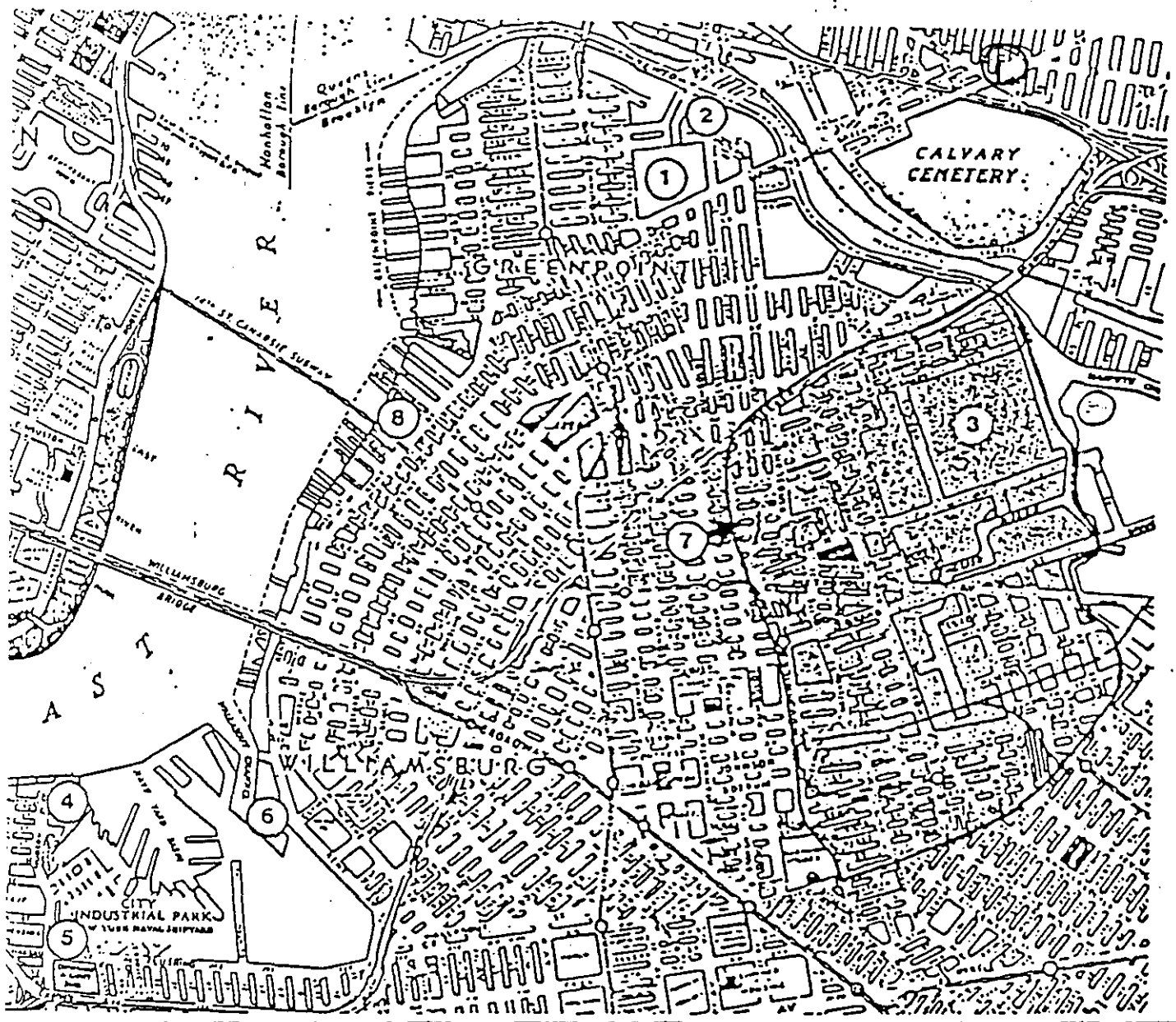
The eastern portion of Greenpoint-Williamsburg contains an industrial park bounded by the Brooklyn-Queens Expressway on the north, Flushing Avenue on the south, Newtown Creek on the east, and Bushwick Avenue on the west. The East Williamsburg Valley Industrial Development Corp. (EWVIDCO) and the city's Public Development Corporation, with the support of existing business, have been facilitating an industrial renaissance in the area. Clothing firms, meat processors, and bottling companies are now located in the industrial park.

The most recent industrial development in the area has been the establishment of some three dozen solid waste transfer stations within the past few years. These facilities receive, sort, and recycle or tranship for final disposal commercial wastes including construction and demolition debris, putrescible food wastes, and other materials. They

have a proposed total capacity of some 30,000 tons per day of waste. The growth in the numbers of these transfer stations was both unexpected and largely unregulated. It resulted from increases in the disposal fees at the Fresh Kills Landfill which made it more economical for the private carters to transfer the waste materials to long-distance haulers for disposal outside of New York City. The transfer stations congregated in Greenpoint-Williamsburg because of the availability of vacant land zoned for heavy industry (M3).

In addition to the privately-owned facilities described above, Greenpoint-Williamsburg also plays host to a number of public facilities. As noted earlier, the Newtown Creek Sewage Treatment Plant, the City's largest waste-water treatment facility, and the Greenpoint Incinerator, a 1000-ton per day mass-burn plant, are both located in Greenpoint near Newtown Creek. Two additional city resource recovery plants (garbage incinerators) are proposed for sites either within or immediately adjacent to the borders Greenpoint-Williamsburg. (See Figure 4 following.)

FIGURE 4 Industrial Sites in and around Greenpoint-Williamsburg



- KEY:
1. Newtown Creek Sewage Treatment Plant
 2. Greenpoint Avenue Incinerator
 3. Brooklyn Union Gas Greenpoint Energy Facility
 4. Hudson Avenue Con Edison Plant
 5. Red Hook Sewage Treatment Plant
 6. Proposed site of the Brooklyn Navy Yard Incinerator
 7. East Williamsburg Industrial Park
 8. Vacant waterfront sites that are the focus of current development debates
 9. Proposed site for Queens Resource Recovery Plant
 10. Betts Avenue Incinerator

SECTION III

TOXIC AIR POLLUTION: SOURCES OF INFORMATION

The New York State Department of Environmental Conservation (NYC-DEC) implements two regulatory programs which provide data on industrial air emissions of toxic chemicals. These are described below, along with an assessment of their strengths and weaknesses.

A. THE NYS AIR POLLUTION SOURCE MANAGEMENT SYSTEM (APSMS)

The NYS-DEC and the New York City Department of Environmental Protection (NYC-DEP) are responsible for issuing permits for all facilities emitting pollutants into the air. The permit allows a company to release specified quantities of pollutants subject to state and federal emission standards and guidelines. If these thresholds are exceeded, the company can be fined. As part of its application for a permit, each company reports the quantity of toxic chemicals it discharges to the air. This emissions data, as well as all other information contained in the application, is stored in the Air Pollution Source Management System, a computerized data base.

The emissions data is updated only when a company provides new information in connection with a permit renewal application or when a change in plant conditions is reported to DEC or DEP. Thus the 1986 APSMS computer printouts supplied by NYS-DEC to the Community Environmental Health Center for its research on this report contained data supplied by companies over the previous several years, depending on when they applied for a permit or permit renewal.

There are several limitations to the data stored in the APSMS. First, companies are required to report only their stack emissions. They are not required to measure or record "fugitive" emissions which are emissions resulting from leaking valves, poorly operating machinery, spills, or evaporation of solvents and other chemicals as they are employed in the production process. Consequently, the data available from the APSMS reflect, at best, only a part of the air pollution picture. Second, the emission data are developed and reported by the companies themselves. The NYS-DEC verifies the information submitted, but does not confirm it with stack emissions tests. Finally, the APSMS requires emission data only for those substances for which federal or state emission standards or guidelines have been established. This would exclude known pollutants such as dioxins or furans, for which there are no emission standards or guidelines.

B. THE TOXIC RELEASE INVENTORY OF THE EMERGENCY PREPAREDNESS AND COMMUNITY RIGHT-TO-KNOW PROGRAM

In 1986, Congress passed the Emergency Planning and Community Right-to-Know Act, also known as Title III of the Superfund Amendments and Reauthorization Act, or SARA Title III. The program was Congress'

response to the chemical accident that occurred in Bhopal, India, in December, 1984. An accidental chemical release at a pesticide plant in Bhopal killed 2,500 people living nearby and left as many as 200,000 suffering from lingering health effects. This tragedy focused world-wide attention on the danger that an industrial facility handling or manufacturing toxic chemicals can pose to neighborhood residents as well as company workers.

The Emergency Planning and Community Right-to-Know Act also was designed to respond to growing public concern about routine industrial discharges of toxic chemicals into our environment. Thus, in addition to provisions for emergency response planning, the act requires annual reporting by industrial companies of their emissions of designated toxic chemicals into air, water, and soil. Disclosure of the amounts of hazardous materials stored on company premises is required as well in order to facilitate the emergency response planning process. (The chemical storage and emergency response planning aspects of the program are discussed in "Hazardous Neighbors.")

This report uses the air emissions data reported under Section 313 of the Emergency Planning and Community Right-to-Know Act. These Toxic Release Inventory (TRI) data are submitted to both the United States Environmental Protection Agency and the NYS-DEC. The TRI includes information on routine chemical releases into air, surface water and sewers and onto land. Industries are required to file this toxic release information by July 1 every year for the previous year. Information for the Toxic Release Inventory is submitted by regulated companies on Form R's. These forms are described below, along with the strengths and weaknesses of the inventory program. (A sample Form R is provided in Appendix A)

1. Which Companies Are Required to File Form R's?

All industries in the United States are categorized into Standard Industrial Codes (SIC Codes). All industries in SIC Codes 20-39 are required to file Form R's, unless they fit one of the exemptions described below. SIC Codes 20-39 include manufacturers of items such as paper, tobacco, textiles, chemicals, rubber, metals, electrical materials, and medical goods. In Greenpoint-Williamsburg, most of the companies that have filed Form R's are either SIC Code 34, Fabricated Metal Products, or SIC Code 28, Chemicals and Allied Products.

There are several exemptions from the reporting requirements of the Toxic Release Inventory Program. Those companies with fewer than ten full-time employees are not required to supply chemical release data. Also, those that use or manufacture less than pre-designated threshold amounts of the listed chemicals are exempt from filing. The threshold amount for usage is 10,000 pounds annually of one of the regulated chemicals. (Ten thousand pounds of a chemical can be stored in approximately twenty-five 55-gallon drums.) The threshold amount for chemicals manufactured was set at 75,000 pounds annually in 1987 and was to decline over a period of years.

The reporting criteria and the exemptions described above are particularly significant for Greenpoint-Williamsburg for several reasons. First, several facilities in the area which are known to emit pollution are exempted because their SIC Code is not regulated by the program. These include the Greenpoint Incinerator and the Newtown Creek Sewage Treatment Plant. Second, many local companies are small and as a result may be exempted because they either do not employ ten people or do not meet the threshold reporting requirements. These small businesses may include dry cleaners, gas stations, small metal platers and small chemical manufacturers. Although individually their pollutant load may appear unimportant, the aggregate level of pollution emitted by a great number of these facilities operating in a small geographic area such as Greenpoint-Williamsburg may result in significant exposure to toxic chemicals by area residents.

2. What Chemicals Are Regulated By The TRI Program?

Although more than 70,000 chemicals are used by industries world-wide, only 306 chemicals plus 20 additional chemical categories are included on the United States Environmental Protection Agency's (EPA) list of substances that must be reported under the Toxic Release Inventory program. All are considered to be hazardous to the environment or to cause acute or chronic health effects, although they vary greatly in toxicity. The list has already been reviewed and modified several times. For instance, sodium sulfate, the chemical released in the greatest quantities nation-wide in 1987, has since been dropped from the list. Nine additional chemicals are required to be reported in 1991.

Since many toxic chemicals have not yet been adequately studied and many new ones are introduced each year, it is likely that the TRI list will continue to change and grow. The availability of emission data for those chemicals currently regulated by the program does not mean that a complete inventory of an area's air quality is now available. It is possible that many other toxic chemicals are being routinely emitted but are not reported because they are not included on EPA's list of regulated substances.

3. What Data Are Required on Form R?

Form R requires estimates of all chemical releases into the air, water, sewer system, or land. Air emissions reports must include both stack and fugitive emissions. Stack emissions are deliberate, legal releases through a stack, for which a company must have a DEC permit. Fugitive emissions can include both accidental and routine releases of toxic chemicals. They can result from leaks in valves, pump seals, flanges, compressors or sampling connections; from evaporation from surface impoundments and spills; or from releases from building ventilation systems.

If a company discharges more pollutants through a stack than is allowed under its permit, it can be fined. Fugitive emissions on the other hand, are unregulated. Moreover, because these fugitive emissions occur at or

close to ground level, they are not as rapidly dispersed as are stack emissions. Consequently, fugitive emissions may have a greater impact on the health of people living or working in the immediate surrounding area than stack emissions would.

Each company covered by the TRI program also must report how the chemical was used, the maximum amount stored on-site, the method used to estimate the quantities of emissions, and any treatment method used prior to the release of the chemical. Waste water treatment plants or off-site disposal facilities used to receive chemical wastes must be identified. The company has the option to report on any waste minimization process used.

There are two major types of problems with the information gathered by Form R. They have to do with the accuracy of the data gathered and the interpretation of its meaning.

Companies are permitted to calculate emissions in a number of different ways:

- a) actual monitoring of emissions at point of release; (Various types of monitoring equipment are available. Some are more reliable than others. Companies are not required to describe their monitoring equipment nor to identify the date it was last calibrated.)
- b) engineering judgements; (The actual calculations used may be selected by the companies and do not need to be submitted with the emission data.)
- c) emission factors; (Published mathematical formulas for projecting emissions are used in the calculations. These calculations do not need to be submitted with the emission data.)
- d) mass balance calculations; (The amount of a chemical used up in the manufacturing process plus the amount on hand at the end of the process are subtracted from the initial quantity. The remainder is unaccounted for and is presumed to have been lost as an emission. Greenpeace and the Environmental Research Council call this the "most accurate way of calculating total toxic emissions to the environment." [Gordon and Montague, pp. 47]).

The flexibility allowed in the selection of a measurement technique and the variability among the techniques themselves raise questions as to the accuracy of the information reported. Moreover, there is no mechanism at the state level for verifying the data submitted or for following up on questions raised by a company's submittal.

Interpreting the data presented on Form R is difficult for two reasons. First, emissions are presented as annual totals. There is no breakdown to indicate whether the chemicals were emitted all at once, on several discrete occasions, or in small amounts on a routine basis. Yet the implications for the health of workers and area residents may vary

depending on the circumstances of the release. While a large scale release might have serious health effects, chronic, small-scale emissions might be so quickly diluted in the air that neighborhood residents would not be exposed to a toxic dose. On the other hand, repeated exposure to low-level releases might have a cumulative impact on health. The actual health effects experienced would depend on both the chemical in question and the actual exposure sustained. These are impossible to determine from the information now available.

Second, Form R does not require companies to report their total volume of production for the year. Without this information, it is impossible to determine whether a reduction of emissions for a particular year is due to reduced production or to steps taken to minimize pollution.

C. OTHER POTENTIAL INFORMATION SOURCES

In 1990 NYS-DEC installed an air quality monitor at the Eastern District High School in the heart of Greenpoint-Williamsburg (850 Grand Street). This unit is designed to measure the presence of more than seventeen different organic toxics. NYS-DEC also announced plans to install a second monitor at another, as-yet-unidentified site in the community.

The installation of these devices in Greenpoint-Williamsburg by NYS-DEC appears to indicate that the agency recognizes the potentially significant air quality problem in the area. It also reflects DEC's responsiveness to vocal community concerns. Unfortunately, the data from these units will not be available for at least a year following their installation. Moreover, the monitors are unable to measure many of the pollutants being emitted by local industry. Still, their installation in the community is a necessary step toward developing a comprehensive picture of local air quality patterns.

In 1990 NYS-DEC and NYC-DEP also launched a door-to-door survey of all businesses in Greenpoint-Williamsburg. One apparent goal of this effort is to identify all possible sources of air pollution. As with the installation of the toxic air quality monitoring units, the decision to conduct this survey reflects the DEC's recognition that air pollution is a potentially significant health hazard in the area and that government agencies lack sufficient data to evaluate the situation.

SECTION IV: AIR POLLUTION IN GREENPOINT-WILLIAMSBURG

The Community Environmental Health Center at Hunter College estimates that some 2.9 million pounds of the toxic chemicals regulated under the Toxic Release Inventory program were emitted into the air of Greenpoint-Williamsburg in 1987. The estimate is based on the data gathered from the New York State Air Pollution Source Management System (APSMS) and the Toxic Release Inventory Program. The figure of 2.9 million pounds is more than thirteen times greater than the emissions reported under the TRI program alone. And yet, as explained below, the TRI emissions alone represent a pollution load that is sixty times greater than the national average as reported to the TRI program. Moreover, this pollution load impacts a neighborhood that has more than 400 times more people per square mile than the national average.

At the time this report was prepared, 1987 and 1988 TRI emission data were available to the public. However, only 1986 printouts from the APSMS were available to the Community Environmental Health Center and, as explained earlier, these printouts were based on company reports submitted prior to 1986. In order to compare the TRI and APSMS data sets, we assumed that the APSMS data were still current for 1987 and 1988.

A. TRI EMISSIONS

Twelve companies in Greenpoint-Williamsburg reported to the TRI program that they released 982,706 pounds of toxic chemicals into the air, water and soil in 1987. Eleven of these companies reported air emissions totalling 220,494 pounds. For 1988, sixteen companies reported total environmental releases of 911,147 pounds, a seven percent reduction from 1987. However, air emissions reported by a slightly different group of eleven companies than reported in 1987 increased thirteen percent to 252,853 pounds in 1988. (Tables 1 and 2 list the companies reporting air emissions in 1987 and 1988 and the toxic chemicals they released.)

As shown in Table 3, of the 220,494 pounds of toxic air emissions reported in 1987, 66,380 were carcinogens and 67,751 were toxins that are considered hazardous to human reproductive processes. In 1988, more than 70,000 pounds of carcinogens and more than 125,000 pounds of reproductive toxins were reported out of a total of 252,853 pounds. (For a discussion of the health effects of the chemicals emitted see Section V, below and Appendix B.)

Of the fourteen companies reporting air emissions in 1987 and/or 1988, only five reported releasing more than 10,000 pounds of toxic chemicals into the air in at least one of those years. They are Acme Steel Partition Company, Harco Chemical Coatings, Pfizer Inc., (Chemical Division, Bartlett Street plant), Gloss-Flo Corporation, and National Drum and Barrel Corporation. These companies are described briefly in Appendix C.

It must be emphasized that the company-specific TRI information contained in this report and in Appendix C reflects data that companies submitted for 1987 and 1988. (1989 data was supposed to be reported by July 1, 1990, too late for inclusion in this report.) Thus it is possible that more recent information would show changes in emission or modifications to operations at the companies referred to here.*

Tabulation of the TRI data indicates that eighty-seven percent of the discharges reported in both 1987 and 1988 were in the form of fugitive emissions. That is to say they were discharges resulting from leaks, spills, evaporation, etc., rather than stack emissions. Since these fugitive emissions tend to be released near the ground, they are not dispersed as rapidly as stack emissions. The US-EPA estimates that such emissions can have health impacts ten to forty times greater than stack emissions. (US-EPA, NATICH newsletter) The eighty-seven percent fugitive emission rate documented in Greenpoint-Williamsburg compares to a thirty-two percent fugitive emission rate for the country as a whole based on TRI data. (US-EPA, June, 1989) Perhaps the companies in Greenpoint-Williamsburg are older and industrial processes are less effectively controlled than in other parts of the country.

The 220,494 pounds of toxic chemicals reported to have been emitted into the air from industries in Greenpoint-Williamsburg in 1987 constitute thirty-four percent of the total air emissions of 650,500 pounds reported in Kings County (Brooklyn) in that year under the TRI program. Kings County, ranked as the 23rd out of 57 counties in New York State in terms of such air emissions. (Dame, 1989) New York State, in turn, ranked 12th in the nation, releasing 3.4% of the total emissions in the United States. (U.S.EPA, June, 1989)

A comparison of the largest emitters of toxic chemicals in the state, county, and community in 1987 provides some perspective.

- 1) New York State: Eastman Kodak, Rochester, 23,277,800 lbs. per year;
- 2) Kings County: Tekni-Plex, 310,500 lbs. per year; and
- 3) Greenpoint-Williamsburg: Acme Steel, 93,780 lbs. per year.

* As this report goes to press, 1989 TRI data are now available. According to Yves Mikol, director of Right-to-Know Programs at the New York City Department of Environmental Protection, thirty-seven facilities in Brooklyn's Community Board # 1 filed TRI reports for 1989.

TABLE 1. TRI TOXIC AIR EMISSIONS REPORTS - 1987

<u>Company</u>	<u>Chemical</u>	<u>Amount (Lbs.)</u>	<u>Stack/Fugitive</u>
Acme Steel	Tetrachloroethylene**	60,630	Fugitive
	Xylene+	750	Stack
	Xylene+	<u>32,400</u>	Fugitive
		93,780	
Pfizer	Methanol	49,258	Fugitive
	Methanol	11,913	Stack
	Hydrochloric Acid	250	Fugitive
	Hydrochloric Acid	1,900	Stack
	Ammonia	250	Fugitive
	Ammonia	<u>250</u>	Stack
		63,721	
Gloss-Flo	Methanol	3,750	Fugitive
	Isopropyl Alcohol*	3,750	Fugitive
	Acetone	7,200	Fugitive
	Methyl Ethyl Ketone	250	Fugitive
	Toluene	20,100	Fugitive
	Xylene	<u>1,300</u>	Fugitive
		36,350	
LTV Steel^	Sulfuric Acid	8,700	Fugitive
Vanguard Corp.^	Toluene+	300	Fugitive
	Toluene+	<u>7,900</u>	Stack
		8,200	
Fyn Paint	Toluene+	750	Fugitive
	Toluene+	750	Stack
	Xylene+	750	Fugitive
	Xylene+	<u>750</u>	Stack
		3,000	
Emulsion Systems	Glycol Ethers	250	Fugitive
	Glycol Ethers	250	Stack
	Methyl Methacrylate+	250	Fugitive
	Methyl Methacrylate+	250	Stack
	Styrene*	250	Fugitive
	Styrene*	750	Stack
	Diethanolamine*	250	Fugitive
	Diethanolamine*	250	Stack
	Ethyl Acrylate*	250	Fugitive
	Ethyl Acrylate*	<u>250</u>	Stack
		3,000	
Chromium^ Plating	Nickel+	750	Fugitive
	Nickel+	<u>750</u>	Stack
		1,500	
Alberts Plating	Sodium Hydroxide	260	Stack
	Phosphoric Acid	150	Stack
Works	Nitric Acid	150	Stack
	Sulfuric Acid	<u>680</u>	Stack
		1,240	
Harco Chemical Coatings	Titanium Dioxide	900	Fugitive
	Xylene+	<u>1-499</u>	Fugitive
		901-1,399	
Amstar Sugar Corporation	Sodium Hydroxide	1-499	Fugitive
	Phosphoric Acid	<u>1-499</u>	Fugitive
		2-998	

* Carcinogens (U.S. EPA's Office of Toxic Substances, January 1988)

+ Reproductive toxin (U.S. EPA's Office of Toxic Substances, 1988)

^ Did not report any air emissions in 1988

TABLE 2. TRI TOXIC AIR EMISSIONS REPORTS - 1988

<u>Company</u>	<u>Chemical</u>	<u>Amount (Lbs)</u>	<u>Stack/Fugitive</u>
Acme Steel	Tetrachloroethylene*	67,900	Fugitive
	Xylene+	<u>32,210</u>	Fugitive
		100,110	
Harco	Toluene+	20,000	Fugitive
	Xylene+	<u>30,000</u>	Fugitive
		50,000	
Pfizer	Methanol	35,610	Fugitive &
	Methanol	8,630	Stack
	Hydrochloric Acid	1,711	Fugitive &
		<u>45,951</u>	Stack
Gloss-Flo	Methanol	2,558	Fugitive
	Isopropyl Alcohol*	2,343	Fugitive
	Acetone	6,288	Fugitive
	Methyl Ethyl Ketone	2	Fugitive
	Toluene+	17,496	Fugitive
	Xylene+	<u>1,296</u>	Fugitive
		29,983	
National^ Drum & Barrel	Toluene+	1,910	Fugitive &
	Toluene+	<u>20,540</u>	Stack
		22,450	
Fyn Paint	Toluene+	500	Fugitive
	Toluene+	500	Stack
	Acetone	500	Fugitive
	Acetone	500	Stack
	Xylene+	500	Fugitive
		<u>3,000</u>	Stack
Alberts	Sodium Hydroxide	190	Stack
	Phosphoric Acid	200	Stack
	Sulfuric Acid	<u>450</u>	Stack
		840	
Emulsion Systems	Glycol	1-499	Fugitive
	Glycol	1-499	Stack
	Methyl Methacrylate+	1-499	Fugitive
	Methyl Methacrylate+	1-499	Stack
	Styrene*	1-499	Fugitive
	Styrene*	500-999	Stack
	Diethanolamine*	1-499	Fugitive
	Diethanolamine*	1-499	Stack
	Ethyl Acrylate*	1-499	Fugitive
	Ethyl Acrylate*	1-499	Stack
	Di-N-Butyl Phthalate	1-499	Fugitive
	Di-N-Butyl Phthalate	1-499	Stack
	Zinc	1-499	Fugitive
	Zinc	1-499	Stack
	Ammonia	1-499	Fugitive
	Ammonia	<u>1-499</u>	Stack
		515-7985	
Amstar Sugar Corp.	Sodium Hydroxide	1-499	Fugitive
	Phosphoric Acid	<u>1-499</u>	Fugitive
		2-998	
Kalex^ Chemical Prod.	Bis (2-Ethyl- Phthalate*	1-499	Stack
United Resin Products^	1,1,1-Trichloro- ethane	1-499	Fugitive

* Carcinogens (U.S. EPA's Office of Toxic Substances January, 1988)

+ Reproductive Toxin (U.S. EPA's Office of Toxic Substances, 1988)

^ Did not report any emissions in 1987

**TABLE 3. EMISSIONS OF CARCINOGENS AND REPRODUCTIVE TOXINS
(pounds per year)**

CARCINOGENS		1987	1988
Tetrachloroethylene	stack	--	--
	fugitive	60,630	67,900
	total	60,630	67,900
Isopropyl Alcohol	stack	--	--
	fugitive	3,750	2,343
	Total	3,750	2,343
Styrene	stack	750	500-999
	fugitive	250	1-499
	Total	1,000	501-1498
Diethanolamine	stack	250	1-499
	fugitive	250	1-499
	Total	500	2-998
Ethyl Acrylate	stack	250	1-499
	fugitive	250	1-499
	Total	500	2-998
TOTAL CARCINOGENS		66,380	70,748- 73,737
REPRODUCTIVE TOXINS			
Tetrachloroethylene	see above	see above	see above
Xylene	stack	1,500	500
	fugitive	34,451	64,006
	Total	35,951	64,506
Toluene	stack	8,650	21,040
	fugitive	21,150	39,906
	Total	29,800	60,946
Nickel	stack	750	---
	fugitive	750	---
	Total	1,500	---
Methyl Methacrylate	stack	250	1-499
	fugitive	250	1-499
	Total	500	2-998
TOTAL REPRODUCTIVE TOXINS* (excluding tetrachloroethylene)		67,751	125,454- 126,450

* The total for reproductive toxins excludes tetrachloro-ethylene which is also a carcinogen and is reported above.

Tekni-Plex was the single largest source of toxic chemicals in the air in New York City in 1987. Acme Steel was among the top ten. (Gold, May 23, 1990)

The pollution in Greenpoint-Williamsburg may appear, at first glance, to be relatively limited compared to that documented elsewhere. However, Greenpoint-Williamsburg is a small, densely populated community. More people are potentially exposed to these releases than might be the case elsewhere. Also, Greenpoint-Williamsburg has the highest proportion of land devoted to industrial activity of any community district in New York City. Consequently, as Table 4 reveals, the quantity of toxics emitted into the air per square mile is dramatically higher there than for the city, state, or nation as a whole.

It is alarming to note that nearly sixty times as many pounds of toxic chemicals are being emitted per square mile in Greenpoint-Williamsburg as are being emitted on the average, in the country as a whole. Compared with New York State, Greenpoint-Williamsburg experiences more than twenty times more pounds of pollution per square mile per year. The significance of these comparisons is magnified, when we consider that more than 400 times more people per square mile may be exposed to the more substantial Greenpoint-Williamsburg pollution load than are exposed to the smaller average load reported for the United States. (It should be noted that the population and pollution emission figures are statewide and national averages; these averages may hide individual communities where pollution concentrations are equal to or greater than those in Greenpoint-Williamsburg.)

B. ADJUSTED ESTIMATES USING APSMS DATA

The TRI emissions figures are even more alarming when one realizes that the total amount of toxic chemicals being emitted in the Greenpoint-Williamsburg area is actually dramatically higher than reported under the Toxic Release Inventory program. To obtain a more accurate picture of local air pollution a number of adjustments must be made to the TRI data.

The first adjustment that must be made to the TRI data is to incorporate the emissions data from the NYS Air Pollution Source Management System. The 1986 APSMS data show hundreds of companies with state emission permits in zip code areas 11222, 11211, 11237, and 11206, which encompass Greenpoint-Williamsburg and the immediately surrounding area. To facilitate this analysis, only those companies in zip code areas 11222 and 11211, which constitute most of Greenpoint-Williamsburg and which are completely contained within Community Board # 1, were considered. Consequently, the population of companies known to emit toxic chemicals is understated at the outset due to the elimination of those located within the study area but in zip code areas 11237 and 11206.

**TABLE 4. POPULATION AND AIR TOXICS PER SQUARE MILE PER YEAR
(1987 Toxic Release Inventory Data)**

	Population/Sq. Mi.	Pounds Toxics/Sq. Mi.
United States	64	750
New York State	371	2,001
New York City	23,416	4,182
Kings County	31,872	9,292
Grnpnt./Wllmsbrg.	28,400	44,099

Nearly 190 APSMS companies that were not included in the TRI data were identified in zip code areas 11211 and 11222. They reported toxic air emissions totalling 351,689 pounds in 1986. The chemicals emitted included toluene, xylene, methyl ethyl ketone, isopropyl alcohol, and trichloroethylene, several of which are carcinogens and all of which were reportable under the Toxic Release Inventory program when that program took effect in 1987. Additional pollutants such as particulates and carbon monoxide, while included in the APSMS data, are not reportable under the TRI. Consequently, emission data for all such substances have been eliminated from this analysis of the APSMS data to make the information from both programs compatible.

As explained earlier, the APSMS data provided to the Community Environmental Health Center (CEHC) by the New York State Department of Environmental Conservation were derived from company reports submitted to NYS-DEC prior to 1986, at the time air pollution permits were issued or renewed. CEHC has assumed that the data were still current in 1987 and 1988 for purposes of comparison with the TRI data of those years.

Before adding the air emissions reported by the 190 APSMS companies to those reported by the eleven other companies reporting to the TRI program, an additional adjustment must be made. The APSMS data include only reported stack emissions; companies did not report any estimate of fugitive emissions. As discussed above, both 1987 and 1988 TRI data indicated that, on the average, eighty-seven percent of total discharges from Greenpoint-Williamsburg companies were fugitive emissions. If we assume that the 190 companies listed in the APSMS, discharged fugitive emissions at the same rate, their total emissions would have been some 2.7 million pounds, rather than the 351,689 reported. In other words, the reported 351,689 pounds would have represented only 13 percent of the total pollution load; the other 87 percent would have been fugitive emissions. (If the APSMS companies had a fugitive emission rate of only thirty-two percent, which was the national average, then their total discharge would have been some 517,190 pounds.)

Adding the TRI and the adjusted APSMS data together, it appears that some 2.9 million pounds of toxic chemicals were released in Greenpoint-Williamsburg in 1987, or 580,000 pounds per square mile.

It is likely, however, that this estimate still understates the annual emissions of toxic chemicals in the area. First, as noted above, it does not include emissions data for those companies identified by the APSMS which are in Greenpoint-Williamsburg but not within zip code areas 11222 and 11211. Second, it appears likely that there are companies in the area which should be reporting their emissions to the NYS-DEC under either or both the APSMS or the TRI programs but which are failing to do so. It is estimated that on a nation-wide basis only one company in four complies with the reporting requirements of the Community Right-to-Know program. (U.S. PIRG, April, 1990) Certainly the fact that only eleven companies reported air emissions to the TRI program in 1987 while at least 190 additional companies had air

emissions permits from DEC suggests that compliance with TRI reporting requirements was not universal. (CEHC did not analyze the APSMS data to determine how many of the 190 companies may have been exempt from TRI requirements because they had less than 10 employees or were in an exempt SIC category.)

C. OTHER SOURCES OF AIR POLLUTION

It is important to remember that our estimates of the aggregate industrial air pollution in Greenpoint-Williamsburg represent only a part of the total air quality picture. This report catalogues only emissions of those chemicals that must be reported under the TRI program requirements. The TRI list of 326 reportable chemicals and chemical categories omits many toxic substances. For example, the list does not include dioxins, which are known to be emitted from facilities like the Greenpoint Incinerator, or particulates, which may be emitted from industrial facilities, incinerators and motor vehicles. Nor does the list include carbon monoxide, the primary source of which is motor vehicle exhaust. (The APSMS includes carbon monoxide and particulate emissions data but those data were not included in CEHC's analysis.)

It is estimated that the largest source of air pollution in New York City is exhaust from cars, trucks and buses. (Goldstein, p. 100) Indeed, EPA estimates that fifty-five percent of the cancer cases attributed to air pollution, are caused by exposure to motor vehicle exhaust. (Goldstein, p. 106) Pollutants emitted by motor vehicles include carbon monoxide, hydrocarbons and nitrogen oxides (both of which contribute to smog) and particulates. According to an EPA survey, motor vehicles accounted for more than 76 percent of the benzene, 63 percent of the directly emitted formaldehyde and 77 percent of all polycyclic organic matter found in urban air. (Goldstein, p. 106)

Motor vehicle pollution is a significant problem in Greenpoint-Williamsburg. The Brooklyn-Queens expressway traverses the area. Reconstruction work on the highway, which has been underway for several years and will continue for several more, has aggravated the problem. The reconstruction work has brought additional trucks to the area. It also has resulted in serious traffic jams which mean increased pollution from idling engines. Area residents also may be exposed to greater pollution as cars and trucks shift to neighborhood streets and roadways to avoid the expressway back-ups.

Local industries also contribute to the high level of truck traffic through the community as they ship in raw materials and send out finished products. The over-all level of truck traffic in Greenpoint-Williamsburg has increased significantly in recent years due to the unexpected proliferation of solid waste transfer stations described previously. The operation of these facilities is truck-intensive; one fleet of trucks delivers the garbage to the transfer stations and another fleet, often from out-of-state, arrives to take it away. Each load of waste materials thus generates four

truck trips per day. It is estimated that if this industry's proposed capacity of 30,000 tons per day is realized, it will result in 6,400 truck trips per day through the community. (The estimate assumes that the trucks delivering the waste to the transfer station can carry 15 tons each. The trucks which pick up the compacted waste for final disposal are estimated to carry 25 tons.)

The Greenpoint Incinerator, a 1000 ton-per-day mass burn facility, is a significant source of local air pollution. It is located on Newtown Creek in northern Greenpoint. This incinerator has been cited by the United States Environmental Protection Agency for exceeding federal standards for emissions of particulates. (Particulates are tiny solid particles or liquid droplets, some visible and some as small as 1/250 thousandth of an inch in size. Often coated with toxic metals that are released during incineration, the smallest particulates can penetrate deep into the lungs. (Goldstein, p. 36) The emission control devices at the Greenpoint plant are currently being upgraded to meet federal standards. However, the plant has continued to operate during the renovation period. Apparently, the renovation includes a tripling of the incinerator's capacity.

The community has expressed concern about emissions of dioxin from the Greenpoint Incinerator. Although no stack tests for dioxin have been conducted at this incinerator, it is reasonable to assume that dioxins are discharged in substantial quantities based on evidence from other incinerators which, like the Greenpoint plant, lack sophisticated combustion and pollution control equipment. Currently there is considerable controversy about the health effects of exposure to dioxin but researchers have linked such exposure to miscarriages, birth defects, neurological disorders, liver and kidney disfunction, immune system impairment, and cancer.

Plans to build two additional incinerators are currently under consideration for sites immediately adjacent to the Greenpoint-Williamsburg community. The first proposed site is in the Brooklyn Navy Yard, immediately to the southwest of Williamsburg; the second is in Maspeth, Queens, to the east. These facilities would each burn three thousand tons per day of garbage.

Community residents also have expressed concern about possible air emissions from the Newtown Creek Sewage Treatment Plant. In addition to odors which are unpleasant but not dangerous, water pollution control plants may release volatile organic chemicals as a result of evaporation during the aeration/biological treatment stage of the sewage treatment process. These chemicals are found in the sewage because industrial companies have dumped chemical wastes into their sewers. This air pollution problem could be resolved by an aggressive program to stop such dumping.

SECTION V

HEALTH HAZARDS FROM AIR POLLUTION

The Community Environmental Health Center at Hunter College has estimated the cumulative emissions of toxic pollutants from industrial sources into the air in Greenpoint-Williamsburg. Evaluating the potential impact of that pollution on the health of area residents would be a complex process far beyond the scope of this study.

Projecting the risk of population health effects requires identifying the number of people potentially exposed as well as estimating the intensity and duration of exposure. Making such an exposure estimate requires consideration of a variety of factors. For example, weather, topography (in an urban setting this includes the height of buildings), stack height and a host of other variables can affect the speed with which pollutants are dispersed. The degree of dispersal will, in turn, affect the potential exposure of community residents and workers to toxins in the air. The health risk to an individual will reflect the amount and potency of toxins actually absorbed into the body but also will be influenced by factors such as health status and age which can produce a range of individual vulnerability to health effects from a particular dose of toxic chemicals.

While we cannot estimate in this study the number of cases of cancer, reproductive health damage or other illnesses that may occur as a result of exposure to air pollution in Greenpoint-Williamsburg, there is no question that the toxic chemicals emitted into the community's air can be dangerous to human health. The pollutants that must be reported under the TRI program have been proven to be highly toxic. Some are carcinogens; others can adversely affect the human reproductive system. It is important to take steps to minimize exposure to these dangerous chemicals.

The classification, in this report, of chemicals as carcinogens or reproductive toxins is based on a 1988 chart prepared by the US-EPA's Office of Toxic Substances to classify the chemicals reported under the Right-to-Know Law. It includes the following categories:

- 1) carcinogens (can cause cancer);
- 2) heritable genetic mutagens (can cause changes in genetic materials that can be passed on to the next generation);
- 3) developmental toxicants (can cause miscarriages or birth defects);
- 4) reproductive toxicants (can harm the ability of men and/or women to reproduce);
- 5) acute toxicant (can cause death from even small, short-term exposures); and
- 6) chronic toxicant (can cause long term damage other than cancer).

The EPA chart was based on a preliminary screening of the scientific literature and may not be completely accurate. However, it provides a starting point for community residents who want to learn more about the possible health effects of human exposure to the toxins being discharged into their local environment. (Dame, 1989)

In 1987, according to the TRI reports filed by local companies, sixty-one percent of the toxic chemicals emitted in Greenpoint-Williamsburg were either carcinogens, reproductive toxins, or both. As shown in Table 3, this figure rose to seventy-eight percent of the total in 1988.

Three companies in Greenpoint-Williamsburg reported to the TRI Program that they emitted 66,380 pounds of carcinogens into the air in 1987. In 1988, four companies reported emissions of 70,748-73,737 pounds of carcinogenic materials. Over ninety percent of the totals in both years were fugitive emissions of tetrachloroethylene from a single company, Acme Steel. Other carcinogens emitted included isopropyl alcohol, styrene, diethanolamine, and ethyl acrylate. Cumulatively, carcinogens represented thirty percent and twenty-eight percent, respectively, of the total toxic chemicals released in 1987 and 1988, according to TRI reports. (See Tables 1, 2 and 3.)

According to TRI reports, five reproductive toxins were emitted by seven companies in 1987 and six companies in 1988. Tetrachloroethylene, listed above as a carcinogen, was the single largest reproductive toxin emitted. Emissions of toluene and xylene were also substantial. Nickel and methyl methacrylate comprised the remainder. Emissions of reproductive toxins totalled 67,751 pounds in 1987 and 125,454 pounds in 1988. To avoid double counting, these figures exclude the emissions of tetrachloroethylene, which is both a carcinogen and a reproductive toxin. If they had been included, the totals would increase to 128,381 pounds in 1987 and 193,354 pounds in 1988, representing fifty-eight percent and seventy-six percent, respectively of the total amount of toxic emissions reported in those years.

Of the twenty-four chemicals emitted by companies reporting to the TRI program in 1987 and 1988, only four were emitted in quantities exceeding 10,000 pounds for the neighborhood as a whole. (See Tables 1, 2, 5 and 6) Three of the four, tetrachloroethylene, toluene and xylene, are classified by EPA as reproductive toxins; tetrachloroethylene is also a carcinogen. Profiles of the four chemicals are provided in Appendix B.

Caution should be exercised in interpreting the chemical profiles. Some of the health effects described in the profiles result from acute exposure in close quarters and cannot easily be translated into community exposure from industrial emissions. Also, small frequent exposures from routine industrial emissions may cause different health effects than an exposure to a single concentrated release of the same substance.

**TABLE 5. TOP CHEMICALS EMITTED INTO THE AIR, 1987
(Toxic Release Inventory Data)**

<u>Chemical</u>	<u>Company</u>	<u>Amount (Lbs.)</u>	<u>F/S^</u>
Methanol	Pfizer	49,258	F
	Pfizer	11,913	S
	Gloss-Flo	<u>3,750</u>	F
		64,941	
Tetrachloroethylene*+	Acme Steel	60,630	F
Xylene+	Acme Steel	32,400	F
	Acme Steel	750	S
	Fyn Paint	750	F
	Fyn Paint	750	S
	Gloss-Flo	1,300	F
	Harco	<u>1-499</u>	F
		36,400-36,499	
Toluene+	Gloss-Flo	20,100	F
	Vanguard	300	F
	Vanguard	7,900	S
	Fyn Paint	750	F
	Fyn Paint	<u>750</u>	S
		29,800	

^ Fugitive/Stack

* Carcinogens (U.S. Office of Toxic Substances, January 1988)

+ Reproductive Toxins (U.S. Office of Toxic Substances, January 1988)

TABLE 6. TOP CHEMICALS EMITTED INTO THE AIR, 1988
(Toxic Release Inventory Data)

<u>Chemical</u>	<u>Company</u>	<u>Amount (Lbs.)</u>	<u>F/S^</u>
Tetrachloroethylene*+	Acme Steel	67,900	F
Xylene+	Acme Steel	32,210	F
	Harco	30,000	F
	Gloss-Flo	1,296	F
	Fyn Paint	500	F
	Fyn Paint	500	S
		64,506	
Toluene+	Nat'l Drum	1,910	F
	& Barrel	20,540	S
	Harco	20,000	F
	Gloss-Flo	17,496	F
	Fyn Paint	500	F
	Fyn Paint	500	S
		60,946	
Methanol	Pfizer	35,610	F
	Pfizer	8,630	S
	Gloss-Flo	2,558	F
		46,798	

^ Fugitive/Stack

* Carcinogens (U.S. Office of Toxic Substances, January 1988)

+ Reproductive Toxins (U.S. Office of Toxic Substances, January 1988)

SECTION VI

CONCLUSION: CLEANER AIR FOR GREENPOINT-WILLIAMSBURG

A. THE AIR POLLUTION PROBLEM IN GREENPOINT-WILLIAMSBURG

Using publicly available data, the Community Environmental Health Center at Hunter College (CEHC) has prepared the first comprehensive estimate of the aggregate toxic air pollution load in Greenpoint-Williamsburg from industrial sources. CEHC's analysis of the data has revealed that the industrial facilities in Greenpoint-Williamsburg cumulatively emit a very substantial amount of toxic pollutants. In 1987, a total of 201 companies emitted an estimated 2.9 million tons of toxic chemicals; the companies included eleven which reported their emissions under the Toxic Release Inventory (TRI) program and 190 listed in the Air Pollution Source Management System (APSMS). The APSMS data was adjusted to include an estimate of fugitive emissions. Analyzing the TRI data alone revealed that the pollution load in Greenpoint-Williamsburg was nearly sixty times the national average. The health impact of such a substantial pollution load may be magnified because there are significantly more people per square mile living in Greenpoint-Williamsburg than in many other communities in the United States.

The bulk of the estimated air emissions are fugitive discharges, rather than permitted emissions from a stack. Because the quantity of fugitive emissions is not controlled by government regulation, a company whose stack emissions of xylene or toluene are limited by its permit can legally continue to discharge far greater quantities of the same chemicals through fugitive emissions. From a public health perspective, this makes no sense.

Another significant loophole in the regulatory structure is the fact that a community like Greenpoint-Williamsburg can do little to prevent the construction of new air pollution sources despite the fact that the community is already so burdened by facilities that emit toxic chemicals into the atmosphere. Other communities seeking to avoid becoming overburdened with polluting facilities are similarly unprotected unless they use zoning to completely exclude industrial facilities.

Existing regulations also are inadequate in that they focus on pollution control rather than pollution prevention. The current system of air pollution regulation in the United States is based on "end of the pipe" controls to capture toxic air emissions before they are released to the atmosphere where they may be inhaled by people living or working near the facility discharging the pollutants. Such regulations can reduce pollution but often at great financial cost. And the society still faces the problem of disposing of the contaminated filters and other materials used to trap the pollutants. If the filter is buried in a landfill, the toxic contaminants may

eventually pollute the land or water. In most cases it would be far more efficient, effective and safe to reduce hazardous waste in our environment by reducing or eliminating the use of toxic chemicals in the production process. "Toxic use reduction" or "pollution prevention" as it is often called, can be accomplished by redesigning products or production processes to allow substitution of less toxic materials for the high hazard substances now employed. Many companies have found that pollution prevention saves money in the long run. (See "Hazardous Neighbors" for a more extensive discussion of pollution prevention.)

Cleaning up the air in Greenpoint-Williamsburg will require action by state and local government, by industry and by community residents. Many of the tasks government needs to undertake can be accomplished through, or facilitated by, the environmental benefits project now being conducted by the New York City Department of Environmental Protection (NYC-DEP) in Greenpoint-Williamsburg. Under the terms of a consent agreement the NYC-DEP signed with the New York State Department of Environmental Conservation (NYS-DEC) in connection with the City's failure to comply with state waste-water treatment standards at the Newtown Creek Sewage Treatment Plant, NYC-DEP committed to set aside \$850,000 for an environmental benefits program. The fund is to be used to remediate selected environmental problems in Greenpoint-Williamsburg. In the first phase of the project, NYC-DEP is conducting a comprehensive environmental assessment of the area which will subsequently guide the selection of remedial priorities and mitigation measures. A community advisory committee is to oversee the entire process.

B. RECOMMENDATIONS FOR REDUCING AIR POLLUTION IN GREENPOINT-WILLIAMSBURG

1. Develop an accurate, comprehensive picture of air pollution in Greenpoint-Williamsburg.

As part of the environmental assessment being conducted through the environmental benefits program, NYC-DEP should compile a comprehensive inventory of air pollution sources. The place to start is with the latest TRI and APSMS data, in effect, updating this report. This material should be supplemented with information from the door-to-door survey conducted by NYS-DEC and NYC-DEP. Emissions from the Greenpoint Incinerator and the Newtown Creek Sewage Treatment Plant should be included as well, along with the results of the traffic survey being conducted in the area by the New York City Department of Transportation.

In addition to collecting company-reported data on individual facility emissions, actual field testing should be used to develop a picture of ambient air quality in the community. The monitoring site established on Grand Street is not sufficient; NYS-DEC should move quickly to add a second monitor as it indicated it would do.

2. Enforce existing air pollution control regulations.

NYS-DEC, NYC-DEP and other relevant government agencies must enforce all existing legal limits on toxic air emissions. This means identifying companies that don't have required permits; it also means inspecting permitted companies to determine if they are complying with the limits set in their permits. Violators should be punished to the full extent of the law and enforcement actions should be widely publicized as a deterrent to other violators. Maximum fine levels should be increased. Both the NYS-DEC's door-to-door survey of Greenpoint-Williamsburg businesses, and the facility inspections being conducted by NYC-DEP as part of emergency response planning under the federal Emergency Planning and Community Right-to-Know Act, can be used to identify violators.

The Greenpoint Incinerator continues to operate during a multiyear upgrading process despite the fact that EPA has documented violations of federal air limits for particulate emissions. This should not be allowed to continue.

Regulations are only as good as the enforcement behind them. Citizens need to lobby for more enforcement staff for the NYS-DEC and NYC-DEP. These agencies have admitted that they have neither the staff nor the money to routinely monitor industrial compliance with environmental regulations.

3. Enact new regulations to dramatically reduce fugitive emissions.

TRI data from Greenpoint-Williamsburg indicates that fugitive emissions may represent the bulk of the toxic pollution load from industrial facilities in the area. Moreover, such emissions may be significantly more hazardous to human health than stack emissions since fugitive discharges generally are released closer to the ground and, as a result, generally will disperse less rapidly than stack emissions.

Yet fugitive emissions are virtually unregulated. Although the state can, and sometimes does, require a company to reduce fugitive discharges if those discharges are designated a public nuisance, there is no systematic government program to compel all companies to limit fugitive emissions. This regulatory loophole must be closed immediately. City, state or federal legislation must be enacted to require that companies redesign production processes, improve maintenance and housekeeping, and reduce the use of toxic chemicals until fugitive emissions are virtually eliminated.

4. Reduce air pollution by preventing it at the source.

As noted earlier, the most effective way to reduce air pollution and other toxic waste is to decrease the use of toxic chemicals in industrial processes. Many companies have found that pollution prevention is also the most cost-effective way to comply with environmental standards. Companies in Greenpoint-Williamsburg should

begin to implement pollution prevention plans that will significantly reduce air pollution. Government can encourage industry to do so by developing tax credit and other incentive programs and providing technical assistance, particularly to small companies like those which predominate in Greenpoint-Williamsburg.

Community organizations could confront local industries directly, demand the right to inspect polluting facilities, and fight to extract a commitment from the companies to cut their discharges to zero within a negotiated timetable. ("Hazardous Neighbors," the Community Environmental Health Center's first report on Greenpoint-Williamsburg, includes a chapter detailing how community groups can organize to ensure that local companies become good neighbors.) Local groups also could support legislation to make pollution prevention official state policy.

The state of Massachusetts has adopted toxic use reduction legislation that could serve as a model for New York. The law sets a goal of a fifty percent cutback in the production of toxic wastes by 1997. Large toxic users are required to formulate and implement toxic use reduction plans; the state also has the authority to set mandatory reduction targets in key industries. Research, training and technical assistance is available to companies at a new Toxics Use Reduction Institute at the University of Lowell. Citizens have a right to request that the state inspect company plans and enforce the requirements of the act.

5. Develop new regulatory tools to protect communities against the cumulative impact of air pollution from multiple sources.

One task of NYC-DEP's environmental benefits study should be to evaluate the current zoning in Community Board #1 to determine if it provides adequate protection for area residents against environmental health hazards. The fact that so much of the land in the community is zoned M3 (heavy manufacturing) or M1 (light manufacturing) has made it easy for new polluting facilities to locate in the area, despite the fact that many people live in the industrial zones or in residential zones very close by.

Perhaps a special environmental protection designation could be added for industrial zones in already overburdened communities (e.g. M3-EP); new facilities seeking to locate in those zones would be required to meet particularly stringent environmental standards. This would enable industrial development to continue while protecting community residents against environmental health threats like air pollution. Perhaps zoning or other regulatory tools also could be used to require that industrial facilities already located in Greenpoint-Williamsburg implement special mitigation measures to address the cumulative impact of air pollution and other environmental health hazards.

Since existing zoning has not provided adequate protection, Community Board #1 has expressed interest in developing a comprehensive plan to guide development and land use in their community under Section 197A of

the City Charter which authorizes communities to initiate such plans. If approved by the City Planning Commission and the City Council, the plan should have the force of law and should be able to preclude development contrary to it; however, no 197A plan has yet gone through the approval process and it is not yet clear how much weight the Dinkins administration will give to such plans. Given the City's commitment to address the special environmental problems in Greenpoint-Williamsburg, the City Planning Commission and other agencies should welcome and support the community planning initiative and provide whatever assistance is needed to facilitate the development of the plan and the approval process. Given the community concern about environmental quality, it would make sense for the plan to include environmental guidelines to ensure that new industrial facilities employ clean technologies that do not contribute to air pollution and other environmental problems.

There is strong sentiment among the residents of Greenpoint-Williamsburg that their community is already supporting more than its fair share of municipal burdens (e.g. sewage treatment plant, municipal incinerator) and enjoying less than its fair share of municipal amenities (e.g. parks). As required by the new City Charter, the City Planning Commission has developed "fair share" rules that are supposed to ensure that public facilities which may have a negative impact on a community are appropriately distributed throughout the City; this would apply to disadvantageous social as well as environmental impacts. The rules also should guide the City toward a situation in which all communities get their fair share of public facilities that are perceived as assets.

It is not yet clear whether the fair share regulations will effectively enable the City to meet the goal of equitable distribution of public facilities. Community residents should pay close attention to the implementation of the rules and advocate for any changes in the system which are necessary to address the needs of the Greenpoint-Williamsburg community.

6. Declare a moratorium on the construction of new sources of environmental pollution.

Greenpoint-Williamsburg is already overburdened by facilities that pollute its air and contribute to environmental degradation. It makes no sense to allow new facilities to open -- or existing facilities to expand -- unless those facilities can demonstrate that they will employ "clean technology" that will not contribute to the pollution load in the community.

The New York City government should support the demand by community residents for a moratorium on any development that may be environmentally hazardous, until the NYC-DEP environmental benefits study is completed. In addition to an evaluation of current environmental conditions in the area, the study report should contain an environmental remediation plan that includes regulations and other

measures to prevent new projects from adding to the existing environmental burden. The City should not consider the approval of any new facilities in the community until those protective measures are in place.

7. Reform the Toxic Release Inventory Program to provide more useful air pollution information.

On the federal level, the regulations implementing the Community Right-to-Know Act and its Toxic Release Inventory program should be amended to require:

1. that short term releases, not just annual emissions totals, be reported. This would allow a better assessment of the potential health impact of the air pollution;
2. that certain facilities now exempt from the program be required to submit annual emission data (e.g. municipal incinerators, small electroplaters, etc.);
3. that all known carcinogens and teratogens be included on EPA's list of chemicals. (The Environmental Planning Lobby in Albany, New York, found that "139 chemicals of 242 known or suspected carcinogens and teratogens, from a list compiled from five international and national health agencies, are not on the Section 313 toxic release inventory list." (U.S. Public Interest Research Group, January, 1990);
4. that "engineering judgements" and "emission factors" be deleted from the acceptable methods of estimating releases; and
5. that company-specific toxic use reduction plans be included in annual submittals.

The seven recommendations above have focused on steps which must be taken by government and industry to reduce air pollution in Greenpoint-Williamsburg. Those responsible for the pollution must clean it up. But community residents have a critical role to play in the process as well. As residents of Greenpoint-Williamsburg already know, neither government agencies nor local industries are likely to address the environmental problems in Greenpoint-Williamsburg in an effective manner unless vocal and knowledgeable residents ensure that they do so. Those residents who have already become environmental watchdogs must continue the excellent job they have done so far of monitoring government and local industries. With the help of their neighbors, they can win the fight for a safer and healthier community.

Although the recommendations in this report are directed toward cleaning up the air in Greenpoint-Williamsburg, their implementation would protect many other communities as well. Industrial air pollution in Greenpoint-Williamsburg may be particularly severe but the situation is by no means unique. There are many urban neighborhoods where a

concentration of industrial facilities that emit toxic pollutants poses a potential threat to the health of local residents. The problem of unregulated fugitive emissions also is a national one, although Greenpoint-Williamsburg may have a greater stake in the solution to this problem because eighty-seven percent of the toxic air discharges in the area appear to be fugitive emissions as compared with the national average of thirty-two percent. It is critical that federal, state and local environmental agencies direct more attention to the problems of fugitive and cumulative emissions and implement regulatory reforms to protect public health. New programs that will foster pollution prevention offer the best hope for cleaner air and healthier communities.

(Important: Type or print; read instructions before completing form.)



U.S. Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORMSection 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act**EPA FORM
R****PART I.
FACILITY
IDENTIFICATION
INFORMATION**

(This space for your optional use.)

Public reporting burden for this collection of information is estimated to vary from 30 to 34 hours per response, with an average of 32 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, Chief, Information Policy Branch (PM-223), US EPA, 401 M St., SW, Washington, D.C. 20460. Attention: Burden and to the Office of Information and Regulatory Affairs, Office Management and Budget, Paperwork Reduction Project (2070-0093) Washington, D.C. 20503.

1. 1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☐ No (Do not answer 1.2; Go to question 1.3.)
- 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized
- 1.3 Reporting Year 19 ____

2. CERTIFICATION (Read and sign after completing all sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official

Signature

Date signed

3. FACILITY IDENTIFICATION

3.1	Facility or Establishment Name	
	Street Address	
	City	County
	State	Zip Code
	TRI Facility Identification Number	

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23779
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTOR
2. APPROPRIATE STATE OFFICE (See instruction in Appendix G)

3.2	This report contains information for (Check only one): a. <input type="checkbox"/> An entire facility b. <input type="checkbox"/> Part of a facility.					
3.3	Technical Contact				Telephone Number (include area code)	
3.4	Public Contact				Telephone Number (include area code)	
3.5	SIC Code (4 digit)	a.	b.	c.	d.	e.
3.6	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
3.7	Dun & Bradstreet Number(s) a. b.					
3.8	EPA Identification Number(s) (RCRA I.D. No.) a. b.					
3.9	NPDES Permit Number(s) a. b.					
3.10	Receiving Streams or Water Bodies (enter one name per box) a. b. c. d. e. f.					
3.11	Underground Injection Well Code (UIC) Identification Number(s) a. b.					

4. PARENT COMPANY INFORMATION

4.1	Name of Parent Company	4.2	Parent Company's Dun & Bradstreet Number
-----	------------------------	-----	--

EPA FORM R
PART II. OFF-SITE LOCATIONS TO WHICH TOXIC
CHEMICALS ARE TRANSFERRED IN WASTES

(This space for your optional use)

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name		1.2 POTW name	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name		2.2 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company?		Is location under control of reporting facility or parent company?	
[] Yes [] No		[] Yes [] No	

2.3 Off-site location name		2.4 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company?		Is location under control of reporting facility or parent company?	
[] Yes [] No		[] Yes [] No	

2.5 Off-site location name		2.6 Off-site location name	
EPA Identification Number (RCRA ID. No.)		EPA Identification Number (RCRA ID. No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company?		Is location under control of reporting facility or parent company?	
[] Yes [] No		[] Yes [] No	

[] Check if additional pages of Part II are attached. How many? _____

(Important: Type or print; read instructions before completing form.)



EPA FORM R
PART III. CHEMICAL-SPECIFIC INFORMATION

(This space for your op

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)										
1.1	[Reserved]									
1.2	CAS Number (Enter only one number exactly as it appears on the 313 list. Enter NA if reporting a chemical category.)									
1.3	Chemical or Chemical Category Name (Enter only one name exactly as it appears on the 313 list.)									
1.4	Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)									
2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)										
2.	Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation))									
3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)										
3.1	Manufacture the chemical:	a. [] Produce	b. [] Import	If produce or import:			c. [] For on-site use/processing	d. [] For sale/distribution	e. [] As a byproduct	f. [] As an impurity
3.2	Process the chemical:	a. [] As a reactant	b. [] As a formulation component	c. [] As an article component	d. [] Repackaging only					
3.3	Otherwise use the chemical:	a. [] As a chemical processing aid	b. [] As a manufacturing aid	c. [] Ancillary or other use						
4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR										
<input type="text"/>		(enter code)								
5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE										
You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)				A. Total Release (pounds/year)		B. Basis of Estimate (enter code)	C. % St			
				A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate					
5.1 Fugitive or non-point air emissions	5.1a	[] [] []		5.1b	<input type="checkbox"/>					
5.2 Stack or point air emissions	5.2a	[] [] []		5.2b	<input type="checkbox"/>					
5.3 Discharges to receiving streams or water bodies	5.3.1 <input type="checkbox"/>	5.3.1a	[] [] []		5.3.1b	<input type="checkbox"/>	5.3.1			
	(Enter letter code for stream from Part I Section 3.10 in the box provided.)	5.3.2 <input type="checkbox"/>	5.3.2a	[] [] []		5.3.2b	<input type="checkbox"/>	5.3.2		
	5.3.3 <input type="checkbox"/>	5.3.3a	[] [] []		5.3.3b	<input type="checkbox"/>	5.3.3			
5.4 Underground Injection on-site	5.4a	[] [] []		5.4b	<input type="checkbox"/>					
5.5 Releases to land on-site	5.5.1 Landfill	5.5.1a	[] [] []		5.5.1b	<input type="checkbox"/>				
	5.5.2 Land treatment/application farming	5.5.2a	[] [] []		5.5.2b	<input type="checkbox"/>				
	5.5.3 Surface impoundment	5.5.3a	[] [] []		5.5.3b	<input type="checkbox"/>				
	5.5.4 Other disposal	5.5.4a	[] [] []		5.5.4b	<input type="checkbox"/>				
<input type="checkbox"/> (Check if additional information is provided on Part IV-Supplemental Information.)										



EPA FORM R

PART III. CHEMICAL-SPECIFIC INFORMATION
(continued)

(This space for your optional use.)

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/year)		B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			6.1.1b <input type="checkbox"/>	
6.2.1 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			6.2.1b <input type="checkbox"/>	6.2.1c <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6.2.2 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			6.2.2b <input type="checkbox"/>	6.2.2c <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6.2.3 Other off-site location (enter location number from Part II, Section 2.) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			6.2.3b <input type="checkbox"/>	6.2.3c <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

☐ (Check if additional information is provided on Part IV-Supplemental Information.)

7. WASTE TREATMENT METHODS AND EFFICIENCY

☐ Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a <input type="checkbox"/>	7.1b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.1c <input type="checkbox"/>	7.1d <input type="checkbox"/> <input type="checkbox"/>	7.1e %	7.1f <input type="checkbox"/> <input type="checkbox"/>
7.2a <input type="checkbox"/>	7.2b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.2c <input type="checkbox"/>	7.2d <input type="checkbox"/> <input type="checkbox"/>	7.2e %	7.2f <input type="checkbox"/> <input type="checkbox"/>
7.3a <input type="checkbox"/>	7.3b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.3c <input type="checkbox"/>	7.3d <input type="checkbox"/> <input type="checkbox"/>	7.3e %	7.3f <input type="checkbox"/> <input type="checkbox"/>
7.4a <input type="checkbox"/>	7.4b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.4c <input type="checkbox"/>	7.4d <input type="checkbox"/> <input type="checkbox"/>	7.4e %	7.4f <input type="checkbox"/> <input type="checkbox"/>
7.5a <input type="checkbox"/>	7.5b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.5c <input type="checkbox"/>	7.5d <input type="checkbox"/> <input type="checkbox"/>	7.5e %	7.5f <input type="checkbox"/> <input type="checkbox"/>
7.6a <input type="checkbox"/>	7.6b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.6c <input type="checkbox"/>	7.6d <input type="checkbox"/> <input type="checkbox"/>	7.6e %	7.6f <input type="checkbox"/> <input type="checkbox"/>
7.7a <input type="checkbox"/>	7.7b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.7c <input type="checkbox"/>	7.7d <input type="checkbox"/> <input type="checkbox"/>	7.7e %	7.7f <input type="checkbox"/> <input type="checkbox"/>
7.8a <input type="checkbox"/>	7.8b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.8c <input type="checkbox"/>	7.8d <input type="checkbox"/> <input type="checkbox"/>	7.8e %	7.8f <input type="checkbox"/> <input type="checkbox"/>
7.9a <input type="checkbox"/>	7.9b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.9c <input type="checkbox"/>	7.9d <input type="checkbox"/> <input type="checkbox"/>	7.9e %	7.9f <input type="checkbox"/> <input type="checkbox"/>
7.10a <input type="checkbox"/>	7.10b <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	7.10c <input type="checkbox"/>	7.10d <input type="checkbox"/> <input type="checkbox"/>	7.10e %	7.10f <input type="checkbox"/> <input type="checkbox"/>

☐ (Check if additional information is provided on Part IV-Supplemental Information.)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal		C. Index	D. Reason for Action (enter code)
<input type="checkbox"/> <input type="checkbox"/>	Current reporting year (pounds/year)	Prior year (pounds/year) <input type="checkbox"/> + <input type="checkbox"/> - %	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>



EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
 Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

(This space for your optional use)

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE (Part III, Section 5.3)

You may report releases of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Release (pounds/year)		B. Basis of Estimate (enter code in box provided)	C. % From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3. <input type="checkbox"/>	5.3. <input type="checkbox"/> a [] [] []		5.3. <input type="checkbox"/> b	5.3. <input type="checkbox"/> c
(Enter letter code for stream from Part I Section 3.10 in the box provided.) 5.3. <input type="checkbox"/>	5.3. <input type="checkbox"/> a [] [] []		5.3. <input type="checkbox"/> b	5.3. <input type="checkbox"/> c
5.3. <input type="checkbox"/>	5.3. <input type="checkbox"/> a [] [] []		5.3. <input type="checkbox"/> b	5.3. <input type="checkbox"/> c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS (Part III, Section 6)

You may report transfers of less than 1,000 pounds by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (pounds/year)		B. Basis of Estimate (enter code in box provided)	C. Type of Treatment Disposal (enter code in box provided)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1. Discharge to POTW (enter location number from Part II, Section 1.) 1 <input type="checkbox"/>	[] [] []		6.1. <input type="checkbox"/> b	
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. <input type="checkbox"/> b	6.2. <input type="checkbox"/> c M
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. <input type="checkbox"/> b	6.2. <input type="checkbox"/> c M
6.2. Other off-site location (enter location number from Part II, Section 2.) 2 <input type="checkbox"/>	[] [] []		6.2. <input type="checkbox"/> b	6.2. <input type="checkbox"/> c M

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code in box provided)	B. Treatment Method (enter code in box provided)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []
7. <input type="checkbox"/> a	7. <input type="checkbox"/> b	7. <input type="checkbox"/> c	7. <input type="checkbox"/> d []	7. <input type="checkbox"/> e %	7. <input type="checkbox"/> f [] []

APPENDIX B

CHEMICAL PROFILES

Of the twenty-four chemicals emitted into the air by companies in Greenpoint-Williamsburg reporting to the TRI program in 1987 and 1988, only four were emitted in quantities exceeding 10,000 pounds for the neighborhood as a whole. The four - methanol, tetrachloroethylene, toluene and xylene -- are profiled below. The following chemical profiles are based on information from Marshall Sitig's Handbook of Hazardous Chemicals and Carcinogens and Robert Gosselin's Clinical Toxicity of Commercial Products.

Methanol

Synonyms: Methyl alcohol; carbinol; wood alcohol; wood spirit.

Use: Methanol is used as a starting material in the organic synthesis of other chemicals, such as formaldehyde, methyl amines, methyl halides, ethylene glycol, and pesticides. It is also used as a industrial solvent for inks, adhesives, resins, and dyes. It is used as an ingredient in paints, varnish removers, cleaning and dewaxing preparations, embalming fluids, spirit duplicating fluids, antifreeze mixtures, and enamel. It is used as well in the manufacture of photographic films, plastic, celluloid, textile soaps, wood stains, coated fabrics, shatter-proof glass, paper coating, waterproofing formulations, artificial leather, synthetic indigo, and other dyes. It is also an antidetonant fuel-injection fluid for aircraft, a rubber accelerator, and a denaturant for ethyl alcohol. Pfizer and Gloss-Flo are the companies in Greenpoint-Williamsburg which reported the use of methanol on their TRI program forms.

Description: Colorless, volatile liquid with a mild odor.

Health Effects: Systemic effects include optic nerve damage and blindness; central nervous system effects include headache, nausea, giddiness, loss of consciousness. Local exposure causes mild dermatitis.

EPA Office of Toxic Substances Designation: Neurotoxin.

Tetrachloroethylene

Synonyms: perchloroethylene; carbon dichloride; ethylene tetrachloride; perclene; PCE; tetrachloroethene.

Use: Tetrachloroethylene is used as a metal cleaner. Acme Steel most likely uses it for this purpose.

Description: Clear, colorless, non-flammable liquid with characteristic odor at 50 ppm, becoming inconspicuous after a short period.

Health effects: Tetrachloroethylene is a carcinogen. Acute exposure can cause central nervous system depression, hepatic injury, anesthetic death, malaise, dizziness, headache, perspiration, fatigue, staggering gait, slowing of mental ability. Local effects include dry, scaly, fissured dermatitis and eye and nose irritation.

EPA Office of Toxic Substances Designation: Carcinogen, developmental toxin, reproductive toxin, chronic toxin, environmental toxin.

Toluene

Synonyms: Toluoi; methylbenzene; phenylmethane; methylbenzol.

Use: Used in the manufacture of benzene. Also used as a chemical feed, as a solvent for paints and coatings, and as a component of aviation and automobile fuel. National Drum and Barrel, Harco Chemicals, Gloss-Flo, and Fyn Paint reported that they use toluene.

Description: Clear, colorless, noncorrosive liquid with a sweet, pungent odor.

Health Effects: Acute exposure can cause systemic effects such as central nervous system depression, headache, dizziness, fatigue, muscular weakness, drowsiness, poor coordination with a staggering gait, skin paresthesia, collapse, or coma. Local contact with vapor can cause eye, respiratory tract, and skin irritation.

EPA Office of Toxic Substances Designation: Developmental toxin, reproductive toxin, environmental toxin.

Xylene

Synonyms: xylol; dimethylbenzene.

Use: Xylene is used as a solvent, as a constituent of paint, lacquers, varnishes, inks, dyes, adhesives, cements, cleaning fluids, and aviation fluids and as a chemical feedstock. Xylene esters are used in the manufacture of quartz crystal oscillators, hydrogen peroxide, perfumes, insect repellents, epoxy resins, pharmaceuticals, and in the leather industry. Acme Steel, Harco Chemicals, Gloss-Flo, and Fyn Paint all reported that they use xylene.

Description: Xylene exists in three isomeric forms: ortho-xylene, meta-xylene, and para-xylene. Commercially it is often used as a mixture of all three, with meta-xylene usually predominant and occasionally other chemicals added as well. Xylene is mobile, colorless, flammable, and is used by industry in liquid form.

Health Effects: Systemic effects of acute exposure include central nervous system depression, liver and kidney damage. High-concentration vapor can cause dizziness, staggering, drowsiness, and unconsciousness. Breathing high concentrations of vapor can lead to pulmonary edema, anorexia, vomiting, nausea, and abdominal pain. Local effects of exposure to xylene vapor are eye, nose and throat irritation. Repeated exposure of eyes to a high concentration of xylene vapor can cause irreversible eye damage.

EPA Office of Toxic Substances Designation: Developmental toxin, reproductive toxin, chronic toxin, environmental toxin.

APPENDIX C

COMPANY PROFILES

It is important to note that 1987 and 1988 TRI data was used in preparing these profiles. The Community Environmental Health Center did not analyze 1989 or 1990 data because the research for this report was completed before July 1, 1990 which was the deadline for submission of 1989 data to the TRI program.

Acme Steel Partition Company

In 1987 and 1988, the biggest polluter of the air among Greenpoint-Williamsburg facilities submitting data to the TRI program was Acme Steel Partition Company. Virtually all of Acme's emissions of toxic chemicals in 1987 were fugitive releases; in 1988 all releases were of this type. It might, therefore, be possible for the company to reduce air pollution through better equipment maintenance or other measures to reduce fugitive discharges.

Acme's air releases are summarized below:

	<u>1987 (pounds)</u>	<u>1988 (pounds)</u>
Tetrachloroethylene	60,630 (fugitive)	67,900 (fugitive)
Xylene	32,400 (fugitive)	32,210 (fugitive)
Xylene	750 (stack)	-----

Established in 1924, Acme Steel occupies a 165,000 square foot facility at 513 Porter Avenue, an area zoned M1 for light manufacturing. Acme employs 400 people and has sales of more than \$10,000,000 per year (MacRae's Blue Book, 1989). The company manufactures movable steel partitions, metal doors, steel shelving, and similar products. In the manufacturing process, they utilize three spray booths, four dip tanks, three paint drying ovens, and a sanding machine (APSMS, 1986). Acme states on their Form R that xylene is used as a manufacturing aid, perhaps in the process of painting the steel products. The tetrachloroethylene has an "ancillary or other use".

Acme's emission figures were based on mass balance equations. In other words, they calculated the difference between the amounts entering and leaving process equipment. The data shows that while their releases of xylene were reduced slightly between 1987 and 1988, the amount of tetrachloroethylene released increased one percent in the same period. As Acme did not complete the section on waste minimization on the Form R, it might be reasonable to assume that they had taken no steps as of 1988 to minimize their waste.

The New York City Department of Environmental Protection periodically inspects industrial facilities in the city. Acme Steel was inspected on July 24, 1989. At that time, three violations were found; the

certificates of operation had expired for a dip tank and two spray booths (NYC-DEP, Notice of Violation and Hearing, 1989).

Harco Chemical Coatings, Inc.

Harco Chemical Coatings, a division of Arrow Lacquer and Solvents, Inc., is located at 108 Dupont Street in a heavy manufacturing zone. Harco was the second worst polluter of the air in Greenpoint-Williamsburg in 1988, according to the TRI data. They employ 28 people and have annual sales of five to ten million dollars (MacRae's Blue Book, 1989). Harco manufactures paints, enamels, polyvinyl paints, interior and exterior paints, and floor finish in its 15,000 square foot facility.

Harco's data for 1987 and 1988 air emissions appears below:

	<u>1987 (pounds)</u>	<u>1988 (pounds)</u>
Titanium Dioxide	90 (fugitive)	---
Xylene	1-499 (fugitive)	30,000 (fugitive)
Toluene	-----	20,000 (fugitive)

The data show a dramatic increase in emissions from 1987 to 1988.

Both the xylene and the toluene are used as formulation components and the emission estimates are based on mass balance calculations, that is, finding the difference between the amount of chemical entering process equipment and the amount leaving. As Harco did not complete the section on waste minimization on Form R, it might be reasonable to assume that they had taken no steps as of 1988 to minimize their waste.

As required by the New York City Right-To-Know Law, Harco notified the New York City Department of Environmental Protection that it stored 5-50 tons of xylene, 5-50 tons of toluene, and 5-50 tons of titanium dioxide in 1988.

Pfizer, Inc.

Pfizer, Inc.'s factory located at 11 Bartlett Street (an M3 heavy manufacturing zone) released a greater amount of toxic chemicals into the environment as a whole than any other facility in Greenpoint-Williamsburg in 1988. However, the plant was only the third worst polluter of the air. In addition to air emissions, Pfizer discharged 622,630 pounds of methanol to the Newtown Creek Sewage Treatment Plant in 1987 and 460,030 pounds in 1988. This exceeded the sewer discharges of toxic chemicals of any other company reporting to the TRI in Greenpoint-Williamsburg.

The Pfizer facility is part of a giant chemical manufacturing company that employs 40,000 people worldwide and reports sales of more than five billion dollars per year (MacMillan Directory Division, 1989). Pfizer has two other facilities in Greenpoint-Williamsburg. The company was established in 1849 and manufactures pharmaceuticals and

food flavorings and preservatives in its Chemical Division, of which the Brooklyn Plant is a part.

The data from Form R indicate the following emissions:

	<u>1987 (pounds)</u>	<u>1988 (pounds)</u>
Methanol	49,258 (fugitive)	35,610 (fugitive)
Methanol	11,913 (stack)	8,630 (stack)
Hydrochloric Acid	250 (fugitive)	1-499 (fugitive)
Hydrochloric Acid	1,900 (stack)	1,710 (stack)
Ammonia	250 (fugitive)	-----
Ammonia	250 (stack)	-----

The hydrochloric acid is used by Pfizer as a reactant and as a chemical processing aid. The methanol is both a byproduct and a manufacturing aid. The emissions estimates are based on engineering calculations for their stack emissions and mass balance equations for their fugitive emissions. Mass balance calculations subtract the amount of a chemical leaving a piece of process equipment from the amount that was sent in. For their hydrochloric acid Form Rs, Pfizer wrote "N/A" in the waste minimization section and they left that section blank for methanol. Pfizer's emissions decreased from 1987 to 1988, but there is no indication whether this reflects deliberate efforts to minimize releases or a reduction in production.

According to reports on chemical storage filed with the New York City Department of Environmental Protection under the New York City Right-To-Know Law, Pfizer stores 1,000 to 10,000 pounds of anhydrous ammonia and 1,000 to 10,000 pounds of liquid formaldehyde. The EPA considers both anhydrous ammonia and formaldehyde "extremely hazardous substances," which can kill or injure people if accidentally released into the air in sufficient quantities. EPA has established 500 pounds as the "threshold planning quantity" (TPQ) for both substances; any company storing more than the TPQ must participate in the emergency planning process established under the federal Emergency Planning and Community Right-To-Know Act of 1986.

Gloss-Flo Corporation

Gloss-Flo Corporation is located at 135 Jackson Street in an area zoned for residential use. The zoning rules that apply to this area date from 1961. As Gloss-Flo was established in 1941, they are allowed to remain in a residential zone. Gloss-Flo employs 28 people in 35,000 square feet and sells \$5 million to \$10 million worth of lacquers and enamels per year (MacRae's Blue Book, 1989). Housed within its walls are paint mixing equipment, including an exhaust system, but no emissions controls (APSMS, 1986).

The data filed on air emissions appear below:

	<u>1987 (pounds)</u>	<u>1988 (pounds)</u>
Methanol	3750 (fugitive)	2558 (fugitive)
Isopropyl Alcohol	3750 (fugitive)	2343 (fugitive)
Acetone	7200 (fugitive)	6288 (fugitive)
Methyl Ethyl Ketone	250 (fugitive)	1-499 (fugitive)
Toluene	20,100 (fugitive)	17,496 (fugitive)
Xylene	1300 (fugitive)	1,296 (fugitive)

All of these chemicals were used as formulation components. The emission estimates were based on emissions factors, which are formula used to project emissions. Gloss-Flo did not complete the section on waste minimization on Form R.

The New York City Department of Environmental Protection periodically inspects industrial facilities in the city. Gloss-Flo was last inspected on June 1, 1987. At that time, one violation was issued, for an expired certificate of operation for five paint mixing tanks.

National Drum and Barrel Corporation

National Drum and Barrel Corporation, located at 35A Beadel Street, is a 130,000 square foot facility in an M1 (light manufacturing) zone. Twenty-five people are employed and yearly sales are more than \$10,000,000 (MacRae's Blue Book, 1989). National Drum and Barrel reconditions steel drums using, in the process, two spray booths, a steam-heated washer, and a gas heater (APSMS, 1986). The company did not file a Form R for 1987 emissions data. For 1988, however, the following air emissions were reported:

	<u>1987 (pounds)</u>	<u>1988 (pounds)</u>
Toluene	---	1,910 (fugitive)
Toluene	---	20,540 (stack)

In addition, National Drum and Barrel reported releasing 69,000 pounds of sodium hydroxide into the Newtown Creek Sewage Treatment Plant. Both toluene and sodium hydroxide were used as "manufacturing aids," the toluene specifically in paint mixtures. The company's estimates of amounts released were based on engineering calculations. National Drum and Barrel did not complete the section on waste minimization on Form R.

According to New York City Department of Environmental Protection records, National Drum and Barrel received its last Notice of Violation on February 7, 1990. On that date, there was an emission of an "odorous air contaminant (perfume-like) from the exhaust stacks connected to barrel washing processes at National Drum and Barrel Corp. that was a detriment to the comfort and welfare of persons at Belmot

Products, Inc., 505 Morgan Avenue" (NYCDEP, Notice of Violation and Hearing, 1990). The company was fined \$500 for the violation.

APPENDIX D

SOURCES OF DATA

Air Pollution Source Management System

Bureau of Source Control
Division of Air
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

EPA Form Rs: Toxic Chemical Release Inventory Data

New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-3510

New York City Chemical Inventories (Local Law 26/1988)

New York City Department of Environmental Protection
Right-To-Know Programs
2358 Municipal Building
New York, New York 10007

New York City DEP Notice of Violation and Hearing

New York City Department of Environmental Protection
Bureau of Air Policy and Programs
59-17 Junction Blvd.
Elmhurst, New York 11373

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Technical Guide No. 6: Handbook of Organic Industrial Solvents.,
5th ed., 1980.
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