

Director's Message



Barbara J. Cole
Director

1998 was a busy year for the agency. After a two-year search for adequate, affordable office space, LRAPA was successful in finding a new office location, and subsequently moved its headquarters there. Soon after the building purchase, a supplemental budget was approved to build an EPA-certified laboratory, which is scheduled for completion in summer of '99.

The agency was also successful in filling its vacant Operations Manager and permit writer positions with talented engineers this past year. The void resulting from several years without a manager in Operations caused a major hurdle for the section, and, although still in catch-up mode, the Operations section has greatly improved our ability to serve LRAPA customers.

New National Ambient Air Quality Standards for particulates (PM_{2.5}) and ozone dictated much of the agency's monitoring efforts this past year. The agency installed PM_{2.5} monitors at two "core" sites and began monitoring for fine particulates prior to the 1999 federal monitoring start-date. Our goal is to prevent violations of ambient health standards.

AirMetrics, the agency's portable sampler enterprise that markets air pollution samplers and services worldwide, had a strong sales year in 1998. New items introduced this past year have expanded AirMetrics' product line and have also made the samplers easier to use.

The agency is developing an emission inventory for the county, and completed an inventory of volatile organic compounds (VOC) this past year. The agency will continue to develop a comprehensive emissions inventory over the next several years, which will include hazardous air pollutants. The inventory is a critical planning tool and is required by federal law.

Staff have been actively participating in a number of program development committees to provide Lane County with a voice in statewide programs. Much of the effort has been concentrated in two program areas: a statewide effort to determine whether Oregon should develop a rule to regulate toxics in addition to regulations mandated by the federal government, and the development of a "green" industrial permitting program. In addition, LRAPA and DEQ are reviewing the administrative process used to regulate air emissions in Oregon in an effort to develop a more efficient way to meet our goal of improved air quality.

As part of the agency's effort to operate as effectively as possible, the agency began a comprehensive performance management and strategic planning effort this past year. The agency plans to begin implementing results of the planning effort in 1999.

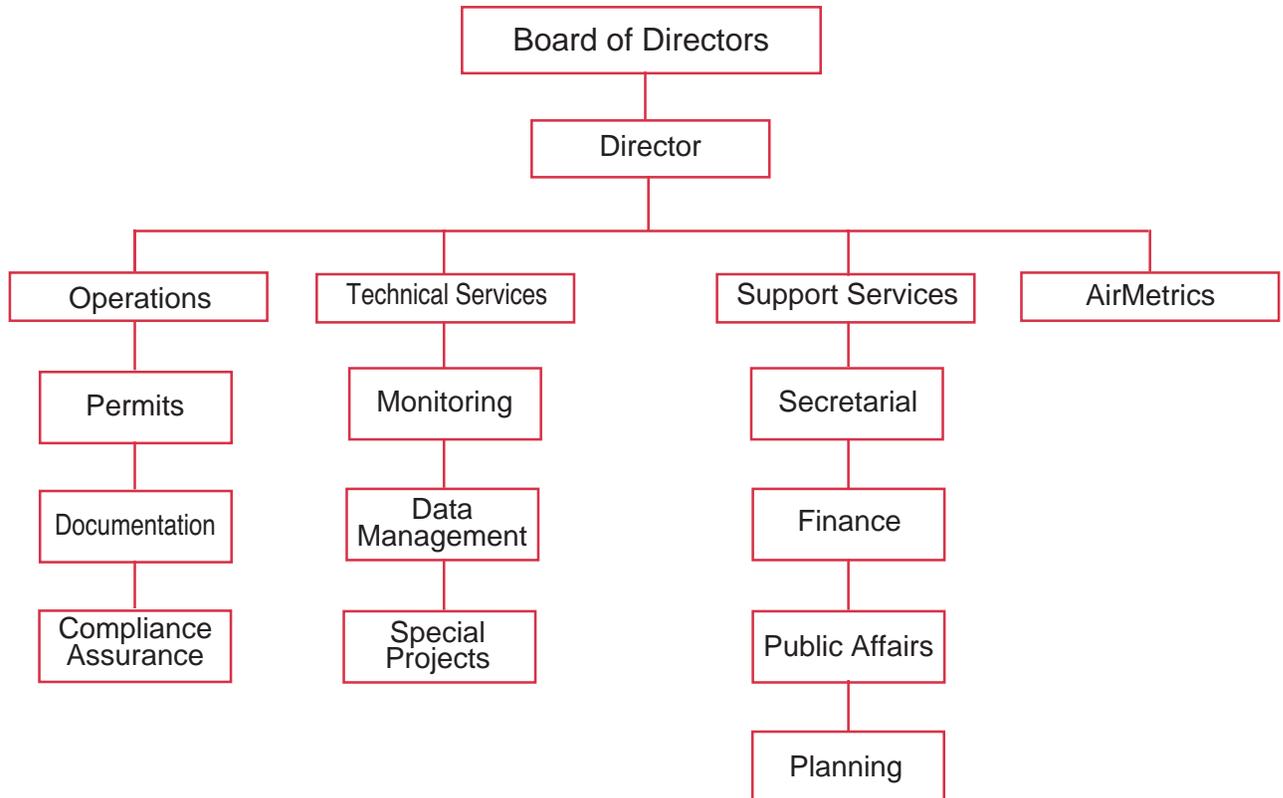
Over the next several years, the agency will continue to focus on its permitting operations and the challenges that come with the new clean air standards. We plan to increase public awareness about pollution from cars and trucks and continue our cooperative work with local government in local transportation planning projects, and are expanding our community work in public education and school outreach to meet our mission to maintain the quality of life that is highly valued in this community.



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

1998 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 - 4 yrs. service — Chair
Eugene City Council
Gary Whitney - 3 yrs. service — Vice Chair
LRAPA Board Appointment
Don Hampton - 1 yr. service
Oakridge City Council
Steve Cornacchia - 4 yrs. service
Lane County Board of Commissioners
Steve Dodrill - 7 yrs. service
Eugene City Council Appointment
Maureen Maine - 3 yrs. service
Springfield City Council
Betty Taylor - 2 yrs. service
Eugene City Council

1998 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
Trish Binder
Eric DeFreest
Tom Gentle
Steve Pauls
Dave Seluga
Hilda Young

Organization, Con't.



1998 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



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 of industrial sources; 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 administering contested case hearings and negotiating settlements.

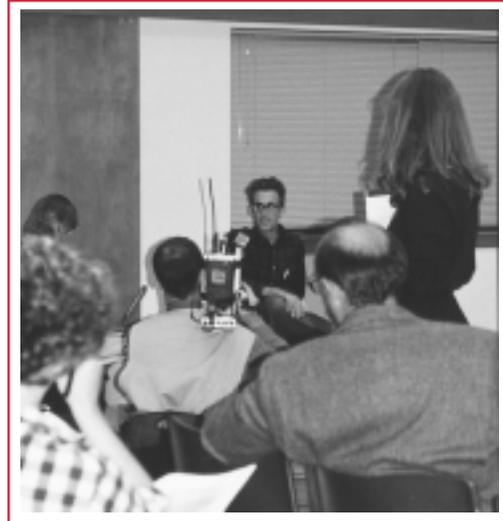
Technical Services — Monitoring and Data Management

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 constructs 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 the portable samplers.



LRAPA staff answer questions during public meeting, as news crews role tape.

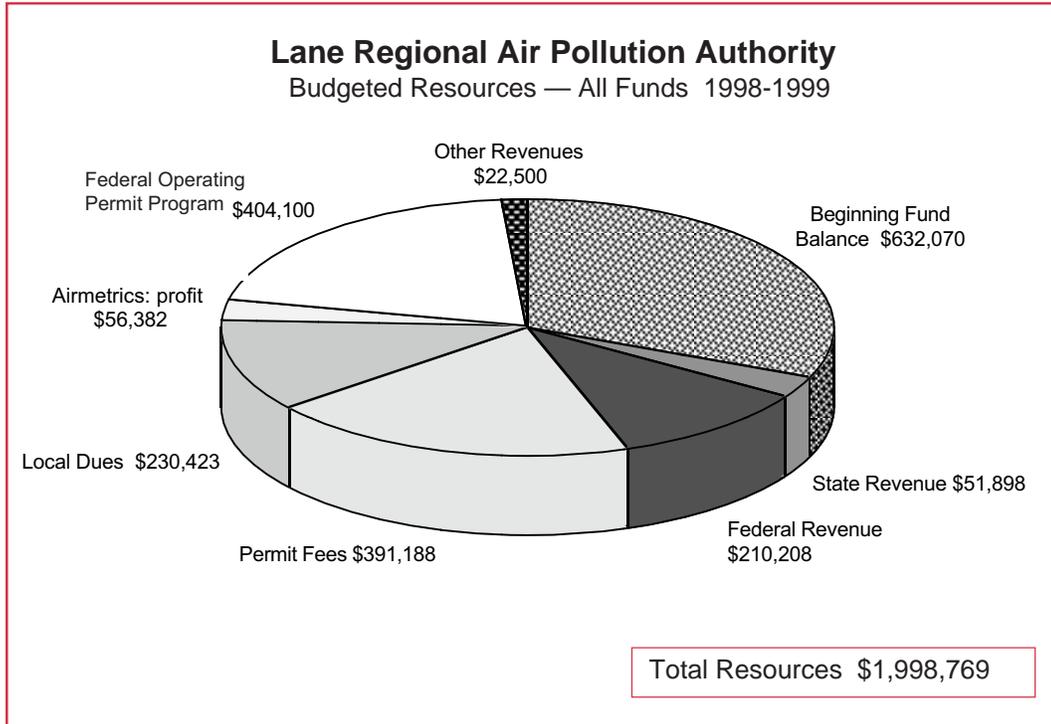
Administrative

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 yearly 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 community groups upon request.

Air quality planning identifies present and future air quality problems and develops appropriate emission control strategies. Those strategies are 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.

The 1998/99 fiscal year was the first year in eight years that local contributions from member entities and Air Contaminant Discharge Permit fees were increased. Prior to this year, LRAPA had been able to absorb additional cost

increases; however, after comprehensive analysis, it was determined the increases in revenue were necessary this fiscal year to maintain expected levels of customer service. Local member entity dues increased by five percent, and air contaminant discharge permit fees increased by an average of 24 percent, overall. Permit fees continue to average below comparable permit fees charged at the state level.



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. 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 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 in the Willamette Valley.

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.



NAAQS and Local Air Quality

The Environmental Protection Agency (EPA) has established health standards for six outdoor 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 based on protection against adverse health and environmental effects. The concentrations 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.

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 "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

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

Particulate Matter

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

The Eugene/Springfield area was first designated a "non-

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
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
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, Con't.



meeting new PM_{2.5} standards in the future. LRAPA will work closely with the community to help them understand the situation and identify the community's preferences for ways to prevent future violations.

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 (O₃)

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 metropolitan area.

Lead (Pb)

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

Continued



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



NAAQS and Local Air Quality, Con't.

PM/Ozone Standards Revised in 1997

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 published in the Federal Register, Volume 62, No. 138, on Friday, July 18. 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/m³), based on the three-year average from single or multiple monitoring sites, and

- ✓ A 24-hour PM_{2.5} standard of 65 ug/m³, 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.

Continued

PM/Ozone Standards Comparison Chart

Pollutant	Previous Federal Standard	1997 Federal Standard
Particulate		
PM ₁₀ 24-hour standard	150 ug/m ³	150 ug/m ³ , using 3-year average of 98 th percentile
Annual standard	50 ug/m ³	50 ug/m ³ , using 99 th percentile
PM _{2.5} 24-hour standard	No standard	65 ug/m ³ , using 3-year average of 98 th percentile
Annual standard	No standard	15 ug/m ³ , using 3-year average from single or multiple monitoring sites 98 th percentile
Ozone (O₃)		
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/m³ — micrograms per cubic meter
ppm — parts per million

NAAQS and Local Air Quality, Con't.

In addition to adding the new PM_{2.5} standards, EPA retained the current 24-hour PM₁₀ 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.

Areas are required to begin collecting PM_{2.5} data in January 1999. Areas failing to meet the standard will be designated “non-attainment” by EPA in the year 2002.

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.”

Areas have three years from the date of rule promulgation (1997) in which to collect data to provide to EPA for ozone attainment status. Areas that fail to meet the new standards will be designated “non-attainment” by EPA in the year 2000.

Implementing the New Standards

Once designated “non-attainment,” agencies will have three years to develop and submit to EPA pollution control plans showing how the areas will meet the new standards.



LRAPA monitoring sites received face-lifts in 1998. This Eugene site received a new trailer and placard.

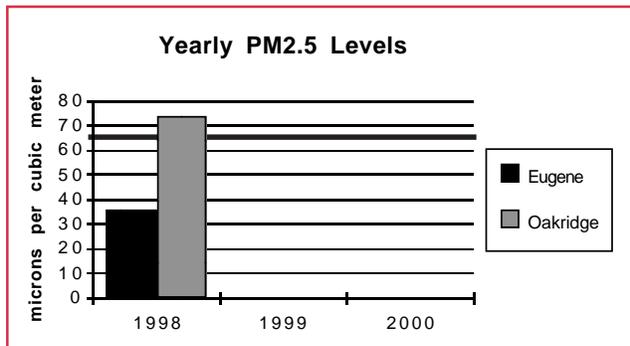


NAAQS and Local Air Quality, Con't.

How Lane County Measures Up

PM_{2.5}

Local predictions on the effects of the PM_{2.5} standards are difficult to determine because EPA-approved PM_{2.5} monitoring equipment was not available prior to 1998. LRAPA began monitoring PM_{2.5} this year at two sites, the Amazon site in Eugene and the Oakridge site.



Eugene	35.7 *
Oakridge	73.8 *

* Micrograms / cubic meter-ug / m³
Standard: 65 ug / m³

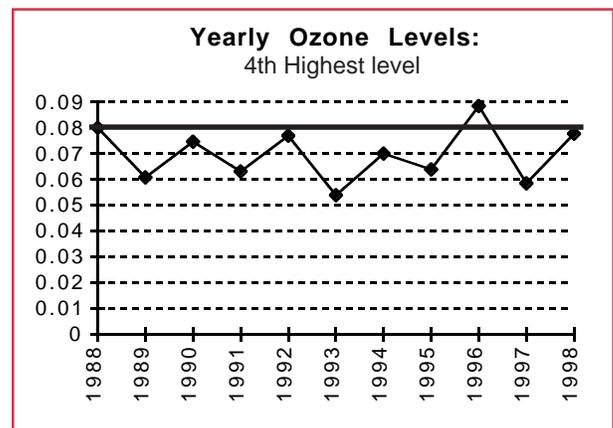
LRAPA began measuring PM_{2.5} levels in Eugene in March of 1998, and began measuring levels in the city of Oakridge later that year, in November. PM_{2.5} concentrations remained well below the federal standard at the Eugene site throughout the year; however, concentrations at the Oakridge site on one occasion during the 1998/99 winter exceeded the federal threshold level of 65 micrograms per cubic meter.

LRAPA will enhance its public education efforts in Oakridge over the next several years to educate the community about PM_{2.5}, its sources, and ways to minimize it.

Ozone

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 toward the new standard. Although the Eugene/Springfield area experienced three days during the summer of 1998 when the ozone levels were above the 0.08 ppm standard (0.095 ppm, 0.085 ppm, 0.083 ppm), the area met the federal standard because the fourth highest level was 0.078 ppm, below the 0.08 ppm threshold, upon which the standard is determined. In addition, the standard uses a running three-year average, so the fourth high in any one year is not a violation in itself. Whether or not the trend continues in the same pattern will determine if the area meets or exceeds the standards.



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 O₃	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 NO₂	A poisonous gas produced when nitric 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 SO₂	A pungent, colorless gas that combines with water vapor to become sulfurous acid (H ₂ SO ₃), which, when combines with oxygen, produces sulfuric acid (H ₂ SO 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 PM₁₀ Levels — 1988 - 1998

Site #	Site Name	Notes	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
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	29	27	23	27	25	25	21	21	18	21	17
		b	72	91	50	95	61	68	66	52	60	52	63
		c	69	79	48	73	54	59	42	49	46	49	56
		d	0	0	0	0	0	0	0	0	0	0	0
2018058	Key Bank — Hwy 99N	a	37	34	31	38	31	33	31	27	22	23	20
		b	129	146	118	126	123	103	125	84	66	60	68
		c	118	125	102	121	98	92	62	70	60	49	67
		d	0	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park	a	26	26	24	34	25	24	20	19	17	19	15
		b	95	92	49	73	101	70	71	63	61	54	59
		c	91	86	46	62	55	64	46	57	45	53	49
		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	19
		b	199	165	149	187	178	166	144	142	84	96	80
		c	177	122	142	184	161	151	143	135	78	90	79
		d	4	1	0	9	2	1	0	0	0	0	0
2033060	Springfield City Hall	a	34	28	25	30	27	28	24	22	19	21	19
		b	75	91	57	97	56	66	74	48	58	57	62
		c	67	71	56	89	55	61	51	44	55	49	59
		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
		b	---	---	77	132	69	68	109	93	52	75	50
		c	---	---	59	71	60	67	57	46	49	54	48
		d	---	---	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
 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

Note: Beginning in 1999, recorded data will reflect changes made to the PM standard. 1999 is the first year areas are required to begin reporting under the new standard.

Carbon Monoxide Concentrations

Yearly Carbon Monoxide Levels — 1988 - 1998

Site #	Site Name	Notes	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
2018056	Lane Comm. College (down-town)	a	7.3	6.1	5.1	5.5	6.5	4.9	6.0	5.3	4.6	4.8	3.9
		b	7.1	6.0	4.8	5.4	5.5	4.7	4.5	4.7	4.6	4.7	3.9
		c	0	0	0	0	0	0	0	0	0	0	0
2018060	Amazon Park *	a	4.4	---	---	---	---	---	---	---	---	---	---
		b	3.9	---	---	---	---	---	---	---	---	---	---
		c	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
		b	---	8.2	5.5	6.7	6.4	5.9	6.3	5.7	5.5	5.2	4.6
		c	---	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
- * Site operated January - February 1988
- ** Site began operation in August 1989

Ozone Concentrations

Yearly Ozone Levels — 1988 - 1998

Site #	Site Name	Notes	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
2000036	Delight Valley School — Saginaw	a	.095	.067	.078	.070	.086	.068	.081	.077	.095	.070	.095
		b	.080	.061	.075	.063	.077	.054	.070	.064	.089	.059	.078
		c	4*	0	0	0	3	0	1*	0	9*	0	3
2018060	Amazon Park	a	.110	.066	---	.073	.082	.067	.076	.074	.098	.063	.082
		b	.093	.061	---	.063	.071	.056	.068	.060	.084	.057	.073
		c	12*	0	---	0	2	0	0	0	7*	0	1

Standard:

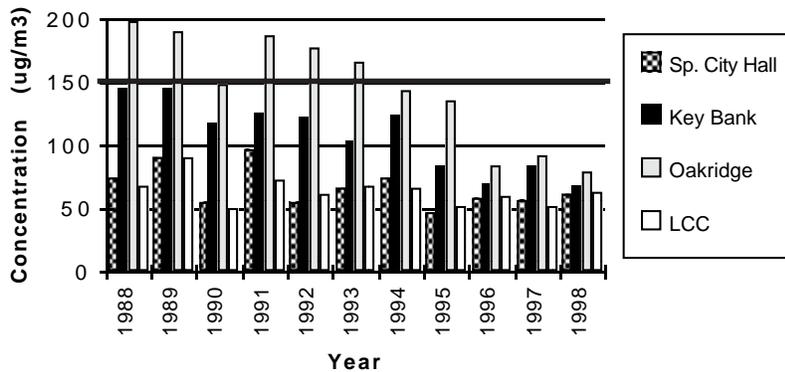
Fourth highest 8-hour average: 0.08 parts per million

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

Air Quality Trends

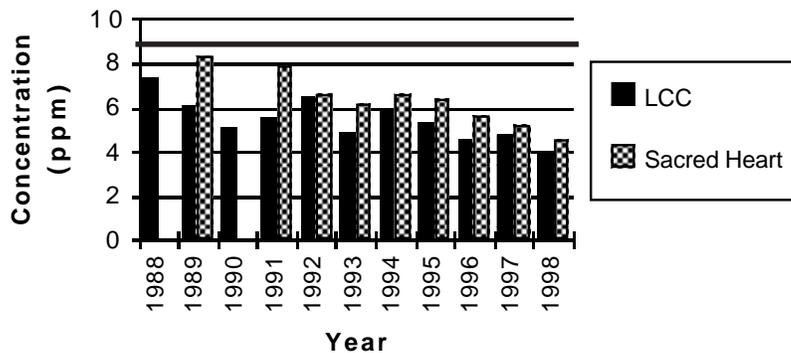
Particulate Matter (PM₁₀) Trend
Max. 24-hr. concentration



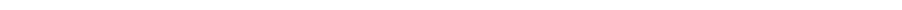
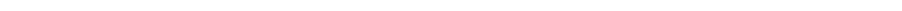
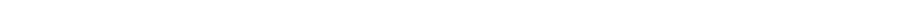
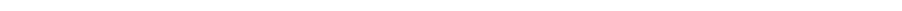
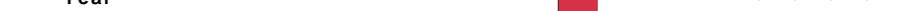
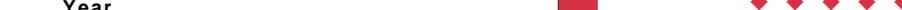
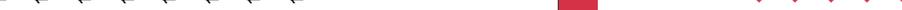
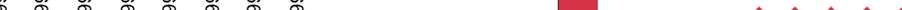
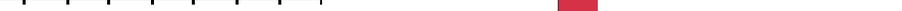
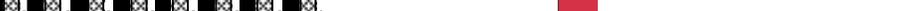
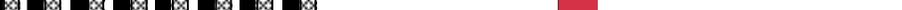
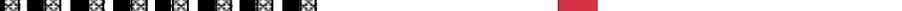
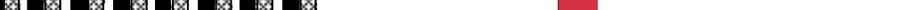
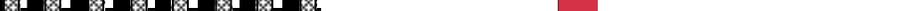
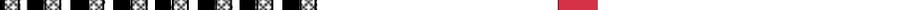
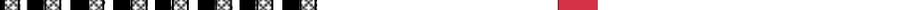
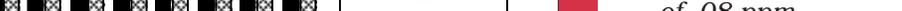
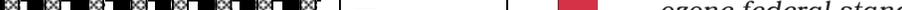
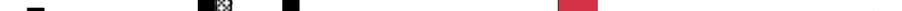
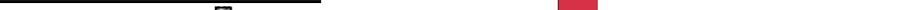
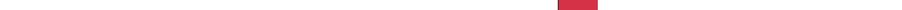
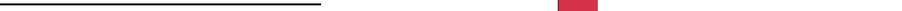
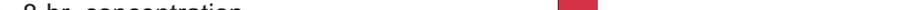
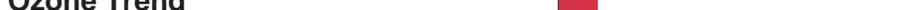
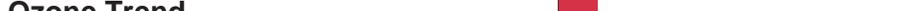
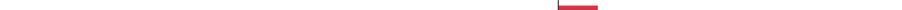
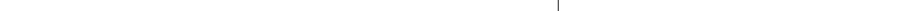
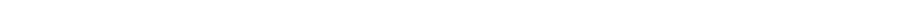
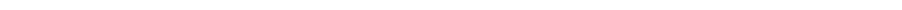
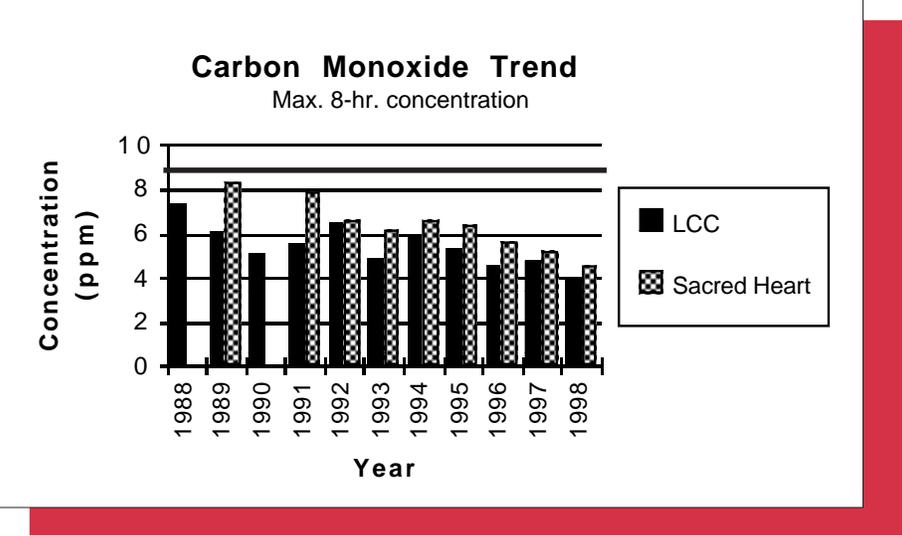
(———) Note: The thick line in graph equals the PM₁₀ federal standard of 150 ug/m³



Carbon Monoxide Trend
Max. 8-hr. concentration



(———) Note: The thick line in graph equals the carbon monoxide federal standard of 9 ppm



Air Pollution Index Summary



Air Pollution Index Summary				
1998 Number of days				
	Good	Moderate	Unhealthful	Total
CO	194	4	0	198
O ₃	118	26	1	145
PM ₁₀	17	5	0	22
Totals	329	35	1	365
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



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 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 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 home wood 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 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 in its eighth 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," 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 inception of the mandatory 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 1997-98 season marked the ninth 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 outlines strategies to be used for curbing pollution in Oakridge.

Strategies in the SIP include the reduction of PM₁₀ emissions through voluntary 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 analyze the strategies needed for compliance with federal clean air standards.

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



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 I "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 1988 - 1999 Season

Season Year	Yellow	Red I	Red II	PM ₁₀ Exceedances
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
1988-1989	14	2	1	0

Oakridge HWH Advisories 1989 - 1999 Season

Season	Yellow	Red	PM ₁₀ Exceedances
*1998-1999	6	0	0
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	—

* Based on PM_{2.5} monitored levels. One PM_{2.5} exceedance was measured in December '98.

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.

**1998
Home Wood Heating
Exemptions (Eug./Spfld.)**

Number of applications received (economic need only)	35
Number of exemptions 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 178 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 — operating 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.

Operating 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 178 permitted industrial sources in Lane County, 158 require ACDPs. The remaining 20 industrial sources 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. 9), or 10 tons or more of any single hazardous air pollutant (HAP) or 25 tons or more of any combination of HAPs. 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 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 triggers or thresholds which protect an area from significant deterioration.

1998 Permitting Summary

January 16 - December 15

Permits issued or renewed.....	8
Permits modified	8
Industries inspected	85



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 pat-

ented 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 coarse particles (PM₁₀) it was originally designed to sample. Applications for the sampler range from use in urban air quality studies, to crop-land 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 |

Sales for the '97-'98 fiscal year grossed \$630,000, providing about \$15,000 net profit to the agency. Expected net earnings for the '98-'99 fiscal year were budgeted at around \$50,000. Revenues raised from the enterprise are allocated to help defray fixed agency 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 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 638 complaints in 1998, down slightly from the number recorded in 1997.

Complaints, compiled on a monthly basis into one of ten categories, were down 7 percent in '98 over '97 totals, according to LRAPA data. Agricultural field burning, industry and open burning lead the categories for greatest number of complaints, followed by backyard burning and home wood heating. Other categories include dust, slash burning, general air quality, unknown sources and miscellaneous.

Six of the ten categories showed a decrease in the number of complaints to the agency, with the most drastic reduction in the unknown source category (down 33 percent). Other categories that showed decreases include home wood heating, field burning, industry and backyard burning.

Categories that showed increases in 1998 include general air quality, dust, slash burning, miscellaneous and open burning. 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 '98 over '97, by category, are as follows:

- ◆ Backyard burning -8%
- ◆ Dust +58%
- ◆ Field burning -12%
- ◆ General air quality +75%
- ◆ Home wood heating -13%
- ◆ Industry -11%
- ◆ Miscellaneous +15%
- ◆ Open burning +8%
- ◆ Slash burning -19%
- ◆ Unknown -33%
- ◆ Total complaints -7%

Complaints 1989 - 1998										
Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Backyard burning	46	54	46	60	63	88	50	85	77	71
Dust	8	0	11	7	14	8	17	18	19	30
Field burning	349	508	834	417	187	407	301	747	247	218
General air quality	9	24	17	2	5	3	5	3	4	7
Home wood heating	29	50	49	40	53	48	41	38	52	45
Industry	100	114	146	111	111	134	99	92	111	99
Miscellaneous *	(68)	120	59	47	19	45	35	25	27	31
Open burning *	---	85	59	69	85	74	77	89	91	98
Slash burning	41	247	28	42	16	64	29	16	16	13
Unknown	30	36	58	38	36	78	50	37	39	26
Total	680	1238	1307	833	589	949	704	1150	683	638
* Began calculation in 1990										
Miscellaneous totals in 1988, 1989, include all complaints logged in categories not listed on this chart										

Field Burning Summary

As reported by the Oregon Department of Agriculture, open field burning in 1998 totaled 46,299 acres in western Oregon. In the south Willamette Valley of western Oregon, 28,425 acres were burned, down substantially from '97 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 65,000 acres to be open burned during '98 - 40,000 acres for normal applications, and an additional 25,000 acres for steep terrain and special identified species.

Acreage propane flamed during the season totaled 4,033, up from the 2,921 acres flamed in '97; however, only 701 of the total acres propaned were burned in the south Willamette

Valley. Oregon law allowed for 37,500 acres to be propane flamed in 1998. Stack/pile burning, which ran through March of '99, totaled 5,021 acres, compared to the 7,628 acres stack burned the previous year. South Willamette Valley acreage stack/pile burned was 1,379 acres.

Officially, the Eugene/Springfield metropolitan area did not experience any intrusions of smoke from field burning during the '98 season. However, LRAPA staff answered 218 field burning phone complaints during the three-month season.

Total acreage burned in western Oregon collectively during 1998 was 57,814, down 17 percent from the nearly 70,000 burned in '97. Total acreage burned collectively in the south Willamette Valley was 30,505.



FIELD BURNING YEAR-END TOTALS

Year end	S. Willamette acres burned	Number of intrusions	Impact hours	Number of complaints
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
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, and solutions to, 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 on a wide-range of topics produced by LRAPA and other organizations and governmental agencies in the form of visual aids, video programs, research materials, brochures, fact sheets, newsletters and annual reports.
- ◆ **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.

1998 Projects:

- ◆ Interactive educational display
- ◆ Lane County Fair
- ◆ City of Oakridge Health Fair
- ◆ Pollution Prevention Coalition of Lane County- informational kiosks
- ◆ Public education slide-show library
- ◆ Home Wood Heating surveys: Eugene/ Springfield and Oakridge
- ◆ LRAPA signage at monitoring sites and on agency vehicles
- ◆ American Lung Association Open Airways school program partnership
- ◆ Strategic planning/performance management
- ◆ KRVM high school radio station PSA production partnership
- ◆ Lane Co. Health and Human Services: Low Income Assist. 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 1998.

- ◆ PM_{2.5} monitoring began in Oakridge to obtain preliminary data on area PM_{2.5} concentrations, and continued in the Eugene/Springfield area.
- ◆ An emission inventory was completed for sources of volatile organic compounds in Lane County.
- ◆ A formal Pollution Prevention Coalition between LRAPA and a number of public entities was established.
- ◆ A partnership between LRAPA and Lane Community College construction technology students was established to help construct a new lab facility.
- ◆ An agency-wide performance management and strategic planning development program was initiated.
- ◆ An interactive public education outreach display for use at special events and school functions was developed.
- ◆ A partnership with Oregon Department of Environmental Quality was implemented

to assist in the statewide “Green Permits Development” project.

- ◆ The EPA Region 10 grant management services project was continued to assist EPA in administration of Region 10 grant projects.



Lane Community College students get on-the-job training working on LRAPA's building remodel.