1997 Annual Report

Lane Regional
Air Pollution Authority

Director's Message

Barbara J. Cole
Director

LRAPA's fundament mission is to protect public health and the environment in a way that promotes a healthy economy and protects community values. As the new director of the agency, it is my goal to provide leadership with a progressive, positive attitude, and promote healthy partnerships to produce win-win solutions which meet this agency's basic mission. I believe a healthy environment and strong economy are compatible, and as director, will function in a manner which fosters these attributes.

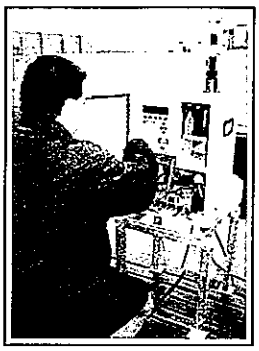
LRAPA has had a long and successful history. The LRAPA staff comprises technically and professionally competent individuals who are dedicated to public service and committed to the Lane County community. They demonstrate this attitude each day in the manner in which they carry out the daily operations of the agency. The agency has a cooperative regulatory style, and is committed to working with industries and the community in a conciliatory manner with emphasis on compliance over enforcement wherever possible.

Over the next several years, the agency will focus on its permitting operations and the challenges that will come with the new National Ambient Air Quality Standards. We plan to enhance our community education and outreach focus to bring awareness to the community that it is not one source of pollution which causes problems, but rather the cumulative effect of a number of sources. We will continue our full participation in local transportation planning and project review and strive to work cooperatively with all sectors of the community to meet our mission to maintain the quality of life that is highly valued in this community.

In the short time I have been here, I have felt very welcomed. I applaud the many efforts this community has made not only toward air quality, but in all quality-of-life areas. I am happy to be a part of this community and will serve this agency and community to the best of my ability.

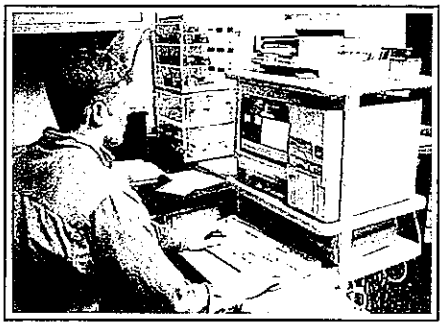
1997 Photo Session — Up close and Personnel

LRAPA's Ralph Johnston at a community meeting on EPA's revised clean air standards.



Lance Giles programs a converted $PM_{2.5}$ sampler.

LRAPA employees take part in Bike to Work day.



Joe Abraham logs filter weights from studies using LRAPA's portable air sampler, the MiniVol.

Director Barb Cole (left) talks with community leaders at her welcoming open house.

Colleen Wagstaff takes a well-deserved break from work.

Local Oakridge resident (left) receives a tarp to cover her uncovered firewood pile. Part of the effort to clean up the air.

A rare occurrence — finding an inspector in the office.

Interim director John Ruscigno gets a real Oregon Duck send-off. Who says 'ducks' and 'beavers' can't get along?

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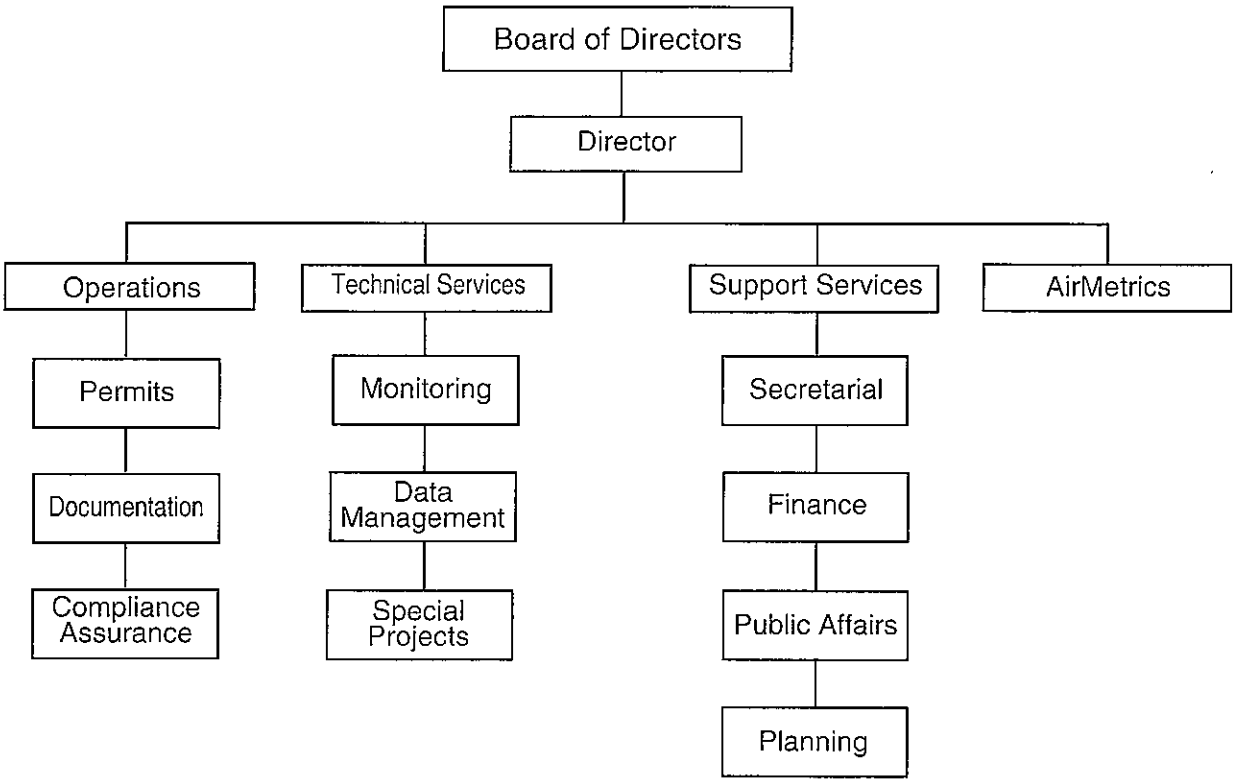
LRAPA Organization

Staff Organizational Chart



LRAPA Phone Numbers

Business Office	726-2514
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
LRAPA Air Line	485-2000, ext. 4273
Internet Home Page	www.lrapa.org

LRAPA Organization

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.

Al Johnson — Chair
Eugene City Council
Maureen Maine — Vice Chair
Springfield City Council
Terry Callahan
Oakridge City Council
Steve Cornacchia
Lane County Board of Commissioners
Steve Dodrill
Eugene City Council Appointment
Betty Taylor
Eugene City Council
Gary Whitney
LRAPA Board Appointment

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. 1997 appointed committee members include:

Dave Balthrop
Don Churnside
Jeff Hilty
Dave Seluga
Vern Stokesberry
Charlie Ward
Hilda Young

Organization, Con't.

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 — Chair *Representing General Public*	6 yrs. service
John Fischer — Vice Chair *Representing General Public*	8 yrs. service
Steve Allen *Representing Fire Suppression*	3 yrs. service
Sharon Fahrion *Representing Health*	2 yrs. service
Paul Kuhlmann *Representing General Public*	5 yrs. service
William Nagel *Representing General Public*	8 yrs. service
John Santerre *Representing General Public*	3 yrs. service
Dave Seluga *Representing Industry*	4 yrs. service
Dan Shults *Representing Fire Suppression*	5 yrs. service
Ben Thompson *Representing Agriculture*	2 yrs. service
Fred Walter *Representing General Public*	7 yrs. service

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 21 professional and technical full-time employees (equivalencies) who perform permitting, enforcement, planning, clerical, financial, 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 of rules and regulations related to open burning and asbestos abatement; enforces emission limit regulations; and responds to and resolves public complaints about air quality. Enforcement includes administrating 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 constructs and markets the agency's MiniVol portable sampling device, and provides filter analysis and training on the operation of air monitoring networks that use the portable samplers.

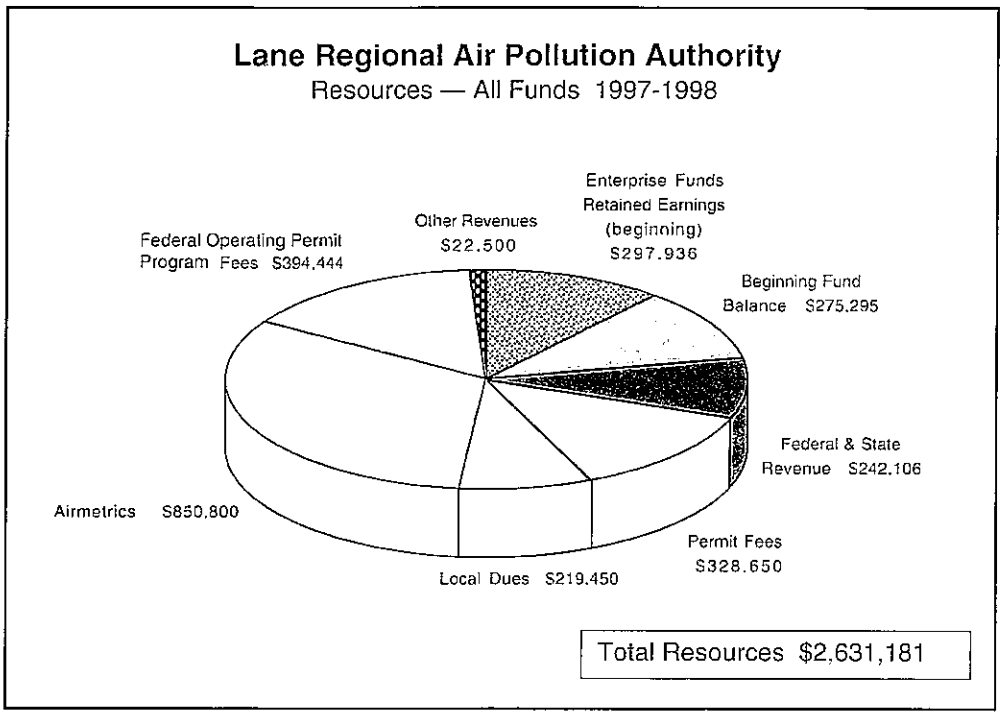
Administrative

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

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 yearly report; issues daily air pollution advisories to the media and public; and responds to public complaints and inquiries about air quality.

Air quality planning identifies present and future air quality problems and develops appropriate emission control strategies. Those strategies are designed to achieve and maintain acceptable 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.

Funding / Budget

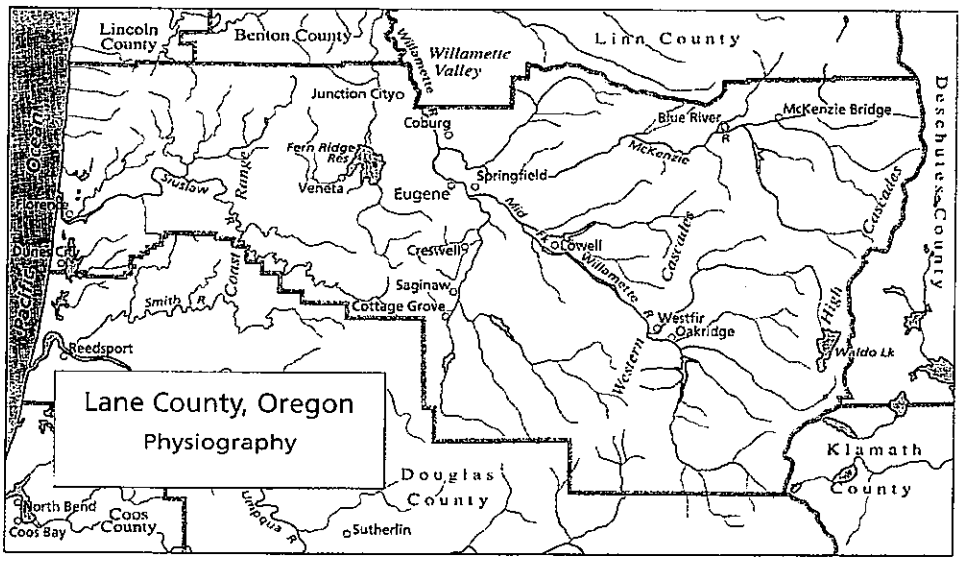


LRAPA's funding comes from many sources, including local contributions (Lane County and the cities of Eugene, Springfield, Oakridge and Cottage Grove), state and federal grants, industrial permit fees and miscellaneous contracts. A beginning fund balance is budgeted to provide for expenses incurred during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

The budget continues to reflect a net growth of LRAPA's regulatory program, primarily due to local implementation of the Clean Air Act requirements.

Typical of service-oriented agencies, LRAPA's largest expense item is in the area of personnel costs. Historically, LRAPA has attempted to hold these costs down, and has been successful at holding local member dues constant. Contributions from local member entities were, once again, held constant during FY '97/'98, making this the seventh consecutive year member dues have remained stable.

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 308,500 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 179,970 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. 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, receives high concentrations of particulates in the wintertime months from residential 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.

Topography and meteorology influence air quality

Much 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 warm 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 residents are using wood to heat their homes. During these episodes, smoke and gas concentrations climb, deteriorating the local air quality.

Coastal areas of Lane County experience more air movement and fewer inversions.

NAAQS and Local Air Quality

The Environmental Protection Agency (EPA) has established health standards for six outdoor air pollutants (criteria pollutants): particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2) and lead (Pb). These National Ambient Air Quality Standards (NAAQS) are based on protection against adverse health and environmental effects. The concentration of criteria pollutants must be continually measured to ensure the standards are met. Areas that fail to meet the NAAQS are designated as federal "non-attainment" areas by EPA and are required, by law, to have strategic plans developed to bring the areas back into compliance with the standards and maintain compliance.

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 PM_{10} standard in 1987, which resulted in a PM_{10} "non-attainment" designation on August 7, 1987.

Oakridge was proposed a PM_{10} "non-attainment" area in September 1992, and designated on January 20, '94. PM_{10} standards were last exceeded in the Eugene/Springfield area in

Continued

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, one location in Springfield, one location in Oakridge (southeast of Eugene/Springfield), one location in Saginaw (south of Eugene/Springfield) and one location in Cottage Grove (south of Saginaw).

During 1997, no NAAQS were violated in Lane County.

Particulate Matter

Both the Eugene/Springfield area and Oakridge have been designated PM_{10} "non-attainment" areas.

1997 Ambient Air Quality Standards

Pollutant	Federal Standard	Monitoring Status in Lane County
Particulate ($PM_{2.5}$)		
24-hour standard	65 ug/m³	Required
Annual standard	15 ug/m³	Required
Particulate (PM_{10})		
24-hour standard	150 ug/m³	Required
Annual standard	50 ug/m³	Required
Carbon Monoxide (CO)		
8-hour average	9 ppm	Required
1-hour average	35 ppm	
Ozone (O_3)		
8-hour average	0.08 ppm	Required
Sulfur Dioxide (SO_2)		
24-hour average	0.14 ppm	Not required
1-hour average	0.10 ppm	
Nitrogen Dioxide (NO_2)		
Annual average	0.05 ppm	Not required
Lead (Pb)	1.5 ug/m³	Required

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

NAAQS and Local Air Quality, Con't.

1987. Oakridge last exceeded the federal PM_{10} standard in 1993.

Carbon Monoxide (CO)
LRAPA began monitoring CO in 1971, and has continued to monitor CO in the downtown Eugene area. 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.

Ozone (O_3)
Ozone has been monitored in the Eugene/Springfield area since May of 1974. The area has remained in attainment with federal standards since that time. Ozone is currently measured at two locations in the local area. The standard was last exceeded in 1981.

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

New NAAQS for PM/Ozone Promulgated

New health standards proposed in 1996 by the U.S. Environmental Protection Agency (EPA) for ambient ozone and particulate matter became effective September 16, 1997.

EPA's decision to revise the national ambient air quality standards (NAAQS) for particulate matter and ozone was based on its review of the available scientific evidence linking exposures of these pollutants to adverse health and welfare effects at levels below those allowed by the current standards. States will have several years to collect data prior to becoming designated under the new standards.

Changes to the standards were announced in July, and published in the Federal Register, Volume 62, No. 138, on Friday, July 18, 1997. EPA has concluded that the effects and control of both pollutants are linked and will be affected by the other. For that reason, the agency promulgated concurrent effective dates of September 16, 1997.

Particulate Matter (PM)

The primary PM standards have been revised in several respects to provide increased protection against a wide range of PM-related health effects, including premature mortality and increased hospital admissions and emergency room visits, increased respiratory symptoms, decreased lung function, and alterations in lung tissue and structure in respiratory tract defense mechanisms.

Two new particulate standards targeting fine particles less than 2.5 microns in diameter ($PM_{2.5}$) have been added:

- ✔ An annual $PM_{2.5}$ standard of 15 microns per cubic meter (ug/m^3), based on the three-year average from single or multiple monitoring sites, and

Continued

NAAQS and Local Air Quality, Con't.

- ✔ A 24-hour $PM_{2.5}$ standard of 65 ug/m^3, based on the three-year average of the 98th percentile of measured concentrations at each monitoring site in a given population area.

The 24-hour standard will provide maximum flexibility for local areas and sources, while still retaining the public health protections that are incorporated into the annual standard, according to EPA reports.

In addition to adding new $PM_{2.5}$ standards, EPA retained the current 24-hour PM_{10} standard, but slightly revised it to have it based on the 99th percentile of concentrations measured at each monitor within an area, rather than the second highest reading in an area.

Ozone

Revisions to the ozone standard were made to provide protection for children and other at-risk populations against a wide range of ozone-induced health effects, many similar to those related to PM exposure, according to EPA.

EPA revised the primary ozone standard to replace the current one-hour standard of 0.12 parts per million (ppm) with an eight-hour standard of 0.08 ppm based on the three-year average of the annual fourth-highest daily measurement at each monitoring site within an area.

EPA stated that using the fourth highest number "should provide . . . stability in the standard for businesses and communities by requiring more bad air days before an area is found to be out of attainment."

Implementing the New Standards

States will generally have three years from the date of rule promulgation in which to collect data to provide to EPA for designation. Areas designated as non-attainment will then have three years to develop and submit to EPA pollution control plans showing how the areas will meet the new standards. However, states will be provided more time to submit $PM_{2.5}$ data because reference method $PM_{2.5}$ monitoring equipment was not available from vendors in 1997.

How Lane County Measures Up

Although it is too early to make predictions regarding how Lane County will be affected, preliminary analysis of past ozone data suggests the Eugene/Springfield area will be marginal, at best. The trend over the past 10 or so years has been a gradual climb upward, with the '96 fourth highest

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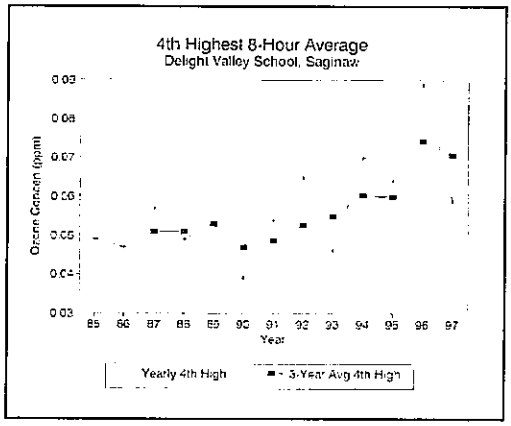
PM/Ozone Standards Comparison Chart

Pollutant	Previous Federal Standard	New Federal Standard
Particulate		
PM_{10} 24-hour standard	150 ug/m^3	150 ug/m^3, using 3-year average of 98th percentile
Annual standard	50 ug/m^3	50 ug/m^3
$PM_{2.5}$ 24-hour standard	No standard	65 ug/m^3, using 3-year average of 98th percentile
Annual standard	No standard	15 ug/m^3, using 3-year average from single or multiple monitoring sites 98th percentile
Ozone (O_3) 1-hour standard	0.12 ppm	No standard
8-hour standard	No standard	0.08 ppm, using 3-year average of fourth-highest daily 8-hour average

ug/m^3 — micrograms per cubic meter
ppm — parts per million

NAAQS and Local Air Quality, Con't.

concentration slightly less than .09 ppm — above the .08 ppm standard. Whether or not the trend continues in the same pattern will determine if the area meets or exceeds the standards.



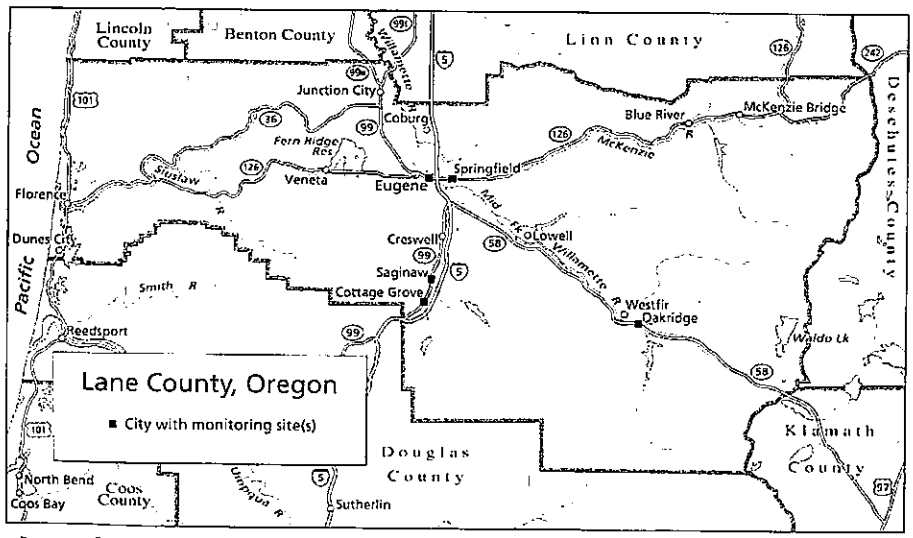
Local predictions on the effects of the $PM_{2.5}$ standards are even more difficult to determine because EPA-approved $PM_{2.5}$ monitoring equipment has not been available. LRAPA plans to begin monitoring $PM_{2.5}$ in 1998, when monitoring equipment becomes available.

LRAPA Considers Strategies

LRAPA is currently discussing possible strategies with which to obtain preliminary $PM_{2.5}$ monitoring data. Those strategies include modifying LRAPA-owned monitoring equipment to begin sampling $PM_{2.5}$, and purchasing additional $PM_{2.5}$ sampling equipment in early '98 when it becomes available prior to obtaining sampling equipment from EPA's funding base.

The agency will incorporate new $PM_{2.5}$ strategies and current PM_{10} strategies to protect the area from both pollutants. Many of the current strategies used to reduce PM_{10} also are effective in the reduction of $PM_{2.5}$, such as home wood heating curtailment programs, dust suppression and industrial controls. However, new strategies may be needed, which target gases from combustion sources, such as the automobile and industry. Gases from these sources often can combine to form the very fine particles that contribute to $PM_{2.5}$, making emissions from these sources targets for control.

The combination of the new ozone standard and LRAPA's 10-year ozone trend data provide evidence change is necessary. Education will be an integral part of the overall strategy, with much emphasis placed on individual choices made by consumers, and on reducing dependency on the automobile. Other ozone reduction strategies may require additional controls on automobile emissions and industry, to further reduce emissions associated with the development of ozone.



Lane County map highlighting locations of cities with air monitoring sites

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; NOx, 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, tasteless, colorless gas which is emitted primarily from any form of 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 O_3	A toxic gas associated with smog; formed when nitrogen oxides (NOx) and volatile organic compounds (VOC) react with one another in the presence of sunlight and warm temperatures	VOCs and NOx from gasoline powered mobile sources; Industry; Power plants; Gasoline transfer and storage; Paint	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 NO_2	A poisonous gas produced when nitrogen oxide is a by-product of sufficiently high burning temperatures	Combustion processes—fossil fuel power, motor vehicles, industry: Explosives manufacturing; 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 SO_2	A pungent, colorless gas that combines with water vapor to become sulfurous acid (H_2SO_3), which, when combines with oxygen, produces sulfuric acid (H_2SO_4), a very corrosive and irritating chemical	Fossil fuel power plants and engines; Nonferrous smelters; Kraft pulp production	Increases the risk of adverse symptoms in asthmatic patients; Irritates respiratory system	Contributes to acid 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 Concentrations

Yearly PM_{10} Levels — 1988 - 1997

Site #	Site Name	Notes	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
2018039	Westmoreland Elementary School	a	---	39	28	20	---	---	---	---	---	---	---
		b	---	76	120	30	---	---	---	---	---	---	---
		c	---	74	91	26	---	---	---	---	---	---	---
		d	---	0	0	0	---	---	---	---	---	---	---
2018056	Lane Community College (dwntwn)	a	37	29	27	23	27	25	25	21	21	18	21
		b	129	72	91	50	95	61	68	66	52	60	52
		c	124	69	79	48	73	54	59	42	49	46	49
		d	0	0	0	0	0	0	0	0	0	0	0
2018058	Key Bank — Hwy 99N	a	43	37	34	31	38	31	33	31	27	22	23
		b	175	129	146	118	126	123	103	125	84	66	50
		c	174	118	125	102	121	98	92	62	70	60	49
		d	3	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park	a	32	26	26	24	34	25	24	20	19	17	19
		b	122	95	92	49	73	101	70	71	63	61	54
		c	117	91	86	46	62	55	64	46	57	45	53
		d	0	0	0	0	0	0	0	0	0	0	0
2030003	Willamette Acti. Center— Oakridge	a	---	34	—	33	37	32	32	26	23	22	21
		b	---	199	165	149	187	178	166	144	142	84	96
		c	---	177	122	142	184	161	151	143	135	78	90
		d	---	4	1	0	9	2	1	0	0	0	0
2033060	Springfield City Hall	a	35	34	28	25	30	27	28	24	22	19	21
		b	104	75	91	57	97	56	66	74	48	58	57
		c	96	67	71	56	89	55	61	51	44	55	49
		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
		b	---	---	---	77	132	69	68	109	93	52	75
		c	---	---	---	59	71	60	67	57	46	49	54
		d	---	---	---	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
Annual arithmatic 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

Carbon Monoxide Concentrations

Yearly Carbon Monoxide Levels — 1987 - 1997

Site #	Site Name	Notes	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
2018056	Lane Comm. College (downtown)	a	7.1	7.3	6.1	5.1	5.5	6.5	4.9	6.0	5.3	4.6	4.8
		b	6.6	7.1	6.0	4.8	5.4	5.5	4.7	4.5	4.7	4.6	4.7
		c	0	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park ❊	a	5.3	4.4	---	---	---	---	---	---	---	---	---
		b	5.1	3.9	---	---	---	---	---	---	---	--	----
		c	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
		b	---	---	8.2	5.5	6.7	6.4	5.9	6.3	5.7	5.5	5.2
		c	---	---	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
- ❊ Site operated January - February 1988
- ❊❊ Site began operation in August 1989

Ozone Concentrations

Yearly Ozone Levels — 1987 - 1997

Site #	Site Name	Notes	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
2000036	Delight Valley School — Saginaw	a	.114	.118	.089	.092	.094	.103	.084	.094	.090	.111	.077
		b	.112	.110	.075	.091	.092	.095	.080	.090	.087	.104	.071
		c	0	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park	a	.120	.146	.084	---	.089	.099	.081	.085	.089	.111	.077
		b	.111	.123	.078	---	.088	.095	.073	.082	.077	.105	.073
		c	0	2	0	---	0	0	0	0	0	0	0

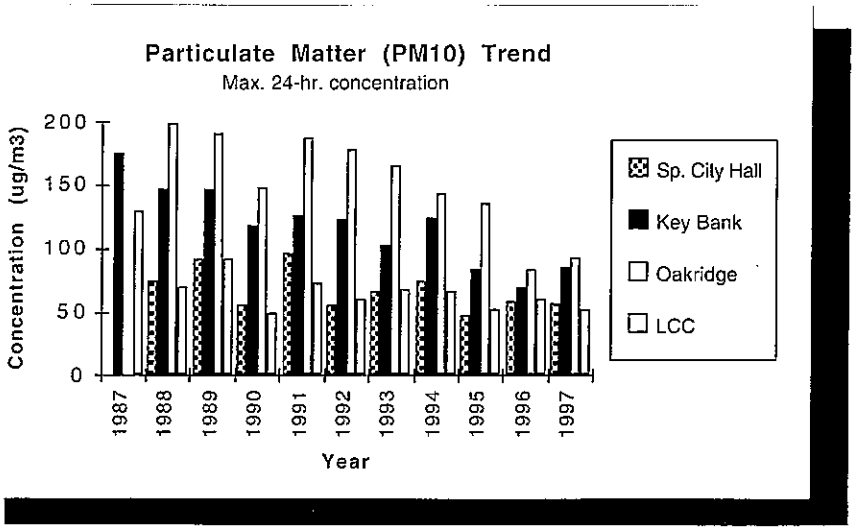
Standard:

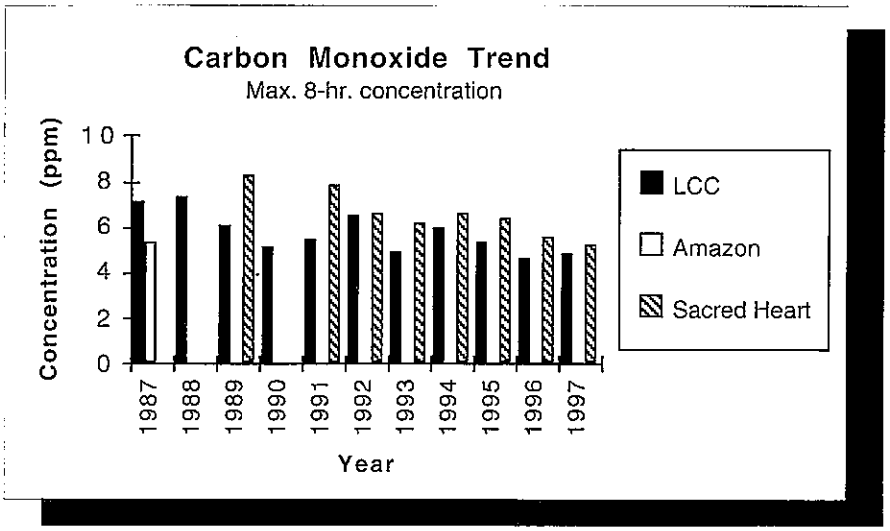
1-hour average: 0.12 parts per million

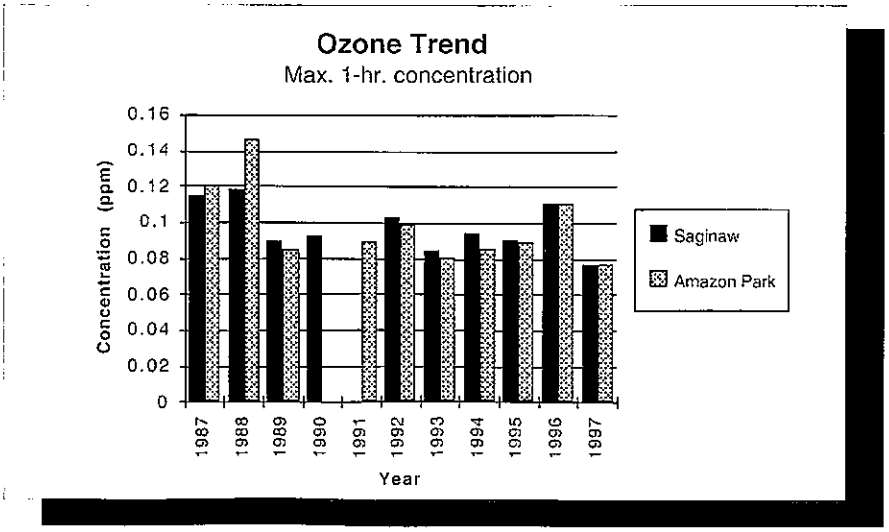
Notes:

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

Air Quality Trends







Air Pollution Index Summary

Air Pollution Index Summary				
1997 Number of days				
	Good	Moderate	Unhealthful	Total
CO	182	14	0	196
O_3	123	19	0	142
PM_{10}	18	9	0	27
Totals	323	42	0	365
1996 Number of days				
	Good	Moderate	Unhealthful	Total
CO	179	9	0	188
O_3	113	32	0	145
PM_{10}	25	8	0	33
Totals	317	49	0	366
1995 Number of days				
	Good	Moderate	Unhealthful	Total
CO	161	12	0	173
O_3	120	19	0	139
PM_{10}	41	12	0	53
Totals	322	43	0	365
1994 Number of days				
	Good	Moderate	Unhealthful	Total
CO	154	18	0	172
O_3	118	28	0	146
PM_{10}	31	16	0	47
Totals	303	62	0	365
1993 Number of days				
	Good	Moderate	Unhealthful	Total
CO	115	21	0	136
O_3	128	11	0	139
PM_{10}	54	36	0	90
Totals	297	68	0	365

Lane County Home Wood Heating Programs

The Eugene/Springfield area and city of Oakridge have home wood heating advisory programs due to episodes of poor wintertime air quality. Residential wood stove smoke is a major source of PM_{10} 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 residential 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, and radio and television stations. In addition, residents may call a 24-hour advisory line for up-to-date advisory information.

Eugene/Springfield Program

The Eugene/Springfield area began its home wood heating advisory program in 1986 to reduce pollution caused from residential home heating, a major wintertime source of particulates in the Eugene/Springfield area. The area was designated a federal non-attainment area August 7, 1987, after violating the federal PM_{10} 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 PM_{10} standards.

The Eugene/Springfield mandatory program is in its sixth 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 who qualify under economic need guidelines may be granted exemptions from the program on a yearly basis.

In addition to the "green," "yellow," "red," advisory, 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 inception of the mandatory program, nor have the PM_{10} 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 PM_{10} standard on numerous occasions. Five years later, on January 20, 1994, EPA officially declared Oakridge a PM_{10} non-attainment area. The 1996-97 season marked the eighth season of the program.

Like 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, completed in '96, outlines strategies to be used for curbing pollution in Oakridge.

Strategies in the SIP include the reduction of PM_{10} emissions through voluntary curtailment with a provision for mandatory curtailment upon failure to meet a predetermined attainment schedule, continuation of 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, have helped LRAPA staff analyze the strategies needed for compliance with federal clean air standards.

The Oakridge SIP was adopted by the LRAPA board of directors on August 13, 1996. The SIP was approved by the Oregon Environmental Quality Commission Oct 11, 1996, and submitted to EPA December 9, 1996. LRAPA is awaiting EPA's approval.

Home Wood Heating, Con't.

Home wood heating advisories are an integral part of the home wood heating program. Advisories are determined by evaluating current pollution levels and meteorological conditions of past, current and future 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 generally between 50-70 percent of the federal standard. A stage one "red" advisory is called when levels rise between 70-85 percent of the standard, while 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 1986 - 1998 Season

Season Year	Yellow	Red I	Red II	Exceedances
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
1988-1989	14	2	1	0
1987-1988	17	1	0	0
1986-1987	20	0	0	3

Oakridge HWH Advisories 1988 - 1998 Season

Season	Yellow	Red	Exceedances
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
1989-1990	19	2	—
1988-1989	2	3	—

Firewood Tree Species	*Available Heat* 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.

1997 Home Wood Heating Exemptions (Eug./Spfld.)

Number of applications received (economic need only)	35
Number of exmptions granted	35
Number of exemptions denied	0

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**

Operating Permit Program Summary

There are 168 Lane County industrial and commercial businesses that have LRAPA air permits, allowing them to operate in the county. Typically, two types of permits are issued — operational permits, which allow industrial sources to operate; and construction-type permits, which allow sources to build new facilities or modify existing ones. Both permits are designed to allow an industry or business to operate in a manner consistent with LRAPA's goal to protect the environment.

Operational Permits

LRAPA issues two types of operating permits, the Air Contaminant Discharge Permit (ACDP) and Title V Federal Operating Permit (Title V).

ACDPs are the most common type of operating permit issued by LRAPA. Of the 168 permitted industries in Lane County, 148 require ACDPs. The remaining 20 industries are required to have Title V permits.

Generally, ACDPs are issued to all permitted industries except those which have the potential to emit into the air more than 100 tons of any criteria pollutant (see pg. 10), or 10 tons or more of any single hazardous air pollutant (HAP) or 25 tons or more of any combination of HAPs (as defined by EPA). In those cases, companies are required to obtain Title V permits.

Companies can choose to opt out of the comprehensive Title V permitting process by agreeing to limit their emissions to levels below the Title V program threshold, thereby avoiding the comprehensive permitting process of the Title V program. About 25 Lane County industries have chosen to do this, thereby reducing their permitting costs, while at the same time, making improvements to the airshed by limiting the amount of pollutants emitted into the air.

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

Construction Permits

Prior to construction of a new 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 things 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 area and Oakridge) for particulate matter may be required to obtain a pre-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.

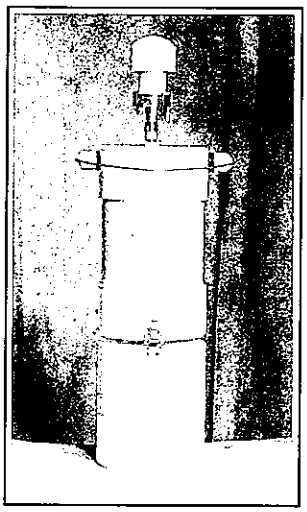
In addition, industries located in attainment areas of the county (areas meeting the Clean Air Act standards) must obtain pre-construction permits when their emissions have the potential to exceed triggers or thresholds which protect an area from significant deterioration.

1997 Permitting Summary

January 16 - December 15

Permits issued or renewed	13
Permits modified	22
Industries inspected	52

AirMetrics



AirMetrics is a LRAPA enterprise which began a number of years ago when the agency, in partnership with the US Environmental Protection Agency (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 particulate ($PM_{2.5}$), in addition to the course particles (PM_{10}) 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-approved 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
* Korea	* New Zealand	* Canada
* Philippines	* United Kingdom	* Brazil
* Malaysia	* Jamaica	* Australia
* Indonesia	* Nigeria	* Poland
* South Africa	* Zimbabwe	* Russia
* Argentina	* Taiwan	* Tajikastan

Sales for the '96-'97 fiscal year grossed $532,500, providing about $55,000 net profit to the agency. Revenues raised from the enterprise are allocated to help defray fixed agency costs.

AirMetrics employs four full-time employee equivalencies comprising 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 greatest customers, although consulting groups and private companies doing heavy industrial work, such as mining and smelting, also use the device.

Complaint Summary

LRAPA received 683 complaints in 1997, down substantially from the number recorded in 1996, but within margins documented in past years.

Complaints, compiled on a monthly basis into one of ten categories, were down 41 percent in '97 over '96 totals, according to LRAPA data. Agricultural field burning and industry lead the categories for greatest number of complaints, followed by open burning, backyard burning, and home wood heating. Other categories include dust, slash burning, general air quality, unknown sources and miscellaneous.

The large reduction in overall complaints this year stemmed from a 67 percent decrease in field burning complaints. The only other category which showed a decrease was backyard burning, down 9 percent. One category, slash burning stayed constant, with no change.

The other seven categories showed increases in numbers of complaints over '96, with the greatest increase, at 37 percent, in the home wood heating category. Several of the categories experiencing increases, however, were in those with few overall complaints, keeping the impact of the increases minimal.

The percent changes in numbers of complaints from '97 over '96, by category, are as follows:

- Backyard burning ..... -9%
- Dust ..... +6%
- Field burning ..... -67%
- General air quality ..... +33%
- Home wood heating .... +37%
- Industry ..... +21%
- Miscellaneous ..... +8%
- Open burning ..... +2%
- Slash burning 0%
- Unknown ..... +5%
- Total complaints ..... -41%

Complaints 1989 - 1997

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

❊ Began calculation in 1990

Miscellaneous totals in 1988, 1989, include all complaints logged in categories not listed on this chart

Enforcement Summary

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 reflect the penalties assessed or settled during the year, due to pending cases and collections received on previous years' penalties. Several 1997 enforcement actions remained pending as of the close of the year.

LRAPA collected $19,897 in penalties during 1997. All penalties collected are forwarded to Lane County; however, the county reimburses LRAPA for attorney fees associated with contested cases.

Enforcement Actions

Year	1990	1991	1992	1993	1994	1995	1996	1997
Administrative warnings and Notices of non-compliance	2	10	10	18	32	47	89	75
Notices of violation	11	19	10	8	3	—*	—*	—*
Notices of violation with civil penalty	8	23	11	26	54	33	25	12
Notices of permit violation	0	0	0	0	9	—**	—**	—**
Total civil penalties collected $$	1,250	10,565	5,500	29,560	63,958	22,635	49,950	19,897

* Notices of violation without civil penalty assessments are no longer issued.
** Notices of permit violations are not longer issued.

Field Burning Summary

As reported by the Oregon Department of Agriculture, open field burning in 1997 totaled 56,878 acres in western Oregon. In the south Willamette Valley of western Oregon, 36,527 acres were open burned in '97, down substantially from '96 totals.

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 125,000 acres to be open burned during '97. Beginning next season, in 1998, open field burning will be restricted to 65,000 acres burned annually.

Acreage propane flamed during the season totaled 2,921, down from the 3,985 acres flamed in '96. Stack/pile burning, which runs through March of '98, has been estimated at 9,795 acres, up substantially from the 7,535 acres stack burned the previous year.

Officially, the Eugene/Springfield metropolitan area did not experience any intrusions of smoke from field burning during the '97 season. However, LRAPA staff answered 247 field burning phone complaints during the three-month season.

Total acreage burned in western Oregon collectively during 1997 was 69,594, down 21 percent from the nearly 88,000 burned in '96. Acreage propane flamed and stack/pile burned is not recorded separately for the south Willamette Valley, making it impossible to determine the total acreage burned in the local area.

Field Burning Year-end Totals

Year end	S. Willamette acres burned	Number of intrusions	Impact hours	Number of complaints
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
1991	55,205	2/Eug. 2/Spfld.	2/Eug. 3/Spfld.	834

Community Outreach

Although much of LRAPA's overall program focuses on industrial and commercial sources of air pollution, LRAPA 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 local air-quality issues.

LRAPA provides these services to the community in several different ways.

- *Local media:* Staff is in daily contact with local media, who, in turn, disseminate air quality information to the general public. Press releases, public service announcements and paid advertising are used to inform the public of important issues.
- *Educational material:* LRAPA provides to the general public educational information in the form of visual aids, video programs, research materials, brochures, fact sheets, newsletters and annual reports on a wide-range of topics produced by LRAPA and other organizations and governmental agencies. An informational catalog is available featuring all educational materials available from the agency.
- *Library materials:* The agency has a library of air pollution literature that is open for public use during normal business hours, which includes reference materials such as the Federal Register, scientific and environmental magazines, and text books.
- *Presentations:* Staff members are frequently asked to speak on air-quality-related issues before service clubs, professional associations, public schools and private corporations.
- *Local fairs/trade shows:* LRAPA takes advantage of local fairs and events whenever possible to enhance the public's awareness of air quality issues.
- *Intergovernmental projects:* Working with other agencies on air-quality-related projects has become commonplace for LRAPA. Several joint transportation-related projects to enhance local awareness have been team efforts by LRAPA, Lane Transit District, Lane Council of Governments, the cities of Eugene and Springfield, and several state agencies.
- *Customer service evaluation:* An ongoing program designed to track agency performance continues to demonstrate agency customer service effectiveness. Customer comment cards are sent routinely to individuals and businesses that do business with LRAPA. Customers are asked to rate the agency on a number of issues, and to provide any pertinent comments.
- *LRAPA web-site:* LRAPA's web-site, www.lrapa.org, includes a number of categories of interest to the community, such as monitoring sites; statistical information; meeting dates, agendas and minutes; and LRAPA rules.

1997 Projects:

- Business Bike Challenge
- City of Oakridge Health Fair
- Pollution Prevention Coalition of Lane County
- LRAPA/Lane Community College Business Development Center partnership
- Small Business Assistance workshop training (four source-specific workshops)
- Web site development
- LRAPA/EPA sponsored CAA Standards presentation to community leaders
- Open house to industry and community
- Community opinion survey
- KRVM high school radio station PSA production partnership

Special Projects

Special projects/studies carried out by LRAPA may be wholly 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 1997.

- $PM_{2.5}$ monitoring. $PM_{2.5}$ monitoring began in Eugene/Springfield area to obtain preliminary data on area $PM_{2.5}$.
- Emission inventory method development. This project was granted to develop a standardized platform for collection of emissions inventory data that could be used throughout the region.
- Small Business Assistance Program. LRAPA developed and piloted a pollution prevention workshop for small businesses in partnership with Lane Community College. The pilot class was presented in October '97. Facilitated and helped teach four EPA-sponsored workshops designed to help small businesses comply with federal clean air requirements.
- Perception and awareness survey. This survey provided input on public knowledge/opinion of LRAPA and LRAPA programs. Results suggested the need for more awareness regarding individual responsibility toward air quality. Less than 20 percent of the people polled believed individuals should play a leading role in reducing air pollution.
- EPA educational training contract. LRAPA contracted with EPA to train Native American tribes to conduct PM sampling.
- VOC control equipment audit project. This project audited industry control equipment for quality assurance.
- LRAPA internet web site/home page: www.lrapa.org
- EPA Region 10 grant management services project. Under this contract LRAPA assists EPA in administration of Region 10 grant projects.

Instructor Linda Bovard works with the business community at a LRAPA-sponsored adult education workshop.

LRAPA
Lane Regional Air Pollution Authority

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