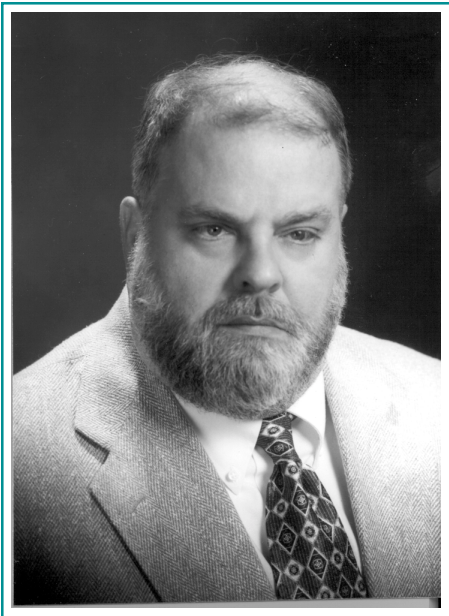


Director's Message



Brian Jennison, Ph.D.
Director

1999 was a year of change for the agency. The Director, Barbara Cole, resigned in October to accept a position with the Port of Seattle. Board member Jim Chartier stepped in as Interim Director while the Board conducted a search and interviews to fill the position permanently. I am happy to say that the Board hired me! I have eleven years of experience in the Enforcement Division of the Bay Area Air Quality Management District in San Francisco, California, and seven more as Director of the Air Quality Management Division of the Washoe County District Health Department in Reno, Nevada. I am pleased that the Board has offered me the opportunity to serve the people of Lane County, and I look forward to doing so as professionally as possible.

The agency was also successful in filling two vacant positions in Operations; we are now fully staffed and are "catching up" in the area of stationary source permit issuance. The timely issuance of federal Title V operating permits is a top priority, as identified by a strategic planning process which is on-going, and we have made great progress towards this goal: all Title V permits will be issued by the end of the year 2000.

AirMetrics, the agency's enterprise that manufactures and markets portable air pollution samplers and services worldwide, had another strong sales year in 1999. A five-year business plan was developed and implemented, and work continues on the development of a new and better sampler, the prototype of which will be unveiled in 2000. Some of the profits from AirMetrics were used to pay down the capital costs of LRAPA's new offices here in Springfield; the rest were plowed back into the enterprise for further research and development.

The agency continued to work jointly with the Oregon Department of Environmental Quality on developing a statewide emissions inventory for hazardous air pollutants. We also continued to update emissions inventories for volatile organic compounds and particulates so that we may have as accurate a picture as possible of the types, sources and amounts of air pollution in Lane County.

Although the Y2K "crisis" didn't materialize, the agency believes this is due in large part to efforts undertaken by our Data Management group, which included upgrading both the hardware and software of our main LAN server. We also completed the laboratory addition to our offices, and have moved all lab-related personnel and activities to the new facility. Air monitoring staff implemented a fine particulate monitoring demonstration project.

Lastly, the agency continued its efforts in the area of public education. An ozone action day "hot-line" was established in cooperation with the Lane Transit District; staff worked with the City of Oakridge to seek solutions to their winter-time wood-smoke problem; an air pollution awareness educational program for elementary school students was begun; and staff continued to participate in a variety of community-wide events, in order to raise people's awareness that what they do as individuals CAN make a difference in lessening air pollution in Lane County.



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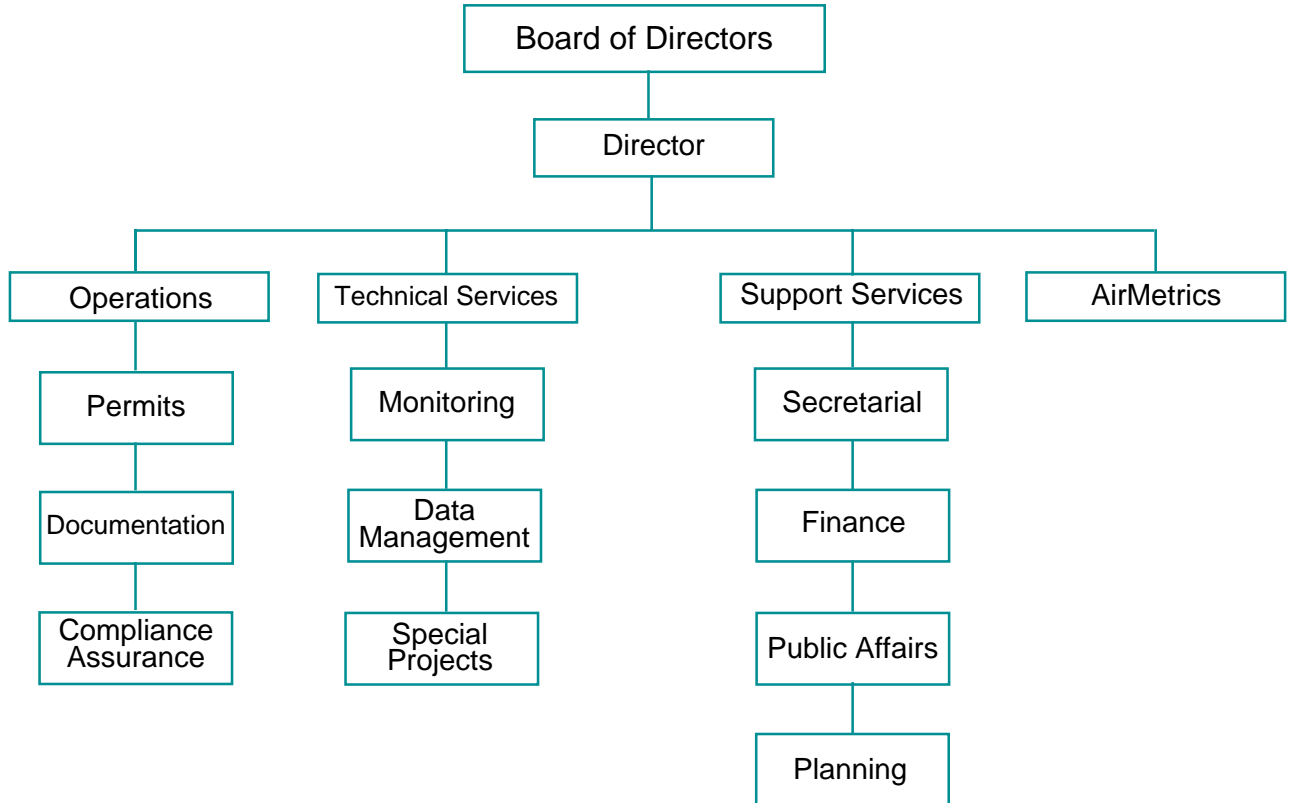


LRAPA's newly remodeled administrative office at 1010 Main Street in Springfield. The laboratory addition on the right side of the building was completed in Fall '99.

LRAPA Organization



Staff Organizational Chart



LRAPA Phone Numbers



Business Office	736-1056
Eugene/Springfield Home Wood Heating Advisory Line	746-HEAT
Eugene/Springfield Backyard Burning Advisory Line	726-3976
Oakridge Home Wood Heating Advisory Line	782-2414
24-Hour Complaint Line	726-1930
Toll-Free Line	1-877-285-7272
LRAPA Air Line	485-2000, ext. 4273
Internet Home Page	www.lrapa.org



LRAPA Organization

1999 LRAPA Board of Directors

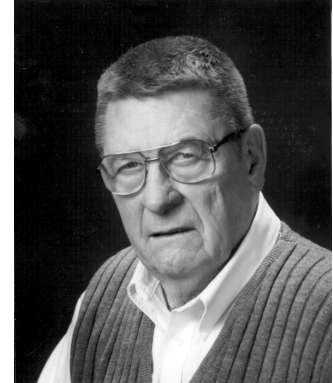
The LRAPA Board of Directors is a seven-member board which meets monthly to establish policy and adopt agency regulations. Board members are appointed by their respective city councils and the Lane County Board of Commissioners. Membership includes three representatives from the city of Eugene, one each from Lane County and the city of Springfield, one from either the city of Cottage Grove or city of Oakridge, and one at-large representative appointed by the board. Cities with more than one member may appoint the second or third member from the public within their jurisdictions.



Betty Taylor - 3 yrs. service
Eugene City Council



Sid Leiken - 1 yr. service
Springfield City Council



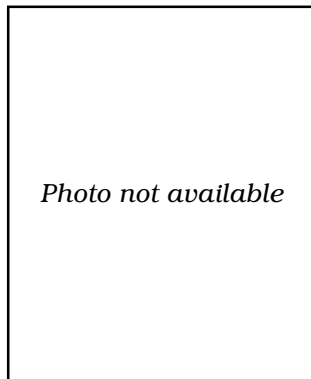
Pat Patterson - 3 yrs. service
Cottage Grove City Council



Al Johnson — Chair - 5 yrs. service
Eugene City Council



Pete Sorenson - 1 yr. service
Lane County Board of Commissioners



Gary Whitney — Vice Chair
- 4 yrs. service
LRAPA Board Appointment



Jim Chartier - 1 yr. service
Eugene City Council Appointment

Organization, cont.

1999 LRAPA Citizens Advisory Committee

The LRAPA Citizens Advisory Committee includes local interested citizens representing specific areas of interest, including agriculture, community planning, fire suppression, industry, public health and the general public. The committee is called upon to advise the board and staff on a variety of air quality issues, rules and policies. Up to 15 members may comprise the committee at any one time.

- Lorena Young - 7 yrs. service — Chair
Representing General Public
- John Fischer - 9 yrs. service — Vice Chair
Representing General Public
- Paul Engleking - 2 yrs. service
Representing Environment
- Sharon Fahrion- 3 yrs. service
Representing Health
- Dave Breitenstein- 1 yr. service
Representing General Public
- John Santerre - 4 yrs. service
Representing General Public
- Dave Seluga - 5 yrs. service
Representing Industry
- Dan Shults - 6 yrs. service
Representing Fire Suppression
- John Tamulonis - 1 yr. service
Representing Planning
- Ben Thompson - 3 yrs. service
Representing Agriculture
- Fred Walter - 7 yrs. service
Representing General Public

1999 LRAPA Budget Committee

The LRAPA Budget Committee consists of the LRAPA Board of Directors plus seven board-appointed citizens. The committee meets yearly to review and approve LRAPA's budget request. 1999 appointed committee members include:

- Dave Balthrop
- Trish Binder
- Eric DeFreest
- Tom Gentle
- Steve Pauls
- Dave Seluga
- Hilda Young

Program Operations

The board of directors appoints the director of the agency, who has overall authority to appoint and direct the LRAPA staff. The director makes policy recommendations to the board and is responsible for implementing board decisions.

The LRAPA staff consists of 22 professional and technical full-time employees (equivalencies) who perform permitting, enforcement, planning, clerical, financial, enterprise, and public information and outreach programs.

Operations — Permitting, Compliance Assurance and Enforcement

Permitting establishes conditions under which regulated industrial sources may operate to minimize their contribution to air pollution in the area. *Compliance* is assured through inspections of permitted sources. *Enforcement* acts to correct violations by industrial sources; enforces regulations related to open burning and asbestos abatement; enforces emission limit regulations; and responds to and resolves public complaints about air quality. Enforcement includes administering contested case hearings and negotiating settlements.

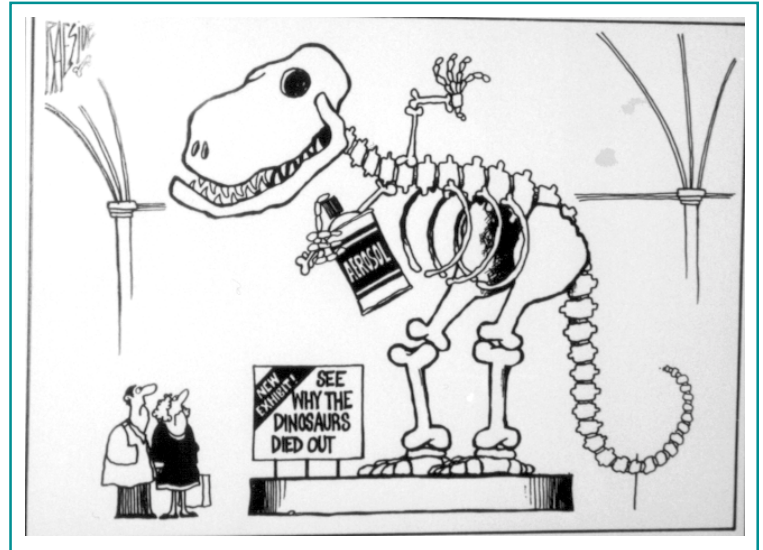
Technical Services — Monitoring and Data Management

Ambient monitoring provides measured air quality data through a network of sampling and continuous monitoring equipment. *Source monitoring* provides a quality assurance program for continuous monitoring at air emission sources.

Data Management, using a variety of techniques, determines whether ambient air quality standards are met, and provides technical assistance in the development of program priorities and program planning.

AirMetrics

AirMetrics is an enterprise that manufactures and markets the agency's MiniVol portable air pollution sampling device, and provides filter analysis and training on the operation of air monitoring networks that use these portable samplers.



Administrative

Public education and information promotes public understanding of air pollution and methods of prevention through public presentations, media relations, intergovernmental relations, and audio/visual and written materials; designs public education campaigns and programs; produces a quarterly newsletter and annual report; issues daily air pollution advisories to the media and public; and responds to public complaints and inquiries about air quality. LRAPA speakers are available to address community groups upon request.

Air quality planning identifies present and future air quality problems and develops appropriate emission control strategies designed to achieve and maintain healthy air quality. One of LRAPA's goals is to forestall or prevent the occurrence of future problems as population growth occurs. LRAPA works together with other local planning, transportation and community development agencies to ensure adequate attention is given to air quality concerns.

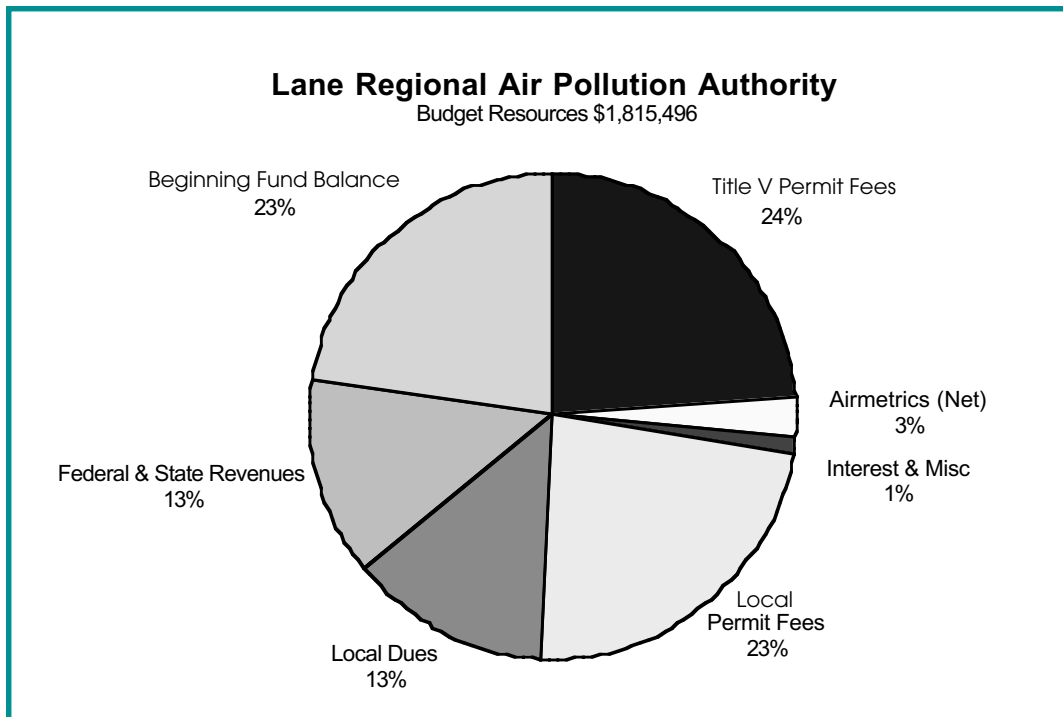
Finance provides the agency with full financial management services, including accounting, budgeting, grant writing and reporting, facilities and fleet, and human resource support services.

Funding / Budget

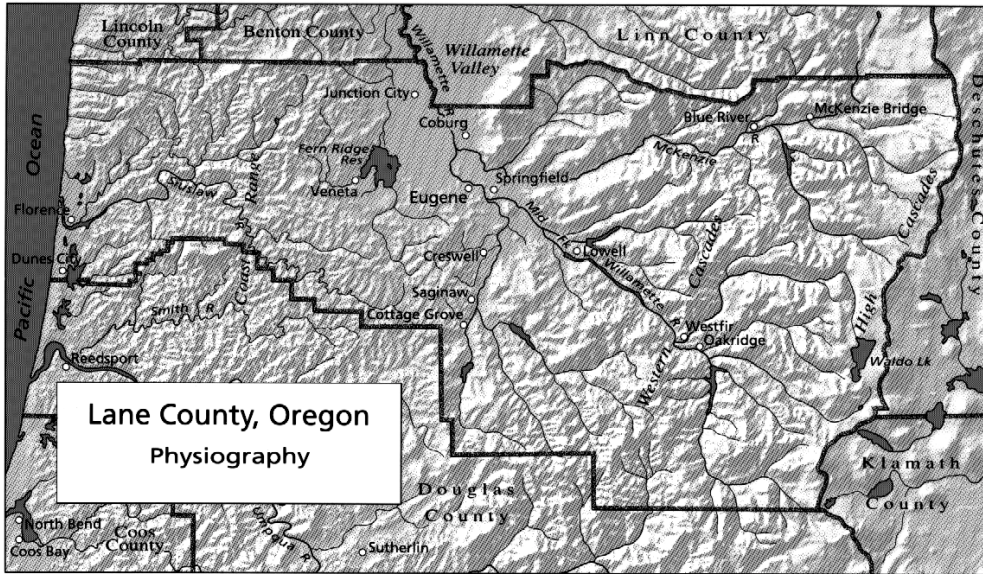


LRAPA's funding comes from many sources, including local contributions (Lane County and the cities of Eugene, Springfield, Oakridge and Cottage Grove), state and federal grants, industrial and open burning permit fees, asbestos fees, AirMetrics sales and services, and miscellaneous contracts. A beginning fund balance is budgeted to provide for expenses incurred during the early part of the fiscal year, before other revenues are received.

In FY '99/00, local member annual dues were increased by 5 percent. In addition, the agency proposed an increase in fees for Air Contaminant Discharge Permits to help cover increased operating costs. If the proposed increase is adopted, permit fees will still continue to average below comparable permit fees charged at the state level. The proposed fee change is expected to take effect in July of 2000.



Lane County: The Setting, Topography and Meteorology



The setting: The 'Willamette Valley'

Lane County is located at the southern end of the Willamette Valley and stretches from the Cascade Mountains to the Pacific Ocean. The county's population is around 313,000 or about 10 percent of the state's total population. The incorporated cities of Eugene and Springfield comprise the second largest urban area in Oregon with an estimated 185,160 residents.

The Eugene/Springfield metropolitan area is the most populated portion of Lane County, both in terms of people and industry. Because of this, the area has the greatest potential for air quality degradation as the population continues to grow. However, several other areas of Lane County experience seasonal air quality problems due to residential wood burning, forest slash burning and agricultural field burning. Many smaller cities within Lane County are surrounded by large tracts of agricultural and forest land. The city of Oakridge, for example, located about 40 miles southeast of Eugene/Springfield in the Willamette National Forest, experiences high concentrations of particulates in the wintertime months from home wood

heating. The areas of Cottage Grove, Marcola, Veneta, Elmira, and Junction City experience seasonal air quality problems resulting from slash and agricultural field burning.

During the summer months, ozone pollution is becoming a growing concern throughout the Willamette Valley.

Topography and meteorology influence air quality

Many of the inland areas of Lane County experience periods of air stagnation. When this happens during winter months, cold air often becomes trapped near the valley floor with slightly warmer air aloft, creating temperature inversion conditions. The combination of cold, stagnant air and restricted ventilation causes air pollutants to become trapped near the ground. Although temperature inversions can occur anytime, they are most frequent and pose most harm to air quality in the winter when many residents are using wood to heat their homes. During these episodes, smoke and gas concentrations climb, causing the local air quality to deteriorate.

NAAQS and Local Air Quality

The Environmental Protection Agency (EPA) has established health-based standards for six air pollutants (criteria pollutants): particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂) and lead (Pb). These National Ambient Air Quality Standards (NAAQS) are set to protect against adverse health and environmental effects. Concentrations of these criteria pollutants must be continually measured to ensure the standards are met. Areas that fail to meet the NAAQS are designated as “non-attainment” areas by EPA and are required, by law, to develop strategic plans to bring the areas back into compliance with the standards and maintain compliance.

highest particulate levels from wintertime residential wood burning, when the temperatures are very cold and dry, and winds are calm.

Both the Eugene/Springfield area and Oakridge have been designated PM₁₀ “non-attainment” areas.

The Eugene/Springfield area was first designated a “non-attainment” area January 10, 1980, for exceeding the 24-hour secondary “total suspended particulate” (TSP) standard. The TSP standard was changed to the PM₁₀ standard in 1987, which resulted in a PM₁₀

Continued

Lane County — Criteria Pollutants

In Lane County, four criteria pollutants are measured: particulate matter, carbon monoxide, ozone and lead. The Eugene/Springfield area is monitored for all four pollutants, while the city of Oakridge is monitored for particulate matter only.

LRAPA measures pollutants at five locations in Eugene, two locations in Springfield, one location in Oakridge (south-east of Eugene/Springfield), one location in Saginaw (south of Eugene/Springfield) and one location in Cottage Grove (south of Saginaw).

Particulate Matter

Although there are a variety of sources of particulate matter, such as industry, dust, construction, and wood burning, studies have indicated that Lane County typically experiences its

Federal Ambient Air Quality Standards		
Pollutant	Federal Standard	Monitoring Status in Lane County
Particulate (PM_{2.5}) 24-hour standard Annual standard	65 ug/m ³ 15 ug/m ³	Required Required
Particulate (PM₁₀) 24-hour standard Annual standard	150 ug/m ³ 50 ug/m ³	Required Required
Carbon Monoxide (CO) 8-hour average 1-hour average	9 ppm 35 ppm	Required Required
Ozone (O₃) 8-hour average	0.08 ppm	Required
Sulfur Dioxide (SO₂) 24-hour average 1-hour average	0.14 ppm 0.10 ppm	Not required Not required
Nitrogen Dioxide (NO₂) Annual average	0.05 ppm	Not required
Lead (Pb)	1.5 ug/m ³	Required

ug/m³ — micrograms per cubic meter
ppm — parts per million

NAAQS and Local Air Quality, cont.

"non-attainment" designation on August 7, 1987.

Oakridge was proposed a PM₁₀ "non-attainment" area in September 1992, and designated on January 20, 1994. PM₁₀ standards were last exceeded in the Eugene/Springfield area in 1987. Oakridge last exceeded the federal PM₁₀ standard in 1993. Close evaluation of monitoring data indicates Oakridge may have difficulty meeting new PM_{2.5} standards in the future. LRAPA is working with the community to help them understand the situation and identify the community's preferences for ways to prevent future violations.

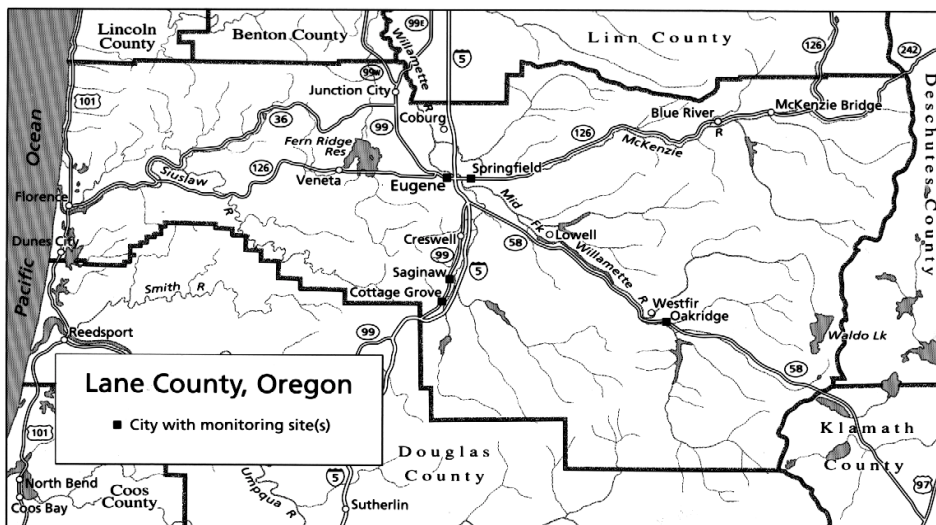
In 1999, all of Lane County met both the annual and 24-hour PM₁₀ standards, as well as the annual PM_{2.5} standard. The city of Oakridge, however, exceeded the 24-hour PM_{2.5} standard on one occasion, December 27, when concentrations were measured at 72 micrograms per cubic meter of air (the standard is 65). The standard allows for several yearly excursions over the threshold, without an area

being designated "non-attainment." As expected, weather during that period was very cold and dry, with little wind.

Ozone (O₃)

Ozone, a by-product of nitrogen oxides and volatile organic compounds reacting in the presence of sunlight in warm temperatures, is also formed naturally as a by-product of the photosynthesis process of plants, as well as by many human activities, such as industrial operations, and use of the automobile. Naturally occurring background levels of ozone in Lane County are greatly influenced by the area's heavy forests. During hot, calm weather, the combination of human and natural sources of the pollutants contributing to ozone has the potential to cause ozone levels to rise near or above the standard on occasion. Similar to the particulate standard, the ozone health-based standard has been designed to allow for the occasional excursion over the standard, without triggering an exceedance of the actual standard.

Continued



Lane County map highlighting locations of cities with air monitoring sites.

NAAQS and Local Air Quality, cont.

Ozone concentrations have been monitored in the Eugene/Springfield area since May 1974. The area has remained in attainment with federal standards since that time.

During the 1999 season, a mild summer kept Lane County's ozone levels below the thresholds of both the one-hour standard and eight-hour standard (currently under review).

Carbon Monoxide (CO)

Carbon monoxide (CO) is an odorless, colorless gas associated with any form of combustion. LRAPA began monitoring CO in 1971, and has continued to monitor it in downtown Eugene. The Eugene/Springfield area was designated a "non-attainment" area for CO March 3, 1978, after monitoring data confirmed levels exceeded the federal standards on numerous occasions. The area was redesignated an "attainment" area February 4, 1994. The CO standard was last exceeded in 1986 in the Eugene/Springfield area. The standard allows for one eight-hour exceedance per calendar year.

Lead (Pb)

LRAPA is required to sample for lead because of Eugene/Springfield's population base; however, a measurable concentration has never been detected.



One of three LRAPA monitoring sites equipped to collect and log both pollution and meteorological data.

Particulate Matter/Ozone Air Quality Health Standards Under Review

In 1996, new health-based standards were proposed by the U.S. Environmental Protection Agency (EPA) for ambient ozone and particulate matter. The standards became effective September 16, 1997. The changes were published in the Federal Register, Volume 62, No. 138, on Friday, July 18, and promulgated concurrently, effective September 16, 1997.

However, in October 1999, the U.S. Court of Appeals reaffirmed an earlier controversial decision by a three-judge panel to block EPA from enforcing the new standards, citing that EPA had used "unconstitutional delegation of legislative authority" in establishing the regulations. The Court also revoked the revised form

of the PM₁₀ standard, leaving the traditional PM₁₀ standard in effect.

The U.S. Supreme Court is currently reviewing the lower court's decision. EPA has encouraged states to proceed with monitoring under the new standards until legal matters have been settled.

Particulate Matter (PM)

Currently, there are four particulate standards: two for particulates 10 microns and smaller in size — PM₁₀ annual and PM₁₀ 24-hour, and

Continued
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NAAQS and Local Air Quality, cont.

two for fine particulates measuring no larger than 2.5 microns in size — PM_{2.5} annual and PM_{2.5} 24-hour, although the PM_{2.5} standards are not enforceable at this time.

- ◆ Annual PM₁₀ Standard — The annual PM₁₀ standard is met when the three-year average of the annual mean PM₁₀ concentration at each monitoring site is less than or equal to 50 micrograms per cubic meter.
- ◆ 24-hour PM₁₀ — The 24-hour PM₁₀ standard is met when the three-year average of the annual 99th percentile values at each monitoring site is less than or equal to 150 micrograms per cubic meter.
- ◆ *Annual PM_{2.5} — The annual PM_{2.5} standard is met when the three-year spatially-averaged annual mean at each monitoring site is less than or equal to 15 micrograms per cubic meter.
- ◆ *24-hour PM_{2.5} standard — The 24-hour PM_{2.5} standard is met when the three-year average of the 98th percentile value at each monitoring site is less than or equal to 65 micrograms per cubic meter.

*Established in 1997 and currently under review.

Under the new revisions, areas were required to begin collecting PM_{2.5} data in January 1999. Areas which fail to meet the standard will be designated “non-attainment” by EPA in the year 2002. LRAPA began measuring PM_{2.5} levels in Eugene in March of 1998, and began measuring levels in the city of Oakridge later that year, in November.

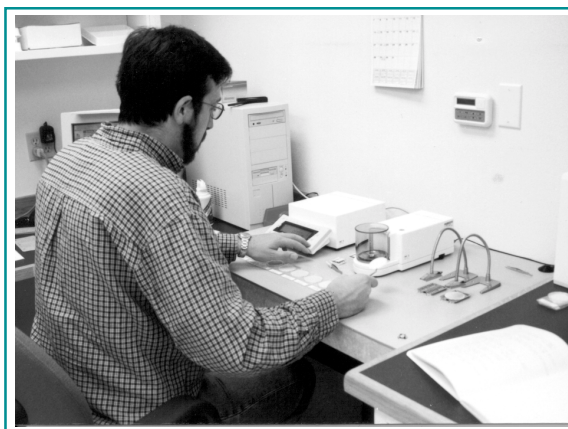
Ozone

Currently, there are two ozone standards: a one-hour standard and an eight-hour standard, although the eight-hour standard is not enforceable at this time.

- ◆ One-hour ozone — The one-hour ozone standard is attained when the daily maximum one-hour concentration does not exceed 0.12 parts per million more than once per year, averaged over three consecutive years.
- ◆ *Eight-hour — The eight-hour ozone standard is attained when the consecutive three-year average of the annual fourth highest daily maximum eight-hour average concentration does not exceed 0.08 parts per million.

*Established in 1997 and currently under review.

Under the new revision, areas are required to provide to EPA eight-hour ozone collection data for declaration of attainment status in the year 2000.



LRAPA's Tim Sawyer weighs PM_{2.5} filters in the agency's recently completed lab.

Criteria Pollutants



Pollutant	Description	Sources	Health Effects	Environmental Effects
Particulate Matter PM	PM ₁₀ : Respirable particles less than 10 microns in size PM _{2.5} : Respirable particles less than 2.5 microns in size	Wood burning; Industry; Fugitive dust; Construction activities; Street sand application; Combustion sources; Transportation; Open burning; NO _x , SO ₂ , VOC gases	Aggravates ailments such as bronchitis and emphysema; Especially bad for those with chronic heart and lung disease, as well as the very young and old, and pregnant women	Causes reduced visibility and haze
Carbon Monoxide CO	An odorless, colorless gas which is emitted primarily from any form of incomplete combustion	Gasoline and diesel-powered mobile sources, such as autos, trucks, buses and locomotives; Wood burning; Open burning; Industrial combustion sources	Deprives the body of oxygen by reducing the blood's capacity to carry oxygen; Harmful to unborn children; Causes headaches, dizziness, nausea; In high doses, may cause death	
Ozone O₃	A toxic gas associated with smog; formed when nitrogen oxides (NO _x) and volatile organic compounds (VOC) react with one another in the presence of sunlight and warm temperatures	VOCs and NO _x from gasoline-powered mobile sources; Industry; Powerplants; Gasoline transfer and storage; Paints and solvents; Consumer products	Irritates eyes, nose, throat and respiratory system; Especially bad for those with chronic heart and lung disease, as well as the very young and old, and pregnant women	Can cause damage to plants and trees; smog can cause reduced visibility
Nitrogen Dioxide NO₂	A poisonous gas produced as a by-product of high burning temperatures	Combustion processes — fossil fuel power, motor vehicles, industry; Home heating; Fertilizer manufacturing	Harmful to lungs, irritates bronchial and respiratory systems; Increases adverse symptoms in asthmatic patients	Contributes to acid fog and rain, which can damage plant and aquatic life; Can cause reduced visibility; Precursor to smog
Sulfur Dioxide SO₂	A pungent, colorless gas that combines with water vapor to become sulfurous acid (H ₂ SO ₃), which, when combined with oxygen, produces sulfuric acid (H ₂ SO ₄), a very corrosive and irritating chemical	Fossil fuel power plants; Nonferrous smelters; Kraft pulp production	Irritates respiratory system; Increases the risk of adverse symptoms in asthmatic patients	Contributes to acid fog and rain, which can damage plant and aquatic life; Dissolves stone and corrodes iron and steel; Can contribute to reduced visibility
Lead Pb	A widely used metal, which may accumulate in the body	Leaded gasoline; Battery manufacturing; Battery recycling; Smelting	Causes intestinal distress, anemia and damage to the central nervous system, kidneys and brain; Children more adversely affected than adults	Harmful to wildlife



Particulate Matter Data



Yearly PM₁₀ Levels — 1989 - 1999 (ug/m³)

Site #	Site Name	Notes	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2018056	Lane Community College (downtwn)	a	27	23	27	25	25	21	21	18	21	17	19
		b	91	50	95	61	68	66	52	60	52	63	47
		c	79	48	73	54	59	42	49	46	49	56	45
		d	0	0	0	0	0	0	0	0	0	0	0
2018058	Key Bank— Hwy 99N	a	34	31	38	31	33	31	27	22	23	20	20
		b	146	118	126	123	103	125	84	66	50	68	53
		c	125	102	121	98	92	62	70	60	49	67	41
		d	0	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park	a	26	24	34	25	24	20	19	17	19	15	18
		b	92	49	73	101	70	71	63	61	54	59	60
		c	86	46	62	55	64	46	57	45	53	49	46
		d	0	0	0	0	0	0	0	0	0	0	0
2030003	Willamette Acti. Center— Oakridge	a	—	33	37	32	32	26	23	22	21	19	20
		b	165	149	187	178	166	144	142	84	96	80	99
		c	122	142	184	161	151	143	135	78	90	79	73
		d	1	0	9	2	1	0	0	0	0	0	0
2033060	Springfield City Hall	a	28	25	30	27	28	24	22	19	21	19	16
		b	91	57	97	56	66	74	48	58	57	62	57
		c	71	56	89	55	61	51	44	55	49	59	56
		d	0	0	0	0	0	0	0	0	0	0	0
2033061	Springfield High School	a	---	---	29	31	25	---	---	---	---	---	---
		b	---	---	99	53	66	---	---	---	---	---	---
		c	---	---	85	53	60	---	---	---	---	---	---
		d	---	---	0	0	0	---	---	---	---	---	---
2009002	Harrison Elem. Sch. — Cottage Grove	a	---	24	29	27	26	23	22	19	20	17	19
		b	---	77	132	69	68	109	93	52	75	50	49
		c	---	59	71	60	67	57	46	49	54	48	41
		d	---	0	0	0	0	0	0	0	0	0	0
2018063	Santa Clara	a	---	---	---	---	---	20	18	17	---	---	---
		b	---	---	---	---	---	107	68	59	56	---	---
		c	---	---	---	---	---	100	63	56	32	---	---
		d	---	---	---	---	---	0	0	0	0	---	---

Standards:
 24-hour average — 150 micrograms/cubic meter (ug/m³)
 Annual arithmetic mean — 50 micrograms/cubic meter

Notes:
a Annual arithmetic mean
b Highest 24-hour concentration
c 2nd highest 24-hour concentration
d Number of days over 24-hour standard
 --- No data collected at site during year



Particulate Matter Data cont.

Yearly PM_{2.5} Levels — 1998 - 1999

Site #	Site Name	Notes	1998	1999
2033061	Springfield High School	a	---	---
		b	---	36.5
		c	---	26.5
		d	---	0
2018060	Amazon Park	a	---	8.6
		b	35.7	52.6
		c	21.1	36.3
		d	0	0
2030003	Willamette Acti. Center - Oakridge	a	---	13.0
		b	73.8	72.0
		c	46.2	57.0
		d	1	1
2000036	Delight Valley School - Saginaw	a	---	6.7
		b	---	24.7
		c	---	20.8
		d	---	0

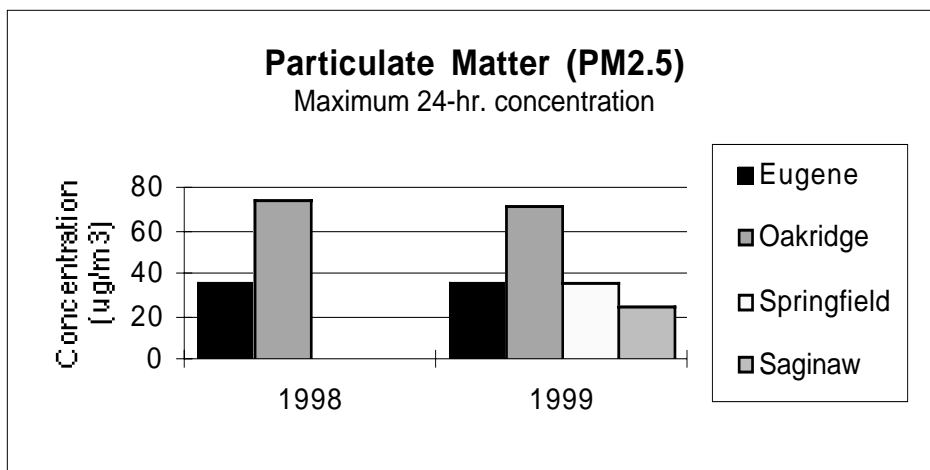
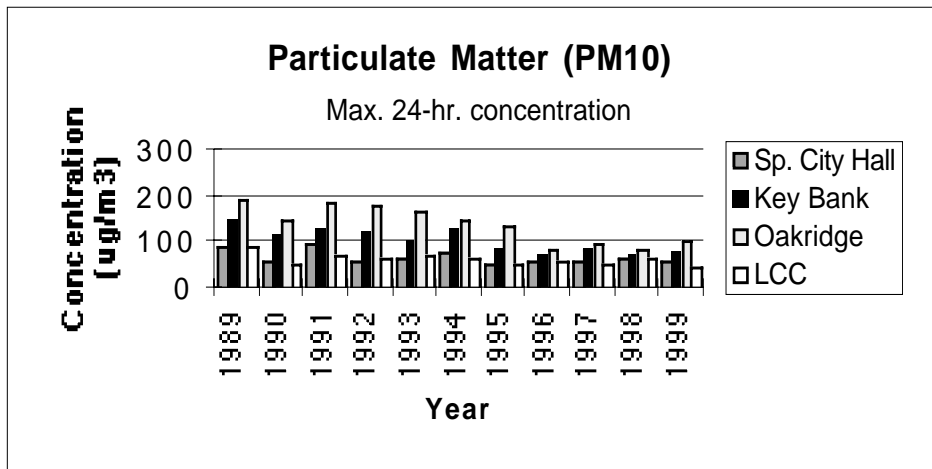
Standards:

Annual arithmetic mean — 15 micrograms/cubic meter

24-hour average — 65 micrograms/cubic meter of the 98th percentile of measured concentrations

Notes:

- a Annual arithmetic mean
- b Highest 24-hour concentration
- c 98th percentile concentration
- d Number of days over 24-hour standard
- No data collected at site during year



Ozone Data



Yearly Eight-Hour Ozone Levels — 1989 - 1999

Site #	Site Name	Notes	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2000036	Delight Valley School — Saginaw	a	.067	.078	.070	.086	.068	.081	.077	.095	.070	.095	.072
		b	.061	.075	.063	.077	.054	.070	.064	.089	.059	.078	.069
		c	0	0	0	3	0	1*	0	6*	0	2	0
2018060	Amazon Park	a	.066	---	.073	.082	.067	.076	.074	.098	.063	.082	.063
		b	.061	---	.063	.071	.056	.068	.060	.084	.057	.073	.057
		c	0	---	0	2	0	0	0	3*	0	0	0

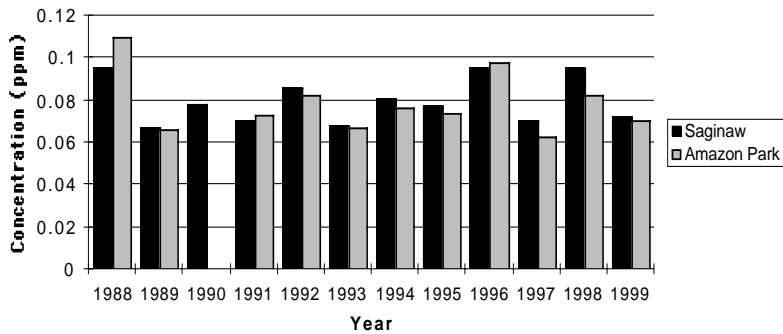
Standard:

Fourth highest 8-hour average: 0.08 parts per million (technically must be ≥ 0.085 ppm for an exceedance)

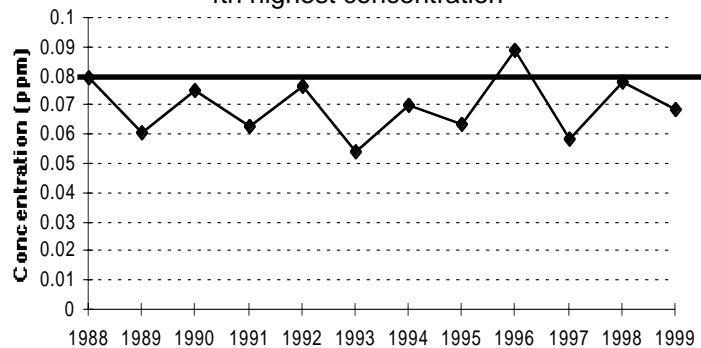
Notes:

- a** Highest 8-hour concentration
- b** 4th highest 8-hour concentration
- c** Number of exceedances
- No data collected at site during year
- * Prior to the 1998 established standard; not a formal exceedance

Ozone: Max. 8-hr. Levels



Yearly 8-hr. Ozone Levels: 4th highest concentration



Ozone Data, cont.

Yearly One-hour Ozone Levels — 1989 - 1999

Site #	Site Name	Notes	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2000036	Delight Valley School — Saginaw	a	.089	.092	.094	.103	.084	.094	.090	.111	.077	.121	.086
		b	.075	.091	.092	.095	.080	.090	.087	.104	.071	.106	.084
		c	0	0	0	0	0	0	0	0	0	0	1
2018060	Amazon Park	a	.084	---	.089	.099	.081	.085	.089	.111	.077	.094	.071
		b	.078	---	.088	.095	.073	.082	.077	.105	.073	.089	.068
		c	0	---	0	0	0	0	0	0	0	0	0

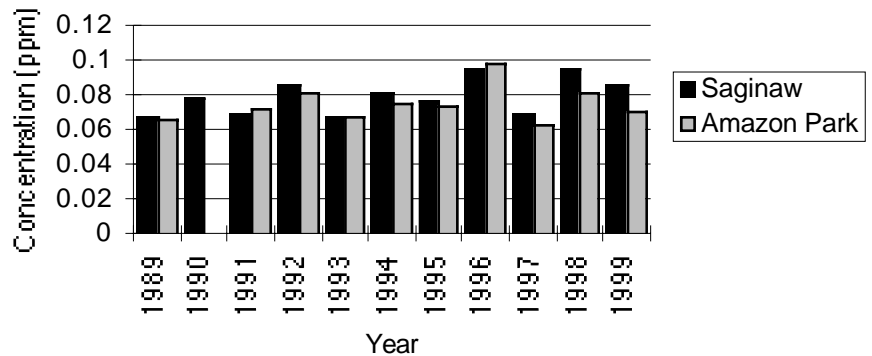
Standard:

1-hour average: 0.12 parts per million

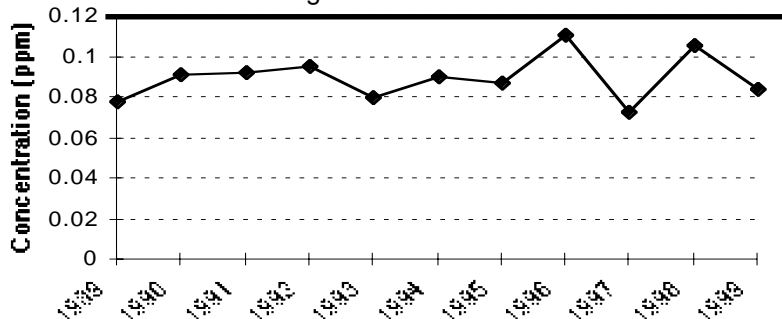
Notes:

- a** Highest 1-hour concentration
 - b** 2nd highest 1-hour concentration
 - c** Number of exceedances
 -
- No data collected at site during year

Ozone: Max. 1-hr. Levels



Yearly 1-hr. Ozone Levels: 2nd. highest 1-hr. concentration



Carbon Monoxide Concentrations



Yearly Carbon Monoxide Levels — 1989 - 1999

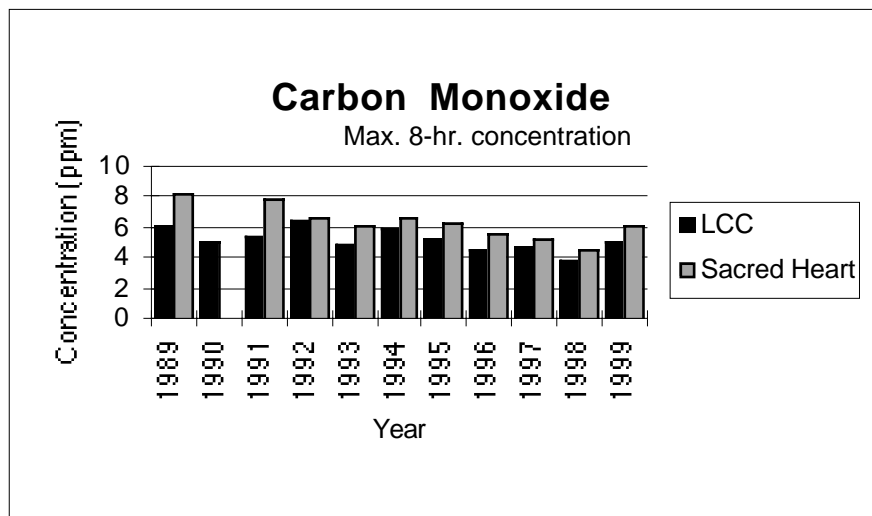
Site #	Site Name	Notes	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2018056	Lane Comm. College (downtown)	a	6.1	5.1	5.5	6.5	4.9	6.0	5.3	4.6	4.8	3.9	5.1
		b	6.0	4.8	5.4	5.5	4.7	4.5	4.7	4.6	4.7	3.9	3.9
		c	0	0	0	0	0	0	0	0	0	0	0
2018058	Sacred Heart Medical Center	a	8.3	6.0	7.9	6.6	6.2	6.6	6.4	5.6	5.2	4.6	6.1
		b	8.2	5.5	6.7	6.4	5.9	6.3	5.7	5.5	5.2	4.6	4.9
		c	0	0	0	0	0	0	0	0	0	0	0

Standard:

8-hour average — 9 parts per million

Notes:

- a** Highest 8-hour concentration
- b** 2nd highest 8-hour concentration
- c** Number of exceedances
- No data collected at site during year



Lane County Home Wood Heating Programs



The Eugene/Springfield area and the city of Oakridge have home wood-heating advisory programs due to episodes of poor wintertime air quality on stagnant days. Residential wood stove smoke is a major source of PM₁₀ and PM_{2.5} emissions in these areas. Home wood-heating advisory programs in Lane County use a simple "green, yellow, red" advisory system to inform residents whether or not wood-burning is allowed. The programs do not generally ban the practice of burning, but rather ban visible emissions during "red" advisory periods. Residents are notified of the daily advisories through local media, such as newspapers, radio and television stations. In addition, residents may call a 24-hour advisory line for up-to-date information.

Eugene/Springfield Program ◆ ◆ ◆

The Eugene/Springfield area began its home wood-heating advisory program in 1986 to reduce pollution caused from home wood-heating, a major wintertime source of particulates. Eugene/Springfield was designated a federal non-attainment area August 7, 1987, after violating the federal PM₁₀ standards on various occasions in past years. The program changed from voluntary to mandatory in January 1991, as part of LRAPA's federally required implementation plan designed to bring the area back into compliance with PM₁₀ standards.

The Eugene/Springfield mandatory program is now in its ninth season. Residents living within the Eugene/Springfield Urban Growth Boundary (ESUGB) are affected by the program, which runs from November 1 through the end of February each year. Residents with economic hardship may be granted exemptions from the program on a yearly basis.

In addition to the "green, yellow, red" advisories, the mandatory program includes a Phase II "red" advisory, which prohibits all burning in wood stoves without an exemption in cases of severe deterioration in air quality.

Because this program is mandatory, residents who violate a "red" advisory provision may be fined \$50 to \$500. No "red" advisory periods have been called since the inception of the program, nor have the PM₁₀ standards been exceeded since 1987, when levels rose above the standards on three occasions.

Oakridge Program ◆ ◆ ◆

The city of Oakridge adopted its home wood heating advisory program in 1989, after air quality data showed Oakridge exceeded the federal PM₁₀ standard on numerous occasions. Five years later, on January 20, 1994, EPA officially declared Oakridge a PM₁₀ non-attainment area. The 1998-99 season marked the tenth season of the program.

As in the Eugene/Springfield area, the advisory season runs from November 1 through February of each year. However, unlike Eugene/Springfield, Oakridge's program has remained voluntary, pending adoption of its State Implementation Plan (SIP) by EPA. The SIP outlines strategies to be used for curbing pollution in Oakridge.

Strategies in the SIP include the reduction of PM₁₀ emissions through voluntary burning curtailment with a provision for mandatory curtailment upon failure to meet a predetermined attainment schedule; a city-operated program to replace old, uncertified wood stoves with cleaner burning systems; enhanced public education; and measures to reduce road dust. A comparative study of home wood heat use and its relation to changes in heating systems, and a chemical mass balance analysis of air monitoring filters, helped LRAPA staff devise strategies needed for compliance with the federal clean air standards.

The Oakridge SIP was adopted by EPA in March '99, and became effective May 14, 1999.



Home Wood Heating, cont.

Home wood-heating advisories are an integral part of the home wood heating program. Advisories are determined by comparing current pollution levels to current meteorological conditions and weather forecasts. Typically, a "green" advisory is called when pollution levels are less than 50 percent of the federal standard. A "yellow" advisory is called when pollution levels are between 50-70 percent of the federal standard. A stage I "red" advisory is called when levels rise between 70-85 percent of the standard, and a stage II advisory is called when levels rise above 85 percent of the standard and weather conditions are forecast to remain the same or worsen.

Eugene/Springfield HWH Advisories 1989 - 2000 Season				
Season Year	Yellow	Red I	Red II	PM ₁₀ Exceedances
1999-2000	0	0	0	0
1998-1999	0	0	0	0
1997-1998	0	0	0	0
1996-1997	0	0	0	0
1995-1996	0	0	0	0
1994-1995	0	0	0	0
1993-1994	0	0	0	0
1992-1993	3	0	0	0
1991-1992	1	0	0	0
1990-1991	4	1	0	0
1989-1990	25	0	0	0

Oakridge HWH Advisories 1990 - 2000 Season			
Season	Yellow	Red	PM Exceedances
*1999-2000	11	0	2
*1998-1999	6	0	1
1997-1998	1	0	0
1996-1997	5	0	0
1995-1996	5	0	0
1994-1995	7	3	0
1993-1994	16	3	0
1992-1993	11	7	1
1991-1992	5	11	3
1990-1991	8	13	8

* Based on PM_{2.5} monitored levels.

Firewood	Available Heat
Tree Species	Million Btu/Cord 20% Moisture
Alder	20
Apple	35
Ash	27
Birch	24
Cedar	16
Cherry	25
Cottonwood	17
Elm, American	18
Fir, Douglas	23
Fir, White	19
Hemlock	21
Juniper	25
Madrone	34
Oak, Red	29
Oak, White	33
Maple	25
Pine, Lodge pole	20
Pine, Ponderosa	18
Pine, White	18
Poplar	12
Walnut, Black	25
Walnut, English	25
Willow	16

**Wood Burning
Advisories**
(November — February)

Eugene / Springfield

Green— means air quality is good at this time and unrestricted use of a wood-heating device is allowed.

Yellow— means air quality is deteriorating. Residents are asked to cut back on home wood-heating use.

Red I— means air quality is reaching an unhealthy stage. Visible smoke from a chimney will result in a violation, unless the resident has an exemption. Burning is allowed if done without producing any visible smoke.

Red II— means all burning must stop. Use of a pellet stove is allowed if no visible smoke is emitted into the air.

Oakridge

Green— Burn only dry, well-seasoned wood.

Yellow— Don't burn unless absolutely necessary.

Red— Stop using wood stoves and fireplaces.

**1999
Home Wood Heating
Exemptions (Eug./Spfld.)**

Number of applications received (economic need only)	27
Number of exemptions granted	27

- Where to find
advisory information**
- ✓ Major area radio stations
 - ✓ Local television stations during weather portion of newscasts
 - ✓ Local newspaper weatherpages
 - ✓ Guardline — 485-2000, ext. 4273
 - ✓ Eugene/Springfield area home wood-heating call line — **746-HEAT**
 - ✓ Oakridge home wood-heating call line — **782-2414**

Permit Program Summary

There are 168 industrial and commercial businesses that have LRAPA air permits, allowing them to operate in Lane County. Typically, two types of permits are issued — operating permits, which establish conditions under which an industrial company may operate in accordance with LRAPA regulations; and construction-type permits, which allow for construction activities of LRAPA-regulated companies. Both permit types are designed to allow a business to operate in a manner consistent with LRAPA's goal to protect public health and the environment.

Operating Permits

LRAPA issues two types of operating permits, the Air Contaminant Discharge Permit (ACDP) and Title V Federal Operating Permit (Title V). Both permits allow for operation of industrial sources, although the ACDP is also a construction permit.

ACDPs are the most common type of operating permit issued by LRAPA. Of the 168 permitted industrial sources in Lane County, 147 require ACDPs. The remaining 21 industrial sources are required to have Title V permits.

ACDPs are issued to all industries that are required by LRAPA rules to obtain permits, except those “major” sources subject to federal operating permit requirements. Industrial sources are classified as “major” sources if they have the potential to emit into the air more than 100 tons of any criteria pollutant (see pg. 9), or 10 tons or more of any single hazardous air pollutant (HAP) or 25 tons or more of any combination of HAPs on an annual basis.

Companies can choose to “opt out” of the Title V permitting process by agreeing to limit their emissions to levels below the federal program thresholds, thereby avoiding the comprehensive permitting and monitoring required under the federal program. Twenty-five Lane County industries have chosen to do this, thereby reducing their permitting and monitoring costs, while at the same time, making improvements to the airshed by limiting the amount of pollutants they emit into the air.

Industrial source categories in Lane County which require operating permits include: food and agriculture; wood products manufacturing; chemical products manufacturing; mineral products manufacturing; metal products manufacturing; waste treatment; fuel burning; fuel transfer operations; coating operations; sources of toxic air pollutants; and any source emitting more than 10 tons per year of any combination of criteria pollutants.

Construction Permits

Prior to construction of a new major industrial source or modification of an existing industrial source, a construction permit is issued to assure that the project complies with applicable LRAPA rules so that the resulting construction will not jeopardize the airshed. Construction permits address such aspects as pollution control equipment, and operation and maintenance requirements.

Industries located in areas of Lane County that are recognized as “non-attainment” areas (areas not meeting the Clean Air Act standards, i.e. Eugene/Springfield and Oakridge) for particulate matter may be required to obtain a more complex type of construction permit from LRAPA prior to the start of construction or modification when the planned construction or modification could potentially cause emissions to significantly increase.

In addition, industries located in attainment areas of the county (areas meeting the Clean Air Act standards) must obtain construction permits subject to special requirements when their emissions have the potential to exceed thresholds which protect an area from significant deterioration.

1999 Permitting Summary

January 16 - December 15

Permits issued or renewed	31
Permits modified	4
Industries inspected	52



AIRMETRICS



AirMetrics is an LRAPA enterprise which began a number of years ago when the agency, in partnership with the EPA, developed an inexpensive, portable, battery-operated air sampler to help address the need for particulate matter (PM) survey sampling of metropolitan areas. Since that time, the sampler, now patented as the MiniVol, has been adapted to sample gaseous pollutants, such as carbon monoxide and

nitrogen oxides, as well as fine particulates (PM_{2.5}), in addition to the coarse particles (PM₁₀) it was originally designed to sample. Applications for the sampler range from use in urban air quality studies, to cropland erosion and roadside monitoring, and indoor air monitoring.

While not a federally recognized sampling method, independent studies have demonstrated the sampler gives results that closely approximate data obtained from EPA reference method samplers — those samplers approved for EPA-required monitoring. This has made the sampler especially popular for special studies where numerous samplers are necessary or where it may be difficult to temporarily access power or locate a reference sampler.

MiniVol samplers have been used extensively throughout the world. On average, 50 percent of sales are international, a market which includes:

- | | | |
|----------------|------------------|-------------|
| * Hong Kong | * Chile | * Mexico |
| * South Korea | * New Zealand | * Canada |
| * Philippines | * United Kingdom | * Brazil |
| * Malaysia | * Jamaica | * Australia |
| * Indonesia | * Trinidad | * Poland |
| * South Africa | * Zimbabwe | * India |
| * Argentina | * Taiwan | * Japan |

Highlights from the '98-'99 fiscal year include continued strong sales in Korea, Malaysia, New Zealand, Mexico and South Africa. The filter weighing and rental programs continued to be popular with a number of American Indian Tribes and environmental consultants. In addition, AirMetrics introduced several new products this past year - calibration kits, calibration orifices, cassette mailers, and redesigned the MiniVol's filter holder assembly to mimic the new US EPA standards for PM_{2.5} reference method samplers. AirMetrics products and services were marketed through its distributor network, at trade shows and through its website at www.airmetrics.com. A five-year business plan was also drafted, which will be implemented during the '99-'00 fiscal year as part of the agency's strategic planning process.

Sales for the '98-'99 fiscal year grossed \$651,000, out-performing last year's gross sales by almost \$5,000. Net profit to the agency was about \$6,000. Gross sales for the first half of the '99-'00 fiscal year have outpaced last year's performance for this same period by \$150,000. Revenues raised from the enterprise are allocated to help defray fixed agency costs. Over the past five years, AirMetrics has transferred \$130,000 to capital improvements for LRAPA, and contributed more than \$200,000 to LRAPA's fixed costs.

AirMetrics employs four full-time employee equivalencies, comprising one part-time and two full-time employees and a number of part-time university students, and uses local manufacturers and vendors for much of its production materials. Governments and public health agencies are the agency's primary customers, although consulting groups and private companies doing heavy industrial work, such as mining and smelting, also use the device.



Complaint Summary

Complaints, compiled into one of ten categories on a monthly basis, were up 23 percent in 1999 over '98 totals, according to LRAPA data. Agricultural field burning, industry, backyard burning and open burning led the categories for greatest number of complaints. Other categories with substantial numbers include home wood heating, unknown sources and miscellaneous sources (types which do not fit into other listed categories).

Seven of the ten categories showed increases in the number of complaints received by the agency. The largest categorical increase was in the unknown source category, up 111 percent in '99, although backyard burning, general air quality, and miscellaneous categories all rose by nearly 50 percent. Other categories that showed increases include field burning, home wood heating and industry.

Categories that showed decreases in 1999 include dust and slash burning, both down for the second straight year, and open burning.

The percent changes in numbers of complaints from '99 over '98, by category, are as follows:

- ◆ Backyard burning +46%
- ◆ Dust -43%
- ◆ Field burning +28%
- ◆ General air quality +57%
- ◆ Home wood-heating +18%
- ◆ Industry +19%
- ◆ Miscellaneous +48%
- ◆ Open burning -7%
- ◆ Slash burning -31%
- ◆ Unknown +111%
- ◆ Total complaints +23%

Complaints 1989 - 1999											
Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Backyard burning	46	54	46	60	63	88	50	85	77	71	104
Dust	8	0	11	7	14	8	17	18	19	30	17
Field burning	349	508	834	417	187	407	301	747	247	218	279
General air quality	9	24	17	2	5	3	5	3	4	7	11
Home wood heating	29	50	49	40	53	48	41	38	52	45	53
Industry	100	114	146	111	111	134	99	92	111	99	118
Miscellaneous *	(68)	120	59	47	19	45	35	25	27	31	46
Open burning *	---	85	59	69	85	74	77	89	91	98	91
Slash burning	41	247	28	42	16	64	29	16	16	13	9
Unknown	30	36	58	38	36	78	50	37	39	26	55
Total	680	1238	1307	833	589	949	704	1150	683	638	783
* Began calculation in 1990											

Enforcement Summary



Inspector Tom Freeman talks with industry personnel during a typical inspection.

LRAPA initiates enforcement actions in instances of excessive industrial air pollution, illegal open burning activities, improper handling or transport of asbestos-containing materials, and failure to obtain necessary air pollution permits prior to construction or operation.

Typically, penalties collected from enforcement actions vary from year to year. However, the dollar amount collected does not strictly reflect the penalties assessed or settled during the year, due to pending cases and collections received on previous years' penalties. Several 1999 enforcement actions remained pending at the close of the year.

LRAPA collected \$18,070 in penalties during 1999. All penalties collected are forwarded to Lane County; however, the county reimburses LRAPA for attorney fees associated with contested cases.

Enforcement Actions

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999
Administrative warnings and Notices of non-compliance	10	10	18	32	47	89	75	57	91
Notices of violation	19	10	8	3	—*	—*	—*	—*	—*
Notices of violation with civil penalty	23	11	26	54	33	25	12	17	39
Notices of permit violation	0	0	0	9	—**	—**	—**	—**	—**
Total civil penalties collected \$\$	1,250	10,565	5,500	29,560	63,958	22,635	49,950	16,775	18,070

* Notices of violation without civil penalty assessments are no longer issued.

** Notices of permit violations are no longer issued.

Field Burning Summary

As reported by the Oregon Department of Agriculture, open field-burning in 1999 totaled 49,999 acres, up about eight percent from the 46,299 acres burned in 1998. In the southern Willamette Valley of western Oregon, 31,953 acres were burned, up more than 10 percent from the number of acres burned in '98. Counties comprising the southern Willamette Valley region include Benton, Linn and Lane.

Open burning of harvested perennial and annual grass seed and cereal grain crops is practiced as a means of straw disposal and ground sanitation. Oregon law allowed up to 65,000 acres to be open-burned during '99 — 40,000 acres for normal applications, and an additional 25,000 acres for steep terrain and specially identified species.

Acreage propane flamed during the season totaled 1,939, down substantially from the 4,033 acres flamed in '98. Of the total, 433 acres propaned were burned in the southern

Willamette Valley. Oregon law allowed for 37,500 acres to be propane-flamed. Stack/pile burning, which ran through March of '00, totaled 3,825 acres, compared to 5,021 acres stack burned the previous year. Southern Willamette Valley acreage stack/pile burned was 1,028, down from the 1,379 acres burned in '98.

Officially, the cities of Eugene and Springfield each experienced one intrusion of smoke from field burning during the '99 season, each for a total of two hours. LRAPA staff answered 279 field burning phone complaints during the three-month season.

Total acreage burned in western Oregon collectively during 1999 was 55,763, just slightly less than the 57,814 burned in '98. Total acreage burned collectively in the southern Willamette Valley was 33,414, up nearly 10 percent over last years 30,505 acres burned.

FIELD BURNING YEAR-END TOTALS

Year end	S. Willamette acres open burned	Number of intrusions	Impact hours	Number of complaints
1999	31,953	1/Eug. 1/Spfld.	2/Eug. 2/Spfld.	279
1998	28,425	0/Eug. 0/Spfld.	0/Eug. 0/Spfld.	218
1997	36,527	0/Eug. 0/Spfld.	0/Eug. 0/Spfld.	247
1996	49,620	0/Eug. 1/Spfld.	0/Eug. 1/Spfld.	747
1995	54,025	1/Eug. 0/Spfld.	1/Eug. 0/Spfld.	301
1994	51,740	0/Eug. 0/Spfld.	0/Eug. 0/Spfld.	407
1993	43,114	0/Eug. 0/Spfld.	0/Eug. 0/Spfld.	186
1992	51,813	2/Eug. 1/Spfld.	12/Eug. 11/Spfld.	417

Community Outreach

Although much of LRAPA's overall program focuses on industrial and commercial sources of air pollution, the agency understands the cumulative impacts of individual activities as well. Increased public awareness about the health effects of poor air quality and individual responsibility is essential for community ownership of, and solutions to, local air quality issues.

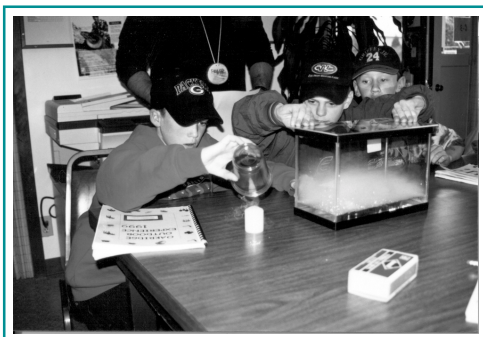
LRAPA provides these services to the community in a number of different ways, including forming partnerships with local media and other private and public entities; providing written materials such as brochures and fact sheets; making presentations to service-clubs, professional associations and schools; participating in local fairs and trade shows; and sharing agency information on its website - www.lrapa.org.

1999 Projects:

- ◆ Lane County Fair
- ◆ City of Oakridge Health Fair
- ◆ Pollution Prevention Coalition of Lane County- Pollution-Free House exhibit
- ◆ 4th grade clean air curriculum
- ◆ City of Oakridge PM_{2.5} public education program
- ◆ Oakridge outdoor school program
- ◆ Ozone Air Action Day education program
- ◆ Strategic planning/performance mgmt.
- ◆ Earth Day shopping mall event
- ◆ Lane Co. Health and Human Services: Low Income Assist. partnership
- ◆ Energy Outlet open house
- ◆ Community placement of interactive educational display
- ◆ Public workshops: Risk Management, Green Permits, Title V, Toxics
- ◆ Business Expo
- ◆ Public education slide-show library



Roosevelt Middle School students learn about air quality choices during Earth Day event at school.



Oakridge 7th graders learn about properties of air during outdoor school.



"Pollution-Free" house display gives people examples of ways to reduce pollution.





Special Projects



Special projects/studies carried out by LRAPA may be conducted internally, or in support of planning or community development efforts by other local, state and federal agencies. These studies and projects are conducted in addition to routine agency functions and often require the use of additional temporary staff.

A number of special studies/projects were conducted in 1999.

- ◆ Participation in a statewide Hazardous Air Pollution Consensus group to develop and provide to the Environmental Quality commission recommendations for an Oregon Air Toxics Program.
- ◆ Partnership with the Oregon Department of Environmental Quality (DEQ) to implement a statewide toxics emission inventory, scheduled to be completed in mid-2000.
- ◆ Participation in a statewide effort, the "Streamlined Permitting Process Improvement Team," to improve efficiency in the process of providing air permits for industrial sources.
- ◆ Development of a fourth-grade air quality curriculum and pilot classroom presentation program tailored to Lane County air issues.
- ◆ Partnership with the local transit district and local media to develop and implement a local Ozone Action Day program.
- ◆ Development of a "house of pollution solutions" to be used as part of an overall environmental education campaign at special events with participants of the local Pollution Prevention Coalition.
- ◆ Continuation of a partnership with EPA Region 10 to assist with the administration of various Region 10 grant projects.



Staffers (from left) Brett Jacobs, Cal Yoshida and Lance Giles celebrate completion of the new lab facility.

