NORTHWEST PORTLAND

DOOR-TO-DOOR SURVEY

State of Oregon
Department of Environmental Quality

Air Quality Section
Northwest Region
2020 SW 4th Avenue
Suite 400
Portland, OR 97201-4987
Phone: (503) 229-5554
(800) 452-4011
Fax: (503) 229-5265
www.deq.state.or.us

EXECUTIVE SUMMARY

The Oregon Department of Environmental Quality (DEQ) conducted a survey of businesses in the Northwest area of Portland during the Spring and Summer of 2000. The purpose of the survey was to identify businesses that were potential sources of air pollutants and nuisances (excess odors, dust, and visible emissions). The information derived from the survey was intended to improve DEQ complaint response for the area.

Over 2,600 business addresses and activities were verified and 202 small businesses surveyed. Information obtained from the visits produced a map and database for DEQ's Complaints Investigators that draws a comprehensive picture of the businesses in the area. In addition, the survey created opportunities to provide technical assistance and pollution prevention recommendations and other useful information to businesses, area residents, and other DEQ staff.

20 potential nuisance sources were discovered. One business will need to obtain an air contaminant discharge permit. Some businesses requested and received technical assistance site visits from DEQ staff. 10 businesses were referred to DEQ's Employee Commute Options (ECO) program.

DEQ gained other valuable knowledge through the study that was not part of the original design and made contacts and built relationships with businesses that will improve the effectiveness of future projects in Northwest Portland. The information collected from the survey can also be used to more accurately estimate emissions from small businesses, and will be helpful in focusing activities that target business and consumer awareness. In addition, the information gained during this project will be used to design future projects that will be transferable to other parts of the city and the state.

TABLE OF CONTENTS

INTRODUCTION

For the past several years, the Department of Environmental Quality (Department or DEQ) has received ongoing complaints concerning air quality issues in Northwest Portland. Complaints have pertained to excess odors, dust, and/or visible emissions and how they may create nuisance conditions and possible negative health impacts for those living in the area. The mix of residential, commercial, and industrial activity that exists in Northwest Portland challenges the Department's responsibility dictated by its mission statement to protect public health and the environment.

While DEQ has attempted to address these complaints on a case-by-case basis, the lack of a comprehensive understanding of the smaller sources of air pollution in NW Portland made it impossible to effectively address the majority of complaints received. Larger facilities currently permitted by DEQ already report air emissions annually, are subject to various emission limits and control technology requirements, and must respond immediately to nuisance complaints. To address this growing concern, DEQ decided to conduct a door-to-door survey of the commercial and industrial businesses in Northwest Portland in the Spring and Summer of 2000. This report summarizes its findings.

PURPOSE

The purpose of the Northwest Portland Door-to-Door Survey was to identify all non-permitted businesses in the area that have equipment or processes which may produce air emissions. These businesses can potentially cause nuisance conditions in the form of excessive odors, dust, and/or visible emissions. Responding to nuisance complaints is the primary function of the Department's Northwest Region Complaints Program. Data collected from this survey will be used to improve the effectiveness of complaint response by eliminating improbable sources of air quality complaints and by identifying facilities and areas where existing companies may be adversely impacting residential neighbors.

BACKGROUND

1997 Sampling

In 1997, the Department received a grant from the EPA to conduct an ambient air monitoring study of several pollutants, including PM_{10}, $PM_{2.5}$, and metals (including lead). Follow-up analysis detected that these compounds are typical of urban airsheds and are of industrial, mobile, and residential origin. This sampling project set the background for future projects.

1999 Sampling

In 1999, due to growing concerns over the possibility of excessive levels of lead in the ambient air, the Northwest District Association decided to implement its own sampling project. In a cooperative effort with DEQ's Laboratory, NW Portland residents placed open containers at 15 residential sites on two separate occasions and the Lab analyzed the contents for the presence of various metal compounds. In tandem, DEQ deployed an identical

container at its current ambient air monitoring site in NW Portland. The particulates gathered in this container, as well as the particulate filters from the ambient air monitor, were also analyzed for metals. Consistency of the analysis methods and the quality assurance of the results were accomplished by having the Lab analyze both sets of samples.

*Note: It is important to note that this sampling methodology is not an acceptable method to compare results with either the National Ambient Air Quality Standards (NAAQS) or EPA's proposed standards for indoor lead dust concentration. The NAAQS is meant to establish a concentration of lead in the ambient air. The proposed EPA indoor air quality standard is meant to establish a safe concentration of lead in a person's bloodstream. The sampling method described above is meant to determine the presence of lead in particulate falling from the sky.

The analysis indicated that lead concentrations in some of the households were of concern. However, these issues do fall under the purview of the Multnomah County Health Department. Residents were referred to them for low- or no-cost blood tests, awareness and education programs, and hazard abatement information. The information collected cannot be used to evaluate compliance with ambient air quality standards or to identify sources of airborne lead.

Hazardous Air Pollutants - Toxics

Growing concern about the emissions of hazardous air pollutants (or toxics) has grown hand-in-hand with public awareness of the issues. These pollutants are those that cause or are suspected to cause carcinogenic, neurological or reproductive disorders and other adverse health effects. Lead is one of these toxics that EPA identified in the1970 Clean Air Act as a possible health issue. Because of that, the Department conducted ambient air monitoring for lead statewide, but discontinued when lead was phased out in gasoline, the primary contributor to the problem.

Beginning in 1999, the Department also began monitoring the ambient air in several locations around Portland for other heavy metals and volatile and semi-volatile toxics, such as benzenes, dioxins, and furans, as part of the EPA Urban Air Toxics monitoring project, which is being conducted nationwide. One of these sites was located in NW Portland.

OTHER ONGOING DEQ PROJECTS

DEQ's Air Toxics Program

DEQ convened a state-wide concensus committee to address various issues related to air toxics. One recommendation from the committee was to use a geographic approach to identify specific areas that may need closer attention. This geographic approach will allow the Department to consider the unique characteristics of each area, such as topography and industrial and residential composition, in order to effectively address the issues of greatest concern.

Following this recommendation, the results from the NW Portland Door-to-Door survey, in conjunction with information collected through the existing permitting program, other sampling projects, and ambient monitoring, will help the Department draw a more complete picture of Northwest Portland's air quality. Once this data is analyzed, the Department and NW Portland residents can work more effectively together to address local concerns about air quality.

Emissions Inventory for Hazardous Air Pollutants (HAPs)

In 1999, the Department's Air Quality Program Technical Services Section compiled the first emission inventory for HAPs, as required in the Clean Air Act Amendments of 1990.[1] The inventory was based on 1996 data readily available from permit records as well as population data available from the most recent census. Inventories were compiled from actual emissions data for permitted facilities, but estimated on a per capita basis for other smaller industry types, area sources, and mobile sources. Hopefully, the results from the NW Portland Door-to-Door survey can be used to develop more accurate emissions estimates for the smaller industry types.

*Note: It is important to note that the residential use of products containing HAPs contributes significantly to the Portland airshed. Examples of household products that contain HAPs include paints, paint removers, cleaning products, fingernail polish and remover, pesticides, herbicides, and lubricants. In addition, residents who operate mobile sources (automobiles, recreational vehicles, jet skis, gas-powered lawn mowers, barbecue equipment, etc.) also contribute to the problem.

Multi-Media Technical Assistance

Although there is no regulatory mandate to conduct this type of work, the Department has recently focused many of its outreach efforts on projects that address multi-media concerns. This approach considers effects on air, water, and solid and hazardous waste at the same time, rather than a compartmentalized approach that looks at only one media at a time. This type of outreach is particularly valuable to small businesses since resources dedicated to oversee environmental issues are very limited or non-existent. In addition, the cost of environmental regulation can be disproportionately high for smaller businesses that cannot afford dedicated staff or consultants. The Department has attempted to address this disparity via its Air Quality Business Assistance and Hazardous Waste Technical Assistance Programs. The types of facilities visited in the Northwest Portland Door-to-Door survey are typical of facilities that can greatly benefit from these programs.

Pollution Prevention

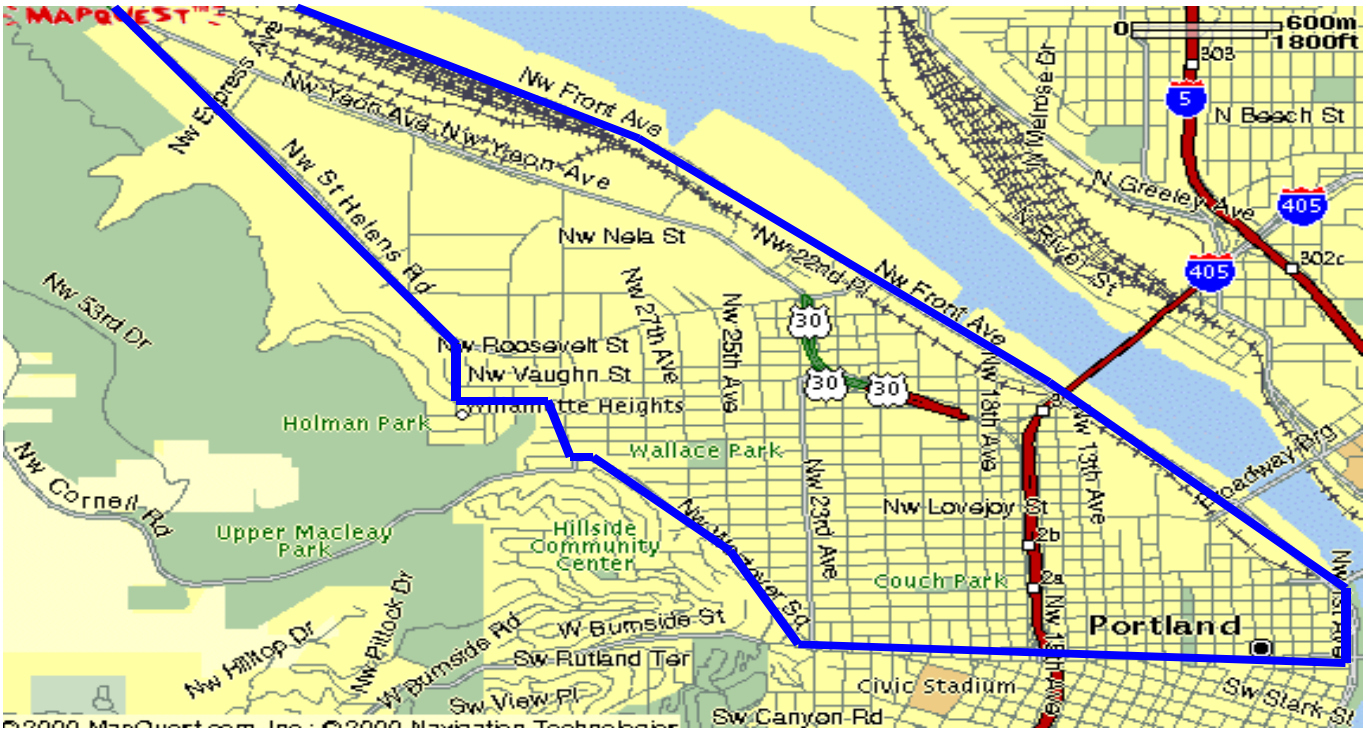
DEQ recommends pollution prevention whenever possible. Implementing these recommendations often results in the elimination or significant reduction of waste streams, which translates to a reduced cost of raw materials, regulatory compliance, and disposal (i.e., reduced cost of operating the business). Pollution prevention information was provided to all facilities that expressed interest, as a result of the survey and subsequent site visits. Follow-up will be conducted by Technical Assistance staff.

[1] A summary of the Emissions Inventory for Multnomah County is included as Attachment A

SCOPE OF THE PROJECT

The geographic area covered by this survey is bordered by Burnside Street to the south, the Willamette River to the east, the St. John's Bridge to the north, Westover Road to the west, and Cornell Road to the northwest and is illustrated by the map below.

A list of local businesses was generated from all air quality permit holders, all hazardous waste registered generators, and the Fire Marshall's hazardous substance reporters with the zip code of 97209 or 97210. This list was augmented with existing databases from Metro and the Department's Air Quality's Business Assistance Program. The initial search list consisted of 2,681 businesses.



To maximize the effectiveness of this effort, the initial list was systematically reviewed. Businesses holding Oregon Title V Operating Permits and synthetic minor and regular Air Contaminant Discharge Permits were removed from the list. The Department requires these facilities to report specific data about actual air emissions annually. Businesses with minimal Air Contaminant Discharge Permits remained on the list because there are no reporting requirements in these permits. Businesses without air emissions or air emissions which are not regulated by the Department were removed from the list. These include restaurants, retail shops, beauty shops, consultants, medical offices, grocery stores, commercial art and graphic design firms (not large printers), and copy centers.

With the assistance of the Department's Hazardous Waste program staff, some hazardous waste generators were removed after determining that they had limited probability of having air emissions. Dry cleaners were removed since there is currently a joint effort between the

Department's Hazardous Waste and Air Quality programs to work specifically with this industry group.

Approximately 411 businesses remained from the original list. The scope of the project included site visits for these 411 businesses as well as verifying current address and activities for the remaining 2,270 businesses.

PROJECT SPECIFICS

Between March and August 2000, staff from the Department's Northwest Region and Headquarters offices conducted a total of 202 site visits and verified addresses and activities at an additional 2,458 businesses. Of the original 411 initial businesses listed, almost half were eliminated because of the following reasons:

- different business names at identical addresses,
- the businesses were no longer at that location, or
- there were no air emission equipment or processes at the site.

In addition, new businesses were discovered that were not on the original list or had moved to a new location within the targeted area since the list was generated.

In order to make the site visits most efficient, a checklist was developed to ensure that each visit was consistent amongst the staff and that all pertinent environmental issues were covered.[2] A copy of this checklist was included in the initial mailing to all 411 businesses that were to receive site visits, to prepare the businesses for their visits. In addition, a template was created to assist businesses in calculating their emissions of volatile organic compounds and hazardous air pollutants from their solvent-based materials.

TYPES OF INDUSTRIES

The types of businesses that were visited varied. Examples include breweries, candlemakers, bakeries, roofing manufacturers, sign makers, and chemical distributors.

Businesses are typically categorized into 4-digit Standard Industrial Codes (SIC) based on the type of products they make or service they provide. Five major SICs were determined to encompass the majority of businesses in NW Portland that were most likely to have air emissions or be potential nuisances. A detailed description of these industries and the type of air pollutants emitted are included in Attachment C.

TYPES OF MANUFACTURING PROCESSES

There are several manufacturing processes that have the potential to produce air emissions of concern (visible emissions, dust deposition, or nuisance odor). Determining the pollution potential of these processes can be approached in a similar manner, regardless of industry type.

[2] The copy of the checklist and its cover letter is included as Attachment B.

A brief description of the manufacturing process, newer technologies, and lower-polluting materials substitution is included in Attachment C.

RESULTS

Surveys Conducted

The Department conducted site visits at 202 facilities and verified address and activities at an additional 2,458 facilities.

Permits Required

The Department identified one business, a printer, which will be required to obtain an Air Contaminant Discharge Permit. This business has signed a Fresh Start Agreement under the Business Assistance Program. This program allows for small businesses not to be penalized for previously operating out of compliance under special circumstances, such as when the Department conducts technical assistance outreach projects. However, if the facility does not meet the compliance schedule in their Agreement, they may be subject to future enforcement.

Pollution Prevention Referrals

Department staff were directed to analyze the type of equipment and materials used in the facility and when possible, generate recommendations to reduce the volume or toxicity of pollution-causing or nuisance-causing materials used. At the request of the facility, the Department sent pollution prevention information to facilities. A total of 16 requests were fulfilled. In addition, Technical Assistance staff will follow-up with these facilities to determine whether any pollution prevention recommendations were implemented and if any actual emissions reductions were realized.

Technical Assistance Referrals

In a few cases, Department staff observed conditions at a facility that warranted referrals for pollution issues other than air quality. In these cases, Hazardous Waste and Stormwater technical assistance staff followed up directly with the facility to rectify their issues. Based on a policy for technical assistance referrals within the Department's Northwest Region office, no enforcement was taken against these facilities as long as the issues were addressed and corrected.

Employee Commute Option (ECO) Referrals

The Department's Employee Commute Options Program requires employers in the Portland metropolitan area with more than 50 employees reporting to a single worksite to provide incentives for the use of alternative commute options. Survey staff referred 10 businesses to ECO staff that are not currently in compliance with this program.

Lead Sources

No new sources of lead were discovered in this survey.

One previously known source of lead reported an increase in the concentration of lead in a regularly scheduled stormwater sample to the Department staff. This source followed up with some additional testing, taking wipe samples from their roof and reevaluating several of their

operational processes. The additional testing and subsequent scheduled sampling did not indicate any additional elevated levels of lead. The cause of the anomalous results is unknown.

Potential Sources of Nuisance Odor

During the site visits, staff was directed to note odors detected both inside and outside of the facilities being surveyed. Detectable odors, both indoors and outdoors, can be attributed to 20 businesses. Odors were most frequently perceived only inside these businesses. However, extreme weather conditions or changes in activities could make these facilities a source of neighborhood nuisance odors.

Potential Sources of Toxics

The survey criteria for identifying potential sources of toxics were:

- Does the facility use a product whose ingredients include a listed hazardous chemical?
- Does the facility use more than 50 gallons per year of that product?
- If yes, then obtain a Material Safety Data Sheet (MSDS) for that product.
- Identify quantity of toxics emitted through review of MSDSs.

44 facilities used products that contained toxics and had MSDSs available for these products. 57 facilities used products that probably contain insignificant quantities of toxics, but did not have MSDSs available to verify this fact.

From this information, a range of emission estimates can be generated. Although not accurate, this procedure for estimating emissions can be used as an indicator for potential problem areas. All of these 101 facilities individually emit toxics in quantities too small to be regulated by existing DEQ permitting rules. However, if several of these facilities are located close to each other, a nuisance condition may exist. In this case, the Department's nuisance rules, and not the toxics rules, would be used to address the nuisance condition. It should be noted that the residential contribution of toxics can be as large or larger than that made by commercial or industrial sources, up to 45% in Multnomah County.[3]

Identification of Odor Nuisance Sources

One of the survey questions asked whether the business had noticed odors around their facility. The responses varied from the generalized "industrial odors", "burnt coffee", "melting plastic", "solvents", and "diesel" to specific (unverified) source identification. In cases where the odor source could be identified, DEQ followed up as described below.

Coffee Roasters:

DEQ currently issues Air Contaminant Discharge Permits to coffee roasters whose production exceeds 30 tons per year. In many cases, afterburners are installed to control visible emissions and/or odors. However, these devices are only effective as long as they are properly operated and maintained. In August 2000, DEQ's Northwest Region Office sent letters to all permitted coffee roasters in Clackamas, Columbia, Multnomah, and Washington Counties. The letter was a reminder that if they operate afterburners to control odors, that there are requirements to properly operate and monitor for effluent retention time and temperature parameters. In addition, continuous temperature monitoring devices were

[3] See Attachment A.

required to be installed by December 1, 2000 and records be kept for a minimum of 2 years. In the future, the Department will also regulate smaller coffee roasters whose production exceeds 2 tons per year.

Dry Cleaners:
In general, dry cleaners were not a part of this survey effort because they are currently being addressed by another Department program. However, the use of perchloroethylene in dry cleaning is of specific concern to those residents directly adjacent to these facilities and any odors will be dealt with on an individual source basis.

Engine Component Refurbishers:
There are many activities in this industry type that produce air pollutants. Metal is recovered from old parts in ovens with afterburners. The resin that coats the new metal is solvent-based and is a potential for odors. Dirty parts are cleaned with solvents and are a potential for odors. Therefore, methods to address air pollution from these types of sources is varied and include the installation of better control equipment, materials substitution, and redesigning exhaust systems. This work is ongoing.

Although not directly associated with this survey, there are several individual businesses in NW Portland that are working cooperatively with the Department to eliminate or significantly reduce their potential impact on the neighborhood. Equipment is being upgraded, materials substitutions are being made, innovative control technologies are being applied, and efficiencies are being incorporated into their operations. Technical assistance staff will continue to be available to make sure this type of work continues.

CONCLUSIONS

This study was designed to investigate the sources of air pollution and nuisances that were previously unknown to the Department. Sources with compliance issues were discovered and potential sources of nuisances and toxics were identified. Because only one new source needing permits were discovered, it appears that DEQ is doing a reasonably complete job of permitting sources that fall under state permitting rules. Ancillary results of the survey include the referral of several facilities to the Pollution Prevention and Technical Assistance Programs of the Department. With conscientious business owners, these referrals may result in some actual reductions of pollution.

In terms of tangible outputs, the survey supplied information to create a master electronic database of emissions and activities on a source-by-source basis. In conjunction with a wall-sized color-coded map[4], the Department's Complaints Investigators can now more effectively respond to complaints. When a complaint is received, they will be able to locate the caller on the map and access the database to obtain pertinent information from nearby businesses. The combination of these two tools will aid the investigators in tracking down likely sources of nuisances while also eliminating unlikely sources.

[4] See Attachment D for an abridged version of the map.

Despite these advances, there remain a significant number of sources that emit small amounts of air pollutants that may never be regulated by the Department. Addressing these remaining concerns with regards to the potential for nuisance will be challenging but not insurmountable. Ongoing technical assistance for businesses will be available; and an increase in public education regarding effects of consumer choices can significantly affect the air quality in NW Portland.

Based on the results of this project, the Department will be able to more accurately focus complaint resolution efforts and more efficiently allocate resources to the highest areas of concern. This project also has tremendous importance for achieving the Department's higher goals and is an example of a Department activity focused on "increasing opportunities for Oregonians to prevent and solve environmental problems". Hopefully, the one-on-one contact with DEQ staff in this type of voluntary project will encourage businesses to seek DEQ assistance in the future. In addition, the Department hopes that the cooperative nature of this project and its ongoing relationship with the residents of NW Portland can more effectively address all environmental concerns.

Attachment A

Multnomah County Emissions Inventory for 1999

Chemical Name	CAS Number	Area Sources (pounds per year)	Mobile (On-Road) Sources (pounds per year)	Point Sources (pounds per year)
1,1,2,2-tetrachloroethane	79345	7,727.495	-	0.003
1,1,2-trichloroethane	79005	0.773	-	-
1,2,3,4,6,7,8-heptachlorodibenzofuran		0.000003	-	-
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin		0.000007	-	-
1,2,3,4,7,8,9-heptachlorodibenzofuran		0.000001	-	-
1,2,3,4,7,8-hexachlorodibenzofuran		0.000001	-	-
1,2,3,4,7,8-hexachlorodibenzo-p-dioxin		0.000001	-	0.000004
1,2,3,4-tetrachlorobenzene		0.167	-	-
1,2,3,6,7,8-hexachlorodibenzofuran		0.000001	-	-
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin		0.000001	-	-
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin		-	-	0.005
1,2,3,7,8,9-hexachlorodibenzofuran		0.000001	-	-
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin		0.000001	-	0.000002
1,2,3,7,8-pentachloridibenzofuran		0.000001	-	-
1,2,3,7,8-pentachlorodibenzo-p-dioxin		0.000001	-	0.000003
1,2,4-trichlorobenzene	120821	56.791	-	-
1,2,4-trimethylbenzene		-	-	110.364
1,3-butadiene	106990	277.120	167,716.058	215.750
1,3-dichloropropene	542756	101,760.000	-	-
1,4-dichlorobenene(p)		52,988.859	-	-
12-methylbenz(a)anthracene		303.460	-	-
16-pah		1,171.352	-	-
1-methyl chrysene		1.360	-	-
1-methylphenanthrene		4,551.900	-	-
2,2,4-trimethylpentane	540841	28,731.652	-	11,468.731
2,3,4,6,7,8-hexachlorodibenzofuran		0.000001	-	-
2,3,7,8-tetrachlorodibenzofuran		0.000002	-	0.00001
2,3,7,8-tetrachlorodibenzo-p-dioxin		0.000002	-	0.000005
2,4-dinitrotoluene	121142	31.897	-	-
2,4-toluene dissocyanate	584849	-	-	11.658
2,5-dimethylfuran		54,885.252	-	-
2-chloronaphthalene		0.0004	-	0.002
2-methylfuran		225,816.320	-	-
2-methylnaphthalene		1.343	-	0.600
2-nitropropane	79469	1.542	-	-
3-methylcholanthrene		151.816	-	0.007
4-Nitrophenol	100027	-	-	0.894
7,12-dimethylbenz(a)anthracene		608.756	-	0.019
9-methylanthracene		606.920	-	-
acenaphthene		5,182.313	-	0.158
acenaphthylene		79,776.295	-	0.013
acetaldehyde	75070	745.950	179,184.497	30.783
acetamide	60355	0.088	-	-
acetone		127,892.749	-	-
acetonitrile	75058	220.698	-	-
acetophenone	98862	310.705	-	-
acetylene		406,646.984	-	-
acrolein	107028	7,633.446	-	143.080

acrylic acid	79107	0.003	-	-
acrylonitrile	107131	14,029.996	-	79.331
allyl chloride	8107051	12.855	-	-
anthracene		6,477.397	-	0.029
antimony		2.596	-	9.233
arsenic		131.232	-	21.372
arsenic compounds		23.694	-	-
barium		211.299	-	-
benzene	71432	778,275.858	1,107,079.961	47,378.153
benzo(a)anthracene		8,043.590	-	1.024
benzo(a)pyrene		2,451.437	-	0.394
benzo(b)fluoranthene		2,824.481	-	0.125
benzo(c)phenanthrene		0.672	-	-
benzo(e)pyrene		4,550.408	-	0.007
benzo(g,h,I)fluoranthene		4,530.248	-	-
benzo(ghi)perylene		4,491.823	-	0.020
benzo(j)fluoranthene		0.448	-	0.069
benzo(k)fluoranthene		922.636	-	0.008
benzofluoranthenes		0.885	-	-
benzyl chloride	100447	5.413	-	-
berylium compounds		17.771	-	-
beryllium		0.642	-	0.254
biphenyl	92524	3,387.703	-	1.219
bis(2-ethylhexyl)phthalate (DEHP)	117817	-	-	0.530
bromoform	75252	-	-	0.001
butane		120,444.932	-	-
butene		436,691.008	-	-
cadmium		361.942	-	60.750
cadmiun compounds		17.771	-	-
carbon dioxide		6,471,696,525.696	-	-
carbon disulfide	75150	3,976.492	-	-
carbon monoxide		138,595,715.704	293,394,819.085	-
carbon tetrachloride	56235	694.470	-	0.001
carbonyl sulfide	463581	1,205.443	-	-
chlorine	7782505	-	-	2.483
chlorobenzene	108907	46,884.168	-	502.509
chloroform	67663	4,685.645	-	37.645
chloroprene	126998	15.755	-	-
chromium		312.938	-	4,983.508
chromium compounds		356.718	-	-
chromium, hexavalent		0.590	-	2.769
chrysene		6,047.690	-	1.252
cobalt		18.367	-	34.204
cobalt compounds		135.579	-	-
copper		92.407	-	-
cresols	19773	1.063	-	-
cumene	98828	616.920	-	315.197
cyanide (as ion)		-	-	6,772.238
dibenzo(a,h)anthracene		700.989	-	0.017
dibenzofuran	132649	5.133	-	2.083
dibenzofurans(chlorinated)		0.014	-	-
dibutylphthalate	84742	33.671	-	0.166

dichlorobenzenes	106467	57.988	-	3.874
diethanolamine	111422	-	-	4.687
dimethyl sulfate	77781	0.870	-	-
dioxins, total, w/o individual isomers		0.086	-	-
epichlorohydrin	106898	2.996	-	-
ethane		710,678.063	-	-
ethyl acrylate	140885	1.160	-	-
ethyl chloride	75003	8,246.860	-	4.281
ethylbenzene	100414	172,119.142	-	14,572.479
ethylene		1,682,141.396	-	-
ethylene dibromide	106934	-	-	0.0001
ethylene dichloride	107062	1,371.659	-	0.022
ethylene glycol	107211	171,324.381	-	787.362
ethylene oxide	75218	18,014.300	-	-
ethylidene dichloride	75343	9,466.155	-	-
fluoranthene		8,545.511	-	4.585
fluorene		10,899.339	-	0.234
formaldehyde	50000	9,026.427	512,945.149	13,891.832
furan	110009	121,494.588	-	-
furfurol		171,231.276	-	-
glycol ethers		58,082.924	-	917.632
hexachlorobenzene	118741	0.050	-	-
hexachlorobutadiene	87683	0.483	-	-
hexachlorocyclopentadiene	77474	0.387	-	-
hexane	110543	463,502.698	-	31,345.637
hydrochloric acid	7647010	198,300.990	-	28,865.475
hydrogen cyanide		57,743.884	-	-
hydrogen fluoride		728.576	-	16.641
indeno(1,2,3-cd)pyrene		3,223.240	-	0.304
isobutane		9,939.784	-	-
isophorone	78591	3,298.932	-	0.166
lead		5,802.707	-	5,152.300
lead compounds		56.910	-	-
manganese		278.700	-	9,436.318
manganese compounds		135.541	-	-
mercury		164.589	-	6.281
mercury compounds		17.771	-	-
methane		4,580,045.564	-	-
methanol	67561	470,618.875	-	347,554.238
methyl bromide	74839	139,920.000	-	0.007
methyl chloride	74873	10,462.664	-	462.776
methyl chloroform	71556	2,375,737.746	-	943.638
methyl ethyl ketone (2-butanone)	78933	699,455.026	-	90,092.108
methyl isobutyl ketone	108101	612,816.333	-	18.715
methyl methacrylate	80626	340.484	-	0.803
methylanthracene		1.417	-	-
methylene chloride	75092	133,315.081	-	140,159.338
methylene diphenyl diisocyanate (MDI)	101688	-	-	0.408
methyl-tert-butyl ether		57.222	-	8,927.202
molybdenum		52.825	-	-
m-xylene	108383	-	-	2,462.667
n,n-dimethylaniline	121697	208.043	-	-

n,n-dimethylformamide	68122	5,835.419	-	-
naphthalene	91203	158,567.709	-	1,496.275
nickel		522.745	-	4,992.439
nickel compounds		22.771	-	-
nitrobenzene	98953	4.350	-	-
nitrogen oxides		7,351,162.456	39,991,419.390	-
nitrous oxide		147,930.472	-	-
nonmethane organic compounds		2,525,718.814	-	-
n-pentene		215,387.488	-	-
o-cresol	95487	-	-	0.137
octachlorodibenzodioxin		0.0002	-	0.0005
octachlorodibenzofuran		0.00002	-	0.00005
o-toluidine	95534	1.160	-	-
o-xylene	95476	610,974.372	-	2,058.521
p-cresol	106445	-	-	0.484
p-dioxane (1,4-dioxane or 1,4-diethyleneoxide)	123911	18.821	-	-
pentachlorobenzene	82688	0.119	-	-
pentane, n-		124,858.403	-	-
perylene		303.609	-	0.005
phenanthrene		67,271.467	-	0.227
phenol	108952	315.597	-	10,940.773
phosphorus	7723140	68.008	-	177.275
phosphorus compounds		220.000	-	-
pm, 10 microns		18,713,964.141	3,187,309.738	-
pm, 2.5 microns		39,224.260	1,870,576.247	-
polyaromatic hydrocarbons (pahs)		342,357.674	-	-
polychlorinated biphenyls (aroclors, pcbs)	1336363	6.465	-	-
polycyclic organic matter		210,950.583	-	104.531
primary pm, condensible & filterable		287,109.827	-	-
primary pm, condensible portion only		273,728.038	-	-
primary pm, filterable portion only		24,583.403	-	-
propane		205,338.928	-	-
propionaldehyde	123386	2.320	-	-
propylene (propene)		455,217.704	-	-
propylene dichloride	78875	844.833	-	0.031
propylene oxide	75569	804.949	-	1,958.545
p-xylene	106423	-	-	1,528.556
pyrene		9,803.316	-	0.070
selenium		2.779	-	398.232
selenium compounds		88.853	-	-
styrene	100425	4,164.014	-	3,690.274
sulfur dioxide		1,544,829.024	-	-
sulfur oxides		269,501.944	1,901,639.459	-
tetrachloroethylene (perchloroethylene)	127184	830,501.269	-	480.456
toluene	108883	9,164,196.794	-	304,762.145
total organic compounds		22,352,241.801	-	-
total organic gases		22,202.748	-	-
total particulate matter		77,860.890	-	-
trichlorobenzenes	120821	0.248	-	-
trichloroethylene	79016	759,936.773	-	0.001
triethylamine	121448	533.604	-	256.665

vanadium		110.452	-	-
vinyl acetate	108054	50.521	-	693.310
vinyl chloride	75014	19,429.541	-	555.966
vinylidene chloride	75354	971.050	-	68.084
volatile organic compounds		120,775,843.534	38,134,703.615	-
xylenes (mixture of o, m, & p isomers)	1330207	2,140,078.344	-	249,704.070
zinc		1,392.651	-	-

Attachment B

February 15, 2000

Northwest Portland Business

Re: Northwest Portland Door-to-Door Survey

Dear Owner/Facility Manager:

For the past several years, our office has received ongoing complaints concerning nuisance odors in NW Portland. Many residents claim that the odors are making them sick and contribute to the decline of their overall quality of life. The dense mixture of residential, commercial, and industrial activity that exists in NW Portland provides a great challenge to the Department in our mission to protect the public's health and the environment.

While we have done our best to address these complaints on a case-by-case basis, we do not have a comprehensive understanding of all of the sources of air pollution in the area. The Department believes that the best way to begin addressing the growing concern about the possible links between the odors and air toxics is to conduct a door-to-door survey of all the commercial and industrial businesses in NW Portland. Therefore, the Air Quality staff of the Department's Northwest Region Office will be visiting your facility between now and the end of April 2000.

DEQ's Air Toxics Program

This survey will also provide an opportunity to gather information to be used in the development of Oregon's air toxics program. One of the recommendations of the advisory committee convened to address toxics issues is to use a geographic approach to identify specific areas that may need closer attention. This geographic approach will also allow the Department to consider the unique characeristics of each area, such as the topography and population, into a strategy tailored to most effectively address the issues of greatest concern to the area.

The door-to-door survey results, in conjunction with information collected through existing permitting programs, other sampling projects, and ambient monitoring, will help the Department create a more complete picture of NW Portland's air quality. Once this data is collected and analyzed, the Department and the stakeholders in NW Portland can work together to design an action plan. A combination of providing more education about the causes and effects of local pollution sources, incentives to individuals and businesses to change their polluting habits, and the development of special regulations to target those sources contributing to the air pollution problem may form the basis of a plan.

What to expect?

A member of our air quality staff will visit your facility some time between now and the end of April 2000. If there is a particular day or time that is better or worse for you, please contact our office as soon as possible to make an appointment for a scheduled visit. Otherwise, staff will be conducting the site visits as their schedules allow. The site visit should take less than thirty minutes.

Staff will be filling out a survey form that will aid us in determining what air quality regulations, if any, apply to your facility. Some information about other environmental impacts and regulatory programs may also be requested and contact names for these issues will be provided to you. The field staff will not be determining your compliance status during the visit in order to preserve the non-enforcement nature of this project.

Be Prepared, If You Can…

A facility's air emissions can be quantified in a number of ways, but you should be prepared to provide us with information concerning:

- current production levels and maximum production capacities,
- the types and amounts of raw materials used, including their Materials Safety Data Sheets or Air Quality Data Sheets,
- the types of fuels consumed,
- the ratings of all fuel burning equipment, and
- the amount and types of wastes generated.

If you have any additional questions about this project or would like to schedule a time for your site visit, please call me at 229-6610.

Sincerely,

Nancy Couch
Special Projects Coordinator
Northwest Region

Northwest Portland Door-to-Door Survey

Surveyor's Name: _____ Survey Date: _____

BACKGROUND INFORMATION

Facility Name: _____ Contact Name: _____

Site Address: _____ Contact Phone: _____

Mailing Address: _____ Contact Fax: _____

Facility Web Site Address or Contact E-Mail Address: _____

Facility's Primary Business Activity: _____ SIC Code: _____

DEQ Permits: AQ Permit # _____ WQ Permit # _____ HW ID # _____ SW Permit # _____

TYPES OF INDUSTRIES, EQUIPMENT, & PROCESSES (SEE CHEAT SHEET)

☐ Metal Products Manufacturing ☐ Wood Products Manufacturing ☐ Plastic Products Manufacturing

☐ Printing ☐ Foundry/Smelting ☐ Equipment Repair

☐ Vehicle Repair ☐ Chemical/Paint Formulation ☐ Electronic Assembly

☐ Incineration ☐ Fuel Dispensing ☐ Boilers/Generators

OPERATING PARAMETERS

Typical Hours of Operation: _____ # of Employees: _____

Raw Materials Use Rate: _____ Production Rate: _____

Raw Materials Use Rate: _____ Production Rate: _____

Raw Materials Use Rate: _____ Production Rate: _____

Attach MSDS sheets of most commonly used materials.

ANCILLARY PROCESSES

☐ Do you have an ECO Plan? ☐ Yes ☐ No Lot/Access Road is ☐ Paved ☐ Gravel ☐ Dirt

HW Disposal Contractor? ☐ Yes ☐ No Generator Status? _____ Waste Generation Rate: _____

Are Materials Stored: ☐ Uncovered in Piles ☐ In Tanks ☐ In Drums ☐ In Bags

Are Wastes Stored: ☐ Uncovered in Piles ☐ In Tanks ☐ In Drums

Do you discharge wastewater or stormwater to a: ☐ Sump ☐ Dry Well ☐ Storm Drain ☐ Sanitary Sewer

NUISANCE ISSUES – ITEMS OF CONCERN

☐Odors ☐ Visible Air Emissions ☐Surface Stains ☐ Open Burn Pile ☐ Bad Housekeeping

Have received complaints from: _____ Want to complain about: _____

Follow-up Action, Correspondence and/or Visits Planned? ☐Yes ☐No
Send Pollution Prevention Information? ☐Yes Send On _____ ☐No

Referral Contacts:		
DEQ ECO Technical Assistance:	Susan Drake	229-6918
DEQ Hazardous Waste Technical Assistance:	Jay Collins	229-5165
DEQ Stormwater Technical Assistance:	Dennis Jurries	229-5937
DEQ UST Technical Assistance:		229-5441
Metro Solid Waste Recycling Hotline:		234-3000
City of Portland Wastewater Discharge:	Kelly Hendryx	823-7585
Multnomah County Health Dept:		988-3842x245

Attachment C

Breakdown of Industry Types

Automotive Body Finishing and General Automotive Repair: (SIC 75xx)
This group of businesses is involved in the repair of the engine or body of an automotive vehicle. First, old fluids are collected and the parts are cleaned. When the repair is completed, the surfaces may be prepped and painted. 15 automotive finishing or repair businesses were surveyed.

Painting - In the Portland area, there are special rules pertaining to automotive body refinishing if the shop paints more than 10 cars per month.

Spent Fluid Collection – Many different types of fluids, including antifreeze, used oil, transmission fluid, and refrigerant, are collected and recycled. Halogenated refrigerants (such as Freon) require special equipment and operator certification to perform this task.

Used Oil Boilers - Burning used oil for heat recovery is allowed, but only in a unit specifically designed to burn used oil. The used oil burned must have been generated on site.

Printing: (SIC 27xx)
This group of businesses is involved in placing an image on a substrate (metal, wood, paper, plastic, cloth, etc.). The types of finished products range from business cards to full color magazines, tee shirts, and other advertising products. The types of printing processes included are letterpress, lithographic (including offset), gravure, and screen. 36 printers were surveyed.

Metal Fabricating: (SIC 34xx)
This group of businesses is involved in fabricating ferrous and non-ferrous metals. The industry group does not include foundries, smelters, electroplaters, or anodizers and none were visited in this survey. The types of finished products include beverage cans, hand tools, structural members, and architectural pieces. First, dirty metal pieces are cleaned. Then the pieces are trimmed, machined, or welded. Some pieces may then be prepped and painted. 16 metal fabricators were surveyed.

Wood Products Manufacturing: (SIC 24xx and 25xx)
This group of businesses includes the manufacturing of wood products, and involves sawmills, cabinet shops, custom contractor manufacturing, and furniture. In a sawmill, logs are milled to produce dimensional lumber or specialty cuts of wood. Sometimes, this lumber is planed and/or kiln-dried. The wood is then further milled to produce the finished product and painted. Sawdust, chips, planer shavings, and hogged fuel are all byproducts of the wood product manufacturing industry and are typically controlled mechanically through conveyors or pneumatically through cyclones and baghouses. 19 wood products manufacturers were surveyed.

Plastic and Rubber Products Manufacturing: (SIC 30xx)
This group of businesses is involved in manufacturing products from plastic resins and natural or synthetic rubber. The raw materials for these processes are usually uncured pellets or standard forms. Under heat and pressure, these raw materials are extruded or molded and cured to maintain a final shape. This process often produces odors that are detectable off-site, but can be controlled through close monitoring of heat during the curing process. Solvents are often used to

prepare surfaces for curing and cleaning up. Finished products may be painted. 5 plastic or rubber manufacturers were surveyed.

Breakdown of Manufacturing Processes with Potential Air Emissions

Stripping:
Solvent-based materials are often used to strip parts of old paint. Many conventional stripping agents contain halogenated solvents (especially methylene chloride) which are regulated by special rules. Substituting water-based stripping agents or new proprietary blends eliminates emissions which are subject to air quality rules.

Chemical Cleaning:
Solvent-based materials are often used to clean dirty parts and to prepare surfaces prior to painting. This can be done by wiping solvent onto a part or immersing a part into a solvent bath. If parts are cleaned with a halogenated solvent in a cold batch tank or a vapor degreaser, then special rules apply to that unit. Replacing solvent based materials with water-based cleaners or new proprietary blends eliminates emissions subject to air quality rules.

Printers

Inks – Many inks contain solvents that are carriers for pigments. An increasing number of inks are water-based and are therefore not regulated.

Cleaners – If solvent-based inks are used, then solvent-based cleaners are required to keep the printing plates, rollers, or backers clean for the next image. If water-based inks are used, then water may be used as a cleaning agent.

Binding – The binding method that produces air emissions of concern is the use of solvent-based adhesives. Water-based adhesives and mechanical binding methods are also used but do not produce any air emissions.

Platemaking – Many of the plates used in this industry are wooden, plastic, or rubber. However, in some cases, chrome-plated metal is still used. Special rules regulate chrome electroplating.

Painting:
The type of paints applied and spray equipment used should be chosen carefully to produce the highest quality part with the lowest amount of air emissions. Most conventional paints are solvent-based, but an increasing number of paints are water-based, high-solids, UV-cured, and powdered. Paints can be applied by using a variety of spray equipment including conventional, High Volume Low Pressure (HVLP), airless, and air-assisted guns, powder technology, brushes, and flow coating systems. All of these application methods may include electrostatics (imparting an electrical charge to the paint) to increase the efficiency of the application.

Paint Booths:
The size of the booth, fan size, and stack dimensions should be engineered to maximize air flow through the booth in order to minimize the concentration of solvents in both indoor and outdoor air. In addition, filters that prevent over-spray from escaping the booth should be installed and

maintained periodically. However, filters do not prevent odors from escaping and spray booths are a common source of odor nuisances.

Cyclones & Baghouses:
The design of dust collectors should be specific to the application and size of dust being collected. Design considerations must include fan size and the type and number of bags. Dust collectors can be used to control dust produced in milling wood or plastics, sandblasting, foundries, and metal fabrication. Often times, this type of equipment is improperly sized and maintained, leading to visible emissions and deposition of dust on neighboring properties.

Boilers & Generators:
Regulations pertaining to fuel-burning devices are dependent on the year the unit was manufactured, the Btu rating of the device, and the type of fuel that it burns, even if it is used only in a back-up or emergency capacity. Fuel-burning devices may be a source of visible emissions and nuisance odors during the start up or shut down of operations or while switching fuels.

Click Here for Attachment D