

2001
Oregon Air Quality

Data Summaries



State of Oregon
**Department of
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Department of Environmental Quality

Air Quality Division

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Air Quality Annual Report

The Department of Environmental Quality (DEQ) Air Quality Division is responsible for protecting Oregon's air quality. DEQ monitors air pollution to ensure that the whole state meets and maintains national ambient air quality health standards.

Healthy air is a key indicator of Oregon's quality of life. Because of DEQ's successful air pollution control programs, current pollution prevention programs, and public support of them, all areas in the state now meet national air quality standards. However, population and economic growth present constant challenges to maintaining healthy air in our state.

The air pollutants of greatest concern in Oregon are:

- ground-level ozone, commonly known as smog
- carbon monoxide (mostly from motor vehicles)
- fine particulate matter (mostly from wood smoke, other combustion sources, cars and dust)
- hazardous air pollutants (also called Air Toxics)

DEQ works to prevent and solve air quality problems by:

- measuring air pollutant concentrations
- planning and implementing air pollution reduction strategies
- issuing and enforcing air pollution control permits for industry
- enforcing environmental regulations
- informing, educating, and involving the public

In addition to working with local governments to solve current air quality problems, DEQ is committed to identifying potential problem areas and working with communities and businesses to find solutions that will prevent or reduce air pollution.

The Air Quality Division has a strategic plan that describes how we will protect air quality while using our resources cost-effectively. DEQ is developing measurement tools that will allow us to gauge the effectiveness of each component of the strategic plan, and environmental indicators that tell us if we are meeting air quality goals.

Causes of Air Pollution in Oregon

Most of Oregon's air pollution is caused by individual actions such as driving cars, using wood stoves, gas-powered lawn mowers, motor boats, paints, and aerosol products like hairspray and air fresheners, and outdoor burning. DEQ has public awareness programs that encourage voluntary cooperation from individuals to minimize air pollution caused by daily activities.

Motor vehicles are the number one source of air pollution in Oregon. Emissions from cars contribute to ground level ozone (smog) pollution on hot summer days. Smog is a problem in the Portland, Salem and Medford areas. Emissions from cars also cause carbon monoxide pollution. Carbon monoxide is mostly a winter-time problem, especially in the Portland area and in Medford.

Vehicle Inspection

Vehicle Inspection is one of DEQ's most successful programs to prevent air pollution caused by motor vehicles. By inspecting exhaust emissions, DEQ identifies vehicles that need maintenance.

The inspection procedure is designed to ensure that emission control systems of cars and trucks are working properly. DEQ manages vehicle inspection programs in the Portland area and the Rogue Valley.

On May 1, 1998, DEQ implemented an Enhanced Vehicle Emissions Testing Program in the Portland area. Enhanced vehicle inspection revs the engine while the vehicle is on a treadmill in order to simulate typical driving conditions. The emissions measured during this test will be more indicative of emissions during driving. This new test is expected to more than double the clean air benefit of the current vehicle inspection process.

The Environmental Quality Commission adopted this program as a key component of plans to keep the air clean in the Portland area for the next ten years.

Air Permits for Industry

Approximately 1,400 industrial and commercial businesses in Oregon that release air pollutants have permits to operate. The permits regulate the amount of annual pollution these businesses can emit into the air. Staff members from Regional DEQ offices regularly inspect these of air pollution sources for compliance with their permit conditions. When businesses are out of compliance, DEQ issues notices of violation and when necessary recommends civil penalties.

Oregon now has a federally required Title V Air Operating Permit Program for major industrial sources of air pollution. A major industrial source of air emissions has the potential to emit 100 tons per year of any criteria air pollutant - particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and volatile organic compounds (VOCS). For emitters of hazardous air pollutants, a major source has the potential to emit 10 tons per year of any individual hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants. DEQ currently requires 123 businesses to have a Title V permit. Other permitted businesses will remain in the state operated Air Contaminant Discharge Permit program.

In addition to issuing Title V permits, DEQ has worked with over 90 sources to modify their permits to limit the allowable air emissions to levels below the Title V permitting threshold of 100 tons per year. Many other sources avoided Title V permitting by incorporating pollution prevention measures to reduce actual emissions below the major source threshold level. Both of these actions along with the increased compliance assurance monitoring contained in the Oregon Title V Operating Permits has and will continue to result in significant emission reductions throughout the state.

Hazardous Air Pollutant Program

Toxic or hazardous air pollutants are substances in the air that can harm the environment and your health. Most of these substances are classified as volatile organic compounds and metals. Title III of the 1990 Clean Air Act Amendments requires the U.S. Environmental Protection Agency (EPA) to regulate emissions of 188 HAPS including benzene, dioxin, chromium, perchloroethylene, and toluene. The complete list of HAPs can be found in Title III of the 1990 Clean Air Act Amendments (see www.epa.gov).

DEQ controls hazardous air pollutants in several ways:

- regulating toxic air pollutant emissions from businesses by the permits described above

- adopting as state rules the federal standards for hazardous air pollutant sources
- implementing programs to reduce VOC emissions

Many types of human activities produce hazardous air emissions in varying amounts. Manufacturing, energy production, burning waste materials or wood, painting, cleaning activities, and driving vehicles all produce toxic air pollutants. Natural sources can also produce toxic air emissions. For example, radon gas comes from rocks in the earth's surface.

Breathing toxic air pollutants can increase your chances of experiencing health problems ranging from throat irritation to cancer, emphysema to reproductive disorders. For instance, inhaling benzene fumes given off when gas is pumped into your car can increase your chances of getting leukemia. The danger to human health from a toxic air pollutant depends on the amount and length of exposure.

There are three ways air pollutants get released into the air:

1. Continuously. Cars, factories, gas stations and other sources may give off toxic air pollutants continuously over time.
2. Intermittently. When a plant's production is done in batches, toxic chemicals may be released intermittently.
3. Unexpectedly. An explosion, equipment failure, or transportation accident can produce very dangerous air toxics and must be properly contained immediately.

EPA has identified sources of these toxic air pollutants and has classified them into about 170 categories. To significantly reduce emissions, EPA is developing national technology-based performance standards and regulations for each category.

EPA is developing a standard for each hazardous air pollutant category. They are working out the details of what kinds of controls qualify as "maximum achievable control" for each category of hazardous air pollutant sources such as dry cleaners, gasoline distributing facilities, and chemical manufacturing. EPA has adopted regulations for over 25 percent of the identified source categories. They expect standards for all types of sources to be completed by the year 2000.

EPA regulations also require certain industrial facilities and businesses to have and use a plan to prevent accidental toxic air pollutant releases, and to minimize their impacts on the surrounding community in a worst case accident scenario.

Regional DEQ staff help businesses achieve compliance with EPA standards, or even go beyond requirements. DEQ regularly inspects these businesses for compliance with permit conditions and recommends enforcement actions when permit violations occur.

DEQ implements other state rules that reduce toxic air pollutants including benzene from cars and trucks. The Vehicle Inspection Program in Portland and Medford reduces vehicle emissions that contain toxic air pollutants by making sure air pollution control systems in vehicles are working properly.

DEQ requires manufacturers to restrict the amount of VOCs in paints and household products sold in the Portland region. The rules also limit VOC emissions from auto body refinishing. Some of these VOCs are hazardous air pollutants.

The DEQ rules affect manufacturers, distributors, and Portland area users of automotive, architectural, and aerosol spray paints, and a variety of aerosol and non-aerosol solvent-containing household products. The household products include hair sprays, air fresheners, windshield washer fluids, and spray antiperspirants.

Primary responsibility for most rule provisions lies with product manufacturers who typically are able to comply with the requirements by using presently available technology. For example, under the motor vehicle refinishing rules, businesses and individuals who paint more than two cars per year are required to use high efficiency spray guns and spray gun cleaning equipment to reduce VOC HAPs.

Wood Burning Program

DEQ's Wood Burning Program works with Oregon communities to solve and prevent air pollution problems caused by residential wood burning. DEQ provides information about burning wood cleanly and helps local communities prepare and implement strategies to reduce pollution from wood smoke.

The success of DEQ's Wood Burning Program is demonstrated by Klamath Falls' dramatic improvement in air quality. In 1989, Klamath Falls was listed by the federal government as having one of the worst wintertime smoke-related air quality problems in the nation. Because of active, committed citizen participation, Klamath Falls now has attained federal air quality standards for fine particulate. A certified wood stove program, an aggressive public education program, and a wood burning curtailment program are credited with helping to clean the air.

Outdoor Burning

The open-burning program works with local fire districts to educate people about and enforce burning regulations that apply to land clearing, as well as household, agricultural, commercial and construction, industrial and demolition activities.

Asbestos Program

DEQ certifies and licenses asbestos abatement contractors, inspects asbestos abatement projects and enforces laws regarding the proper removal and disposal of asbestos-containing materials. DEQ educates homeowners about the dangers of exposure to asbestos and the best ways to deal with asbestos-containing materials in the home.

Fuels Program

DEQ manages programs to reduce the ozone and carbon monoxide pollution that results from the use of gasoline and other fuel blends. The Oxygenated Fuel Program reduces wintertime carbon monoxide pollution by up to 20 percent in the Portland area, Jackson County, Grants Pass and Klamath Falls, by adding compounds containing oxygen to the fuel. These additional additives increase the ability of engines to burn the fuel more completely and lower carbon monoxide emissions.

Vapor recovery programs in the Portland area have contributed to reducing ozone-forming pollution from gasoline vapors. Gasoline vapors can be released to the atmosphere when fueling cars and

transferring fuel from tank trucks. Accordion-shaped hoses used at service stations prevent 90 percent of gasoline vapors from escaping during refueling. Tanker trucks and service station tanks have been modified with equipment to eliminate the loss of vapor during transfer. On-board vapor control systems on newer cars prevent vapor loss during vehicle operation and storage.

Visibility

DEQ monitors visibility in federally designated wilderness areas and Crater Lake National Park. Information from this monitoring is used to determine if visibility is impaired and, if so, to develop strategies to improve protection for these areas. Strategies involve managing forestry and field burning, and changing slash burning practices. Most burning now takes place in spring and fall to preserve visibility during the summer when most people are enjoying Oregon's beautiful scenery.

Business Assistance Program

The Business Assistant Program (BAP) provides information and technical assistance on air quality regulation and related environmental issues to small businesses such as dry cleaners, auto-body shops, metal finishers, and printers. The program works with individual business owners and trade groups to educate them about solutions to air quality problems, including ways to reduce the use of toxic chemicals. Program services are free and confidential. This cooperative effort is designed to promote a healthful environment for all Oregonians without causing unnecessary hardship for small business.



Air Quality Monitoring

DEQ's Laboratory Division measures pollutant levels at monitoring and sampling sites throughout the state. Monitoring air quality is the method used to demonstrate attainment and continued maintenance of the ambient air quality standards. In addition, meteorological and atmospheric conditions are monitored during seasons of the year when concentrations of certain pollutants can be significantly affected by individuals' everyday activities. For example, a primary contributor to summer time ozone is auto exhaust. In the winter, wood stoves contribute to the amount of particulate in the air. This monitoring is used for pollution prevention programs such as the Portland and Medford area's Clean Air Action Day smog advisory program in the summer, and wood burning advisories during the winter in Bend, Klamath Falls, Lakeview, La Grande, and Pendleton to prevent high particulate levels.

Air Quality Index (formerly the Air Pollution Index)

Oregonians can get air quality information twice daily for Portland, Eugene, Medford, Bend, and Salem from the Air Quality Index (AQI; formerly the Air Pollution Index). The index generally categorizes the air pollution levels as good (0-49), moderate (50-99) or unhealthy (100 and over). The AQI is available at the Air Quality section of the DEQ website www.deq.state.or.us or by phone at 503-229-6397.

Clean Air Areas

Certain areas in Oregon have had persistent air quality problems and have historically violated national air quality standards. All of these communities currently meet the national standards. DEQ assists these communities in preparing pollution prevention plans designed to maintain pollution levels below the standards. Here is the status of Oregon communities that have violated air quality standards in the past.

Ground-level Ozone: Portland and Salem were recently designated as meeting the one hour ozone standard. A new 8 hour ozone standard was proposed by the EPA in September 1997, but was remanded for re-evaluation in May 1999 by the Circuit Court of Appeals of the District of Columbia. The courts upheld the new 8 hour standard in 2001.

Carbon Monoxide: Portland was recently designated as meeting the carbon monoxide standard. Medford, Grants Pass, Klamath Falls and Salem are preparing maintenance plans. When EPA approves a city's plan, then the city will be designated as meeting the carbon monoxide standard.

Fine Particulate Matter, PM₁₀: Eugene-Springfield, Medford-Ashland, Klamath Falls, Grants Pass, La Grande, Oakridge and Lakeview were considered PM₁₀ non-attainment areas, however, all of these cities have been in compliance with the National Ambient Air Quality Standards (NAAQS) for the past three years or more. In 1997 EPA revised the particulate standard. Particulate smaller than 2.5 microns will now be measured. Some PM₁₀ sampling will continue, but at a reduced frequency. The status of these former non-attainment areas will be reviewed and reconsidered with the implementation of the new particulate standard.

New Air Quality Standards

In July 1997, the Environmental Protection Agency (EPA) announced new national air quality standards for fine particulate matter and ground-level ozone (smog). EPA's new standards will mean additional health protection and cleaner air for everyone, particularly for children, the elderly, asthmatics, and people with heart or respiratory problems. The new standards became effective September 1997 but will require several years of monitoring before compliance with the standard can be determined. In May 1999 the Circuit Court of Appeals of the District of Columbia remanded the 1997 standards to the EPA for re-evaluation. In 2001 the court upheld the 1997 standard.

Fine Particulate Matter (PM), comes mostly from smoke from fuel combustion, power plants, vehicle exhaust, wind-blown dust, and chemical reactions in the atmosphere. There are harmful effects from breathing particles measuring less than 10 microns in diameter (PM₁₀). The most recent research indicates that even smaller particles, those measuring less than 2.5 microns in diameter (PM_{2.5}), may be responsible for the most significant health effects, like, Asthma, hospital admissions, and respiratory illnesses, premature mortality.

Areas in Oregon that have historically exceeded the PM₁₀ standard may have additional problems with the new PM_{2.5} standard. These communities include Grants Pass, Medford, Klamath Falls, Eugene-Springfield, Lakeview, Oakridge, and LaGrande. In addition, DEQ estimates that any population center in the state might potentially violate the new PM_{2.5} annual standard.

DEQ will continue to assist Oregon communities that currently meet the pre-existing PM₁₀ standard. The new PM_{2.5} standard is based on three years of data. Collection of data will begin for some areas in January of 1999 and in others January of 2000. DEQ will not be able to determine which Oregon communities comply with the new standard until three years of monitoring data has been collected.

Ozone (smog) is primarily caused by chemicals from car and small engine exhaust, and business and industry emissions on hot sunny days. Studies indicate that the old standard was not protective enough of public health. EPA concluded that lower level exposures over a longer time period are

more detrimental than shorter term peak levels. These effects include more than 1.5 million incidences of significant breathing problems, such as loss of lung capacity and increased severity of both childhood and adult asthma.

The Portland region has attained the previous ozone standard and EPA recently approved a 10-year plan to maintain good air quality. Once the strategies in the current maintenance plan are fully implemented, Portland may not need additional air pollution control measures to meet the new standard.

Getting Involved

DEQ is committed to informing and involving the public in air quality decisions related to rule changes, permit activities and air pollution prevention programs. DEQ wants to hear from and work with citizens on air quality issues that affect them. Air Quality Program phone numbers are listed on the inside of the back cover. DEQ uses advisory committees composed of citizens and technical experts to develop rules. The public has an opportunity to comment on new permits and modifications of existing permits during publicized comment periods. No rules affecting the state's air quality are adopted without public notice and the opportunity to comment. Opportunities to comment are published in the newspaper.

Pollutants: Sources, Standards, Health and Welfare Effects

Summary

National Ambient Air Quality Standards (NAAQS) were adopted by Oregon to protect the public health and welfare from the known adverse effects of air pollution. The federal government has established primary standards that define levels of air quality that protect the public health. Secondary ambient air quality standards define levels judged by the federal government to be necessary to protect the public welfare. Oregon's control strategies have been directed to meet the more stringent secondary air quality standards. The pollutants for which standards have been established are common pollutants that have been shown to be harmful. These standards are shown in Table 1.

Fine Particulate (PM₁₀ and PM_{2.5})

Fine particulate air pollution consists of solid particles or liquid droplets that are less than 10 microns in diameter (PM₁₀) or less than 2.5 microns in diameter (PM_{2.5}). Particles in these size ranges are of great concern because they can be inhaled deeply into the lungs where they can remain for years. The health effects of particulate matter vary with the size, concentration, and chemical composition of the particles. In general, particulate matter causes three kinds of health problems:

- The particles may be inherently toxic because of their chemistry.
- The particles may mechanically damage the respiratory system.
- The particles may be carriers for adsorbed toxic substances.

Relationships have been shown between exposure to high concentrations of particulate matter and increased hospital admissions for respiratory infections, heart disease, bronchitis, asthma, emphysema, and similar diseases. In addition, there may be several potential carcinogens present on particulate matter. Of particular concern are the condensed organic compounds released from low temperature combustion processes (wood stoves, for example).

Among the most obvious effects of fine particles are reductions in visibility due to absorption and scattering of light by suspended particles. Almost all smoke particles from residential wood stoves and fireplaces, industrial boilers, field burning, and other combustion processes can be characterized as fine particulate. In contrast, only a small fraction of the particles from road dust, agricultural tilling, and wind blown dust are fine particulate.

The annual PM_{10} standard is met when the annual mean concentration is less than or equal to $50 \mu\text{g}/\text{m}^3$. The 24-hour standard is met when the number of days per calendar year with a 24-hour average concentrations above $150 \mu\text{g}/\text{m}^3$ is equal to or less than 1 over a 3-year period. The annual $PM_{2.5}$ standard is met when the 3-year average of the annual arithmetic mean is less than or equal to $15.0 \mu\text{g}/\text{m}^3$ and the 24-hour standard is met when the 3-year average of the 98th percentile values at each monitoring site is less than or equal to $65 \mu\text{g}/\text{m}^3$.

Total Suspended Particulate (TSP)

Pollution made up of particulate less than about 100 micro-meters in diameter is called TSP (100 micrometers is about the diameter of a human hair.) Larger particles tend to settle out of the air quickly and are often more of a nuisance than a health affecting pollution problem. The smaller fraction of particles in TSP, particularly those 10 micrometers and smaller, however, are the same as PM_{10} and have adverse health effects because of their ability to reach the thoracic or lower regions of the respiratory tract. Other effects of TSP include soiling and corrosion of building materials and textiles, damage to vegetation, and toxicity to animals that feed on vegetation covered by toxic particulate matter.

Natural sources of TSP include pollen, wind-blown dust, and smoke from wild fires. Humans create TSP from combustion sources--like motor vehicles, utility and industrial boilers and dryers, wood stoves, open burning, slash burning, and field burning. Other anthropogenic sources include dust from roads, agriculture, construction, and mining.

Sulfur Dioxide (SO_2)

Sulfur dioxide is a colorless, pungent gas. In the body it acts as a lung and eye irritant. When SO_2 is inhaled, it causes bronchial constriction that results in breathing difficulty and increased pulse and respiratory rate. People with respiratory diseases like asthma, bronchitis, or emphysema are particularly susceptible to the effects of SO_2 .

When particles capable of oxidizing sulfur dioxide to sulfuric acid are present, the irritant response increases in magnitude by two to three times. When sulfuric acid is inhaled, mucous production increases. This reduces the respiratory system's ability to remove particulate matter, and can lead to more severe respiratory infections, such as pneumonia. Chronic exposure to SO₂ can lead to coughs, shortness of breath, fatigue, and bronchitis.

Sulfur dioxide can also damage plants and building materials. The leaves of some vegetables (spinach and lettuce, for example) are damaged by exposure to high levels of SO₂. Sulfur oxides accelerate corrosion of metals and other building materials (limestone, marble, mortar) by forming sulfuric acid on the surface of the material or in the atmosphere. In addition, sulfuric acid and sulfate particles formed in the atmosphere from SO₂ can cause scattering of visible light, thus contributing to haze. These same processes can contribute to acid rain and lead to acidification of lakes and soils.

The major source of SO₂ nationwide is combustion of high sulfur coal. In Oregon, where burning of high sulfur coal is not allowed, diesel fuel and heating oil are the major sources of SO₂.

Carbon Monoxide (CO)

Carbon monoxide is a colorless, odorless gas. In the body, CO binds tightly to hemoglobin (the red pigment in blood which transports oxygen from the lungs to the rest of the body). Once hemoglobin is bound to CO, it can no longer carry oxygen. In this way, CO reduces the oxygen-carrying capacity of the blood and can result in adverse health effects. High concentrations of CO strongly impair the functions of oxygen-dependent tissues, including brain, heart, and muscle. Prolonged exposure to low levels of CO aggravates existing conditions in people with heart disease or circulatory disorders. There is a correlation between CO exposure and increased hospitalization and death among such patients. Even in otherwise healthy adults, carbon monoxide has been linked to increased heart disease, decreased athletic performance, and diminished mental capacity. Carbon monoxide also affects newborn and unborn children. High CO levels have been associated with low birth weights and increased infant mortality.

A major natural source of CO is spontaneous oxidation of naturally occurring methane (swamp gas). The major human-caused source is incomplete combustion of carbon-based fuels, primarily from gasoline-powered motor vehicles. Other important sources are wood stoves and slash burns.

How a motor vehicle is operated has an effect on the amount of CO emitted. In stop-and-go driving conditions, CO emissions are high. Emissions are also increased when the outside temperature is low. Oregon's most serious CO problems occur during the winter in urban areas when CO emitted by slow-moving traffic is trapped near the ground where people can inhale them.

Ozone (O₃)

Ozone is a pungent, toxic, highly reactive form of oxygen. It causes irritation of the nose, throat, and lungs. Exposure to ozone can cause increased airway resistance and decreased efficiency of the respiratory system. In individuals involved in strenuous physical activity and in people with pre-existing respiratory disease, ozone can cause sore throats, chest pains, coughs, and headaches. Plants can also be affected. Reductions in growth and crop yield have been attributed to ozone. Ozone can affect a variety of materials, resulting in fading of paint and fiber, and accelerated aging and cracking of synthetic rubbers and similar materials. It is also a major contributor to photochemical smog.

Ozone is not emitted directly into the air. It is formed through a series of photochemical (sunlight-requiring) reactions between other pollutants and oxygen (O₂) at high temperatures. Most important are nitrogen oxides and volatile organic compounds. To control ozone pollution, it is necessary to control emissions of these other pollutants.

Nitrogen Dioxide (NO₂)

Nitrogen dioxide is a reddish-brown gas that is toxic in high concentrations. It is a lung irritant and may be related to chronic pulmonary fibrosis. It is also important in the photochemical reactions leading to the formation of ozone. It can cause indirect damage to materials when it combines with moisture in the air to form nitric acid. The nitric acid can then cause corrosion of metal surfaces and can also contribute to acid rain. In addition, NO₂ absorbs visible light and causes reduced visibility. It has also been linked to suppressed growth rates in some plants.

The major human-caused source of NO₂ is fuel combustion in motor vehicles, and utility and industrial boilers. Nitric oxide (NO) is the major nitrogen oxide produced during the combustion process, but once in the atmosphere, NO is rapidly oxidized to form NO₂.

Hydrocarbons (Non-Methane)

Non-methane hydrocarbons (also known as Volatile Organic Compounds) are a large family of compounds made up primarily of hydrogen and carbon. These compounds are instrumental in the complex series of reactions leading to the formation of ozone and photochemical smog.

The compounds come mainly from motor vehicles, fuel evaporation, the coatings industry, and combustion processes. The EPA has repealed its standard for non-methane hydrocarbons and DEQ has taken similar action, however, hydrocarbons are still controlled because of their contribution to ozone formation.

Lead (Pb)

Lead is a toxic heavy metal, abundant in the earth's crust. Air borne lead particles are of sufficiently small size (less than 0.7 microns) that they can penetrate deep within the lungs and ultimately be absorbed in the blood. High concentrations of lead in the blood can cause severe and permanent brain damage, especially in children. Lower levels have vague, non-specific symptoms, including headaches, malaise, stomach pains, irritability, and pallor. Damage can be caused to heart, kidney, liver, and nerve and blood tissues.

The major source of lead in the air was the combustion of leaded gasoline in automobiles. This one source accounted for close to 90 percent of the total emissions in the U.S. annually. With the phase-out of leaded gasoline, ambient lead levels have dropped substantially.

Noise Pollution

In addition to the gaseous and particulate pollutants described above, noise is also a pollutant that is transmitted through the air. Noise control standards have been adopted in Oregon for various noise-generating activities. These standards have been set at a level that protects the public from the known adverse health effects of noise, as well as protecting public welfare. In 1991 budget cuts eliminated the noise program at DEQ and enforcement of the standards is now the responsibility of local enforcement officials.

Noise has often been treated as merely a nuisance. However, many studies have now shown that noise has a definite effect on public health and welfare. Exposure to loud noises can result in hearing loss or tinnitus (a high-pitched ringing or roaring in the ears). Exposure of pregnant women to high noise levels has been linked to low birth weights and hearing loss in infants. Noise has also been linked to high blood pressure and, in the elderly, to heart attack and stroke. The noise in cities from cars, trucks, leaf blowers, mowers, chain saws, and a variety of other power tools, toys, and gadgets contributes to irritability and stress. Stress has been identified as a significant cause of disease.

Visibility

Visibility impairment may be caused by meteorological effects (clouds, rain), man-made pollution (open burning, industry), and natural pollution (wildfire, dust storms). The Department monitors visibility conditions in selected Oregon Class I (or pristine) areas during the summer months. Information from the monitoring is used to determine the extent of man-made visibility impairment, and to evaluate the effectiveness of the Department's Visibility Monitoring Program. In 1986, regulations were adopted to minimize visibility impairment in the North and Central Cascade wilderness areas. The goal of the regulations is to reduce the frequency of visibility impairment by 60 to 90 percent over 1982-84 levels.

Sources

Although industry is a source of some air pollution, in Oregon it accounts for less than ten percent of the problems. By far the largest single source of air pollution is gas powered vehicles. Although each individual car or truck contributes relatively small amounts to pollution totals, the large number of vehicles makes their total contribution larger than any other single source. Addressing this problem is difficult because it means modifying how we live, how we design our cities, how we accommodate alternative forms of transportation, and myriad other issues. Unfortunately as we become accustomed to sitting in traffic jams, hearing constant noise, or being deprived of enjoying once pristine vistas, the problems gradually worsen without resolution. As with other forms of pollution, it is necessary to reexamine and change our lifestyles in order to effect significant and lasting changes.

Ambient Air Quality Standards - 2001

TABLE 1

Pollutant	Averaging Time	National Ambient Air Quality Standard (NAAQS) Violation Determination ¹	Federal Standard (NAAQS) Exceedance Level	State Standard Exceedance Level
Carbon Monoxide	1-hour	Not to be exceeded more than once/year.	35 ppm	35 ppm
	8-hour	Not to be exceeded more than once/year.	9 ppm	9 ppm
Lead	Calendar Quarter	Quarterly arithmetic mean	1.5 µg/m ³	1.5 µg/m ³
Nitrogen Dioxide	Annual	Annual arithmetic mean	0.053 ppm	0.053 ppm
Ozone	1-hour	The expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is equal to or less than 1.	0.12 ppm	0.12 ppm
	8-hour	3-year average of the annual 4th highest daily maximum 8-hour average concentration.	0.08 ppm	
PM2.5	24 hour	98th percentile of the 24-hour values determined for each year. 3-year average of the 98 th percentile values.	65 µg/m ³	
	Annual Average	3-year average of the annual arithmetic mean	15 µg/m ³	
PM10	Annual Average	3-year average of the annual arithmetic mean	50 µg/m ³	50 µg/m ³
	24 hour	The expected number of days per calendar year with a 24-hour average concentrations above 150 µg/m ³ is equal to or less than 1 over a 3-year period.	150 µg/m ³	150 µg/m ³
Sulfur Dioxide	Annual Arithmetic Mean	Not to be exceeded more than once per calendar year.	0.03 ppm	0.02 ppm
	24 hour	Not to be exceeded more than once per calendar year.	0.14 ppm	0.10 ppm
	3 hour	Not to be exceeded more than once per calendar year.	N/A	0.050 ppm

Notes: µg/m³ = micrograms of pollutant per cubic meter of air

ppm = parts per million

1) An exceedance of the NAAQS does not necessarily mean a violation has occur which would result in a redesignation of an area. A violation of the NAAQS are used to determine attainment/nonattainment status for an area where monitoring is being conducted.

For the purposes of determining an exceedance of the NAAQS standards, the values are rounded as follows:

Pollutant	Averaging Time	Rounding	Exceedance Value (rounded up)
Carbon Monoxide	1-hour	Nearest 0.1	35.5 ppm or greater
Carbon Monoxide	8-hour	Nearest 0.1	9.5 ppm or greater
Lead	Annual	Nearest 0.1	1.55 $\mu\text{g}/\text{m}^3$ or greater
Nitrogen Dioxide	Annual	Nearest 0.001	0.0535 ppm or greater
Ozone	1-hour	Nearest 0.1	0.125 ppm or greater
Ozone	8-hour	Nearest 0.001	0.085 ppm or greater
PM ₁₀	24-hour	Nearest 10	155 $\mu\text{g}/\text{m}^3$ or greater
PM ₁₀	Annual	Nearest 1	50.5 $\mu\text{g}/\text{m}^3$ or greater
PM _{2.5}	24-hour	Nearest 1	66 $\mu\text{g}/\text{m}^3$ or greater
PM _{2.5}	Annual	Nearest 0.1	15.1 $\mu\text{g}/\text{m}^3$ or greater
Sulfur Dioxide	24-hour	Nearest 0.01	0.145 ppm or greater
Sulfur Dioxide	Annual	Nearest 0.001	0.035 ppm or greater

Air Quality Index

Summary

In 1999 the Air Pollution Index (API) was renamed to the Air Quality Index (AQI). The Air Quality Index (AQI) provides the public with an objective way to assess ambient air quality. The index is derived from the most recent monitoring data and the information simplified to a single value. The descriptors for air quality are: *good*, *moderate*, *unhealthful*, *hazardous*, or *very hazardous*.

On *good* days, the amount of pollution is very low, roughly less than half of the standard, for any of the pollutants measured.

On *moderate* days there may be some visibility impairment and some sensitive materials or crops may be damaged, but no human health effects are directly attributable to the effects of the pollution. *During unhealthful* days, high risk individuals—such as infants and people with asthma, heart disease, or lung disease—may suffer adverse effects. Even healthy individuals may experience discomfort after prolonged exposure to levels at the high end of the *unhealthful* range.

How the AQI is computed

The AQI is reported by the DEQ for five cities in Oregon: Portland, Eugene, Medford, Salem, and Bend. It is computed twice daily (at 10 a.m. and 4 p.m.) using monitoring data for the preceding 24-hour period and data from midnight to the current hour (either 10 a.m. or 4 p.m.). Air pollution data from each monitor in an area (Portland, Eugene, Medford, Salem, or Bend) is reduced to an index value using a mathematical procedure as prescribed by the U.S. Environmental Protection Agency for national uniformity.

For each area, the largest index value found is reported as the AQI for the area, along with the pollutant that was responsible for that reading, a general description of the location, and the air quality category (e.g. *good*, *moderate*, etc.). These values are reported for both the previous 24-hours and the values available for the day.

The AQI data is available by telephone recording on normal work days. It is also available on the Internet and updated twice daily (see back cover for phone numbers and Internet address).

Since the data is collected and used prior to validation, there can be differences in indicated air pollution levels from the final data that is used to compare to the standards for legal purposes. In some cases, estimates of pollutant levels are derived from other data—for example, particulate concentrations are estimated from light scattering data. For these reasons, there may be differences between the number of days finally reported as exceeding an air quality standard and the number of days the AQI exceeded the *moderate* range.

The table below shows the relationship between the AQI and possible air pollution activities initiated by the DEQ as part of its Emergency Action Plan for dealing with episodes of extreme air pollution. An AQI of 100 means the air quality just meets the National Ambient Air Quality Standard (NAAQS) levels. DEQ's long-term goal is to develop strategies to keep pollution levels from going above the standards. A value of 200 or more may result in the declaration of an Air Pollution Alert, if it is determined that the conditions causing the levels are likely to persist. During

an Alert, more intensive monitoring may be initiated and notices advising the public of air quality levels and potential health effects are issued.

If the AQI exceeds 300 and conditions causing the elevated levels are forecast to continue, an Air Pollution Warning may be declared. At the Warning level, specific sources of air pollution (such as industry) may be requested to curtail non-essential operations and additional cautions are issued to the public.

At the level of 400, and Air Pollution Emergency may be deemed to exist and emergency measures may be enacted to prevent serious health impacts to the entire population. At the Emergency levels, many air pollution sources would be required to cease or severely curtail operations in an attempt to decrease pollution levels.

AIR QUALITY INDEX, (AQI)							
AND							
EPISODE STAGES							
Episode Stage	Within Standard		≥ Standard	ALERT	WARNING	EMERGENCY	SIGNIFICANT HARM
API range	0-50	51-100	101-150	151-200	201-300	301-400	401-500p
<i>API Descriptor</i>	<i>Good</i>	<i>Moderate</i>	<i>Unhealthy For Sensitive Groups I</i>	<i>Unhealthy</i>	<i>Very Unhealthy</i>	<i>Hazardous</i>	<i>Very Hazardous</i>
PM _{2.5} µg/m ³ (24-hr avg)	0-15.4	15.5-40.4	40.5-65.4	65.5-150.4	150.5-250.4	250.5-350.4	350.5-500.4
PM ₁₀ µg/m ³ (24-hr avg)	0-54	55-154	155-254	255-354	355-424	425-504	505-604
CO ppm (8-hr avg)	0.0-4.4	4.5-9.4	9.5-12.4	12.5-15.4	15.5-30.4	30.5-40.4	40.5-50.4
Ozone ppm (1-hr avg)	n/a	n/a	0.125-0.164	0.165-0.204	0.205-0.404	0.405-0.504	0.505-0.604
Ozone ppm (8-hr avg)	0.000-0.064	0.065-0.084	0.085-0.104	0.105-0.124	0.125-0.374	see 1-hour stnd	see 1-hour stnd
SO ₂ ppm (24-hr avg)	0.000-0.034	0.035-0.144	0.145-0.224	0.225-0.304	0.305-0.604	0.605-0.804	0.805-1.004
NO ₂ ppm(24-hr avg)	n/a	n/a	n/a	n/a	0.65-1.24	1.25-1.64	1.65-2.04

Appendix 1

Air Quality Data Summaries for 1990 through 2000

The following pages present ambient air quality data summaries for the State of Oregon. These summaries represent the most recent information available to the Department.

The Department's Air Quality Surveillance Network collects data throughout the state for a number of pollutants and meteorological parameters. The Department uses air sampling methods designated by the U.S. Environmental Protection Agency as Federal Reference Methods to judge attainment with air quality standards. The air quality data summaries for particulate and gaseous pollutants are tabulated to indicate the annual statistical summary as well as the number of days the pollutant level exceeded the value established as the ambient air quality standard. If Oregon has more stringent standards than the federal standards, compliance with state standards means compliance with federal. The following notes apply to the summary tabulation:

IA. PARTICULATE (PM₁₀ and PM_{2.5})

- A. Depending on the area in which the sampler is located, from 60 to 365 24-hour samples per year are taken on a set schedule.
- B. The annual average of the quarterly mean averages is compared to the annual standard of 50 µg/m³ for PM₁₀, and 15 µg/m³ for PM_{2.5}.
- C. For PM₁₀ the maximum and second highest value of all samples collected and dates of occurrence are included. For PM_{2.5} the maximum and 98th percentile values of all samples collected are included.

IB. CARBON MONOXIDE (CO)

- A. Compliance with the one-hour health standard of 35 ppm is determined by the second highest one-hour average at any single site during a calendar year.
- B. Compliance with the eight-hour health standard of 9 ppm (rounded to the nearest 1 ppm) is determined by the second highest eight-hour average during the calendar year for any single site.
- C. The number of days on which the eight-hour average was greater than 9 ppm is shown to indicate the frequency that the level related to the health standard was exceeded.

IC. OZONE (O₃)

- A. For the old standard compliance with the one-hour air quality standard is determined on a statistical basis. An average of only one exceedance per year based on the most recent three years of data is allowed.
- B. The eight-hour standard requires the 3-year average of the 4th highest 8-hour average to be less than or equal to 0.084 ppm.
- C. The number of days with hourly maximums greater than 0.12 ppm (rounded to the nearest 0.01 ppm) and number of days with 8-hour averages greater than 0.084 ppm are tabulated.

ID. OXIDES OF NITROGEN (NO) AND HYDROCARBONS (HC)

- A. The Nitrogen dioxide air quality standard is 0.053 ppm annual arithmetic mean.
- B. Nitric oxide data, along with non-methane hydrocarbon data, is used in modeling the potential for ozone formation. There is no air quality standard for NO.
- C. Hydrocarbon data is for total hydrocarbons (including methane). The federal non-methane standard was revoked on Jan. 5, 1983.

IE. SULFUR DIOXIDE (SO₂)

- A. Oregon's 24-hour standard of 0.10 ppm may only be exceeded once per calendar year.
- B. Compliance with Oregon's annual standard of 0.02 ppm is determined using the arithmetic mean.

IF. LIGHT SCATTERING

- A. No air quality standards have been adopted. Light scattering is used as a measurement of visibility reduction. In areas where wood stove curtailment calls are made, light scattering is correlated to fine particulate levels and is used to estimate fine particulate levels when actual particulate measurements are not available.

IG. TOTAL SUSPENDED PARTICULATES (TSP)

- A. Federal standards for TSP have been superseded by the PM₁₀ standard (see 1A above). Oregon retains the 24-hour standard of 150 µg/m³ per day, the annual arithmetic mean of 50 µg/m³, and the annual geometric mean of 60 µg/m³.

IH. LEAD (Pb)

- A. Compliance with the federal and state standard is based on a calendar quarter average concentration of 1.5 µg/m³.

II. OTHER DATA: SUPPLEMENTAL AIR MONITORING STUDIES AND DATA

- A. This section is a record of Department of Environmental Quality ambient air monitoring not routinely done for compliance purposes. The section is organized alphabetically by location. The reports, studies, and data indicated are available by request from DEQ.

DEQ Air Monitoring Methods

IA. FINE PARTICULATE MATTER (PM₁₀ and PM_{2.5})

High-Volume Sampler: PM₁₀ samples are collected with high volume samplers which draw air through a size-separating inlet then a pre-weighed fiber filter at about 40 cubic feet per minute. After 24 hours of sampling, the filter is removed and reweighed. The difference between the starting weight and the ending weight is the sample weight and is expressed as micrograms of fine particulate per cubic meter of air sampled.

Medium-Volume Sampler: PM₁₀ and PM_{2.5} samples are collected with medium volume samplers which draw air through pre-weighed fiber filters at about 4 cubic feet per minute. The samplers can collect particles on two separate filters simultaneously allowing for chemical analysis of particulate matter at a later date. After 24 hours of sampling, the sampler automatically sequences to the next filter set and begins taking another 24-hour sample. The difference between the starting weights and ending weights of the filters is the sample weight and is expressed as micrograms per cubic meter of air sampled. Samples are collected on set schedules.

Federal Reference Method (FRM) samplers: PM₁₀ and PM_{2.5} samples are collected with the FRM samplers which draw air through a size-separating inlet then a pre-weighed fiber filter at about 16.7 liters per minute. After 24 hours of sampling, the filter is removed and reweighed. The difference between the starting weight and the ending weight is the sample weight and is expressed as micrograms of fine particulate per cubic meter of air sampled.

IB. CARBON MONOXIDE: Nondispersive Infrared (NDIR)

Infrared energy from a lamp is passed through a cell containing the gas sample to be analyzed and simultaneously through a reference cell containing a non-absorbing gas. Carbon monoxide in the sample absorbs some of the energy, creating an out-of-balance condition in the detector. The imbalance is proportional to the amount of carbon monoxide in the sample air and is electronically amplified and recorded.

IC. OZONE: Continuous Methods

Ultraviolet Photometry: The air sample enters a chamber with an ultraviolet lamp at one end and detector at the other. The ozone in the sample stream absorbs the ultraviolet light at a specific wavelength. The amount

absorbed is proportional to the amount of ozone in the air stream. The detector then sends an amplified signal to the recorder.

Chemiluminescence Detection: This method is based on the intensity of light emissions resulting from the reaction between ozone and ethylene. Air is pumped into a chamber, mixed with ethylene and the light emissions are detected by a photomultiplier tube, amplified, and recorded.

ID. HYDROCARBONS: Chromatographic Separation and Flame Ionization Detection (GC/FID)

After separation by chromatographic techniques, methane and other hydrocarbons are separately measured using a Flame Ionization Detector. The sample is burned in a hydrogen flame and the carbon-containing compounds form ions which result in a current when voltage is introduced across the flame. The ion current is electronically detected, amplified, and recorded.

IE. OXIDES OF NITROGEN: Chemiluminescent Detection

The air sample is continuously pumped into two paths within the analyzer, one leading through a converter to reduce Nitrogen dioxide (NO₂) to Nitric oxide (NO); the other bypasses the converter. Both samples reach reaction chambers where the nitric oxide is detected by its chemiluminescent (light emitting) reaction with ozone. The light emissions are detected by photomultiplier tubes, amplified, and recorded.

IF. SULFUR DIOXIDE: Continuous Methods

Pulsed Fluorescence: The air sample enters a chamber which is irradiated by an ultraviolet lamp, causing sulfur dioxide in the sample stream to fluoresce. The fluorescence which is proportional to the amount of sulfur dioxide present, is measured and recorded.

Flame Photometric Detection (FPD): Measurements are based on the intensity of spectral lines resulting from excitation of sulfur atoms in a hydrogen flame. Emissions from sulfur in the flame which are proportional to the amount of sulfur dioxide present, are measured and recorded.

IG. LIGHT SCATTERING: Nephelometer

The nephelometer measures a common property of small particles in the air--the ability to scatter light and cause visibility reduction. The instrument measures the scattering coefficient (B_{scat}) of the sample by drawing air into the detection chamber where it is illuminated by a pulsed-flash lamp. The scattered light is measured over a range of angles by means of a photomultiplier tube. This signal is averaged, amplified, and recorded. The amount of light scattered is roughly proportional to the fine particle mass concentration and to observed visibility.

II. TOTAL SUSPENDED PARTICULATE: The Hi-Vol Sampler

Samples are collected with the high-volume samplers which operate somewhat like a vacuum cleaner. The method uses pre-weighed 8" x 10" fiber filters. Air is drawn through the filter at about 50 cubic feet per minute. After 24 hours of sampling (midnight to midnight) the sample filter is removed and reweighed. The sample weight is expressed as micrograms of particulate per cubic meter of air sampled. Samples are routinely taken every sixth day at each sampling site. Additional samples are collected at some sites because of special studies or poor air quality.

II. LEAD: Atomic Absorption Spectroscopy (AA)

Monthly composite or individual TSP samples are acid extracted. Lead in the extract is determined by Atomic Absorption Spectroscopy.

APPENDIX 1A
PM_{2.5} PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >65	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	98 th Percentile (date)†
<u>Albany</u>						
Calapooia Middle School	1999	22	0		38 (11/02)	38 (11/02)
830 SE 24 th	2000	115	0	8.7	44 (11/17)	33 (01/28)
DEQ# 21886	2001	120	0	8.2	37 (11/09)	29 (11/12)
EPA # 410430009						
Started - 10/99						
<u>Bend</u>						
8th & Newport	1999	145	0	8.5	27 (12/27)	24 (03/07)
794 NW Newport	2000	351	0	7.3	40 (11/16)	25 (11/20)
DEQ# 10099	2001	46	0	-	21 (01/08)	21 (01/08)
EPA # 410170113						
Moved to Bend Pump Station 3/02						
Pump Station	2001	286	0	7.2	42 (11/03)	21 (08/15)
35 Portland Rd						
<u>Burns</u>						
267 E Madison Street	1999	15	0	-	29 (12/26)	29 (12/26)
DEQ# 10105	2000	44	0	9.3	38 (12/08)	38 (12/08)
EPA # 410250002	2001	60	0	9.1	39 (01/31)	31 (11/15)
Started - 10/99						
<u>Corvallis</u>						
Corvallis Intermediate School	1999	109	0	7.1	41 (11/05)	32 (01/03)
1310 NW Circle Blvd.	2000	120	0	7.8	38 (11/17)	30 (11/20)
DEQ# 20478	2001	116	0	7.3	33 (11/09)	28 (01/28)
EPA # 410030013						
Started - 11/98						
<u>Eugene</u>						
Amazon Park	1999	347	0	8.6	53 (12/26)	36 (12/22)
499 E 29TH	2000	342	0	9.4	59 (11/18)	26 (12/26)
DEQ# 18524	2001	361	0	9.4	51 (11/09)	34 (01/02)
EPA # 410390060						
Started - 01/99						
<u>Grants Pass</u>						
Sewage Treatment Plant	1999	37	0	-	30 (10/30)	30 (10/30)

APPENDIX 1A
PM_{2.5} PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >65	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	98 th Percentile (date)†
1200 SW Greenwood Ave.	2000	117	0	8.8	35 (11/11)	26 (11/20)
DEQ# 18508	2001	116	0	10.6	55 (11/12)	41 (01/07)
EPA # 410330107						
Started - 9/99						
<u>Klamath Falls</u>						
Peterson School	1999	149	0	10.5	52 (01/06)	44 (12/30)
4856 Clinton St.	2000	346	0	9.6	63 (12/07)	37 (11/19)
DEQ# 10118	2001	322	0	8.9	40 (12/12)	35 (11/12)
EPA # 410350004						
Started-7/98;1/6 to daily-9/99						
<u>La Grande</u>						
Willow Street	1999	39	0	7.7*	18 (01/06)	18 (01/06)
	Q1-Q3					
1601 N Willow						
DEQ# 10148						
EPA # 410610006						
Started-1/99;						
Moved to 3 rd & I -9/99						
* averaged with Q4 3 rd & I						
3 rd & I Street	1999	97	0	-	20 (12/29)	20 (12/23)
DEQ# 21638	2000	327	0	6.5	36 (08/16)	23 (11/19)
EPA # 410610117	2001	337	0	6.7	34 (01/06)	23 (11/07)
Started - 9/99						
Ladd Marsh	1999	17	0		9 (09/21)	9 (09/21)
Foothills Road	2000	47	0	6.7	39 (08/16)	39 (08/16)
DEQ# 10147	2001	51	0	4.7	16 (01/19)	14 (08/17)
EPA # 410619103						
Started - 9/99						
<u>Lakeview</u>						
Center and M Street	1999	156	0	8.6	60 (01/06)	37 (02/11)
DEQ# 10123	2000	320	0	7.3	51 (12/29)	37 (12/07)
EPA # 410370001	2001	351	0	7.2	37 (01/31)	29 (01/18)
Started-7/98;1/6 to daily - 9/99						
(Lakeview cont.)						
Grange Hall	1999	19	0		13 (09/09)	13 (09/09)
DEQ# 10122	2000	58	0	2.7	8 (08/22)	7 (06/29)
EPA # 410370003	2001	61	0	3.0	12 (09/10)	11 (08/11)

APPENDIX 1A
PM_{2.5} PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >65	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	98 th Percentile (date)†
Started - 9/99						
<u>Medford</u>						
Dodge Road	1999	220	0	6.4	20 (01/06)	18 (12/29)
4035 Dodge Road	2000	120	0	5.6	23 (11/23)	18 (11/20)
DEQ# 10106	2001	117	0	5.2	16 (11/18)	13 (01/07)
EPA # 410291001	Started -10/98; daily to 1/3- 9/99					
Grant & Belmont	1999	316	0	11.8	63 (12/25)	49 (12/28)
902 Grant Ave.	2000	347	0	11.4	56 (12/09)	41 (11/17)
DEQ# 20448	2001	347	0	10.6	45 (01/06)	32 (11/09)
EPA # 410290133	Started -10/98; daily to 1/3-9/99					
Welch & Jackson	1999	106	0		61 (12/26)	50 (12/24)
711 Welch St.	2000	331	0	11.4	52 (12/29)	44 (07/04)
DEQ# 10113	2001	356	0	10.2	46 (01/06)	33 (01/16)
EPA # 410292129	Started - 9/99					
<u>Oakridge</u>						
Willamette Cntr.	1999	317	1	13.1	72 (12/27)	57 (12/28)
47674 School St.	2000	362	1	13.1	74 (01/29)	53 (11/22)
DEQ# 18733	2001	355	4	13.8	96 (01/07)	60 (01/27)
EPA # 410392013	Started - 1/99					
<u>Pendleton</u>						
McKay Creek Park	1999	113	0	8.4	33 (12/21)	30 (12/22)
3745 SW Marshall Place	2000	327	0	8.9	42 (11/19)	34 (11/14)
DEQ# 10146	2001	302	0	8.7	40 (11/27)	25 (08/15)
EPA # 410590121	Started -10/98; 1/6 to daily- 9/99					
<u>Portland Area</u>						
Beaverton Highland Park	1999	266	0	7.4	41 (01/01)	29 (10/30)
Middle School	2000	117	0	8.6	42 (11/23)	28 (12/08)
3745 SW Marshall Place	2001	119	0	7.6	29 (11/09)	24 (10/28)
DEQ# 20481						
EPA # 410670111						

APPENDIX 1A
PM_{2.5} PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >65	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	98 th Percentile (date)†
Started -11/98; 1/1 to 1/3-9/99						
Hillsboro	1999	32	0		51 (12/29)	51 (12/29)
15 th & Oak St.	2000	111	0	9.7	38 (12/05)	32 (10/15)
DEQ# 21639	2001	117	0	8.9	47 (11/09)	31 (01/28)
EPA # 410671003						
Started - 9/99						
N.E. Portland (N Roselawn)	1999	117	0		33 (10/30)	24 (12/29)
24 N. Emerson	2000	353	0	9.5	46 (07/04)	29 (10/31)
DEQ# 21889	2001	351	0	8.8	50 (09/19)	23 (01/12)
EPA # 410510246						
Started - 8/99						
N.W. Portland (Forest Heights)	1999	333	0	8.5	35 (01/10)	22 (12/31)
1706 NW 24th St.	2000	336	0	9.2	36 (11/12)	28 (02/18)
DEQ# 18399	2001	359	0	8.3	30 (12/07)	22 (01/10)
EPA # 410510244						
Started - 12/98						
S.E. Portland	1999	331	1	8.8	71 (01/05)	27 (12/14)
5824 SE Lafayette	2000	351	1	9.6	104 (07/04)	27 (12/19)
DEQ# 10139	2001	347	0	8.6	35 (12/07)	25 (01/31)
EPA # 410510080						
Started - 7/98						
Sauvie Island	1999	220	0	6.5	34 (01/05)	23 (01/04)
Social Security Beach	2000	118	0	7.0	19 (11/17)	18 (11/20)
DEQ# 14152	2001	116	0	6.2	20 (11/12)	13 (03/23)
EPA # 41090004						
Started - 8/98						
1/1 to 1/3- 7/99						
<u>Saginaw</u>						
Delight School	1999	115	0	6.8	25 (10/30)	21 (11/02)
79980 Delight Valley School Rd	2000	114	0	6.7	21 (11/17)	19 (11/14)
DEQ# 18315	2001	119	0	7.0	27 (11/12)	17 (10/04)
EPA # 410391007						
Started - 1/99						
<u>Salem</u>						

APPENDIX 1A
PM_{2.5} PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >65	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	98 th Percentile (date)†
Salem General Hospital 867 Medical Center Drive DEQ# 20480 EPA # 410470040 Started - 1/99	1999	113	0	7.5	38 (11/05)	26 (10/30)
	2000	121	0	8.9	33 (11/20)	29 (12/08)
	2001	122	0	8.2	49 (11/09)	33 (01/16)
<u>Between Salem & Portland</u>						
North Marion 20167 Grimm Rd. NE Aurora DEQ# 20479 EPA # 410470109 Ran 1/99 - 7/99	1999	151	0		30 (01/04)	18 (01/06)
Between Salem & Portland Butteville - Schultz Road DEQ# 21251 EPA # 410470110 Started - 7/99	1999	48	0	6.7*	37 (10/30)	37 (10/30)
	2000	119	0	7.1	29 (12/08)	23 (10/27)
	2001	120	0	6.7	28 (11/09)	18 (11/12)
*Butteville & N Marion High combined for annual average.						
<u>Springfield</u>						
875 N 7 th DEQ# 18734 EPA # 410391061 Started - 11/99	1999	43	0		33 (12/28)	33 (12/28)
	2000	352	0	8.8	37 (11/18)	30 (11/22)
	2001	349	0	8.6	52 (12/06)	27 (11/08)
<u>The Dalles</u>						
Cherry Heights 1112 Cherry Heights Rd DEQ# 21252 EPA # 410650007 Started - 12/99	1999	3	0			
	2000	53	0	9.9	36 (11/20)	30 (01/07)
	2001	61	0	7.4	42 (11/09)	19 (11/03)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
<u>Bend</u>						
Kenwood School	1991	202	0	28.1	136 (02/05)	116 (02/06)
701 NW Newport	1992	68	0	32.6	112 (02/12)	85 (01/21)
DEQ# 10097	1993	19	0	-	101 (12/27)	86 (01/31)
EPA# 410170003	1994	5	0	-	92 (01/20)	66 (02/01)
Discontinued 2/94						
8th & Newport	1992	148	0	-	125 (02/11)	103 (02/12)
794 NW Newport	1993	202	0	36.1	141 (02/01)	115 (03/06)
DEQ# 10099	1994	201	0	31.1	145 (12/21)	142 (01/18)
EPA# 410170113	1995	206	0	26.8	96 (02/20)	82 (12/18)
	1996	207	1	29.5	155 (02/16)	123 (02/13)
	1997	202	0	25.8	89 (01/08)	87 (02/15)
	1998	166	0	22.8	86 (01/08)	58 (12/23)
	1999	146	0	25.5	94 (01/04)	75 (01/05)
Moved to Pump Station 3/02	2000	149	1	25.2	159 (02/07)	114 (01/28)
	2001	50	0	-	71.4 (02/14)	69.8 (01/01)
Pump Station						
35 Portland Ave	2001	114	0	-	111.7 (11/09)	73.0 (01/01)
DEQ# 24172						
EPA# 410170120						
<u>Burns</u>						
267 E Madison Street	1996	129	0	24.7	68 (02/12)	67 (02/15)
	1997	137	0	25.8	72 (03/30)	59 (01/08)
DEQ# 10105	1998	170	0	24.7	81 (04/29)	58 (01/20)
EPA# 410250002	1999	144	0	25.2	62 (01/29)	61 (01/09)
	2000	145	0	21.9	54 (12/08)	54 (02/07)
	2001	116	0	20.8	64 (01/22)	54 (01/31)
<u>Central Point</u>						
City Shops	1991	39	0	-	154 (01/02)	142 (01/05)
399 S 5 th	1992	75	0	-	90 (01/15)	88 (01/23)
Discontinued 1/94	1993	60	0	-	91 (12/22)	83 (12/23)
DEQ# 18383	1994	27	0	-	46 (01/29)	43 (01/28)
EPA# 410298002						
<u>Cottage Grove</u>						
Harrison School	1991	55	0	29.8	132 (01/30)	71 (01/06)
S. 10 th	1992	60	0	26.6	69 (01/19)	60 (10/15)
	1993	60	0	26.2	68 (11/27)	67 (11/09)
DEQ# 18515	1994	61	0	22.7	109 (02/01)	57 (12/10)
EPA# 410399002	1995	61	0	22.3	93 (01/03)	46 (02/26)
(Cottage Grove cont.)	1996	61	0	19.0	52 (11/11)	49 (02/27)
	1997	61	0	20.2	75 (01/16)	54 (01/28)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
	1998	58	0	17.3	51 (09/02)	50 (04/29)
	1999	60	0	18.9	48 (10/21)	40 (11/02)
	2000	62	0	17.8	42 (11/28)	40 (11/23)
	2001	61	0	17.0	42 (12/27)	37 (11/09)
Eugene						
Lane Comm College	1991	59	0	27.5	95 (01/06)	73 (01/30)
1059 Willamette	1992	61	0	24.9	61 (01/19)	54 (02/06)
(Lane Comm College cont.)	1993	61	0	25.0	68 (02/06)	59 (09/28)
DEQ# 18320	1994	60	0	21.7	66 (02/01)	42 (08/24)
EPA# 410390013	1995	60	0	20.7	52 (08/31)	49 (01/21)
	1996	57	0	18.5	60 (11/11)	46 (08/07)
	1997	60	0	20.7	52 (01/16)	49 (12/06)
	1998	62	0	16.9	66 (09/02)	57 (04/29)
	1999	60	0	19.0	45 (10/21)	43 (11/02)
	2000	60	0	19.1	48 (11/20)	47 (12/26)
	2001	60	0	18.2	51 (11/09)	35 (09/10)
Key Bank	1991	60	0	38.5	114 (01/30)	101 (10/09)
450 Pacific Hwy 99 N	1992	231	0	24.9	123 (01/20)	98 (02/05)
DEQ# 18522	1993	212	0	33.6	103 (01/18)	92 (02/01)
EPA# 410390058	1994	197	0	27.6	117 (02/01)	102 (02/02)
	1995	211	0	26.1	84 (11/03)	70 (01/25)
	1996	208	0	22.5	70 (02/13)	64 (02/14)
	1997	200	0	21.1	85 (01/15)	62 (10/21)
	1998	207	0	19.2	69 (09/02)	68 (04/29)
	1999	231	0	21.0	77 (10/22)	64 (10/21)
	2000	195	0	20.2	73 (03/30)	50 (11/22)
	2001	193	0	19.7	66 (11/09)	62 (11/10)
Amazon Park	1991	15	0	-	73 (10/03)	62 (10/09)
499 E 29 th	1992	61	0	24.9	101 (01/19)	55 (01/06)
2018060	1993	61	0	23.6	70 (11/27)	64 (02/06)
	1994	61	0	20.6	71 (02/01)	46 (10/29)
	1995	61	0	19.5	63 (11/03)	57 (01/21)
DEQ# 18524	1996	61	0	16.9	61 (11/11)	45 (02/03)
EPA# 410390060	1997	61	0	18.7	54 (12/06)	53 (01/16)
	1998	61	0	14.9	61 (09/02)	50 (04/29)
	1999	58	0	18.6	55 (12/26)	42 (10/21)
	2000	60	0	17.8	55 (11/20)	52 (12/26)
	2001	61	0	17.9	60 (11/09)	35 (10/04)
Santa Clara						
200 Santa Clara Avenue	1994	355	0	19.8	107 (02/06)	100 (02/05)
DEQ# 18736	1995	349	0	17.8	68 (11/03)	63 (01/21)
EPA# 410390063	1996	364	0	17.1	59 (02/13)	57 (08/23)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)‡
Discontinued 06/97	1997	30	0	-	56 (01/16)	32 (05/10)
<u>Grants Pass</u>						
Sewage Treatment Plant	1998	11	0		38 (11/13)	23 (12/19)
1200 SW Greenwood Ave.	1999	51	0	18.8	43 (10/21)	43 (06/11)
DEQ# 18508	2000	107	0	15.8	40 (11/21)	40 (12/27)
EPA# 410330107	2001	144	0	16.1	55 (11/12)	50 (11/09)
Started 10/99						
(Grants Pass cont)	1991	206	0	31.0	141 (01/03)	138 (01/02)
11th & K St	1992	170	0	28.0	95 (01/19)	85 (01/20)
	1993	109	0	30.5	97 (12/27)	76 (01/29)
DEQ# 10115	1994	101	0	30.4	76 (02/05)	75 (02/02)
EPA# 410330008	1995	61	0	22.3	45 (10/30)	41 (02/08)
	1996	59	0	20.0	61 (11/11)	40 (02/15)
	1997	59	0	22.1	73 (01/16)	47 (10/25)
Discontinued 06/98	1998	30	0	-	57 (04/29)	32 (03/06)
Beacon & Madrone	1992	88	0	-	104 (11/12)	88 (11/16)
DEQ# 18395	1993	209	0	27.2	117 (12/28)	114 (12/27)
EPA# 410330112	1994	206	0	22.2	86 (02/03)	85 (02/02)
Discontinued 4/95	1995	94	0	20.2	48 (02/09)	47 (01/20)
Corner lot	1993	15	0	-	132 (12/27)	101 (11/15)
720 NE 11 th	1994	60	0	28.4	92 (02/01)	79 (12/04)
	1995	138	0	18.8	77 (11/04)	62 (11/03)
DEQ# 10116	1996	182	0	18.9	65 (11/12)	62 (11/11)
EPA# 410330113	1997	148	0	21.5	89 (01/15)	88 (01/16)
	1998	176	0	18.1	62 (12/23)	51 (11/13)
Discontinued 4/00	1999	146	0	19.9	43 (11/11)	41 (10/21)
	2000	55	0	-	43 (01/29)	37 (01/28)
<u>Hermiston</u>						
Pump Station	2001	124	0	23.0	55 (10/04)	52 (05/19)
<u>Klamath Falls</u>						
Peterson School	1991	196	7	37.6	247 (01/05)	225 (01/06)
4856 Clinton St	1992	221	0	31.3	119 (01/15)	115 (01/23)
	1993	206	0	31.7	137 (01/27)	128 (01/28)
DEQ# 10118	1994	202	0	30.1	104 (02/01)	104 (02/02)
EPA# 410350004	1995	212	0	20.4	67 (02/27)	66 (01/16)
(Klamath Falls Cont.)	1996	210	0	21.0	107 (12/19)	86 (01/13)
	1997	171	0	21.7	85 (01/07)	82 (01/09)
	1998	175	0	19.3	86 (12/11)	80 (12/23)
	1999	151	0	19.8	84 (01/05)	82 (01/06)
	2000	146	0	17.7	94 (12/06)	93 (12/07)
	2001	146	0	18.9	82 (01/03)	62 (01/04)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
Miller Island	1991	13	0	-	62 (10/15)	26 (11/08)
1211 Miller Is	1992	60	1	31.3	221 (01/31)	81 (08/04)
	1993	39	0	26.2	103 (05/19)	56 (12/27)
DEQ# 10120	1994	59	0	26.7	60 (12/22)	59 (08/24)
EPA# 410350013	1995	60	0	18.1	59 (11/17)	44 (10/30)
	1996	47	0	15.5	80 (04/15)	43 (05/03)
(Miller Island cont.)	1997	51	0	16.8	58 (10/01)	39 (07/15)
	1998	47	0	13.2	57 (04/29)	35 (09/08)
Discontinued 11/99	1999	30	0	-	34 (03/19)	34 (05/24)
Wocus Marsh	1991	63	0	-	49 (11/16)	35 (11/03)
10500 Hwy 140	1992	186	0	24.6	93 (08/12)	92 (08/13)
	1993	172	0	18.0	112 (11/22)	103 (11/21)
	1994	174	0	16.6	56 (09/25)	55 (08/24)
DEQ# 10121	1995	205	0	15.5	74 (10/19)	61 (10/17)
EPA# 410350014	1996	199	0	18.8	83 (10/08)	70 (10/09)
	1997	198	0	12.9	55 (10/30)	53 (10/14)
	1998	182	0	14.2	56 (04/29)	43 (10/23)
Discontinued 12/99	1999	153	0	14.8	48 (10/21)	46 (10/12)
La Grande						
Bond Lane	1991	38	0	-	23 (12/25)	22 (12/24)
63902 Bond Lane	1992	169	0	21.1	86 (05/08)	57 (03/25)
DEQ# 18391	1993	176	0	24.6	71 (10/04)	65 (09/28)
EPA# 410619102	1994	173	0 ¹	23.2	91 (10/25)	89 (09/23)
Discontinued 11/95	1995	131	0	18.8	58 (01/05)	52 (09/22)
Ladd Marsh	1995	28	0	-	20 (12/26)	17 (12/28)
Foothills Road	1996	153	0	11.0	44 (02/01)	43 (02/02)
DEQ# 10147	1997	183	0	13.0	53 (10/01)	34 (08/20)
EPA# 410619103	1998	170	0	11.1	71 (04/29)	34 (09/02)
Discontinued 12/99	1999	124	0	12.2	64 (09/15)	46 (09/30)
Willow Street	1991	341	1	37.5	173 (01/28)	139 (01/29)
1601 N Willow	1992	156	0	33.6	119 (02/03)	100 (12/24)
	1993	188	0	35.7	148 (12/27)	121 (11/10)
DEQ# 10148	1994	163	0	32.1	116 (02/03)	110 (02/04)
EPA# 410610006	1995	153	0	27.3	122 (01/05)	98 (10/28)
	1996	166	0	28.6	146 (02/12)	121 (02/14)
	1997	183	0	27.6	89 (01/14)	79 (02/10)
	1998	175	0	21.5	88 (04/29)	59 (01/20)

¹ The La Grande Bond Lane site recorded two values above the 24-hr Standard of 150 µg/m³; 197 (11/22) and 177 (12/10). DEQ received Special Event Status for the two values because they occurred under unusual conditions.

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
	1999	132	0	22.0	96 (01/05)	89 (01/04)
	2000	133	0	21.0	87 (01/18)	71 (12/05)
	2001	142	0	20.7	82 (01/06)	76 (02/03)
<u>Lakeview</u>						
Center & M	1991	79	3	-	220 (12/14)	217 (12/16)
	1992	225	1	31.7	155 (01/09)	145 (01/15)
DEQ# 10123	1993	213	4	31.2	256 (01/27)	218 (01/26)
EPA# 410370001	1994	208	2	28.1	184 (01/19)	168 (01/18)
	1995	213	0	20.6	83 (12/27)	81 (12/26)
	1996	210	0	20.3	88 (12/19)	68 (02/14)
	1997	202	0	19.5	99 (12/29)	87 (12/12)
	1998	175	0	17.8	110 (12/16)	74 (12/17)
	1999	142	0	20.2	95 (01/05)	94 (01/04)
	2000	153	0	16.5	106 (12/29)	101 (12/28)
No data for Oct – Dec	2001	86	0	-	94 (01/03)	94 (01/04)
Vernon School						
DEQ# 18397	1993	94	0	-	19 (10/26)	19 (11/10)
EPA# 410370002	1994	201	0	10.0	38 (02/11)	38 (02/24)
Discontinued 11/95	1995	166	0	8.7	24 (10/06)	20 (10/25)
Lakeview Grange Hall	1996	45	0	-	26 (08/19)	22 (08/13)
DEQ# 10122	1997	148	0	8.0	21 (10/01)	20 (10/27)
EPA# 410370003	1998	171	0	8.0	57 (04/29)	26 (12/20)
	1999	140	0	8.8	30 (07/11)	30 (08/04)
Discontinued 01/00	2000	5	0	-	6 (01/05)	5 (01/01)
336 N “L” Street	1993	20	1	-	159 (11/09)	140 (11/27)
1906002	1994	52	1	45.8	173 (01/20)	135 (01/14)
	1995	59	0	37.8	103 (02/20)	100 (10/24)
DEQ# 10124	1996	61	0	29.3	80 (02/15)	73 (02/03)
EPA# 410376002	1997	61	0	32.4	110 (12/12)	92 (12/30)
Discontinued 12/99	1998	59	0	26.1	78 (11/13)	75 (04/29)
	1999	59	0	31.5	111 (01/06)	91 (09/09)
Freemont School						
DEQ# 18396	1993	21	0	-	98 (11/27)	92 (12/21)
EPA# 410376003	1994	27	0	25.5	99 (01/14)	94 (01/20)
Discontinued 6/94						
<u>Medford</u>						
Jackson Cnty Courthouse	1991	61	0	33.9	131 (01/30)	119 (01/06)
Main & Oakdale	1992	56	0	30.2	87 (01/13)	67 (02/06)
DEQ# 10110	1993	51	0	32.4	75 (11/27)	74 (11/21)
EPA# 410293001	1994	60	0	29.2	69 (12/10)	68 (01/20)
	1995	61	0	21.8	40 (10/30)	40 (11/05)
	1996	61	0	20.3	52 (11/11)	44 (10/30)
	1997	53	0	24.8	60 (01/10)	56 (12/30)
	1998	59	0	20.4	61 (04/29)	53 (12/25)
Discontinued 12/99	1999	60	0	24.1	80 (12/26)	76 (01/06)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)‡
Welch & Jackson 1520129 DEQ# 10113 EPA # 410292129	1991	360	3	42.8	163 (01/04)	160 (01/03)
	1992	352	0	35.9	124 (01/15)	113 (08/05)
	1993	359	0	32.6	94 (12/22)	92 (12/23)
	1994	363	0	30.8	77 (08/12)	77 (12/09)
	1995	295	0	24.7	64 (02/06)	64 (11/03)
	1996	204	0	24.3	91 (12/19)	82 (12/18)
	1997	185	0	26.4	101 (01/09)	85 (12/29)
	1998	182	0	23.9	76 (10/20)	66 (12/23)
	1999	152	0	27.3	98 (01/04)	93 (01/05)
	2000	151	0	23.1	72 (11/18)	68 (11/20)
	2001	140	0	21.8	64 (01/03)	63 (01/04)
Dodge Road 4035 Dodge Road DEQ# 10106 EPA # 410291001	1991	122	0	16.6	37 (01/06)	35 (10/15)
	1992	347	0	14.2	63 (08/04)	62 (08/05)
	1993	349	0	13.1	46 (11/10)	41 (11/09)
	1994	348	0	13.5	104 (08/25)	65 (08/27)
	1995	301	0	10.0	28 (11/03)	24 (11/04)
	1996	204	0	11.2	30 (08/25)	29 (10/27)
	1997	170	0	11.9	39 (10/25)	38 (10/24)
	1998	181	0	12.0	39 (04/29)	36 (12/24)
	1999	147	0	13.8	55 (09/30)	33 (10/03)
	2000	145	0	11.2	29 (10/24)	29 (12/31)
	2001	148	0	10.5	23 (01/06)	21 (01/04)
<u>Millersburg</u>						
1805 NE Old Salem DEQ# 18329 EPA# 410430008 Discontinued 12/91	1991	58	0	37.6	106 (10/09)	95 (09/03)
<u>Oakridge</u>						
Willamette Center Trailer DEQ# 18733 EPA# 410392013 (Oakridge Cont.)	1991	204	9	37.0	187 (01/21)	184 (01/27)
	1992	233	2	31.5	178 (01/18)	161 (01/09)
	1993	201	1	32.7	166 (01/31)	151 (12/20)
	1994	212	0	26.2	144 (01/31)	143 (12/30)
	1995	205	0	22.8	142 (01/02)	135 (01/24)
	1996	198	0	20.8	84 (02/03)	78 (12/19)
	1997	165	0	22.2	93 (01/16)	91 (01/14)
	1998	195	0	19.0	78 (02/07)	78 (12/23)
	1999	230	0	20.5	102 (10/11)	93 (12/27)
	2000	207	0	20.0	85 (01/29)	69 (12/06)
	2001	207	0	18.2	104 (01/07)	75 (12/27)
<u>Pendleton</u>						
State Office Bldg 700 SE Emigrant DEQ# 10145 EPA# 410590002	1991	57	1	35.7	220 (10/21)	132 (01/30)
	1992	57	0	30.4	134 (09/03)	57 (03/13)
	1993	55	1	42.2	157 (11/03)	94 (10/04)
	1994	59	0	34.5	78 (12/30)	70 (01/20)
	1995	55	0	28.3	71 (07/02)	70 (02/20)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES		
					MAXIMUM (date)	2ND HIGHEST (date)†	
Temporarily discontinued 8/96-6/97	1996	33	0	-	85 (02/15)	66 (07/26)	
	1997	14	0	-	43 (12/30)	42 (10/19)	
	1998	41	0	26.7	54 (07/22)	54 (08/28)	
	1999	55	0	28.9	81 (05/30)	75 (10/21)	
McKay Creek 3745 SW Marshall	1991	69	1	-	221 (10/16)	143 (10/21)	
	1992	200	0	34.3	109 (01/14)	103 (02/04)	
	1993	185	1	37.6	333 (09/11)	129 (01/26)	
DEQ# 10146 EPA # 410590121	1994	199	0	27.0	100 (01/18)	80 (01/17)	
	1995	202	0	23.4	87 (12/11)	72 (11/07)	
	1996	202	0	23.3	66 (01/10)	60 (01/13)	
	1997	227	0	23.9	70 (01/15)	65 (01/14)	
	1998	191	0	22.9	88 (04/29)	68 (01/13)	
	1999	137	1	25.4	246 (5/12)	107 (02/06)	
	2000	136	0	17.8	47 (11/20)	45 (11/18)	
	2001	144	0	18.3	51 (02/01)	46 (10/04)	
	<u>Portland</u>						
	Carus 13575 Spangler Rd DEQ# 10093 EPA# 410050004	1991	43	0	-	46 (10/11)	46 (10/15)
1992		57	0	16.0	43 (03/25)	40 (03/13)	
1993		60	0	15.0	38 (09/28)	37 (09/10)	
1994		61	0	13.2	30 (09/23)	27 (10/29)	
1995		59	0	11.4	25 (10/06)	24 (09/24)	
1996		58	0	14.7	40 (08/25)	39 (08/13)	
1997		60	0	14.2	37 (01/16)	33 (08/14)	
1998		57	0	12.8	59 (04/29)	36 (07/28)	
1999		59	0	14.9	34 (9/21)†	32 (10/21)	
Central Fire Station 55 SW Ash DEQ# 10136 EPA# 410510015 (Portland Cont.)		1991	61	0	28.8	154 (01/30)	72 (10/14)
	1992	59	0	25.6	65 (03/25)	62 (03/13)	
	1993	60	0	28.9	71 (10/28)	64 (11/09)	
	1994	57	0	25.6	58 (01/20)	54 (10/17)	
	1995	59	0	22.7	53 (02/20)	43 (02/08)	
	1996	61	0	22.6	48 (02/15)	40 (08/13)	
	1997	58	0	24.9	50 (09/25)	46 (12/18)	
	1998	57	0	21.2	76 (04/29)	42 (07/28)	
	1999	56	0	23.7	65 (10/21)	45 (09/21)	
	2000	12	0	-	51 (02/18)	36 (03/01)	
Discontinued 03/00	1991	203	2	25.3	194 (01/29)	159 (01/30)	
	1992	200	0	21.5	65 (03/10)	61 (01/12)	
	1993	206	0	24.4	103 (11/14)	99 (11/07)	
	1994	207	0	21.5	64 (10/17)	61 (10/18)	
	1995	197	0	19.1	64 (02/10)	58 (02/12)	
	1996	237	0	20.0	95 (01/01)	70 (10/27)	
	1997	198	0	19.0	46 (10/21)	46 (10/22)	
	1998	179	0	18.7	70 (04/29)	47 (10/23)	

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
	1999	130	0	16.4	75 (01/05)	63 (01/04)
	2000	150	0	17.1	52 (02/18)	45 (07/05)
	2001	183	0	14.6	45 (02/01)	44 (12/07)
Roosevelt High 6941 N Central DEQ# 10135 EPA# 410510003	1991	57	1	25.9	183 (01/30)	75 (10/15)
	1992	58	0	20.6	61 (03/13)	52 (03/25)
	1993	56	0	24.5	68 (10/28)	68 (11/09)
	1994	58	0	22.5	49 (01/20)	40 (10/17)
	1995	60	0	19.3	38 (02/14)	35 (10/24)
	1996	60	0	20.0	42 (09/18)	41 (07/26)
	1997	61	0	21.3	43 (09/25)	39 (10/25)
	1998	61	0	17.7	75 (04/29)	38 (05/05)
	1999	59	0	20.1	48 (10/21)	43 (01/06)
Discontinued 12/99	1991	53	1	36.3	173 (01/30)	73 (10/15)
	1992	61	0	29.9	74 (03/13)	74 (10/27)
	1993	58	0	34.4	79 (10/28)	74 (11/09)
	1994	57	0	32.3	74 (11/22)	70 (01/20)
	1995	61	0	28.5	70 (02/20)	53 (03/28)
	1996	61	0	27.3	65 (02/15)	51 (11/11)
	1997	59	0	30.2	55 (09/25)	48 (12/18)
	1998	57	0	28.9	87 (04/29)	59 (10/20)
	1999	51	0	27.9	49 (03/19)	49 (09/21)
	2000	58	0	24.1	48 (02/18)	42 (04/12)
	2001	60	0	19.8	45 (10/04)	43 (02/12)
Metzger 10105 SW Hall Blvd DEQ# 10163 EPA# 410670007	1996	83	0	-	70 (01/01)	53 (12/19)
	1997	53	0	-	59 (01/19)	52 (01/08)
	1998	13	0	-	26 (12/31)	19 (01/17)
	1999	5	0	-	52 (01/24)	40 (01/06)
	Discontinued 12/99					
<u>Prineville</u>						
	1994	53	0	-	85 (12/22)	70 (12/21)
Parks Dept NE 5th & Elm DEQ# 18413 Discontinued 1/96	1995	159	0	25.7	78 (10/23)	69 (02/23)
Ochoco School 1000 Madras Hwy DEQ# 18414 Discontinued 9/96	1994	6	0	-	81 (12/23)	80 (12/29)
	1995	50	0	32.4	93 (12/20)	92 (02/09)
	1996	34	0	-	87 (02/15)	70 (01/10)
	Discontinued 9/96					
Fire Department 500 N Belnap DEQ# 18421 Discontinued 12/96	1995	24	0	-	80 (12/06)	78 (12/20)
	1996	145	0	-	90 (02/13)	82 (08/13)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
9th & Fairmont	1996	76	0	-	107 (12/19)	89 (12/18)
DEQ# 18427	1997	117	0	24.3	77 (01/08)	75 (01/07)
Discontinued 03/97						
<u>Roseburg</u>						
Wryn Residence	1991	83	0	28.9	142 (01/30)	123 (01/28)
124 W Cardinal	1992	14	0	-	81 (01/19)	64 (02/06)
DEQ# 18384						
EPA# 410190121						
Discontinued 3/92						
Vine Street	1991	7	0	-	64 (12/26)	44 (12/20)
1623 NE Vine	1992	35	0	-	67 (02/06)	57 (01/19)
DEQ# 18386						
EPA# 410190123						
Discontinued 9/92						
Fullerton School	1991	31	0	-	90 (12/23)	76 (12/25)
2560 W Bradford	1992	150	0	23.7	86 (01/20)	84 (02/04)
DEQ# 18388	1993	164	0	22.0	88 (11/02)	86 (10/09)
Discontinued 10/96	1994	150	0	20.0	93 (02/02)	91 (02/04)
	1995	76	0	16.1	41 (02/09)	36 (03/07)
	1996	37	0	-	35 (02/15)	27 (02/03)
<u>Springfield</u>						
City Hall	1991	58	0	30.6	97 (01/06)	89 (01/30)
255 N 5th	1992	61	0	27.4	56 (05/06)	55 (02/06)
DEQ# 18538	1993	61	0	27.6	66 (09/28)	61 (09/22)
EPA# 410391009	1994	60	0	24.5	75 (02/01)	51 (08/30)
	1995	60	0	21.7	48 (08/31)	45 (01/03)
(Springfield Cont.)	1996	59	0	19.6	58 (11/11)	55 (02/15)
	1997	60	0	21.0	57 (01/16)	49 (12/06)
	1998	60	0	18.8	65 (09/02)	60 (04/29)
	1999	60	0	20.0	55 (09/21)	54 (10/21)
	2000	60	0	20.0	55 (08/22)	45 (11/20)
	2001	60	0	17.0	43 (11/09)	38 (09/10)
Spgfd High Sch	1991	59	0	29.3	99 (01/06)	85 (01/30)
875 N 7th	1992	56	0	27.5	53 (02/06)	53 (05/06)
DEQ# 18734	1993	61	0	25.2	66 (02/06)	61 (11/27)
EPA# 410391061	1994	15	0	-	74 (02/01)	37 (01/14)
Discontinued 3/94						
<u>White City</u>						
Post Office	1991	210	3	44.1	188 (01/05)	166 (01/03)
751 Crater Lk Hwy	1992	193	0	42.3	118 (01/15)	117 (01/24)
1500106	1993	216	0	40.8	126 (12/24)	106 (03/29)
EPA# 410294001	1994	210	0	38.1	105 (12/23)	94 (02/03)

APPENDIX 1B
PM₁₀ PARTICULATE SUMMARY (µg/m³)*

STATION LOCATION AND NUMBER	YEAR	SAMPLE DAYS	DAYS** >150	ARITHMETIC MEAN†	24-HOUR AVERAGES	
					MAXIMUM (date)	2ND HIGHEST (date)†
DEQ# 10107	1995	213	0	31.3	84 (11/04)	76 (01/20)
	1996	207	0	28.6	96 (02/13)	68 (02/12)
	1997	182	0	28.4	78 (12/29)	77 (01/09)
	1998	182	0	27.2	74 (12/23)	70 (04/29)
	1999	144	0	31.6	89 (01/05)	84 (01/04)
	2000	151	0	28.4	73 (11/20)	67 (03/31)
	2001	149	0	27.8	89 (01/02)	80 (01/03)

APPENDIX 1C

CARBON MONOXIDE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	YEAR	OCT-APR AVERAG E	1-HOUR AVERAGES		TIMES** >9ppm	8-HOUR AVERAGES	
			MAXIMUM	2ND HIGH		MAXIMUM (date)	2 ND HIGHEST (date)
<u>Bend</u>							
934 NE 3rd	1991	2.42	17.4	13.0	0	7.4 (01/04)	6.9 (01/23)
DEQ# 10098	1992	2.25	16.4	14.0	0	8.7 (11/16)	6.7 (10/02)
EPA# 410170002	1993	2.22	15.7	15.1	0	8.7 (12/27)	7.4 (12/23)
Discontinued 3/94	1994	1.91	16.4	14.7	0	6.6 (01/18)	5.8 (01/25)
Restarted 11/96	1996	-	8.0	7.3	0	4.9 (12/30)	4.8 (12/20)
	1997	1.74	15.9	9.8	0	5.9 (11/21)	5.6 (01/28)
	1998	1.46	10.1	9.4	0	5.2 (11/30)	4.4 (01/08)
	1999	1.35	9.0	7.7	0	4.8 (12/28)	4.8 (12/27)
	2000	1.45	8.2	7.9	0	4.4 (01/21)	4.2 (11/22)
	2001	1.08	9.7	7.8	0	4.5 (12/28)	3.1 (12/10)
<u>Third Street</u>							
1045 NE 3rd	1994	-	14.7	12.6	0	6.7 (12/22)	5.7 (12/25)
DEQ# 18411	1995	1.38	10.9	10.9	0	7.1 (12/06)	6.9 (12/07)
EPA# 410170114	1996	-	15.5	11.2	0	6.6 (03/01)	5.3 (01/11)
Discontinued 11/96							
<u>Eugene</u>							
Lane Comm Coll.	1991	1.56	9.4	8.6	0	5.5 (02/08)	5.4 (01/31)
1059 Willamette	1992	1.74	8.5	8.3	0	6.5 (01/20)	5.5 (01/09)
DEQ# 18320	1993	1.68	7.7	7.6	0	4.9 (02/08)	4.7 (11/02)
EPA# 410390013	1994	1.52	8.7	7.6	0	6.0 (01/21)	4.5 (02/01)
	1995	1.53	7.4	7.3	0	5.3 (01/20)	4.7 (11/03)
	1996	1.4	7.8	7.3	0	4.6 (01/08)	4.6 (11/01)
	1997	1.55	7.6	7.1	0	4.8 (12/05)	4.7 (12/04)
	1998	1.25	5.7	5.5	0	4.0 (01/31)	3.9 (01/10)
	1999	1.14	7.5	6.9	0	5.0 (01/04)	4.0 (01/05)
	2000	1.25	6.0	5.7	0	3.6 (11/22)	3.5 (11/16)
	2001	1.20	5.7	5.3	0	3.6 (11/09)	3.6 (01/10)
<u>Sacred Heart Hosp</u>							
12555 Hilyard	1991	1.88	10.2	9.7	0	7.9 (01/30)	6.7 (01/31)
	1992	1.93	10.7	9.3	0	6.6 (01/20)	6.4 (01/09)
	1993	1.87	11.9	9.7	0	6.2 (11/02)	5.9 (11/11)
DEQ# 18735	1994	1.85	10.2	9.4	0	6.6 (01/21)	6.4 (02/02)
EPA# 410392062	1995	1.74	9.0	8.3	0	6.4 (01/20)	5.7 (11/03)
	1996	1.54	9.6	9.2	0	6.5 (02/16)	6.3 (02/13)
	1997	1.64	7.8	7.7	0	5.2 (01/27)	5.2 (01/15)
	1998	1.24	7.1	7.0	0	4.6 (10/22)	4.6 (01/10)
	1999	1.27	8.0	7.8	0	6.1 (01/04)	5.6 (01/05)
	2000	1.32	7.8	6.6	0	4.4 (11/17)	4.3 (11/16)
	2001	1.30	6.1	5.5	0	4.2 (11/08)	4.1 (01/10)
<u>Grants Pass</u>							
	1991	2.79	14.9	13.5	0	9.2 (01/02)	9.0 (01/03)

* Parts per million

** Non-overlapping 8-hour averages which exceed 9 ppm when rounded to the nearest whole ppm

APPENDIX 1C

CARBON MONOXIDE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	YEAR	OCT-APR AVERAG E	1-HOUR AVERAGES		TIMES** >9ppm	8-HOUR AVERAGES	
			MAXIMUM	2ND HIGH		MAXIMUM (date)	2 ND HIGHEST (date)
Wing Bldg 215 SE 6th EPA # 410330006	1992	2.51	19.6	11.6	0	8.2 (02/08)	7.4 (02/04)
	1993	2.39	12.9	11.7	0	7.7 (12/09)	7.1 (12/01)
	1994	2.24	9.7	9.3	0	6.6 (02/01)	6.0 (12/09)
	1995	2.10	9.6	9.4	0	7.2 (01/20)	6.4 (02/02)
	1996	1.91	9.5	9.5	0	6.4 (02/02)	6.0 (12/20)
	1997	1.74	8.0	7.7	0	5.3 (01/14)	5.1 (12/05)
	1998	1.74	7.5	7.4	0	4.7 (10/30)	4.6 (11/20)
	1999	1.61	8.5	7.9	0	4.9 (11/11)	4.6 (01/07)
	2000	1.50	8.4	6.6	0	4.5 (11/21)	4.3 (12/27)
	2001	1.53	7.7	7.7	0	5.5 (01/05)	4.7 (11/09)
<u>Klamath Falls</u>							
2306 Hope St DEQ # 10098 EPA # 410170002	1991	2.19	12.9	12.8	1	9.8 (01/05)	8.8 (12/23)
	1992	1.63	10.1	9.7	0	6.4 (12/18)	5.9 (11/14)
	1993	1.59	9.2	8.7	0	6.1 (12/20)	5.9 (11/19)
	1994	1.36	9.0	8.3	0	5.9 (01/14)	5.1 (02/05)
	1995	1.25	8.4	8.3	0	4.2 (02/10)	4.1 (11/14)
	1996	1.22	8.1	7.8	0	4.9 (11/01)	4.8 (01/02)
	1997	1.43	8.0	7.6	0	5.3 (12/29)	5.1 (01/11)
	1998	1.07	6.6	6.4	0	4.7 (12/30)	4.5 (11/13)
	1999	1.20	7.7	7.3	0	4.7 (01/05)	4.5 (12/20)
	2000	1.23	6.7	6.7	0	4.6 (12/07)	4.5 (12/06)
2001	0.92	6.3	5.9	0	3.9 (01/05)	3.5 (01/04)	
<u>Medford</u>							
Brophy Building 10 N Central DEQ # 10111 EPA # 410290009	1991	2.48	13.2	12.0	0	8.3 (01/18)	8.1 (12/06)
	1992	2.04	19.3	9.4	0	7.4 (06/21)	6.4 (01/15)
	1993	2.24	13.0	12.1	0	7.2 (12/23)	6.9 (06/20)
	1994	2.3	18.5	14.8	1	9.7 (06/18)	6.3 (12/23)
	1995	2.21	10.1	10.0	0	5.9 (01/20)	5.3 (02/05)
	1996	2.04	16.1	15.7	0	8.6 (06/15)	6.4 (01/12)
	1997	2.13	12.3	8.4	0	7.3 (06/14)	5.7 (12/05)
	1998	1.98	18.0	16.7	0	9.3 (06/20)	5.2 (01/16)
	1999	1.82	18.7	18.5	1	10.6 (06/19)	5.7 (01/04)
	2000	1.65	24.8	18.8	1	9.9 (06/17)	4.0 (01/07)
2001	1.53	9.9	8.3	0	4.3 (01/03)	4.0 (01/05)	
Rogue Valley Mall 1502 N Riverside DEQ # 10112 EPA # 410290018	1991	2.99	18.5	16.0	3	11.9 (01/04)	10.5 (01/05)
	1992	2.33	14.7	13.1	0	7.4 (02/03)	7.4 (11/13)
	1993	2.30	14.6	14.2	0	8.5 (12/23)	7.5 (11/24)
	1994	2.05	13.1	11.5	0	7.4 (12/23)	6.7 (12/21)

* Parts per million

** Non-overlapping 8-hour averages which exceed 9 ppm when rounded to the nearest whole ppm

APPENDIX 1C

CARBON MONOXIDE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	YEAR	OCT-APR	1-HOUR AVERAGES		TIMES**	8-HOUR AVERAGES	
		AVERAG E	MAXIMUM	2ND HIGH	>9ppm	MAXIMUM (date)	2 ND HIGHEST (date)
	1995	2.07	12.4	10.9	0	6.1 (11/14)	6.0 (12/19)
	1996	2.00	12.3	12.3	0	6.7 (11/01)	6.6 (01/03)
	1997	1.95	10.0	9.9	0	6.3 (01/09)	5.7 (01/11)
	1998	1.68	8.2	8.0	0	5.5 (01/08)	5.3 (10/30)
	1999	1.71	11.3	10.4	0	6.8 (01/05)	6.1 (12/23)
	2000	1.57	8.4	8.2	0	4.8 (12/26)	4.7 (12/28)
	2001	1.34	8.6	7.3	0	4.8 (01/05)	4.6 (11/09)
<u>Portland</u>							
4th & Alder	1991	1.97	14.1	13.7	0	9.0 (02/01)	8.7 (10/11)
DEQ # 10137	1992	1.76	11.1	10.5	0	7.2 (10/23)	6.1 (03/12)
EPA # 410510078	1993	1.73	15.7	11.9	0	6.6 (08/22)	5.8 (11/10)
	1994	1.59	12.0	10.0	0	7.5 (01/20)	6.2 (09/22)
	1995	1.34	9.1	8.3	0	7.1 (10/14)	4.5 (11/14)
	1996	1.36	8.6	8.0	0	6.4 (09/27)	5.7 (09/10)
	1997	1.37	7.8	7.8	0	4.8 (02/24)	4.7 (10/15)
	1998	1.13	8.4	7.1	0	4.6 (03/11)	4.6 (09/30)
	1999	1.23	11.6	9.8	0	7.5 (01/05)	5.5 (10/22)
	2000	1.14	9.3	8.4	0	5.4 (11/17)	4.0 (04/11)
	2001	1.04	6.3	5.9	0	3.6 (08/09)	3.5 (05/31)
SE Lafayette at 58 th	1991	1.12	12.5	12.3	0	8.4 (02/08)	8.1 (01/22)
DEQ # 10139	1992	0.88	7.9	7.7	0	5.8 (03/11)	5.5 (03/10)
EPA # 410510080	1993	0.95	8.5	8.4	0	7.3 (11/07)	6.6 (11/08)
	1994	0.74	9.0	7.5	0	6.1 (11/03)	5.7 (01/17)
	1995	0.69	6.6	6.3	0	5.2 (10/15)	4.7 (02/10)
	1996	0.91	8.4	7.2	0	5.4 (03/02)	5.2 (01/11)
	1997	0.93	6.7	4.9	0	4.1 (03/29)	3.6 (10/28)
	1998	0.73	6.7	5.9	0	3.8 (12/09)	3.2 (12/16)
	1999	0.70	7.4	7.2	0	5.3 (01/04)	4.4 (01/10)
	2000	0.59	6.3	5.0	0	4.1 (02/08)	3.8 (11/02)
	2001	0.65	3.9	3.9	0	3.3 (02/13)	3.2 (03/01)
Postal Bldg 510 SW 3rd	1991	2.31	16.4	15.2	1	10.6 (02/01)	9.2 (10/11)
DEQ # 10141	1992	1.76	12.0	11.6	0	6.5 (01/13)	6.3 (01/21)
EPA # 410510087	1993	1.61	8.5	8.4	0	5.7 (12/09)	5.7 (10/02)
	1994	1.97	10.2	9.9	0	7.4 (01/20)	6.3 (12/16)
	1995	1.74	12.2	9.6	0	6.6 (10/14)	6.3 (12/17)
	1996	1.82	10.6	8.6	0	5.3 (02/07)	5.2 (11/11)

* Parts per million

** Non-overlapping 8-hour averages which exceed 9 ppm when rounded to the nearest whole ppm

APPENDIX 1C

CARBON MONOXIDE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	YEAR	OCT-APR	1-HOUR AVERAGES		TIMES**	8-HOUR AVERAGES	
		AVERAG E	MAXIMUM	2ND HIGH	>9ppm	MAXIMUM (date)	2 ND HIGHEST (date)
	1997	1.68	9.6	7.8	0	5.9 (03/18)	4.8 (12/19)
	1998	1.60	8.1	8.0	0	4.7 (11/17)	4.6 (01/16)
	1999	1.54	12.6	10.4	0	7.3 (01/05)	6.2 (10/21)
	2000	1.43	6.3	6.0	0	3.7 (02/18)	3.6 (01/25)
	2001	1.21	5.4	4.9	0	3.4 (02/01)	3.4 (02/14)
Portland							
82nd & Division	1991	2.56	13.3	12.0	1	10.2 (01/31)	9.0 (10/15)
DEQ# 10142	1992	2.31	11.0	9.9	0	8.0 (03/12)	7.8 (03/11)
EPA# 410510243	1993	2.12	11.7	11.6	0	8.7 (11/08)	8.4 (11/02)
	1994	1.99	9.1	7.8	0	6.8 (11/03)	6.4 (10/08)
	1995	1.54	8.7	7.8	0	7.5 (10/15)	6.6 (10/07)
	1996	1.62	19.8	9.5	0	6.6 (01/11)	6.5 (03/02)
	1997	1.34	12.5	5.9	0	5.1 (12/31)	4.5 (11/08)
	1998	1.28	7.5	6.8	0	4.8 (10/22)	4.4 (12/16)
	1999	1.26	9.0	8.8	0	5.9 (01/10)	5.7 (01/04)
	2000	1.34	6.2	5.6	0	5.3 (11/12)	4.4 (01/06)
	2001	1.19	6.0	5.3	0	4.2 (03/01)	3.9 (02/28)
Salem							
Lancaster Avenue							
690 Lancaster NE	1991	2.35	13.9	12.5	1	9.8 (01/05)	8.0 (12/13)
DEQ# 18376	1992	-	14.9	12.4	0	8.6 (02/04)	8.2 (02/06)
EPA# 410470037							
Discontinued 4/92							
Market & Lancaster	1992	-	7.7	6.4	0	5.0 (11/28)	4.8 (12/05)
1685 Lancaster NE	1993	1.97	14.8	13.2	1	9.7 (11/11)	8.8 (12/28)
	1994	1.82	10.5	10.3	0	9.0 (02/06)	7.8 (02/03)
DEQ# 10131	1995	1.72	10.7	9.8	0	6.2 (11/03)	5.4 (02/03)
EPA# 410470039	1996	1.37	10.5	9.6	0	7.8 (02/15)	7.1 (11/01)
	1997	1.25	8.2	8.1	0	6.2 (11/02)	5.3 (01/15)
	1998	1.15	7.9	7.9	0	4.7 (10/26)	4.6 (10/05)
	1999	1.29	7.7	7.7	0	5.9 (01/05)	5.9 (12/23)
	2000	1.41	8.5	8.4	0	5.5 (11/16)	5.4 (01/18)
	2001	1.19	7.5	7.4	0	6.0 (11/09)	5.1 (11/10)

* Parts per million

** Non-overlapping 8-hour averages which exceed 9 ppm when rounded to the nearest whole ppm

APPENDIX 1D
OZONE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	Year	SUMMER AVERAGE	1-HOUR MAXIMUM (date)	# OF DAYS >0.125 ppm	8-HOUR AVERAGE MAXIMUM	4TH HIGHEST 8-HOUR AVERAGE	# OF DAYS >0.085 ppm	3 YEAR AVG OF 4TH HIGH
Eugene Area								
Amazon Park	1991	0.022	0.089 (07/22)	0	0.073 (07/22)	0.062 (09/05)	0	
DEQ# 18524	1992	0.022	0.099 (08/10)	0	0.082 (07/16)	0.071 (05/24)	0	0.065†
EPA# 410390060	1993	0.017	0.081 (08.02)	0	0.067 (08/02)	0.056 (09/08)	0	0.063†
Restarted 4/91	1994	0.022	0.085 (07/21)	0	0.076 (07/21)	0.068 (07/07)	0	0.065†
	1995	0.020	0.089 (07/17)	0	0.074 (07/17)	0.061 (05/29)	0	0.062†
	1996	0.024	0.111 (07/13)	0	0.098 (07/13)	0.084 (07/12)	3	0.071†
	1997	0.020	0.077 (08/12)	0	0.063 (08/12)	0.057 (07/20)	0	0.067†
	1998	0.022	0.094 (09/01)	0†	0.082 (09/01)	0.073 (07/26)	0	0.071†
	1999	0.020	0.071 (07/11)	0†	0.063 (07/11)	0.057 (07/11)	0	0.062†
	2000	0.018	0.056 (06/26)	0†	0.050 (06/27)	0.047 (07/16)	0	0.059†
	2001	0.022	0.090 (08/09)	0†	0.074 (08/09)	0.062 (05/26)	0	0.055†
Saginaw								
79980 Delight Valley	1991	0.021	0.094 (08/19)	0	0.071 (09/05)	0.063 (08/19)	0	0.066†
School Road	1992	0.023	0.103 (08/10)	0	0.086 (06/22)	0.077 (05/06)	1	0.072†
	1993	0.018	0.084 (09/08)	0	0.068 (08/02)	0.054 (08/01)	0	0.065†
	1994	0.021	0.094 (07/19)	0	0.081 (07/21)	0.070 (07/20)	0	0.067†
DEQ# 18315	1995	0.021	0.090 (07/17)	0	0.077 (07/17)	0.064 (05/29)	0	0.063†
EPA# 410391007	1996	0.025	0.111 (08/09)	0	0.095 (08/09)	0.089 (08/08)	4 ^(?)	0.074†
	1997	0.020	0.077 (08/12)	0	0.070 (08/12)	0.059 (07/27)	0	0.071†
	1998	0.022	0.121 (07/27)	0†	0.095 (09/01)	0.078 (08/03)	2	0.075†
	1999	0.022	0.086 (09/21)	0†	0.072 (07/11)	0.069 (09/21)	0	0.069†
	2000	0.022	0.084 (06/20)	0†	0.073 (06/28)	0.065 (08/08)	0	0.071†
	2001	0.021	0.086 (08/09)	0†	0.076 (08/09)	0.067 (07/09)	0	0.067†

*Parts per million

† The new ozone standard became effective in September 1997. In 1998 1-hour values are no longer evaluated for attainment purposes. The new standard is the 3-year average of the 4th highest value. Data cannot be evaluated with respect to the new standard until the year 2000 when 3 years of data (1997, 1998, and 1999) are available. The 3-year averages shown here are the averages for the year of data and the two previous years, e.g. 1996 is the average of 1994, 1995, and 1996.

(?) There may have been more than 4 values greater than 0.085 ppm.

APPENDIX 1D
OZONE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	Year	SUMMER AVERAGE	1-HOUR MAXIMUM (date)	# OF DAYS >0.125 ppm	8-HOUR AVERAGE MAXIMUM	4TH HIGHEST 8-HOUR AVERAGE	# OF DAYS >0.085 ppm	3 YEAR AVG OF 4TH HIGH
<u>Medford Area</u>								
Phoenix Discontinued 1991	1991	0.023	.073 (07/02)	0	.058 (09/12)	.054 (09/04)	0	0.064†
Talent 7112 Rapp Lane	1992	0.040	0.115 (07/30)	0	0.088 (07/29)	0.082 (07/16)	2	
	1993	0.031	0.090 (09/08)	0	0.069 (08/03)	0.067 (08/02)	0	
	1994	0.036	0.094 (08/25)	0	0.071 (07/23)	0.069 (09/23)	0	0.073†
DEQ# 10109	1995	0.032	0.093 (09/15)	0	0.077 (09/14)	0.072 (09/13)	0	0.069†
EPA# 410290201	1996	0.035	0.125 (08/09)	0	0.087 (08/09)	0.076 (07/10)	1	0.072†
	1997	0.031	0.074 (08/13)	0	0.068 (05/19)	0.063 (07/24)	0	0.070†
	1998	0.035	0.126 (08/04)	1†	0.093 (09/01)	0.086 (07/28)	5	0.075†
	1999	0.035	0.078 (08/26)	0†	0.067 (09/22)	0.065 (08/17)	0	0.071†
	2000	0.034	0.080 (08/03)	0†	0.071 (08/03)	0.069 (06/28)	0	0.073†
	2001	0.033	0.090 (07/03)	0†	0.077 (07/03)	0.064 (09/22)	0	0.066†
<u>Salem Area</u>								
Cascade Jr High	1995	0.022	0.105 (06/30)	0	0.072 (09/01)	0.065 (07/16)	0	
10226 Marion Rd. SE	1996	0.028	0.130 (07/26)	1	0.104 (07/26)	0.093 (08/10)	4 ^(?)	
Turner	1997	0.024	0.082 (07/04)	0	0.068 (07/04)	0.061 (08/12)	0	0.073†
	1998	0.024	0.121 (07/27)	0†	0.098 (07/27)	0.077 (08/28)	1	0.077†
	1999	0.023	0.083 (09/21)	0†	0.075 (07/09)	0.065 (07/10)	0	0.068†
DEQ# 10130	2000	0.020	0.075 (07/30)	0†	0.065 (07/30)	0.060 (06/26)	0	0.067†
EPA# 410470004	2001	0.021	0.087 (08/09)	0†	0.068 (07/03)	0.058 (08/12)	0	0.061†
<u>Portland Area</u>								

*Parts per million

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(?) There may have been more than 4 values greater than 0.085 ppm.

APPENDIX 1D
OZONE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	Year	SUMMER AVERAGE	1-HOUR MAXIMUM (date)	# OF DAYS >0.125 ppm	8-HOUR AVERAGE MAXIMUM	4TH HIGHEST 8-HOUR AVERAGE	# OF DAYS >0.085 ppm	3 YEAR AVG OF 4TH HIGH
Carus 13575 Spangler Road Canby 0300101 DEQ# 10093 EPA# 410050004	1990	0.029	0.165 (07/12)	4	0.115 (07/12)	0.106 (07/21)	4 ^(?)	
	1991	0.030	0.129 (07/02)	1	0.101 (07/02)	0.075 (08/17)	2	0.084†
	1992	0.030	0.126 (08/17)	1	0.100 (07/17)	0.095 (08/13)	4 ^(?)	0.092†
	1993	0.023	0.092 (08/04)	0	0.072 (08/04)	0.063 (09/10)	0	0.078†
	1994	0.029	0.117 (07/21)	0	0.085 (07/21)	0.079 (07/27)	2	0.079†
	1995	0.027	0.099 (06/30)	0	0.085 (09/01)	0.074 (09/14)	1	0.072†
	1996	0.029	0.149 (07/26)	1	0.113 (07/26)	0.099 (07/27)	4 ^(?)	0.084†
	1997	0.025	0.085 (07/04)	0	0.074 (07/04)	0.063 (05/13)	0	0.079†
	1998	0.026	0.137 (07/28)	3†	0.117 (07/26)	0.082 (09/01)	3	0.081†
	1999	0.028	0.102 (07/10)	0†	0.081 (07/09)	0.073 (07/28)	0	0.073†
	2000	0.025	0.086 (06/28)	0†	0.072 (06/03)	0.065 (07/30)	0	0.073†
	2001	0.025	0.099 (08/09)	0†	0.081 (08/09)	0.070 (06/20)	0	0.069†
Milwaukie High School 11300 SE 23rd DEQ# 10095 EPA# 410052001	1991	0.020	0.110 (07/23)	0	0.086 (07/23)	0.064 (07/02)	2	0.067†
	1992	0.019	0.123 (08/13)	0	0.080 (07/30)	0.070 (07/17)	0	0.073†
	1993	0.016	0.112 (08/04)	0	0.074 (08/04)	0.052 (09/08)	0	0.062†
	1994	0.018	0.103 (07/20)	0	0.087 (07/20)	0.057 (07/21)	1	0.060†
	1995	0.018	0.110 (07/18)	0	0.093 (07/18)	0.067 (05/29)	1	0.059†
	1996	0.019	0.145 (07/14)	2	0.120 (07/14)	0.085 (07/13)	4 ^(?)	0.070†
	1997	0.016	0.101 (07/20)	0	0.083 (07/04)	0.055 (07/19)	0	0.069†
Discontinued 9/99	1998	0.018	0.124 (07/26)	0†	0.100 (07/26)	0.061 (08/31)	1	0.067†
	1999	0.015	0.080 (06/14)	0†	0.054 (07/09)	0.051 (05/23)	0	0.056†
Milwaukie St. Johns Church Started 5/00	2000	0.018	0.085 (06/04)	0†	0.068 (06/04)	0.057 (08/23)	0	0.056†
	2001	0.018	0.082 (08/10)	0†	0.066 (08/10)	0.059 (08/12)	0	0.056†

*Parts per million

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(?) There may have been more than 4 values greater than 0.085 ppm.

**APPENDIX 1D
OZONE SUMMARY (ppm)***

STATION LOCATION AND NUMBER	Year	SUMMER AVERAGE	1-HOUR MAXIMUM (date)	# OF DAYS >0.125 ppm	8-HOUR AVERAGE MAXIMUM	4TH HIGHEST 8-HOUR AVERAGE	# OF DAYS >0.085 ppm	3 YEAR AVG OF 4TH HIGH
DEQ# 23306 EPA# 41052002								
Sauvie Island	1991	0.021	0.061 (07/22)	0	0.055 (05/02)	0.053 (07/22)	0	0.061†
Social Security Beach	1992	0.027	0.095 (08/13)	0	0.073 (07/18)	0.070 (05/05)	0	0.064†
	1993	0.022	0.091 (08/04)	0	0.073 (08/04)	0.066 (09/09)	0	0.063†
DEQ# 14152	1994	0.023	0.102 (07/20)	0	0.086 (07/20)	0.062 (07/21)	1	0.066†
EPA# 410090004	1995	0.022	0.103 (07/18)	0	0.089 (07/18)	0.061 (07/17)	1	0.063†
	1996	0.026	0.096 (08/10)	0	0.084 (07/13)	0.077 (07/26)	0	0.067†
	1997	0.022	0.081 (07/04)	0	0.065 (07/04)	0.053 (05/11)	0	0.064†
	1998	0.023	0.093 (07/26)	0†	0.078 (07/27)	0.067 (08/28)	0	0.066†
	1999	0.021	0.070 (07/09)	0†	0.057 (07/09)	0.050 (09/22)	0	0.056†
	2000	0.022	0.080 (06/04)	0†	0.067 (06/27)	0.054 (06/03)	0	0.057†
	2001	0.025	0.089 (08/10)	0†	0.069 (08/10)	0.057 (05/10)	0	0.054†

*Parts per million

† The new ozone standard became effective in September 1997. In 1998 1-hour values are no longer evaluated for attainment purposes. The new standard is the 3-year average of the 4th highest value. Data cannot be evaluated with respect to the new standard until the year 2000 when 3 years of data (1997, 1998, and 1999) are available. The 3-year averages shown here are the averages for the year of data and the two previous years, e.g. 1996 is the average of 1994, 1995, and 1996.

(?) There may have been more than 4 values greater than 0.085 ppm.

APPENDIX 1E
OXIDES OF NITROGEN (ppm)*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		MAXIMUM 1 HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	
NITROGEN DIOXIDE				
<u>Portland</u>				
SE Lafayette at 58th	1991 ^a	-	-	0.070 (09/30)
	1992 ^a	-	-	0.073 (09/30)
DEQ # 10139	1993 ^a	-	-	0.081 (09/27)
EPA # 410510080	1994 ^a	-	-	0.059 (09/22)
	1995 ^a	-	-	0.070 (09/23)
	1996 ^a	-	-	0.069 (09/10)
	1997 ^a	-	-	0.056 (09/22)
	1998 ^a	-	-	0.091 (08/28)
	1999 ^a	-	-	0.074 (09/21)
	2000 ^a	-	-	0.067 (06/03)
	2001 ^a	-	-	0.052 (05/31)
NITRIC OXIDE				
	1990 ^a	-	-	0.274 (07/27)
<u>Portland</u>				
SE Lafayette at 58th	1991 ^a	-	-	0.184 (09/16)
	1992 ^a	-	-	0.269 (09/30)
	1993 ^a	-	-	0.260 (09/21)
DEQ # 10139	1994 ^a	-	-	0.135 (09/06)
EPA # 410510080	1995 ^a	-	-	0.143 (08/24)
	1996 ^a	-	-	0.266 (09/27)
	1997 ^a	-	-	0.227 (09/22)
	1998 ^a	-	-	0.201 (09/22)
	1999 ^a	-	-	0.173 (09/29)
	2000 ^a	-	-	0.232 (09/27)
	2001 ^a	-	-	0.165 (09/28)

* Parts per million
^a Summer data only

APPENDIX 1F
SULFUR DIOXIDE SUMMARY (ppm)*

STATION LOCATION AND NUMBER	YEAR	NO. OF SAMPLES	3 HOUR MAXIMUM (date)	24 HOUR MAXIMUM (date)	ANNUAL AVERAGE
<u>Portland</u>					
Standard Oil 5532 NW Doane	1989	8363	.050 (11/16)	.024 (02/03)	0.007
DEQ # 18636	1990	8306	.044 (08/01)	.022 (12/26)	0.006
EPA # 410510074	1991	8208	.049 (08/06)	.026 (07/22)	0.006
	1992	8485	.048 (01/05)	.030 (01/05)	0.007
	1993	8373	.061 (01/09)	.031 (01/09)	0.006
	1994	8140	.037 (07/23)	.013 (09/27)	0.005
Discontinued 7/95	1995	4261	.035 (03/28)	.012 (05/19)	0.004 ⁽¹⁾

* Parts per million

⁽¹⁾ This site was discontinued in July of 1995: this "annual average" is only the 7 month rather than 12 month average.

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)
<u>Bend</u>					
Kenwood School	1991	0.89	0.59	33.9 (02/05)	7.6 (02/05)
701 NW Newport	1992	0.89	0.59	13.8 (02/12)	4.3 (02/11)
	1993	0.92	0.62	15.4 (11/28)	3.9 (11/26)
DEQ# 10097	1994	0.71	0.53	10.7 (01/23)	2.1 (01/31)
EPA# 410170003	1995	0.65	0.49	12.0 (01/08)	3.2 (12/06)
	1996	0.61	0.47	26.7 (08/13)	5.1 (08/13)
	1997	0.64	0.50	9.3 (12/13)	2.3 (01/16)
	1998	0.52	0.43	6.4 (09/03)	1.8 (01/08)
	1999	0.48		4.9 (01/03)	1.4 (01/03)
	2000	0.52		4.9 (07/04)	2.3 (11/16)
	2001	0.46		4.6 (11/18)	3.5 (01/06)
<u>Burns</u>					
Elks Lodge	1996	0.76	0.54	11.2 (02/16)	2.5 (02/16)
118 N Broadway	1997	-	-	6.6 (01/28)	2.3 (01/18)
DEQ# 18423					
Discontinued 05/97					
	1997	-	-	7.4 (12/08)	2.5 (12/09)
267 E Madison St.	1998	1.05	0.75	8.5 (11/18)	2.4 (12/09)
Oct - March	1999	1.02		11.4 (10/29)	2.7 (01/09)
DEQ# 10105	2000	0.95		9.2 (01/01)	2.5 (01/05)
EPA# 410250002	2001	0.81		8.1 (01/27)	2.6 (12/28)
Union High School	1999	0.38		2.6 (07/08)	1.2 (07/08)
April - Sept	2000	0.34		5.1 (08/06)	1.4 (08/29)
DEQ# 10105	2001	0.36		4.3 (08/14)	1.6 (08/14)
EPA# 410250002					
<u>Canby</u>					
	1991 ^a	-	-	12.8 (10/10)	5.6 (10/10)
Carus	1992	0.56	0.48	7.3 (07/20)	2.0 (10/27)
13575 Spangler Rd	1993	0.60	0.49	4.2 (11/09)	2.2 (11/11)
	1994	0.51	0.45	5.5 (08/08)	1.9 (02/06)
DEQ# 10093	1995	0.50	0.44	8.6 (01/05)	2.6 (01/05)
EPA# 410050004	1996	0.46	0.41	5.5 (03/22)	1.5 (03/02)
	1997	0.45	0.40	6.3 (01/16)	1.9 (01/16)
	1998	0.48	0.42	4.8 (10/16)	1.9 (10/23)
	1999	0.41		4.3 (01/08)	0.9 (10/30)
	2000	0.48		3.4 (10/24)	1.7 (11/19)
	2001	0.47		5.3 (08/21)	1.9 (11/11)
<u>Eugene</u>					
Lane Comm College	1991	0.91	0.67	8.6 (01/06)	5.8 (01/06)

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)
1059 Willamette DEQ# 18320 EPA# 410390013	1992	0.84	0.68	12.2 (05/02)	4.9 (01/20)
	1993	0.95	0.73	7.9 (01/10)	3.9 (01/11)
	1994 ^a	-	-	4.6 (04/20)	1.8 (10/29)
	1995	0.61	0.51	6.1 (12/25)	2.4 (12/25)
	1996	0.54	0.46	3.7 (11/10)	2.8 (02/04)
	1997	0.62	0.51	5.4 (12/11)	2.3 (10/20)
	1998	0.44	0.40	2.3 (12/16)	1.6 (12/23)
	1999	0.45		2.8 (01/05)	1.4 (12/30)
	2000	0.49		3.2 (11/18)	2.0 (11/19)
	2001	0.47		2.9 (11/11)	2.0 (11/11)
	Amazon Park 499 E 29 th DEQ# 18524 EPA # 410390060	2001	0.55		4.4 (11/08)
<u>Santa Clara</u>					
200 Santa Clara Ave. DEQ# 18736 EPA# 410390063 Discontinued 12/96	1994	-	-	5.7 (10/16)	2.8 (10/22)
	1995	0.69	0.56	9.5 (01/21)	2.8 (11/03)
	1996	0.61	0.51	4.6 (12.18)	2.9 (02/04)
<u>Grants Pass</u>					
11th & K St DEQ# 10115 EPA# 410330008	1991	2.48	1.75	15.4 (01/01)	9.9 (01/03)
	1992	1.67	1.29	9.9 (01/19)	5.1 (01/19)
	1993 ^a	-	-	10.2 (12/28)	6.3 (12/28)
	1994 ^a	-	-	8.1 (12/21)	4.3 (02/05)
	1995 ^a	-	-	6.4 (01/20)	2.8 (11/04)
	1996 ^a	-	-	5.9 (11/11)	3.3 (11/12)
	1997 ^a	-	-	8.1 (01/15)	4.5 (01/15)
Discontinued 04/98	1998 ^a	-	-	4.4 (01/30)	1.6 (03/06)
Sewage Treatment Plant 1200 SW Greenwood DEQ# 18508 EPA# 410330107	1999	0.72		7.8 (07/04)	2.4 (10/22)
	2000	0.71		6.6 (11/21)	3.5 (11/12)
	2001	0.75		10.3 (11/11)	6.7 (11/11)
<u>Klamath Falls</u>					
Peterson Elementary 4856 Clinton St	1991	2.67	1.32	30.8 (01/01)	13.5 (01/05)
	1992	1.51	0.92	12.0 (12/22)	4.3 (01/15)
	1993 ^a	-	-	14.5 (11/02)	5.7 (11/15)

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)
DEQ# 10118	1994 ^a	-	-	13.9 (01/03)	5.2 (11/22)
EPA# 410350004	1995 ^a	-	-	10.6 (01/17)	4.1 (01/16)
	1996 ^a	-	-	10.8 (03/18)	3.8 (12/19)
	1997 ^a	-	-	7.6 (01/114)	3.4 (01/07)
(Peterson School cont.)	1998 ^a	-	-	8.5 (12/22)	3.0 (12/23)
	1999	0.73		2.9 (01/10)	2.6 (01/09)
	2000	0.60		7.4 (11/17)	2.9 (12/07)
	2001	0.51		6.5 (12/12)	2.3 (12/12)
<u>La Grande</u>					
Dockwiler Res	1991	1.20	0.78	24.5 (08/26)	7.7 (02/27)
1601 N Willow	1992	0.90	0.59	20.1 (02/04)	7.2 (02/04)
	1993	0.94	0.65	17.4 (02/01)	5.0 (02/01)
DEQ# 10148	1994	0.79	0.57	10.8 (02/01)	3.6 (02/05)
EPA# 410610006	1995	0.71	0.52	13.5 (10/28)	3.4 (10/28)
	1996	0.86	0.60	20.1 (10/02)	6.4 (02/01)
	1997	0.68	0.50	8.0 (04/07)	2.4 (12/28)
	1998	0.65	0.51	7.7 (10/21)	2.3 (10/21)
Discontinued 9/99	1999	0.55		6.3 (03/18)	2.3 (01/04)
3 rd and I Street	1999	0.54		3.0 (12/31)	1.8 (12/25)
DEQ# 21638	2000	0.52		14.5 (08/16)	2.7 (08/16)
EPA# 410610117	2001	0.50		3.4 (01/30)	2.1 (01/06)
Started 10/99					
<u>Lakeview</u>					
Center & M St	1991	2.53	1.28	23.7 (12/09)	11.3 (12/14)
	1992	1.80	0.93	37.6 (12/26)	9.0 (12/25)
DEQ# 10123	1993 ^a	-	-	38.9 (01/27)	13.8 (01/27)
EPA# 410370001	1994 ^a	-	-	24.6 (01/18)	9.6 (01/19)
	1995 ^a	-	-	8.7 (01/02)	3.6 (12/27)
	1996 ^a	-	-	8.4 (02/03)	2.8 (12/15)
	1997	0.66	0.45	8.2 (12/29)	3.8 (12/29)
	1998 ^a	-	-	8.7 (01/23)	2.9 (12/16)
	1999	0.69		8.0 (12/23)	3.3 (12/23)
	2000	0.73		7.9 (12/30)	3.3 (12/04)
	2001	0.53		6.1 (12/08)	2.4 (12/08)
<u>Medford</u>					
Brophy Bldg	1991	1.53	1.06	16.2 (01/03)	7.6 (01/17)
10 N Central	1992	0.93	0.69	37.9 (08/05)	5.3 (08/05)
	1993	0.81	0.59	7.1 (12/23)	3.3 (11/27)
	1994	0.79	0.60	15.5 (08/25)	4.0 (01/19)
DEQ # 10111	1995	0.65	0.54	5.8 (03/27)	2.2 (12/27)
EPA # 410290009	1996	0.69	0.55	5.8 (01/13)	3.2 (01/03)

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)
Discontinued 10/99	1997	0.78	0.61	6.4 (01/10)	3.9 (01/09)
	1998	0.69	0.58	3.7 (03/07)	2.5 (12/25)
	1999	1.21		4.7 (01/05)	2.6 (01/05)
Grant & Belmont DEQ # 20448 EPA # 410290133 Started 09/99	1999	0.48		1.3 (09/03)	0.7 (09/03)
	2000	0.82		7.3 (07/12)	3.5 (12/09)
	2001	0.75		5.4 (01/07)	2.7 (01/06)
<u>Oakridge</u>					
Willamette Center Trailer DEQ # 18733 EPA # 410392013	1991	3.63	2.01	31.1 (01/30)	12.2 (01/27)
	1992	2.01	1.10	23.1 (02/05)	10.8 (01/18)
	1993 ^a	-	-	26.3 (01/31)	11.7 (01/31)
	1994 ^a	-	-	16.7 (12/29)	7.8 (12/30)
	1995 ^a	-	-	20.5 (03/07)	9.3 (01/24)
	1996 ^a	-	-	18.2 (02/03)	5.5 (02/03)
	1997	0.94	0.61	13.1 (01/16)	5.5 (01/16)
	1998	0.76	0.56	10.2 (03/07)	3.7 (02/07)
	1999	0.70		8.0 (01/30)	3.2 (12/27)
	2000	0.71		8.0 (01/31)	3.2 (01/29)
	2001	0.78		8.9 (01/06)	4.4 (01/07)
<u>Pendleton</u>					
McKay Creek 3745 SW Marshall DEQ # 10146 EPA # 410590121	1991 ^a	-	-	20.4 (12/20)	6.8 (12/20)
	1992	2.31	1.24	25.7 (01/08)	9.7 (01/08)
	1993 ^a	-	-		6.6 (02/05)
	1994 ^a	-	-	13.6 (12/08)	5.9 (01/18)
	1995 ^a	-	-	8.2 (01/13)	3.9 (12/11)
	1996 ^a	-	-	7.2 (01/08)	2.9 (11/12)
	1997	0.81	0.55	8.3 (01/15)	3.5 (01/14)
	1998 ^a	-	-	11.1 (01/23)	3.3 (01/13)
	1999	0.65		5.8 (12/31)	1.9 (01/02)
	2000	0.82		5.5 (01/01)	2.4 (11/19)
	2001	0.92		5.5 (11/04)	2.6 (11/27)
<u>Portland</u>					
Central Fire Station 55 SW Ash DEQ # 10136 EPA # 410510015	1991	0.81	0.65	7.9 (10/11)	4.0 (10/31)
	1992	0.65	0.56	3.8 (11/06)	2.1 (01/14)
	1993	0.79	0.63	10.2 (09/06)	3.1 (11/08)
	1994	0.68	0.57	13.3 (09/07)	2.5 (10/17)
	1995	0.66	0.58	4.1 (12/31)	2.0 (02/10)
	1996	0.66	0.57	7.1 (07/15)	2.8 (01/01)
	1997	0.63	0.55	3.0 (05/30)	1.8 (10/22)

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE	
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)	
	1998	0.61	0.51	4.7 (10/23)	3.0 (10/23)	
	1999	0.56		6.3 (01/05)	4.0 (01/05)	
	2000	0.60		3.1 (11/11)	2.1 (11/12)	
	2001	0.53		2.6 (02/01)	1.5 (12/07)	
SE Lafayette at 58th DEQ # 10139 EPA # 410510080	1991	0.83	0.61	13.7 (01/27)	6.8 (01/30)	
	1992	0.69	0.52	8.7 (12/15)	3.1 (01/12)	
	1993	0.77	0.57	11.0 (11/08)	4.9 (11/14)	
	1994	0.75	0.58	13.8 (11/03)	3.8 (11/03)	
	1995	0.61	0.52	6.2 (12/31)	3.0 (02/10)	
	1996	0.59	0.50	8.1 (01/01)	3.5 (02/24)	
	1997 ^a	-	-	7.1 (11/16)	2.8 (10/22)	
	1998	0.67	0.57	7.6 (01/03)	2.6 (10/23)	
	1999	0.62		7.3 (01/24)	3.8 (01/05)	
	2000	0.64		9.8 (07/04)	3.3 (11/12)	
2001	0.58		5.1 (02/13)	2.0 (12/07)		
Sauvie Island Social Security Beach DEQ # 14152 EPA # 410090004 Operates May-Sept	1991 ^a	-	-	3.3 (09/12)	1.4 (09/29)	
	1992 ^a	-	-	2.8 (09/30)	1.4 (09/30)	
	1993 ^a	-	-	2.2 (09/06)	1.5 (09/07)	
	1994 ^a	-	-	2.7 (09/25)	1.5 (09/24)	
	1995 ^a	-	-	2.5 (09/15)	1.5 (09/15)	
	1996 ^a	-	-	2.1 (07/29)	1.2 (05/12)	
	1997 ^a	-	-	2.6 (09/25)	1.4 (09/23)	
	1998 ^a	-	-	2.6 (05/01)	1.2 (07/27)	
	1999	-	-	1.9 (09/06)	1.2 (08/06)	
	2000	-	-	1.9 (08/04)	1.0 (08/04)	
	2001			1.8 (08/12)	1.2 (08/12)	
	<u>Prineville</u>					
	Parks Department	1995 ^a	-	-	9.7 (03/25)	4.1 (12/06)
NE 5th & Elm	1996 ^a	-	-	5.8 (02/13)	2.5 (02/13)	
DEQ # 18413 Discontinued 12/96						
9th & Fairmont	1996 ^a	-	-	10.2 (12/19)	3.3 (12/19)	
DEQ # 18427 Discontinued 4/97	1997 ^a	-	-	8.9 (01/15)	3.5 (01/28)	

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1G
LIGHT SCATTERING SUMMARY*

STATION LOCATION AND NUMBER	YEAR	ANNUAL MEANS		1-HOUR AVERAGES	24-HOUR AVERAGE
		ARITHMETIC	GEOMETRIC	MAXIMUM (date)	MAXIMUM (date)
<u>Salem</u>					
Market/Lancaster	1993	0.89	0.66	13.6 (12/27)	5.3 (11/07)
1685 Lancaster NE	1994	0.73	0.54	15.8 (02/06)	4.8 (02/02)
	1995	0.67	0.52	6.9 (11/03)	3.1 (12/25)
DEQ # 10131	1996	0.59	0.46	6.2 (03/02)	2.9 (02/14)
EPA # 410470039	1997	0.67	0.52	7.0 (01/15)	3.1 (01/15)
	1998	0.57	0.50	4.1 (03/23)	1.9 (12/16)
	1999	0.60		6.6 (01/05)	3.4 (01/05)
	2000	0.72		8.5 (11/18)	4.0 (11/16)
	2001	0.61		7.4 (11/08)	3.4 (11/10)
<u>Springfield</u>					
City Hall	1991	0.90	0.67	7.7 (10/15)	3.6 (10/11)
255 North 5th St	1992	0.89	0.70	6.8 (01/09)	2.8 (01/20)
	1993	0.93	0.68	9.5 (02/06)	3.9 (01/11)
DEQ # 18538	1994 ^a	-	-	4.0 (10/22)	1.7 (10/22)
EPA # 410391009	1995	0.65	0.54	4.5 (01/23)	2.2 (01/25)
	1996	0.56	0.48	3.8 (03/01)	2.4 (02/04)
Restarted 10/90	1997	0.55	0.47	4.3 (01/15)	2.1 (01/15)
	1998	0.52	0.47	3.3 (12/23)	2.1 (12/23)
	1999	0.51		4.4 (01/05)	1.6 (10/22)
	2000	0.53		3.5 (11/18)	2.0 (11/20)
	2001	0.51		2.8 (11/11)	2.1 (11/11)

* Reported as Scattering Coefficient (β_{scat}) per 10 kilometers

^a Seasonal data only

APPENDIX 1H

TOTAL SUSPENDED PARTICULATE SUMMARY ($\mu\text{g}/\text{m}^3$)*

STATION LOCATION AND NUMBER	YEAR	NO. OF SAMPLES	DAYS OVER		GEOMETRIC** MEAN	24-HOUR AVERAGES	
			150	260		MAXIMUM (date)	2ND HIGHEST (date)
<u>Eugene Area</u>							
Lane Comm College	1990	48	0	0	33.0	108 (09/20)	96 (02/28)
1059 Willamette	1991	38	0	0	37.1	134 (10/03)	131 (10/09)
DEQ # 18320	1992	59	0	0	37.6	113 (09/09)	99 (08/28)
EPA # 410390013	1993	31	0	0	-	121 (02/25)	106 (01/31)
Discontinued 6/93							
<u>Medford Area</u>							
Jackson County	1990	61	2	0	57.3	164 (12/07)	163 (12/31)
Courthouse	1991	58	2	0	52.1	203 (01/30)	169 (01/06)
Main & Oakdale	1992	52	0	0	46.1	94 (02/06)	86 (03/19)
	1993	60	0	0	55.1	113 (11/27)	110 (11/09)
DEQ # 10110	1994	61	0	0	43.9	101 (12/10)	100 (12/22)
EPA # 410293001	1995	61	0	0	38.0	65 (02/02)	64 (10/03)
	1996	60	0	0	32.0	73 (02/15)	65 (11/11)
	1997	58	0	0	35.9	94 (01/10)	93 (12/12)
	1998	60	0	0	31.5	80 (04/29)	67(11/13)
Discontinued 6/99	1999	29	0	0	-	132 (01/06)	68 (03/19)
<u>Portland Area</u>							
Central Fire Station	1990	61	1	0	46.9	196 (12/31)	114 (02/22)
55 SW Ash	1991	58	1	1	53.6	285 (01/30)	153 (10/15)
DEQ # 10136	1992	60	0	0	43.6	114 (03/13)	104 (03/25)
EPA # 410510015	1993	31	0	0	-	147 (02/24)	144 (01/07)
Discontinued 7/93							
SE Lafayette at 58th	1990	60	0	0	32.3	79 (03/12)	69 (11/01)
2614230	1991	59	1	0	35.5	191 (01/30)	87 (01/06)
DEQ # 10139	1992	58	0	0	31.2	68 (03/25)	66 (03/13)
EPA # 410510080	1993	57	0	0	42.8	134 (01/13)	98 (01/07)
	1994	61	0	0	32.3	78 (10/17)	73 (09/23)
	1995	60	0	0	34.0	116 (01/03)	59 (02/08)
	1996	61	0	0	29.5	64 (02/15)	62 (07/26)
	1997	60	0	0	31.3	85 (01/16)	63 (03/29)
	1998	59	0	0	25.0	98 (04/29)	91 (03/06)
Discontinued 6/99	1999	30	0	0	-	61 (01/24)	53 (03/19)
Roosevelt High School	1990	60	0	0	34.1	114 (12/31)	89 (09/14)
6941 N Central	1991	59	0	1	37.2	277 (01/30)	144 (10/15)

* Micrograms per cubic meter
 ** Based on sampling every sixth day

APPENDIX 1H

TOTAL SUSPENDED PARTICULATE SUMMARY ($\mu\text{g}/\text{m}^3$)*

STATION LOCATION AND NUMBER	YEAR	NO. OF SAMPLES	DAYS OVER		GEOMETRIC** MEAN	24-HOUR AVERAGES	
			150	260		MAXIMUM (date)	2ND HIGHEST (date)
DEQ # 10135	1992	59	0	0	31.5	98 (03/13)	78 (03/25)
EPA # 410510003 Discontinued 7/93	1993	32	0	0	-	87 (02/04)	76 (02/12)

* Micrograms per cubic meter
 ** Based on sampling every sixth day

APPENDIX 11
LEAD SUMMARY ($\mu\text{g}/\text{m}^3$)*

STATION NUMBER AND NUMBER	YEAR	CALENDAR QUARTER >1.5* (QUARTER IN WHICH VIOLATION OCCURRED)	MAXIMUM QUARTERLY AVERAGE
<u>Eugene</u>			
	1990	0	0.02
Lane Comm College	1991	0	0.02
1059 Willamette	1992	0	0.06
	1993	0	0.02
DEQ# 18320	1994	0	0.02
EPA# 410390013	1995	0	0.02
	1996	0	0.02
	1997	0	0.02
	1998	0	0.02
Discontinued 12/99	1999	0	0.02
<u>Medford</u>			
Jackson County	1990	0	0.02
Courthouse	1991	0	0.03
Main & Oakdale	1992	0	0.06
	1993	0	0.02
DEQ # 10110	1994	0	0.02
EPA # 410293001	1995	0	0.02
	1996	0	0.02
	1997	0	0.02
	1998	0	0.03
Discontinued 6/99	1999	0	0.02
<u>McMinnville</u>			
	1994	0	0.28
Hwy 99W & Riverside	1995	0	0.24
	1996	0	0.11
DEQ # 10164	1997	0	0.09
EPA# 410711702	1998	0	0.30
	1999	0	0.35
	2000	0	0.26
	2001	0	0.06
<u>Portland</u>			
Central Fire Station	1990	0	0.03

* Micrograms per cubic meter

APPENDIX 11
LEAD SUMMARY ($\mu\text{g}/\text{m}^3$)*

STATION NUMBER AND NUMBER	YEAR	CALENDAR QUARTER >1.5* (QUARTER IN WHICH VIOLATION OCCURRED)	MAXIMUM QUARTERLY AVERAGE
55 SW Ash	1991	0	0.07
EPA# 410510015	1992	0	0.06
DEQ# 10136	1993	0	0.05
Discontinued 7/93			
SE Lafayette at 58th	1991	0	0.03
	1992	0	0.06
DEQ# 10139	1993	0	0.05
EPA# 410510080	1994	0	0.02
	1995	0	0.02
	1996	0	0.02
	1997	0	0.02
	1998	0	0.04
Discontinued 6/99	1999	0	0.02
North Roselawn			
24 N Emerson	2001	0	0.02
DEQ# 21889			
EPA# 410510246			
I-5 at Failing			
	1991	0	0.10
	1992	0	0.08
DEQ# 10138	1993	0	0.11
EPA# 410510082	1994	0	0.09
	1995	0	0.04
	1996	0	0.02
	1997	0	0.06
	1998	0	0.05
Discontinued 6/99	1999	0	0.02
Lents			
I-205 at SE 96th	1991	0	0.03
	1992	0	0.06
DEQ# 18351	1993	0	0.02
EPA# 410510084			
Discontinued 7/93			

* Micrograms per cubic meter

APPENDIX 1J
FREQUENCY OF VISIBILITY IMPAIRMENT
9 AM - 9 PM, July 1 - September 15 (Visibility Protection Period)

IMPAIRMENT ¹								
SITE	YEAR	PERCEPTIBLE 0.60-0.79 Bscat		MODERATE 0.80-1.29 Bscat		HEAVY >1.30 Bscat x 10 ⁻⁴		T % ³
		Hours	% ²	Hours	% ²	Hours	% ²	
Mt. Hood Wilderness Multopor DEQ# 10094 EPA# 410050102	1994	20	2.0	13	1.3	15	1.5	4.8
	1995	56	6.0	28	3.0	0	0	9.0
	1996	82	8.7	31	3.3	12	1.3	13.3
	1997	56	5.1	17	1.5	8	0.7	7.4
	1998	183	19.2	72	7.5	7	0.7	27.5
	1999	97	8.7	28	2.5	5	0.5	10.9
	2000	52	2.9	22	1.2	7	0.4	4.0
	2001	92	15.6	15	2.6	4	0.7	18.9
Central Cascades Big Lake DEQ# 10125 EPA# 410430103	1994	70	7.3	35	3.6	19	2.0	12.9
	1995	36	3.8	24	2.5	2	0.2	6.6
	1996	70	10.2	80	11.6	39	5.7	27.6
	1997	20	2.1	6	0.6	1	0.1	2.8
	1998	110	13.0	34	4.0	8	0.9	17.9
	1999	133	9.2	105	7.3	25	1.7	2.3
	2000	116	6.3	30	1.6	3	0.2	4.6
	2001	62	6.9	38	4.2	8	0.9	12.0
Crater Lake National Park Rim Village DEQ# 10117 EPA# 410351001	1994	20	2.1	24	2.6	15	1.6	6.3
	1995	20	2.5	5	0.6	1	0.1	3.2
	1996	61	7.0	32	3.7	50	5.8	16.5
	1997	3	0.3	0	0	0	0	0.3
	1998	24	2.4	8	0.8	1	0.1	3.3
	1999	131	7.3	27	1.5	21	1.2	9.9
	2000	8	0.4	6	0.3	2	0.1	1.2
	2001	46	5.6	24	2.9	7	0.8	9.3

1 Impairment from both man mad and natural sources

2 Percent of impaired hour

3 Total percent of all hours between 9 AM and 9 PM which had perceptible to heavy impairment (BScat >0.6)

APPENDIX 1K

STANDARD VISUAL RANGE¹ (35 mm Photography) in Kilometers²
1986-1993³ Summer Monitoring: July 4 - Labor Day

Site	Year	+-----PERCENTILE ³ -----+		
		10%	50%	90%
Mt. Hood (Hickman Butte L.O.)	1986	75	143	273
	1987	84	152	273
	1988	58	161	269
	1989	62	146	302
	1990	75	140	300
	1991	94	161	293
	1992	- ⁴	- ⁴	- ⁴
	1993	77	178	276
Mt. Washington (Black Butte L.O.)	1986	91	152	254
	1987	108	180	298
	1988	84	179	284
	1989	96	146	224
	1990	92	149	234
	1991	- ⁴	- ⁴	- ⁴
	1992	87	189	258
	1993	92	158	250
Eagle Cap (Point Prominence L.O.)	1986	87	155	278
	1987	108	178	295
	1988	36	160	261
	1989	51	146	217
	1990	74	160	276
	1991	- ⁴	- ⁴	- ⁴
	1992	118	200	308
	1993	108	170	265

1 Impairment from both man mad and natural sources

2 Percent of impaired hour

3 Total percent of all hours between 9 AM and 9 PM which had perceptible to heavy impairment (BScat >0.6)

APPENDIX 1K

STANDARD VISUAL RANGE¹ (35 mm Photography) in Kilometers²
1986-1993³ Summer Monitoring: July 4 - Labor Day

Site	Year	+-----PERCENTILE ³ -----+		
		10%	50%	90%
Strawberry Mtn. (Dixie Butte L.O)	1986	96	190	374
	1987	111	170	260
	1988	47	181	271
	1989	104	159	259
	1990	72	179	279
	1991	130	225	341
	1992	127	241	341
	1993	127	225	327
Columbia Gorge (Vista House)	1986	-	-	-
	1987	66	131	261
	1988	69	143	314
	1989	56	108	196
	1990	75	120	213
	1991	70	114	225
	1992	78	194	365
	1993	61	130	330

1 Impairment from both man mad and natural sources

2 Percent of impaired hour

3 Total percent of all hours between 9 AM and 9 PM which had perceptible to heavy impairment (BScat >0.6)

APPENDIX L

1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

County	Carbon Monoxide Estimate (Tons/Year)				Total
	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	
Baker	555	3184	866	18034	22639
Benton	101	7257	4461	17862	29682
Clackamas	142	16643	18021	87843	122650
Clatsop	1921	4749	2135	22865	31671
Columbia	7510	2212	2405	17319	29447
Coos	424	7971	3924	27500	39818
Crook	60	3303	568	6800	10731
Curry	83	3022	1261	10623	14989
Deschutes	525	20079	3517	41044	65164
Douglas	8239	10280	5987	79575	104081
Gilliam	0	313	224	10220	10756
Grant	116	1471	289	5890	7767
Harney	10	1497	272	6645	8423
Hood River	167	3918	809	17962	22856
Jackson	3835	17974	7492	48884	78186
Jefferson	57	6814	676	12360	19907
Josephine	246	7802	2601	31639	42288
Klamath	1586	12592	4016	32713	50907
Lake	25	1553	271	5965	7814
Lane	2551	24424	20897	112770	160642
Lincoln	9106	6022	1528	26490	43146
Linn	7547	21586	6409	70764	106307
Malheur	639	5605	1090	20900	28235
Marion	138	26701	17294	104951	149083
Morrow	478	2469	458	10196	13601
Multnomah	1112	38646	42161	170476	252394
Polk	460	4964	3638	27174	36235
Sherman	364	397	125	8074	8959
Tillamook	400	3301	1402	17026	22130
Umatilla	130	14791	2989	41154	59064
Union	792	6898	1090	16213	24993
Wallowa	16	1408	262	3741	5428
Wasco	14578	4714	954	23601	43847
Washington	765	20226	24075	98796	143863
Wheeler	0	274	57	2079	2410
Yamhill	1366	6254	5176	27803	40598
Portables	5				
Forest Wildfires		360113			360113
Prescribed Burning		565347			565347
Totals	66051	1246773	189401	1283950	2786170

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

APPENDIX L
1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

Nitrogen Dioxide Estimate (Tons/Year)

County	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	Total
Baker	1655	106	789	2332	4882
Benton	238	392	766	2310	3707
Clackamas	871	1391	2121	14785	19168
Clatsop	1407	160	532	2957	5056
Columbia	2273	91	564	2240	5168
Coos	398	303	728	3556	4985
Crook	67	95	0	879	1042
Curry	20	99	135	1374	1629
Deschutes	426	600	53	5308	6387
Douglas	4547	346	1198	10290	16381
Gilliam	0	10	443	1322	1775
Grant	187	43	0	762	992
Harney	2	44	11	859	917
Hood River	44	108	371	2323	2845
Jackson	1038	814	299	8228	10379
Jefferson	88	170	205	1598	2062
Josephine	38	336	88	4449	4910
Klamath	1056	364	2895	4600	8914
Lake	31	40	3	771	845
Lane	4406	1329	5175	14583	25492
Lincoln	1156	151	60	3426	4791
Linn	1545	798	1719	9151	13213
Malheur	793	189	186	2703	3870
Marion	594	1464	2509	13572	18138
Morrow	4848	102	389	1318	6657
Multnomah	1734	3100	7316	28693	40843
Polk	47	262	903	3514	4726
Sherman	174	12	161	1044	1390
Tillamook	59	109	255	2202	2624
Umatilla	181	463	1229	5322	7195
Union	399	207	614	2097	3317
Wallowa	16	42	9	484	551
Wasco	26	135	428	3052	3641
Washington	168	1855	2433	16628	21084
Wheeler	0	8	0	269	277
Yamhill	1150	369	543	3909	5971
Portables	23				
Forest Wildfires		7009			7009
Prescribed Burning		11004			11004
Totals	31705	34121	35127	182906	283837

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

APPENDIX L
1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

Lead Estimate (Tons/Year)

County	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	Total
Baker	0.01	-	-	-	0.01
Benton	0.00	-	-	-	0.00
Clackamas	1.21	-	-	-	1.21
Clatsop	1.03	-	-	-	1.03
Columbia	0.19	-	-	-	0.19
Coos	0.09	-	-	-	0.09
Crook	0.00	-	-	-	0.00
Curry	0.00	-	-	-	0.00
Deschutes	0.00	-	-	-	0.00
Douglas	0.00	-	-	-	0.00
Gilliam	0.00	-	-	-	0.00
Grant	0.00	-	-	-	0.00
Harney	0.00	-	-	-	0.00
Hood River	0.00	-	-	-	0.00
Jackson	0.00	-	-	-	0.00
Jefferson	0.30	-	-	-	0.30
Josephine	0.00	-	-	-	0.00
Klamath	0.02	-	-	-	0.02
Lake	0.00	-	-	-	0.00
Lane	0.00	-	-	-	0.00
Lincoln	0.00	-	-	-	0.00
Linn	0.21	-	-	-	0.21
Malheur	0.00	-	-	-	0.00
Marion	0.10	-	-	-	0.10
Morrow	0.01	-	-	-	0.01
Multnomah	2.59	-	-	-	2.59
Polk	0.00	-	-	-	0.00
Sherman	0.00	-	-	-	0.00
Tillamook	0.00	-	-	-	0.00
Umatilla	0.00	-	-	-	0.00
Union	0.00	-	-	-	0.00
Wallowa	0.00	-	-	-	0.00
Wasco	0.00	-	-	-	0.00
Washington	0.00	-	-	-	0.00
Wheeler	0.00	-	-	-	0.00
Yamhill	0.87	-	-	-	0.87
Portables	-	-	-	-	-
Forest Wildfires	-	-	-	-	-
Prescribed Burning	-	-	-	-	-
Totals	6.6	0.0	0.0	0.0	6.6

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

APPENDIX L
1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

**Particulate Matter (less than 10 microns) Estimate
(Tons/Year)**

County	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	Total
Baker	262	957	59	2893	4171
Benton	153	1720	79	2865	4817
Clackamas	91	2970	257	19208	22526
Clatsop	1456	724	65	3668	5912
Columbia	618	346	65	2778	3808
Coos	289	1238	82	4411	6020
Crook	125	720	5	1091	1941
Curry	60	467	17	1704	2248
Deschutes	267	3159	37	6583	10046
Douglas	2099	1583	117	12764	16563
Gilliam	20	4559	33	1639	6251
Grant	97	247	3	945	1292
Harney	5	519	3	1066	1592
Hood River	94	619	34	2881	3628
Jackson	500	2913	77	10689	14179
Jefferson	15	3185	20	1983	5202
Josephine	81	1220	30	5386	6717
Klamath	575	2243	217	5569	8604
Lake	25	502	3	957	1487
Lane	2561	4346	461	18088	25457
Lincoln	913	909	18	4249	6089
Linn	1316	7133	152	11350	19952
Malheur	154	5963	22	3352	9492
Marion	72	6389	269	16834	23564
Morrow	517	8868	31	1635	11052
Multnomah	990	6309	815	37277	45391
Polk	63	1177	81	4359	5680
Sherman	3	4272	12	1295	5583
Tillamook	175	510	26	2731	3442
Umatilla	174	15393	106	6601	22274
Union	231	2414	50	2600	5295
Wallowa	12	737	3	600	1352
Wasco	337	4352	39	3785	8513
Washington	212	3509	302	21604	25627
Wheeler	0	198	1	333	532
Yamhill	200	1374	65	4733	6372
Portables	65				
Forest Wildfires		38007			38007
Prescribed Burning		63309			63309
Totals	14827	205061	3659	230506	453988

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

APPENDIX L
1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

Sulfur Dioxide Estimate (Tons/Year)

County	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	Total
Baker	26	228	122	87	462
Benton	8	941	46	86	1081
Clackamas	28	3846	29	576	4480
Clatsop	575	291	46	110	1022
Columbia	689	186	41	83	999
Coos	142	853	58	132	1186
Crook	4	209	0	33	246
Curry	2	271	0	51	324
Deschutes	14	1280	8	197	1500
Douglas	839	715	91	383	2027
Gilliam	0	27	62	49	138
Grant	8	108	0	28	145
Harney	1	111	2	32	146
Hood River	2	221	51	86	360
Jackson	165	2079	42	321	2607
Jefferson	2	229	32	59	323
Josephine	7	908	14	162	1090
Klamath	27	755	453	167	1402
Lake	39	95	0	29	163
Lane	1359	3256	505	543	5663
Lincoln	214	229	9	127	580
Linn	210	1184	170	341	1905
Malheur	834	418	29	101	1382
Marion	40	3247	139	505	3931
Morrow	5438	114	54	49	5655
Multnomah	1251	7256	490	1118	10116
Polk	3	708	86	131	927
Sherman	3	28	22	39	93
Tillamook	16	292	17	82	407
Umatilla	10	887	187	198	1283
Union	8	331	95	78	511
Wallowa	1	105	1	18	125
Wasco	448	308	59	114	929
Washington	89	4515	20	648	5273
Wheeler	0	21	0	10	31
Yamhill	407	983	10	142	1542
Portables	65				
Forest Wildfires					0
Prescribed Burning					0
Totals	12978	37235	2989	6915	60051

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

APPENDIX L
1996 OREGON STATEWIDE ESTIMATED ANNUAL EMISSIONS

Volatile Organic Compounds Estimate (Tons/Year)

County	Point Sources	Area Sources	Nonroad Mobile Sources	Mobile Sources	Total
Baker	28	645	227	982	1882
Benton	125	2138	698	972	3933
Clackamas	339	6089	2579	12532	21538
Clatsop	435	989	333	1245	3001
Columbia	1917	794	377	943	4031
Coos	258	1686	587	1497	4028
Crook	249	620	0	370	1239
Curry	16	620	177	578	1392
Deschutes	649	3446	15	2234	6344
Douglas	1870	2477	969	4332	9649
Gilliam	0	766	115	556	1438
Grant	114	271	0	321	706
Harney	7	338	3	362	710
Hood River	77	746	95	978	1896
Jackson	1827	4294	140	6974	13236
Jefferson	311	1369	59	673	2413
Josephine	255	1815	25	1869	3964
Klamath	1650	2499	871	1933	6952
Lake	10	339	1	325	675
Lane	1902	7069	3505	6139	18615
Lincoln	1084	1227	17	1442	3770
Linn	1629	5017	1130	3853	11628
Malheur	17	1607	54	1138	2816
Marion	274	7579	2445	5714	16012
Morrow	114	1693	102	555	2464
Multnomah	3590	13112	7486	24321	48509
Polk	53	1866	619	1479	4017
Sherman	8	744	42	440	1234
Tillamook	219	677	223	927	2046
Umatilla	215	4691	360	2241	7507
Union	631	1460	177	883	3150
Wallowa	16	479	3	204	702
Wasco	75	1365	111	1285	2837
Washington	485	7400	3139	14095	25119
Wheeler	0	94	0	113	208
Yamhill	285	2309	659	1643	4895
Portables	19				
Forest Wildfires		61333			61333
Prescribed Burning		33013			33013
Totals	20754	184679	27342	106147	338903

1. Point source emissions are estimated actual emission based upon emission factors from CEM, Source Tests, AP-42, etc.
2. 1996 Emission Inventory is the most current and excludes point sources on tribal lands and mobile source unpaved road dust
3. Portables are mobile plants used for operations such as rock crushing

**APPENDIX 1M
OTHER DATA**

SUPPLEMENTAL AIR MONITORING DATA

This section is a record of Department of Environmental Quality ambient air monitoring not routinely done for compliance purposes, organized alphabetically by location. These reports, studies, and data are available from DEQ. Some material will involve a data preparation charge.

City	Season	Year	Pollutant Study
Beaverton	Year long	1999/00	PM _{2.5} Saturation Survey
Bend	Winter	1994/95	CO Saturation Survey
Bend	Winter	1994/95	PM ₁₀ Saturation Survey
Bend	Aug	1996	PM ₁₀ Bend Air Quality Modeling Project
Burns	Winter	1993/94	PM ₁₀ Saturation Survey
Corvallis	Winter	1990/91	PM ₁₀ Saturation Survey
Eastern Oregon	Fall	1994	PM ₁₀ & PM _{2.5} comparison to industrial self monitoring data (Special Report, Eastern Oregon Dust Study)
Eugene Amazon Park	Year long	2001	PM _{2.5} Amazon Park Saturation Survey
Eugene/Springfield	Summer	1995/96	Ozone Mobile monitoring survey
Eugene/Springfield	Early 1990's		PM ₁₀ Saturation Survey
Grants Pass	Jan & Feb	1992	PM ₁₀ Saturation Survey
Grants Pass	Winter	1993/94	CO Saturation Survey
Grants Pass	Year long	2000/01	PM _{2.5} Saturation Survey
Hermiston	Summer	2000	Particulate Fallout Study
Hillsboro	Winter	1994	PM ₁₀ Saturation Survey
Hillsboro	Year long	2001/02	PM _{2.5} Saturation Survey
Klamath Falls	Winter	1995/96	CO Saturation Survey
Klamath Falls	Winter	1996/97	PM ₁₀ Saturation Survey
Klamath Falls	Year long	2000/01	PM _{2.5} Saturation Survey
La Grande	Winter	1990/91	PM ₁₀ Saturation Survey
La Grande	Year long	2001/02	PM _{2.5} Saturation Survey
Lakeview	Winter	1990/91	PM ₁₀ Saturation Survey
Medford	Summer	1992	Ozone Saturation Survey
Medford	Winter	1990/91	PM ₁₀ Saturation Survey
Medford	Winter	1994/95	PM ₁₀ Saturation Survey
Medford	Winter	1995/96	CO Saturation Survey
Medford	Year long	1999/00	PM _{2.5} Saturation Survey
Oakridge	Winter	1990/91	PM ₁₀ Saturation Survey
Ontario	Winter	1993/94	PM ₁₀ Saturation Survey
Pendleton	Winter	1990/91	PM ₁₀ Saturation Survey

* Data only, no report available.

**APPENDIX 1M
OTHER DATA**

SUPPLEMENTAL AIR MONITORING DATA

This section is a record of Department of Environmental Quality ambient air monitoring not routinely done for compliance purposes, organized alphabetically by location. These reports, studies, and data are available from DEQ. Some material will involve a data preparation charge.

City	Season	Year	Pollutant Study
Portland	Winter	1992/93	PM ₁₀ Saturation Survey
Portland	Winter	1993/94	CO Saturation Survey
Portland		1993/94	Air Toxics Special Study
Portland	Year long	1999/00	Air Toxics five site study
Portland	Year long	1999/00	PM _{2.5} SE Portland Saturation Survey
Portland	Year long	2000/01	PM _{2.5} N Portland Saturation Survey
Portland	Winter	1993/94	PM ₁₀ Saturation Survey
Portland (Canby)	Summer	1994	Ozone Mobile monitoring survey
Prineville	Winter	1992/93	PM ₁₀ Saturation Survey
Roseburg	Winter	1989/90	PM ₁₀ Saturation Survey
Salem	Winter	1988/89	PM ₁₀ Saturation Survey
Salem	Winter	1995/96	CO Saturation Survey
Salem	Winter	1997/98	CO Saturation Survey
Salem	Year long	1999/00	PM _{2.5} Saturation Survey
Salem/Portland	Summer	1995	Ozone Study
Springfield	Year long	2001	PM _{2.5} Spring Field Saturation Survey

* Data only, no report available.

Appendix 2

Oregon Air Quality Surveillance Network

The following tables and sampling location maps describe the Air Quality Surveillance Networks operational during 1999 and 2000. Appendix 2A lists all of the ambient air quality sampling locations included in the Oregon Surveillance Network. Appendices 2B, 2C, and 2D describe those networks operated within Air Quality Maintenance Areas of the state. For monitoring site locations, see the tables and maps on the following pages.

The following abbreviations are used in the network location tables and maps:

SO ₂	Sulfur Dioxide	CO	Carbon Monoxide
NO _x	Oxides of Nitrogen	O ₃	Ozone
NEPH	Integrating Nephelometer (continuous particulate monitor)	TSP	Total Suspended Particulate
PM ₁₀	Fine Particulate (10 micron)	PM _{2.5}	Fine Particulate (2.5 micron)
Pb	Lead	TEMP	Temperature
WIND	Wind direction and speed		

APPENDIX 2A OREGON AIR QUALITY SURVEILLANCE NETWORK

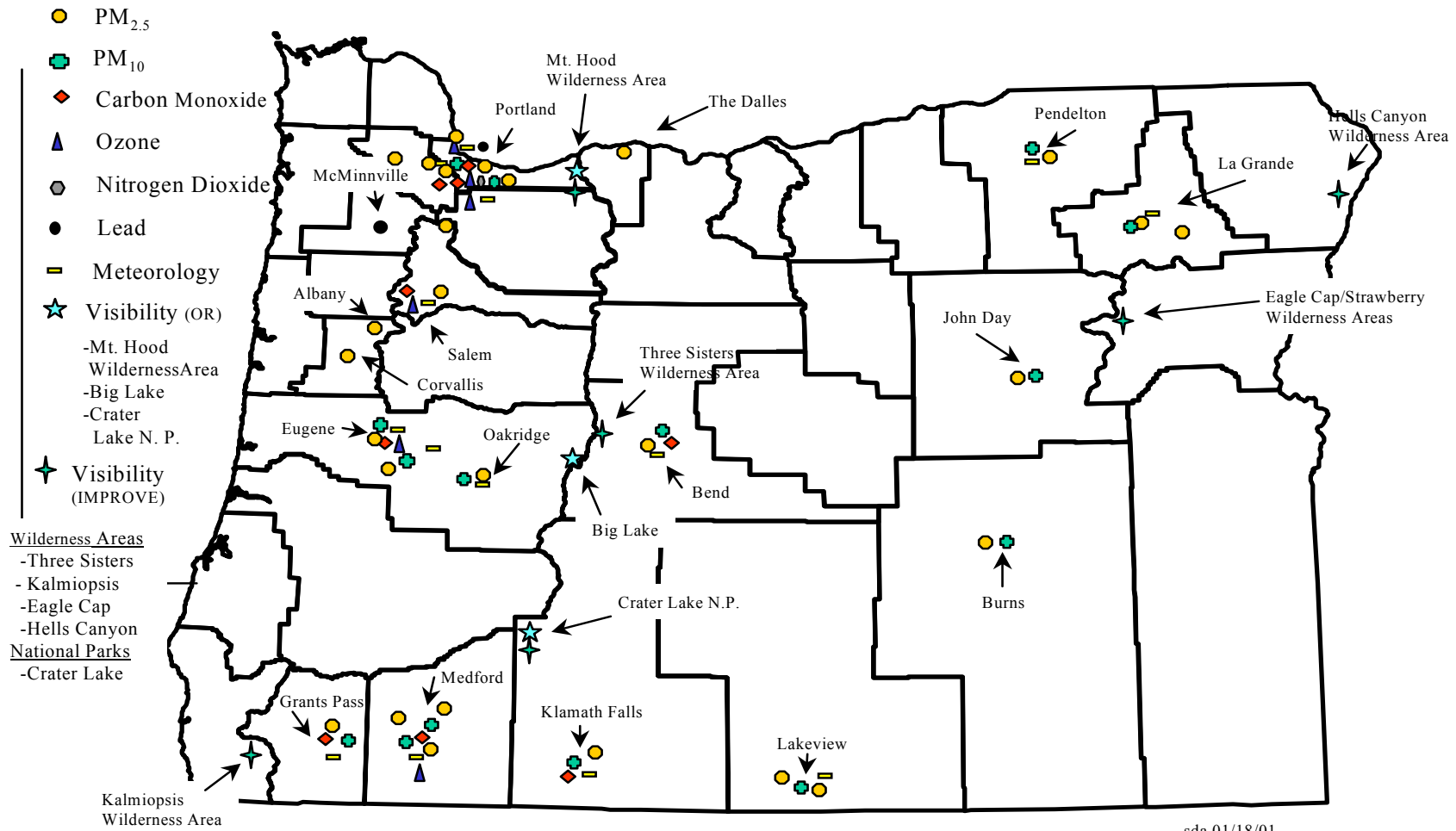
CITY	ADDRESS	NUMBER	CONTINUOUS AIR MONITORING						METEOROLOGY			WIND	TEMP	
			SO ₂	CO	NO ₂	O ₃	NEPH	TSP	PM ₁₀	PM _{2.5}	Pb			
Albany	Calapooia Middle School	2202019										X		
Bend	Kenwood School	0904106						X						
	NE 3 rd Street	0904112			X									
	8 th & Newport Street	0904113								X	X		X	X
	Deschutes Mkt. Rd. Bend Pump Station	0904119 24172								X	X			
Burns	E Madison St.	1304002						X		X	X			
Carus	Spangler Road	0300101					X	X					X	X
Corvallis	Intermediate School	0204013									X			
Cottage Grove	Harrison School	2009002								X				
Eugene	Lane Community College	2018056			X					X				
	Pacific Hwy 99N	2018058								X				
	E 29 th Amazon Park	2018060					X			X	X			
(Saginaw)	Sacred Heart Hospital	2018062			X									
	Delight Vly Sch Rd	2000036					X							
Grants Pass	Sewage Treatment Plant	1707107						X		X	X		X	X
	SE 6 th Street (Wing Bldg)	1707109			X									
Klamath Falls	Peterson School	1800005						X		X	X		X	X
	Hope Street	1800010			X									
La Grande (background)	1601 N Willow	3116115								X				
	off Foothills Road	3100103									X			
	3 rd and I Street	3116117						X			X		X	X
Lakeview (transport site)	Center & M Streets	1906001						X		X	X		X	X
	Lakeview Grange Hall	1900003									X			
McMinnville	Hwy 99 & Riverside	3617002								X*		X		

* TSP for Pb only

APPENDIX 2A OREGON AIR QUALITY SURVEILLANCE NETWORK

CITY	ADDRESS	NUMBER	CONTINUOUS AIR MONITORING							METEOROLOGY					
			SO ₂	CO	NO ₂	O ₃	NEPH	TSP	PM ₁₀	PM _{2.5}	Pb	WIND	TEMP		
Medford	N Central, Brophy Bldg	1520119			X										
	Rogue Valley Mall	1520128			X										
	Welch & Jackson	1520129								X	X				
(background)	Grant and Belmont	1520133						X			X				
	7112 Rapp Rd Talent	1500201					X							X	X
	1440 Rossanley Drive	1500107													
	4035 Dodge Road	1500103									X	X			
Milwaukie	23 rd St. St. Johns Church	0343112					X								
Oakridge	47674 School Street	2030003							X		X	X			
Pendleton	3745 SW Marshall Place	3020121							X		X	X		X	X
Portland	SW Miller (KPTV tower)	2614080												X	X
	Central Fire Station	2614123							X						
(Beaverton)	SW Fourth & Alder	2614185			X										
	5824 SE Lafayette	2614230			X	X		X		X	X			X	X
	3182 NW 26 th (Transcon)	2614238									X				
	510 SW Third Street	2614241			X										
	8210 SE Division	2614243			X										
	NW 26 th , Forest Heights	2614244										X			
	NE Portland at N Roselawn	2614245								X*		X	X		
(Hillsboro)	Highland Park Middle Sch	3410111									X				
(transport site)	15 th and Oak	3434003									X				
(transport site)	Rt 1 Box 442 (Sauvie Is)	0500104					X	X			X		X	X	
(transport site)	Marion Butteville Cemetary	2400110										X			
Salem	1685 Lancaster & Market	2438039			X				X						
	Cascade Jr. High, Turner	2400101					X							X	X
	Salem General Hospital	2438040										X			
Springfield	City Hall	2033060							X		X			X	
	Springfield High School	2033061										X			
White City	751 Crater Lake Hwy	1500106									X				

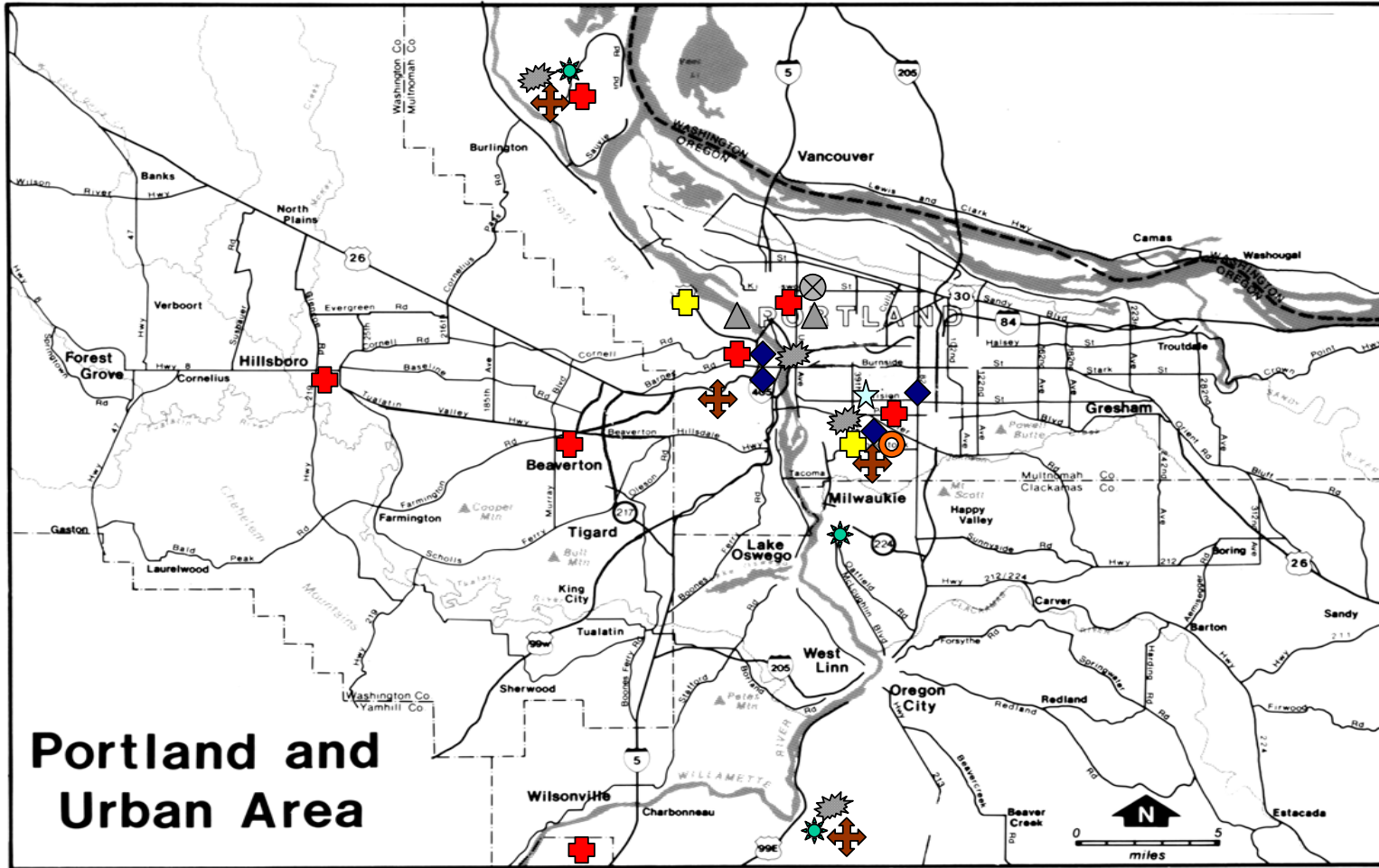
Oregon Air Quality Surveillance Network 2001



Note: With the exception of Salem, nephelometry sites are not included on this map.

sda 01/18/01
OR Monitoring Sites (All_2000).ppt

Portland Area Monitoring Sites



- ◆ - Carbon Monoxide
- ▲ - Hazardous Air Pollutants
- ☼ - Nephelometry
- ★ - Nitrous Oxide
- ⊕ - Meteorology
- ★ - Ozone
- ⊕ - PM2.5
- ⊕ - PM10
- - VOCs
- ⊗ - Lead

Appendix 3

Quality Assurance

It is a policy of DEQ that all data used by the Department will be of sufficient quality to support the regulatory decisions based upon them. The minimum quality assurance requirements set by EPA are consistently met or exceeded by DEQ. In 1994 and 1997, EPA conducted audits of state laboratory procedures and monitoring networks. DEQ's performance was rated above average in all areas.

The continued assurance of data quality requires carrying out the two complimentary tasks discussed below:

Quality Control

The ambient air quality monitoring and sampling done by the Department follows a number of procedures intended to maintain the system within control. Standard operating procedures are documented and followed throughout. Federal Reference or Equivalent Methods are used wherever applicable. Care in using accepted methodology is what makes the Department's air quality data representative and also comparable to the data being collected in other states. Routine preventative maintenance and periodic calibrations, using National Institute of Standards Technology gases or other primary standards, are used to achieve a data base which is sufficient in quantity and quality to meet the needs of the Air Quality Program.

Quality Assessment

Evaluations of data quality are made in several ways. Each month a system audit is conducted in which each sampling and monitoring site is visited to evaluate whether the site location is still appropriate, whether procedures are being followed, and to ensure that documentation is complete. Data quality is assessed in terms of precision, accuracy, and completeness. Precision, or repeatability, is determined by analysis of a known control sample or by replicate analyses. Accuracy, or the ability to measure a "true" value, is assessed by bimonthly audits of analyzer performance or sampler flow. These assessments are reported to EPA as summary statistics. Completeness is measured by the amount of data actually captured relative to the amount which ideally could have been collected.

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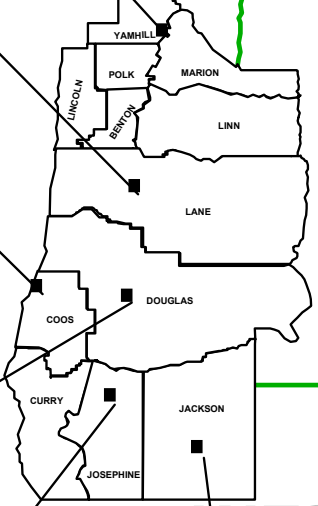
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AIR QUALITY DIVISION
 (503)229-5359

WATER QUALITY DIVISION
 (503)229-5279

DEQ LABORATORY DIVISION
 1712 SW Eleventh Avenue
 Portland, OR 97201
 ☎(503)229-5983
 Fax (503)229-6924

WASTE MANAGEMENT AND CLEANUP DIVISION
 (Cleanup, Emergency Spills Response, Hazardous Waste, Solid Waste, Site Response & Underground Storage Tanks)
 (503)229-5913

EASTERN REGION

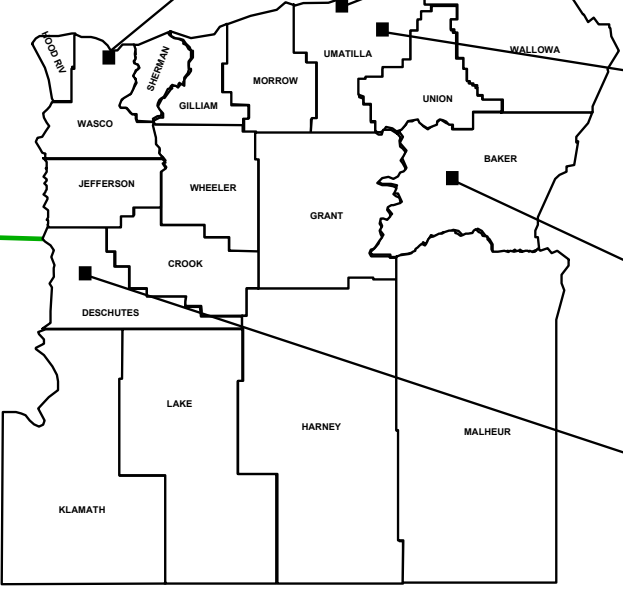
COLUMBIA GORGE OFFICE
 Columbia Gorge Community College
 400 Scenic Drive
 Building 2
 The Dalles, OR 97058
 ☎(541)298-7255
 Fax (541)298-7330

HERMISTON BRANCH OFFICE
 256 E Hurlburt
 Ste 117
 Hermiston, OR 97838
 ☎(541)567-8297
 Fax (541)561-4741

PENDLETON OFFICE
 700 SE Emigrant
 Ste 330
 Pendleton, OR 97801
 ☎(541)276-4063
 Fax (541)278-0168

BAKER CITY BRANCH OFFICE
 2034 Auburn Street
 Baker, OR 97814
 ☎(541)523-7998
 Fax (541)523-9198

BEND OFFICE
 2146 NE Fourth
 Ste 104
 Bend, OR 97701
 ☎(541)388-6146
 Fax (541)388-8283



WESTERN REGION

TELEPHONE DIRECTORY
Oregon Department of Environmental Quality
Air Quality Division
811 S.W. Sixth Avenue
Portland, Oregon 97204-1390
(503) 229-5359
FAX (503) 229-5675

Air Pollution Index

Portland 229-6397
 Eugene 726-2514
 Medford 773-7664
 Updated twice daily at: **www.deq.state.or.us**

Division Administrator

Andy Ginsburg 229-5397

Administrative Assistant

Linda Wishart 229-5388

Air Quality Planning Section

Annette Liebe, Manager 229-6919

Program Development Section

Pat Vernon, Manager 229-6480

Technical Services Section

Gerry Preston, Manager 229-6458

Air Quality Monitoring, DEQ Lab

Jeff Smith, Manager 229-5983

Vehicle Inspection Program

..... 731-3050

Small Business Assistance Coordinator

Jill Inahara 229-6147

Wendy Andersen 229-6866

Small Business Ombudsman

Vacant
 (Contact Wendy Andersen for info) 229-6866

Wood Heating Program

David Collier 229-5177

Ambient Monitoring Coordination

Anthony Barnack 229-5713

Ozone Coordinator

Patti Seastrom 229-5581

PM₁₀ and Visibility Protection Coordinator

Brian Finneran 229-6278

Carbon Monoxide Coordinator

Dave Nordberg 229-5519

Public Education Coordinator

Elizabeth Vowels 229-5254

Public Information Representative

Bill Knight 229-6840

Title III and Air Toxics

Gregg Lande 229-6411

Enforcement 229-5372

Rules Coordination

..... 229-6156

Complaints - Contact the DEQ Regional Office nearest you.
 See map (page 1) for locations and phone numbers.

Open Burning - Contact the DEQ Regional Office nearest you.
 See map (page 1) for locations and phone numbers.

Title V Permits and ACDP Permits - Contact the DEQ Regional Office nearest you.
 See map (page 1) for locations and phone numbers.

Asbestos - Contact the DEQ Regional Office nearest you.
 See map (page 1) for locations and phone numbers.

TOLL FREE IN OREGON 1-800-452-4011