

Pollution in Portland: Toxic Emissions in the Metropolitan Area

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Introduction

Every year, a large volume of toxic chemicals is released into the Portland metropolitan region by industrial companies.¹ The companies that emit these chemicals are not breaking the law. In fact, they have legal permits to release chemicals into our air, land, and water. But local residents do not hear much about the toxic emissions that are occurring around their neighborhoods. And local workers are often not told about the hazards they may face in their workplaces.

This report describes key patterns of industrial toxic emissions in Portland in a format that is meant to be useful to local residents and workers. All the data examined in this report comes from official sources, and all of the data is open to public scrutiny. We use this public data to shine a spotlight on specific companies that are emitting large quantities of toxic chemicals into local neighborhoods. We also provide a geographic analysis, so that residents can learn where the highest rates of toxic emissions are occurring in their city.

As we discuss later, our geographic analysis shows that residents of North and Northeast Portland were exposed to the highest levels of toxic emissions in the city. These parts of town tend to house communities of color and lower income residents, which means that these particular groups are being disproportionately exposed to higher levels of industrial pollution. For this reason, we point out that problems of environmental injustice exist in Portland. At the same time, our analysis also shows that workers and residents in certain areas of Northwest Portland, Southeast Portland, Beaverton, and Hillsboro are living near hot spots of industrial pollution. Our report therefore shows that residents of all regions of our city should be concerned about toxic pollution occurring in Portland.

In publicizing this data, our goal is not to harm the public image of any particular company or to raise extreme concerns about health or safety. None of the emissions we describe have been proven to have caused any specific case of illness. At the same time, we do not believe that the chemical releases we describe are completely safe for people or the environment. We hope this report causes company and state officials to do more testing for the presence of toxins around the highlighted facilities, and across the entire metropolitan region. We also hope this report encourages companies in Portland to do more to reduce their emissions, so that all residents and workers can enjoy the cleanest and safest environment possible.

Highlights of Potentially Dangerous Toxic Emissions

In this report, we provide a series of tables and maps that describe important patterns in toxic emissions for the year 2002 (the most recent year for which data is available). We discuss how we collected and analyzed the data in the following sections. Before getting into that detailed information, however, we would like to highlight particularly worrisome cases of industrial pollution that are revealed in the specific database we are examining.

The following list shines a spotlight on six companies that released large quantities of

¹The Portland Metropolitan region is defined for this report as the area represented by Multnomah, Washington, and Clackamas counties.

toxins into the Portland Metropolitan area over the period January–December 2002. Even though the data comes from the year 2002, these kinds of releases are probably continuing today. It is our hope that these companies may soon change their production and waste management systems, in order to reduce the volume of pollution they are emitting. Company explanations of why they have released these substances, if provided, are given later in this report. Comments from the Portland Office of the Department of Environmental Quality are also provided on each of these highlighted cases of pollution later in this report.

The **Chevron Company's Willbridge Asphalt Refinery** (5501 NW Front Ave, Northwest Portland) released 16 thousand pounds of benzene into the air in 2002. Benzene is known to be a cancer-causing toxin, and also known to be toxic to a number of human organs. Because of its benzene emissions, this Chevron facility was the largest emitter of recognized carcinogens in the Portland area in the 2002. This facility also released 2,700 pounds of toluene. Toluene is known to be a developmental toxicant, and is suspected to have harmful impacts on cardiovascular, blood, gastrointestinal, liver, kidney, neurological, and other human organs/systems. Because of its toluene releases, the Chevron Willbridge Asphalt Refinery facility was also one of the largest emitters of a known organ toxin in Portland in the year 2002, according to the data being examined.

The **Gunderson Company** (4350 NW Front St, Northwest Portland) released over 15 thousand pounds of naphthalene into the air. Naphthalene is a recognized carcinogen, and is also suspected of being toxic to a variety of human organs. Because of these naphthalene emissions, this Gunderson facility was the second largest emitter of recognized carcinogens in the Portland area in the year 2002.

The **Boeing Company of Portland** (19000 NE Sandy Blvd, Northeast Portland) released over 10 thousand pounds of tetrachloroethylene into the air. Tetrachloroethylene is known to be a cancer-causing toxin, and is also suspected of being toxic to a variety of other organs. Because of its tetrachloroethylene emissions, the Boeing Company was the third-largest emitter of recognized carcinogens in the Portland area in the year 2002.

The **Masterbrand Cabinets Company** (600 SW Walnut St, Hillsboro) released over 50 thousand pounds of toluene into the air. As noted above, toluene is known to be a developmental toxicant, and is suspected to have harmful impacts on numerous other human organs. Because of its toluene releases, the Masterbrand Cabinet Company was the largest emitter of a known organ toxin in Portland in the year 2002. This facility also released over 30,000 pounds of xylene into the air. Xylene is suspected to be toxic to a wide variety of human organs.

The **Sapa Anodizing Company** (5325 NE Skyport Way, Northeast Portland) released over 9 thousand pounds of toluene into the air in 2002. As described above, toluene is known to be toxic to various human organs. Because of the company's large toluene emissions, Sapa Anodizing was one of the largest emitters of a known organ toxin in Portland in the year 2002. This facility also released over 3,000 pounds of xylene, which is a suspected organ toxin.

The **Maxim Integrated Products Company** (14320 SW Jenkins Road, Beaverton) released over 8 thousand pounds of n-methyl-2-pyrrolidone into the air in 2002. N-methyl-2-pyrrolidone is known to be a developmental toxin, and is also suspected to be toxic to a number of other human organs. Because of these large emissions, the Maxim facility was one of the largest emitters of a known organ toxin in Portland in the year 2002.

Again, none of these cases of emissions are illegal. And none of these emissions has been proven to have caused any specific case of human illness in workers or residents. However, it is our belief that the release of these kinds of chemicals, in such large amounts, can no longer be assumed to be harmless. Workers in the facilities are particularly vulnerable to exposure to the toxic chemicals we have highlighted. Residents living around the facilities may also be at somewhat higher risk of health problems because of these emissions.

Companies and local regulatory agencies have the obligation to fully test for chemical residues around these industrial facilities. And they have the obligation to reduce, wherever possible, the emission of potentially harmful toxic chemicals. In carrying out this research, we hope to provide added incentives for companies and regulatory agencies to reduce these kinds of toxic emissions in our city.

A Description of the Data Being Analyzed

The data being analyzed in this report comes from the Toxics Release Inventory (TRI), which is a nation-wide database maintained by the United States Environmental Protection Agency (EPA). The TRI Database is made available to the public through the following website:

http://www.epa.gov/enviro/html/tris/tris_query.html

The TRI database was established in 1986, as a result of the Emergency Planning and Community Right-To-Know Act. Under EPCRA rules, industrial facilities of a certain size are required to report their releases of a certain category of chemicals to local state agencies. These reports are then forwarded to the EPA. The EPA, with some delay, then makes this information available to the public through their TRI website. In April 2005, when this report was written, the most recent data available on the TRI website was from the year 2002 (which is the data analyzed in this report).²

It is important to note that the TRI database only covers a certain category of companies and chemicals. For instance, companies are only required to report to TRI if they have ten or more full-time employees. Furthermore, companies only need to report to TRI if they use more than 10,000 pounds of at least one TRI chemical in a year. And even though thousands of

²In certain cases, data in a particular year may be adjusted for further accuracy. From month to month, then, the year 2002 data can shift slightly. As a result, we need to specify that this report is based on data downloaded from the TRI in late February 2005. Hard copies of the data files examined for this report are kept on file in the office of the principal investigator of this study (Bruce Podobnik).

chemicals are released into the environment on a regular basis, only about 650 chemicals are monitored by the TRI. In the case of Portland, 239 companies have at one time or another been required to file a report with the TRI. A total of 131 chemicals from this monitored group are reported to have been emitted in Portland in recent years.

Clearly, the TRI database is limited in important respects. It only captures emissions from a specific category of large companies – thereby missing a large quantity of pollution generated by small companies and residents across the city. It also only collects information on a subset of chemicals that are thought to have harmful human and ecosystem impacts. And, perhaps most significantly, the annual TRI reports provided by companies are rarely checked for accuracy by outside agencies. The Oregon Department of Environmental Quality does some monitoring for accuracy, but the TRI database mainly consists of unchecked company self-reports. Given this regulatory context, it is difficult to determine how accurate the company reports are.

Though it suffers from certain limitations, we are forced to rely on the TRI since it is the only systematically updated database on industrial pollution that is readily available to the public. Actual emissions levels from companies in Portland are almost certain to be higher than what we report here. Nevertheless, the TRI data reveals specific pollution practices that we believe need to be reformed.

Categories of Pollution and Hazard Rankings

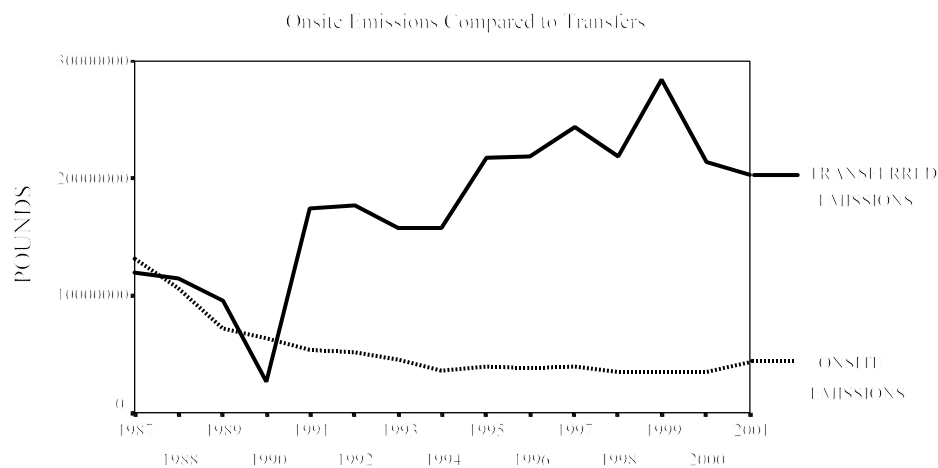
In addition to providing information on the amounts and types of chemicals that are emitted into Portland, the Toxics Release Inventory database gives information on exactly how the chemicals are released into our environment. The TRI data specifies whether a particular chemical was emitted into the air through a smokestack, into work areas via fugitive emissions, into the water via pipes, or into land via disposal or spills. In this report, we use this TRI information to describe whether specific companies are emitting toxins into our air, land, or water.

The TRI data also makes an important distinction between chemicals that are released into the environment on a company's property (onsite emissions), and chemicals that are put into containers and sent to landfills or hazardous waste facilities (transferred emissions). As shown in Figure 1 (next page), companies in Portland have made some progress in reducing their onsite emissions. This has, at the same time, resulted in an increase in transfers of pollution to landfills and hazardous waste facilities.

Only onsite releases are investigated in this report. In future work we will examine the flows of toxins to off-site landfills and waste facilities. But here we focus specifically on accumulations of toxins at the facilities and releases of pollution directly into our local environment, since these onsite emissions pose the most immediate threat to human and ecosystem health.

One other crucial piece of information that is not directly provided by the TRI database, but is very important, relates to the hazard level of each of the chemicals. Some of the TRI chemicals are relatively safe, while others are known to be very dangerous to humans and/or ecosystems. In order to identify particularly threatening pollution practices, it is vital that we distinguish between chemicals based on the hazards they pose.

Figure 1



Source: TRI Data, Compiled by Portland Pollution Research Group.

Fortunately, the non-governmental organization Environmental Defense has collected information on the hazards posed by the chemicals in the TRI database. Environmental Defense regularly surveys scientific reports provided by recognized government bodies (such as the US Department of Health, the Centers for Disease Control, and various state publications). Environmental Defense then creates chemical profiles that list the health threats posed by each chemical in the TRI database. This information has proven to be so useful that the US Environmental Protection Agency has included links to the Environmental Defense chemical profiles within the TRI database. The Environmental Defense chemical profiles website is the following:

<http://www.scorecard.org/chemical-profiles/>

This report draws on the Environmental Defense chemical profile information in order to determine which chemicals released in Portland may pose health risks to people and the environment. In the following sections of this report we provide information on chemicals that are **known** to cause cancer in humans, or are **known** to have toxic impacts on one or more human organs. The information used to categorize these specific chemicals comes from the profiles created and maintained by the Environmental Defense organization.

The Worst Industrial Polluters in Portland in 2002 **Onsite Emissions of Toxins that are Known to Cause Cancer**

Now that we have described the sources of information and methods used to analyze the TRI data, it is time to begin examining which companies were potentially dangerous polluters in Portland in the year 2002. We begin with an analysis of company emissions of chemicals that are known to be carcinogens. We then move on to examine emissions of chemicals that have toxic effects on one or more human organs. Remember that all of this data reflects onsite

**TABLE 1
TOP TEN POLLUTING COMPANIES IN PORTLAND IN THE YEAR 2002
TOTAL ONSITE EMISSIONS OF
RECOGNIZED CARCINOGENS**

COMPANY NAME (ADDRESS)	AMOUNT (POUNDS)
1) CHEVRON WILLBRIDGE ASPHALT REF (5501 NW Front Ave, NW Portland)	16,002
2) GUNDERSON INC (4350 NW Front St, NW Portland)	15,899
3) BOEING CO OF PORTLAND (19000 NE Sandy Blvd, Northeast Portland)	10,114
4) DYNEA OVERLAYS INC (2301 N Columbia Blvd, North Portland)	3,914
5) HERCULES INC (3366 NW Yeon Ave, Northwest Portland)	3,375
6) OREGON STEEL MILLS (14400 N Rivergate Blvd, NE Portland)	2,937
7) CHEVRON PRODS CO WILLBRIDGE TERM (5531 NW Doane Ave, NW Portland)	1,363
8) PCC STRUCTURALS LARGE PARTS CAMPUS (4600 SE Harney Dr, SE Portland)	1,260
9) PCC STRUCTURAL SMALL STRUCTURALS (13340 SE 84 th Ave, Clackamas)	1,010
10) CONOCOPHILLIPS TERMINAL (5528 NW Doane Ave, NW Portland)	963

emissions only, and does not include pollution transferred to landfills or waste facilities. We are also focusing on known carcinogens, and are not taking into account many chemicals that are widely thought to be carcinogens – but have not yet been definitively proved to have such effects. Our conservative analysis may therefore underestimate problematic pollution practices.

In the analyses that follow, we highlight the name of companies when they are encountered. As you read through the report, some company names come up again and again. Rather than always repeating descriptions of companies, we ask you to scan back through the report – looking for the first time we used the company name. At that point in the text, we provide information about the company in question. Two of the companies also provided responses to questions we posed about their emissions. You can see which companies answered our questions, and which refused, later in this report.

Table 1 provides an overview of companies that emitted chemicals which are known to cause cancer. As the table shows, the **Chevron Company's Willbridge Asphalt Refinery** at 5501 NW Front Ave, was Portland's largest emitter of recognized carcinogens in the year 2002 according to the TRI data. Here, the chemical at issue is benzene – which is a known carcinogen as well as a proven organ toxin. This Chevron facility, which manufactures asphalt and other petroleum-related products, reported releasing over 16 thousand pounds of benzene into the air and water in 2002. The facility's emissions of benzene have fluctuated quite a bit over the last ten years. The fluctuations in benzene emissions suggests that the company should re-design its production systems to avoid occasional spikes in emissions of this very hazardous chemical.

The **Gunderson Company's** facility at 4350 NW Front Street was the second largest emitter of a cancer-causing toxin in the year 2002. In the process of manufacturing metal products like railroad lines and barge parts, this facility emitted over 15 thousand pounds of naphthalene. Naphthalene is a recognized carcinogen, and it is also suspected to be toxic to a variety of human organs. Interestingly, 2002 is the first year in which Gunderson reports having emitted large quantities of naphthalene. This suggests that the company can return to its original production processes, which apparently did not require it to emit naphthalene. It is also important to note that these naphthalene releases were fugitive emissions, which tend to impact work spaces inside the facility most intensely. Workers at the facility might be at heightened risk for contracting cancer or other organ diseases because of these high naphthalene emissions.

The **Boeing Company's** facility at 19000 NE Sandy Blvd was the third largest emitter of a cancer-causing toxin in the year 2002. The main chemical at issue here is tetrachloroethylene. In addition to being a recognized carcinogen, this chemical is also suspected of being toxic to almost every human organ/system on which it has been tested. The Boeing Company's facility released over 10 thousand pounds of this chemical into Northeast Portland's air during the year 2002. Interestingly, this emission practice is relatively new. The first substantial emission of tetrachloroethylene from the facility is reported to have occurred in 1998. It should therefore be possible for the company to return to its earlier practice of not emitting this hazardous substance into our local environment.

Once we get past the top three emitters of cancer-causing toxins, there is a drop in emissions rates. Still, there is a collection of companies that regularly emit large quantities of carcinogens into the local environment. Facilities operated by **Dynea Overlays, Hercules, Oregon Steel Mills, Chevron, PCC Structural, and ConocoPhillips** corporations each emitted between about 1 and 4 thousand pounds of known cancer-causing toxins in the year 2002. Table 1 provides the addresses of each company, and how many pounds of known carcinogens they released. We encourage workers and residents to contact the companies, to encourage them to reduce their emissions of dangerous toxins. Anyone wishing to receive more information on the specific chemicals being emitted are welcome to contact the principle investigator of this report (Bruce Podobnik).

It is important to note that the emissions practices highlighted in Table 1 are not proven to have caused any specific case of cancer or illness. However, we believe that these emissions of recognized carcinogens should be viewed with concern. Workers in the facilities are likely to be facing an elevated health risk as they work with the substances. And residents in surrounding neighborhoods may be facing an elevated health risk because of these emissions. We encourage the companies identified in Table 1 to significantly reduce their use and emissions of recognized carcinogens in the near future.

The Worst Industrial Polluters in Portland in 2002 Onsite Emissions of Known Organ Toxins

In this next analysis, we focus on companies that emitted large quantities of chemicals that have been proven to be toxic to one or more human organs. As usual, this data comes from the TRI database, and represents emissions that occurred in the year 2002.

As shown in Table 2, the **Masterbrand Cabinets Company** facility in Hillsboro was the largest emitter of a known organ toxin in the year 2002 according to the TRI data. In this case, the chemical in question is toluene. As described earlier, toluene is known to be a developmental toxicant. This Masterbrand facility (located at 600 SW Walnut St, Hillsboro) reported having released over 50 thousand pounds of toluene through its smokestacks in 2002. Overall, between 1988 and 2002 this manufacturer of wooden kitchen cabinets reported releasing over 748 thousand pounds of toluene into the air in Hillsboro. The facility also reported having released over 30 thousand pounds of xylene, a suspected organ toxin, in the year 2002. Workers at the Masterbrand facility may be experiencing unsafe rates of exposure to these chemicals, while local residents and ecosystems may also be adversely impacted by these extremely high emissions rates.

TABLE 2
TOP TEN POLLUTING COMPANIES IN PORTLAND IN THE YEAR 2002
TOTAL ONSITE EMISSIONS OF
KNOWN ORGAN TOXINS

COMPANY NAME (ADDRESS)	AMOUNT (POUNDS)
1) MASTERBRAND CABINET CO HILLSBORO DIV (600 SW Walnut St, Hillsboro)	50,600
2) CHEVRON WILLBRIDGE ASPHALT RFNRY (5501 NW Front Ave, NW Portland)	18,702
3) SAPA ANODIZING INC COATING DIV (5325 NE Skyport Way, NE Portland)	9,007
4) MAXIM FAB NORTH INC (14320 SW Jenkins Road, Beaverton)	8,839
5) LACAMAS LABS INC (3625 N Suttle Road, North Portland)	3,390
6) HERCULES INC (3366 NW Yeon Ave, Northwest Portland)	3,375
7) CHEVRON PRODS CO WILLBRIDGE TERM (5531 NW Doane Ave, NW Portland)	3,224
8) WELDED TUBE CO OF AMERICA (8735 N Harborgate, North Portland)	2,761
9) RODDA PAINT CO (6123 N Marine Drive, North Portland)	2,746
10) CONOCOPHILLIPS TERMINAL (5528 NW Doane Ave, Northwest Portland)	2,101

The second-largest emitter of a known organ toxin was the **Chevron Willbridge Asphalt Refinery** in Northwest Portland, which we also encountered when we looked at carcinogenic emissions. The company appears in this second table because of its emissions of benzene, lead, and toluene, which together totaled more than 18 thousand pounds in 2002. Each of these chemicals is known to be toxin to at least one human organ. It is important to note that neighbors living around this facility have requested that local toluene and benzene emissions be reduced. We are convinced that this company should do more to reduce its emissions of these harmful chemicals.

The third-largest emitter of TRI-monitored toxins in 2002 was the **Sapa Anodizing** facility, located at 5325 NE Skyport Way. Once again the chemical in question is toluene. The company reported emitting over 9 thousand pounds of this known organ toxin out of its smokestacks in the year 2002. The company also released over 3 thousand pounds of xylene, which is a suspected organ toxin.

The fourth-largest emitter of known organ toxins in 2002 was the **Maxim Fab Company's** facility, located at 14320 SW Jenkins Road in Beaverton. The chemical of concern in this case is n-methyl-2-pyrrolidone, which is a recognized developmental toxin and is suspected of being harmful to a variety of other human organs. This manufacturer of computer chips and products reported having released over 8 thousand pounds of the toxin through its smokestack during the year 2002. This rate of emission has grown quite rapidly in the few years. We hope that the company is able to return to its previous production processes, which did not generate such high levels of toxic emissions.

Once we get past the top four emitters of known organ toxins, there is a drop in emissions rates. Still, though, there are a number of companies that emitted large quantities of known organ toxins during the year 2002. Facilities operated by the **Lacamas, Hercules, Chevron, Welded Tube, Rodda Paint, and ConocoPhillips** companies each emitted between 2 and 4 thousand pounds of known organ toxins during the year. Again, Table 2 provides the address of each company. We encourage those living or working near these facilities to contact the company managers, to ask them to reduce their use and emissions of organ toxins. The principle investigator of this report (Bruce Podobnik) would be happy to provide you with more specific information on the chemicals of concern that were emitted.

It is important to again note that the emissions practices highlighted in Table 2 are not proven to have caused any specific case of illness. However, residents in surrounding neighborhoods are potentially being exposed to an elevated health risk because of these emissions. Furthermore, the workers in the respective facilities are likely to be facing an elevated health risk as they work with the chemicals. We encourage the companies identified in Table 2 to significantly reduce their use and emissions of known organ toxins in the near future.

Responses from the Companies

In the previous pages of this report, we have highlighted 17 companies that engaged in particularly worrisome forms of pollution in the year 2002. It is possible that some of these pollution practices can be justified, or that companies are doing things behind the scenes to reduce exposure dangers. To find out whether there were good explanations or pollution-control projects underway, we contacted each company to get their responses to a standardized set of questions. We also notified each company that we wanted to include their responses in this report, which would be disseminated to the public.

Of the 17 companies from the two top ten lists that were contacted, only 2 provided responses they were willing to make public. The overview of company responses is as follows:

COMPANIES THAT PROVIDED PUBLIC RESPONSES TO OUR QUESTIONS:

GUNDERSON INC
HERCULES INC

COMPANIES THAT REFUSED TO PROVIDE PUBLIC RESPONSES TO OUR QUESTIONS:

BOEING COMPANY OF PORTLAND
CHEVRON COMPANY'S WILLBRIDGE ASPHALT REFINERY
CHEVRON COMPANY'S WILLBRIDGE TERMINAL
CONOCOPHILLIPS TERMINAL
DYNEA OVERLAYS INC
LACAMAS LABORATORIES
MASTERBRAND CABINET CO
MAXIM INTEGRATED PRODUCTS
OREGON STEEL MILLS COMPANY
PCC STRUCTURALS LARGE PARTS CAMPUS
PCC STRUCTURALS SMALL PARTS CAMPUS
RODDA PAINT CO
SAPA ANODIZING COMPANY
WELDED TUBE CO

The Pollution in Portland Group would like to register its serious concern about the fact that so many industrial companies in our city refuse to discuss their specific pollution practices. After all, the toxins are entering our city. We strongly believe that every company should come forward, in a public way, with explanations for why the chemicals are being released – and what will be done in the near future to reduce worker and residential exposure dangers. We encourage members of the public to contact the management of these companies with this message. Phone numbers for the companies are available in local telephone directories. With that said, let us

summarize the public responses offered by the **Gunderson** and **Hercules** companies.

The **Gunderson Company**, located in Northwest Portland, manufactures railcars and barges. As part of this production process, they released a large amount of naphthalene in the year 2002. According to the company spokesperson who was interviewed, naphthalene is an ingredient in some paints and coatings that are used on metal products. The company also uses a large quantity of toluene as a solvent in painting and cleaning activities. Although the company has an interest in reducing the use of both naphthalene and toluene, the spokesperson reports that they are having a hard time finding substitutes. They are currently focused on minimizing worker exposure by improving ventilation and requiring workers to wear protective gear. The company occasionally tests for pollution accumulation inside its facility – though it does not monitor for toxins at the perimeter of its property. The spokesperson stated that no worker or local resident has complained about toxic releases around the facility in recent years.

The **Hercules Company**, located in Northwest Portland, manufactures chemicals that allow paper towels and other paper products to absorb water without disintegrating. As part of their production process, the company regularly emits over 3 thousand pounds of epichlorohydrin in a single year. The vast majority of the emissions of this known carcinogen and organ toxin are released as fugitive emissions – which means that the chemical escapes into the work spaces of the company. Workers at the facility are particularly vulnerable to fugitive emissions. According to the company spokesperson, Hercules is continually looking for alternative chemicals, but they do not envision being able to switch away from epichlorohydrin in the coming years. They do, however, report that they use the chemical in a closed system that is designed to reduce emissions. Workers are required to use protective gear, and personnel are also trained in safety procedures. The spokesperson reports that workers and internal facilities are occasionally tested for the chemical. On the other hand, the company reports that it has not done any testing for chemical residues on the perimeter of their facility. The spokesperson stated that no worker or local resident has complained about toxic releases around the facility in recent years.

The Portland Pollution Group appreciates the willingness of spokespersons from these two companies to report why certain toxins are being emitted, and what is being done to reduce exposure dangers. Of course, we encourage these companies to increase their efforts to switch to non-toxic alternatives wherever possible – or to capture more of the chemicals rather than releasing them into the environment. We also register our serious concern about the unwillingness of the other companies to report publically about their toxic emissions. Officials at a number of the non-reporting companies even reacted with hostility on being questioned about their emissions. In future versions of this report, we plan on noting which companies react with hostility when members of our research team ask for information about toxic chemicals that are being emitted into Portland neighborhoods.

Responses from State Officials

As emphasized throughout this report, none of the toxic emissions reported through the TRI database are illegal. In fact, companies are permitted by federal and/or state regulations to release the chemicals we have been discussing. Given this fact, we decided to contact the local office of the Department of Environmental Quality to ask about the permitting process in general

– and about six highlighted companies in particular. Personnel at the DEQ’s Air Quality Office were kind enough to answer our questions.

DEQ personnel first pointed to some of the same limitations in the TRI data that we highlighted at the beginning of this report. Again, the TRI data only covers particularly large emitters, and therefore misses emissions from smaller companies in the metropolitan area. DEQ personnel then explained that they are conducting their own analysis of air emissions data for the year 2002, which includes all sources of pollution (coming from large and small companies, as well as residential and mobile sources). Their air pollution analysis should be ready for public distribution soon.

According to their analysis of air pollution, diesel emissions are a particular concern in the Portland area. Diesel particulates have recently been listed as a known carcinogen, and they are also known to exacerbate conditions like asthma. Diesel particulate emissions in Portland exceed federal health limits on a regular basis. DEQ personnel also note that emissions of benzene, formaldehyde, and 12 other chemicals also occasionally exceed federal health limits in our city, according to their analyses.

DEQ personnel are also in the beginning stages of carrying out the Oregon Air Toxics Program. This program will attempt to arrive at a more fine-tuned analysis of airborne pollution risks in the city, by collecting information on pollutants at six locations. The program will test for pollutants such as benzene, toluene, arsenic, various heavy metals, and other toxins. We encourage DEQ personnel to complete this air pollution study as soon as possible, and then make the results widely available to the public. We also encourage DEQ personnel to conduct similarly intensive analyses of water and land-based pollution in the near future.

In addition to requesting general information on their investigative activities, we asked DEQ personnel to comment specifically on the six companies that were highlighted at the beginning of this report. Each of these six highlighted companies reported that they emitted large quantities of a known carcinogen or organ toxin during the year 2002. We asked DEQ to explain what permits or regulations allow these specific emissions practices to occur, and what specific testing DEQ has done around each facility to determine whether worker or residential problems may be present.

Recall that, according to the TRI database, the **Chevron Company’s Willbridge Asphalt Refinery** (5501 NW Front Ave, Northwest Portland) released 16 thousand pounds of benzene and 2,700 pounds of toluene into the air during 2002. As a result, this Chevron facility was the largest emitter of recognized carcinogens in the Portland area in the year 2002, and was also one of the largest emitters of a known organ toxin. According to DEQ personnel, these emissions are allowed under federal and state regulations. Every two years, DEQ personnel inspect the facility to make sure that its pollution-control systems meet legal standards. DEQ has not carried out any testing around the perimeter of this facility to determine whether benzene or toluene emissions might be having an adverse impact on local workers, residents, or the environment.

The **Gunderson Company** (4350 NW Front St, Northwest Portland) released over 15 thousand pounds of naphthalene into the air during 2002. Because of these naphthalene emissions, this facility was the second largest emitter of recognized carcinogens in the Portland area in the year 2002 according to TRI data. According to DEQ personnel, these emissions are allowed under both federal and state statutes. The personnel report that they visit this facility

every two years to make sure that its pollution-control systems are adequate. DEQ has not carried out any testing around the perimeter of this facility to determine whether naphthalene emissions might be having an adverse impact on the local area.

The **Boeing Company of Portland** (19000 NE Sandy Blvd, Northeast Portland) released over 10 thousand pounds of tetrachloroethylene into the air during 2002. Because of its tetrachloroethylene emissions, this facility was the third-largest emitter of recognized carcinogens in the Portland area in the year 2002. Once again, DEQ personnel report that these emissions are legal under federal and state law. DEQ conducts inspections at the facility once every three years to evaluate their pollution-control practices, but does not conduct any testing around the perimeter of the facility to determine whether tetrachloroethylene might be having an adverse impact on the local area.

The **Masterbrand Cabinets Company** (600 SW Walnut St, Hillsboro) released over 50 thousand pounds of toluene into the air during 2002. Because of its toluene releases, the Masterbrand Cabinet Company was the largest emitter of a known organ toxin in Portland in the year 2002. Yet, again, DEQ reports that these very high emissions are permitted by federal and state laws. DEQ conducts inspections at the facility once every two years to evaluate their pollution-control practices, but does not conduct any testing around the perimeter of the facility to determine whether toluene might be having an adverse impact on the local area.

The **Sapa Anodizing Company** (5325 NE Skyport Way, Northeast Portland) released over 9 thousand pounds of toluene into the air, which made it one of the largest emitters of a known organ toxin in 2002. These releases are legal under federal and state laws. DEQ conducts inspections at the facility every three years, but does not conduct any testing around the perimeter of the facility.

The **Maxim Integrated Products Company** (14320 SW Jenkins Road, Beaverton) released over 8 thousand pounds of n-methyl-2-pyrrolidone into the air in 2002. Because of these large emissions, the Maxim facility was one of the largest emitters of a known organ toxin in Portland in the year 2002. DEQ reports that these emissions are legal under existing federal and state regulations. DEQ conducts inspections at the facility every three years, but does not conduct any testing around the perimeter of the facility.

As described above, DEQ plans to begin using data collected from six locations across the city in an effort to improve their understanding of air pollution risks. While we support their efforts to improve their general air monitoring system, we find it troubling that no specific DEQ testing is conducted near the perimeters of companies that report emitting large amounts of known carcinogens and/or organ toxins. Private companies are not required to conduct testing around their facilities, and state regulators do not carry out this kind of testing. As a result, we believe that workers and residents around these facilities are not being adequately protected from potential impacts of dangerous toxins. We urge concerned citizens to call DEQ (502-229-5554) to ask why no testing is conducted around companies that emit large quantities of known carcinogens and/or organ toxins.

The Geographic Distribution of Industrial Pollution in Portland in 2002

TRI EMISSIONS OF RECOGNIZED CARCINOGENS BY CENSUS TRACT PORTLAND

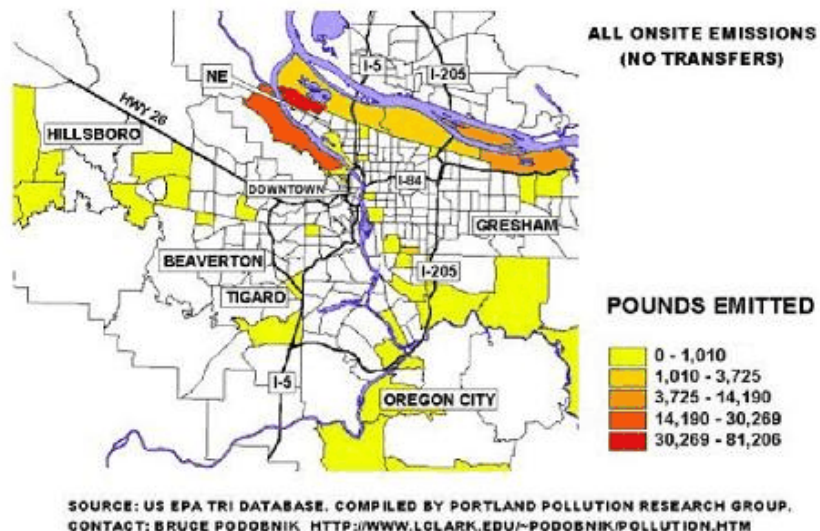


Figure 2

Throughout the earlier sections of this report, we have provided the street address of each major polluter in order to help residents figure out if they spend time near companies that are engaging in potentially dangerous emissions practices. It is important to identify whether you live or work near a specific company that is releasing a high level of TRI-monitored chemicals, and we hope this report helps in that effort.

However, it is also important to examine the cumulative emissions that are being generated by all the companies in a specific area. This is because a certain region may not have a single, large polluter – but instead may have a cluster of more modest polluters that, in combination, generate a high level of pollution in a particular part of town.

To examine this geographic dimension of pollution, we have linked each company monitored in the TRI database to its census tract. A census tract is a piece of land, defined by the US Bureau of the Census, which may be as small as a couple of city blocks or as large as a dozen city blocks. Census tracts provide one useful unit of analysis for examining cumulative emissions, since companies are often clustered together in specific census tracts that are zoned for industry.

In the figures that follow, census tracts with the highest emissions rates are colored deeper shades of red – while tracts with lower emissions are yellow or white. If this report is printed in black/white, then the more intense emissions show up as black or grey. For a view of the color figures, you are encouraged to consult this web address:

<http://www.lclark.edu/~podobnik/pollution.htm>

Let us begin our geographic analysis by looking at the geographic distribution of chemicals that are known to cause cancer. Figure 2 (previous page) reveals a pattern that is repeated in all the other charts dealing with toxic emissions. There is a crescent of high emissions which runs from the north end of downtown Portland, along both sides of the Willamette River, then curves around North/Northeast Portland, and finally heads eastward along the Columbia River to end in the Gresham area. This arc of high emission rates is occurring in Portland's traditional industrial zone – which is the area where many of our steel, petroleum, and other manufacturing companies are located. Because of these emissions patterns, residents of North/Northeast, St. John's, and Northwest Portland were exposed to most of the carcinogenic TRI emissions in the year 2002. As Figure 2 shows, however, there are also hot spots of emissions in Southeast Portland, Beaverton, and Hillsboro. These hot spots reflect the emissions generated by a number of cabinet making, painting, and computer companies.

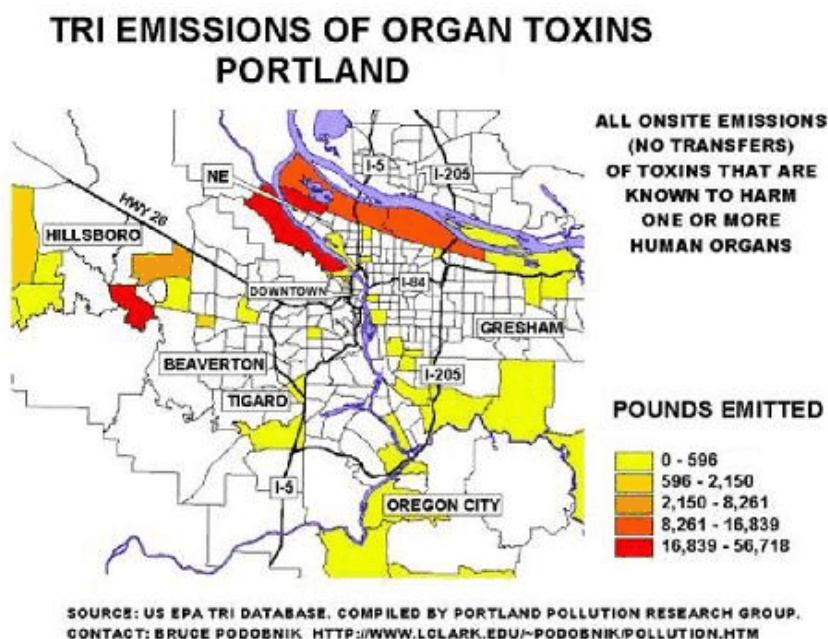


Figure 3

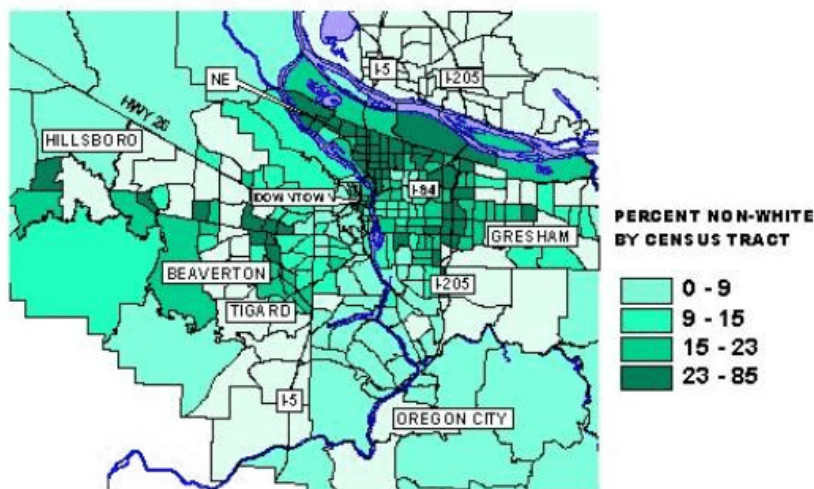
Figure 3 shows the geographic distribution of emissions of chemicals that are known to be toxic to one or more human organs. Here again we see a concentration in the traditional industrial crescent in the year 2002. There is also a hot spot in the Hillsboro area (caused by the **Masterbrand** emissions). Finally, more diffuse emissions of known organ toxins occurred throughout the rest of the city.

The figures we provide may prompt you to wonder which exact companies are emitting pollution in a certain part of town. There are many tools available to those who are interested in finding out more about pollution hot spots in specific regions of Portland. You can contact the principal investigator of this study (see the title page of this report for contact information). Or, you can go to the following website, type in your zip code, and pull up reports on which companies are emitting pollution in your local area: <http://www.scorecard.org/env-releases/>

If you do identify companies that are emitting chemicals into your local environment, we encourage you to contact them directly to get more information. Almost all of the companies listed in this report have listed numbers in local telephone directories. At the end of this report, we provide more information about who to contact to request that emissions of toxins into your city be reduced.

Evidence of Environmental Injustice in Toxic Pollution in Portland

NON-WHITE POPULATION BY CENSUS TRACT PORTLAND 2000



SOURCE: US CENSUS BUREAU. COMPILED BY PORTLAND POLLUTION RESEARCH GROUP.
CONTACT: BRUCE PODOBNIK [HTTP://WWW.LCLARK.EDU/~PODOBNIK/POLLUTION.HTM](http://www.lclark.edu/~podochnik/pollution.htm)

Figure 4

We have shown that there is a significant concentration of toxic emissions taking place in the industrial crescent that surrounds North and Northeast Portland. It is important to point out that this pattern of elevated toxic emissions is producing a problem of environmental injustice in our city.

The concept of environmental injustice refers to a situation where people of color, or people of low incomes, are exposed to a higher level of pollution than their white or more affluent counterparts. If we compare the geographic distribution of toxic emissions in Portland, with the place of residence of communities of color and low income citizens, it becomes clear that there is a problem of environmental injustice in the metropolitan region.

Figure 4, for instance, provides a picture of where Portland's non-white residents were living in the year 2000 (according to data from the US Census). The figure shows that the census tracts with the highest percentages of non-white residents are surrounded on three sides by the crescent of high emissions we identified earlier. The communities of color who live in North and Northeast Portland are being disproportionately exposed to emissions, while areas of the town where white residents live in general confront lower releases of TRI-monitored chemicals.

Figure 5 shows that a very similar relationship exists between toxic emissions and income. Census tracts with lower median household incomes (which show up as darker green in the color picture, or black in a black/white printout) are again concentrated in the North and Northeast region. And, again, the crescent of elevated emissions surrounds these communities.

Clearly, residents of Portland who are non-white and of lower incomes were disproportionately exposed to toxic emissions in the year 2002. However, pockets of potentially dangerous emissions are also occurring in neighborhoods in more affluent, white parts of town. Overall, residents of all social backgrounds have an interest in learning about these emissions patterns – and pushing for stricter controls over such pollution practices.

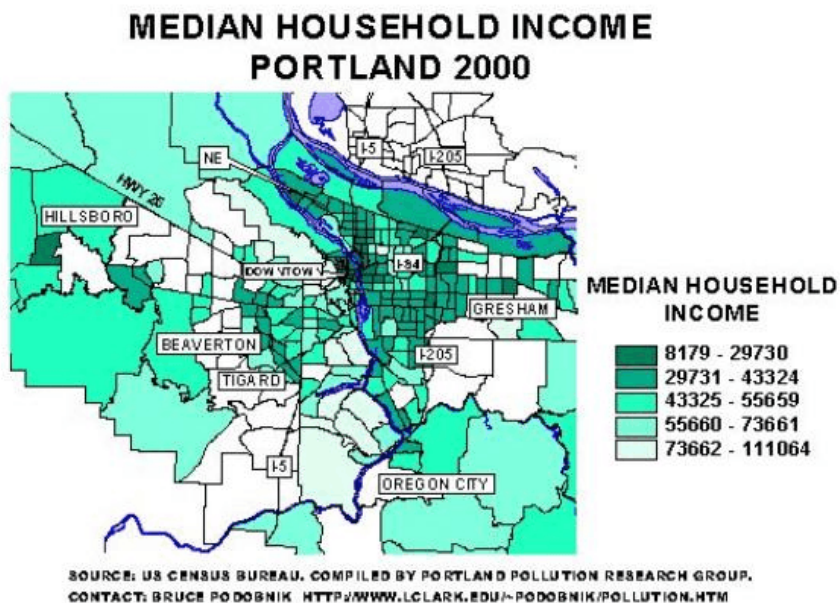


Figure 5

Suggestions for Further Action

We have presented a great deal of information on the patterns of toxic releases that occurred in Portland in the year 2002. Most of these emissions practices are continuing today. So, what can you do to learn more about these emissions? And how can you help encourage local companies to change their emissions behavior? We offer these suggestions:

1) Contact the companies directly for more information, and to express your views about their emissions practices.

We have provided the names of the companies that were, in the year 2002, the largest emitters of TRI-monitored chemicals in our city. You may also uncover other companies that are emitting toxins where you live or work if you do a search on your zip code, using the website we described above. Once you have determined which companies cause you concern, we encourage

you to look their names up in your telephone directory and call them. Ask for their public relations representative or their manager of environmental affairs, and request more information about their current emissions practices. They may have good explanations for their emissions. On the other hand, you could also request that they undertake more efforts to reduce emissions of particularly problematic chemicals (such as known carcinogens and organ toxins). Let them know that you will be tracking their emissions practices in the coming years.

2) Contact local state officials for more information, and to express your views about the emissions behavior of specific companies.

As we have stressed throughout this report, none of the emissions described are illegal. Instead, all the companies discussed in this report have permits to release the chemicals discussed. You may therefore wish to contact the Department of Environmental Quality, and ask them why certain companies are allowed to emit high levels of chemicals into your environment. You could also ask why companies in a certain part of town, bordering on communities of color and low-income areas, are allowed to emit such high levels of TRI-monitored chemicals. Numbers to call at DEQ include:

Air Quality Office: 503-229-5359 Email: airquality.info@deq.state.or.us

Air Quality Office, Permitting Section: 503-229-5554

Air Toxics Program: 503-229-5186 or 503-229-6411

3) Contact the office of your local political representatives, and ask them to do what they can to reduce emissions of industrial pollution in your city.

Relevant numbers to call are:

Mayor Tom Potter 503-823-4120

Commissioner Sam Adams 503-823-3008

Commissioner Randy Leonard 503-823-4682

Commissioner Dan Saltzman 503-823-4151

Commissioner Erik Sten 503-823-3589

You can also find contact information for other government representatives by consulting this website: <http://www.oregon.gov/>

About the Portland Pollution Research Group

The Portland Pollution Research Group is a team of investigators from Lewis and Clark College. The Principal Investigator is Professor Bruce Podobnik, who is affiliated with the Sociology and Environmental Studies Departments. He can be reached at (503) 768-7664, or podobnik@lclark.edu.

Legal Disclaimer

All the information on toxic emissions contained in this report comes from the publicly-available TRI database. The data was downloaded in late March and early April 2005. The report accurately reflects the data as it existed at that time. We have retained hard copies of the TRI reports, in case of questions. We cannot be responsible for any changes that may be made to the TRI database in subsequent months. We encourage anyone with questions or concerns to contact the principal investigator of the study. Any legal responsibility arising from this study rests entirely and solely with the principal investigator, Bruce Podobnik.