

S.W. AIR POLLUTION CONTROL AUTHORITY

ANNUAL REPORT

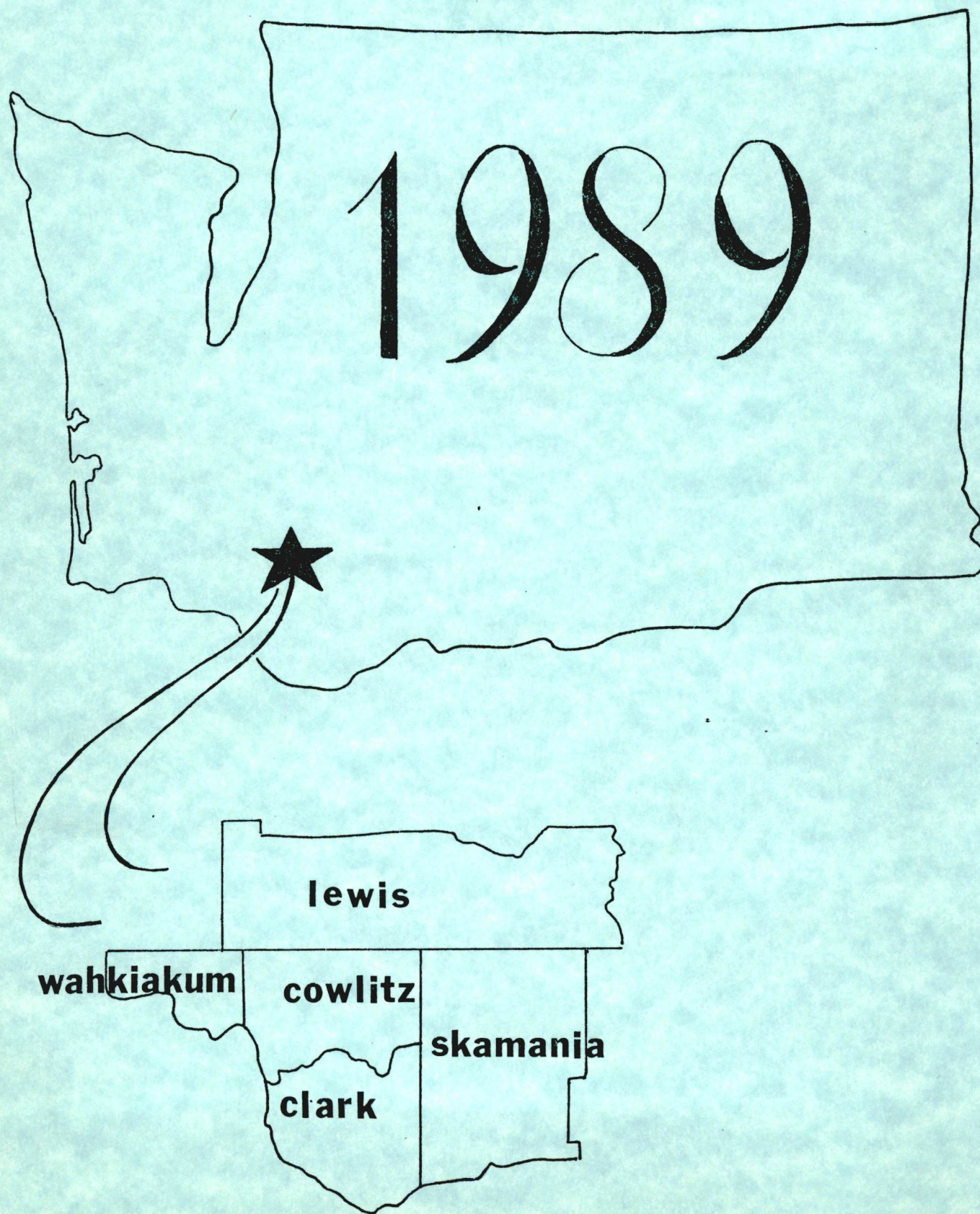


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INTRODUCTION

to the

S.W. AIR POLLUTION CONTROL AUTHORITY

Prior to the formation of the S.W. Air Pollution Control Authority, a minor amount of ambient sampling and complaint investigation fell under the responsibility of the S.W. Washington Health District. But the need for a full time air pollution control agency became evident as the volume of air quality complaints increased. The vast majority of these pertained to particulate fallout problems from industrial sources within the local Vancouver area.

On July 7, 1966 the Clark County Air Pollution Control District was formed and continued as a single county agency until March 1968, then it was dissolved and reestablished as a multi-county jurisdiction district in April of that year.

The Agency was first based in the Clark County Courthouse, but moved a few months later to the Washington Health Department offices. In 1970 permanent quarters were established in Hazel Dell, where the Agency resided until November 1986. Then, in a cost cutting move, the office was moved to its present location at 1308 N.E. 134th Street, Suite D, Vancouver, Washington.

Business rules were adopted in 1968 followed by the first Regulation, known as "Regulation 1", on December 17, 1968. On October 28, 1969 "Regulation 2" was added. While Reg. 1 dealt primarily with general requirements, Reg. 2 addressed permissible ambient concentrations, acceptable contaminant levels from industrial stacks and odor limits. These two documents stayed in use until December 1979 at which time they were superseded in order to comply with Federal and State laws and to incorporate many of the provisions contained in the federal and state regulations. The new Regulation was then adopted and entitled the "General

Regulations for Air Pollution Sources". Minor "house cleaning" changes have been made to these regulations since the initial adoption, but for the most part, they are still intact and used effectively today as the Agency's primary enforcing document.

Mr. Dick Serdoz, a registered professional engineer, currently holds the Agency's position of Executive Director. Mr. Serdoz came to work for SWAPCA in June of 1986. Prior to that time, he held the position of Air Quality Officer for the State of Nevada's Dept. of Conservation and Natural Resources.

Currently the S.W. Air Pollution Control Authority has a total of eight employees: the Executive Director, Chief Engineer, Chief of Technical Services, three Air Quality Control Specialists, and two part time (job sharing) secretaries.

The Agency's jurisdiction is comprised of five counties in the southwestern portion of Washington: Clark with an area of 627 square miles, Cowlitz with 1,144, Lewis with 2,423, Skamania with 1,672, and Wahkiakum with 261. Combined, this makes a regional jurisdiction of 6,127 square miles. Current population in the region is 372,100, which breaks down as: Clark - 220,400, Cowlitz - 82,100, Lewis - 58,000, Skamania - 8,100 and Wahkiakum - 3,500.

The financial and economic base of the region was once strongly dominated by forest harvest and production, but in recent years the economic mainstay of the area has diversified significantly. Even though forest harvest is still a strong supporter to the area, many other economic product lines have been established, making us less dependent on a single type of occupation force.

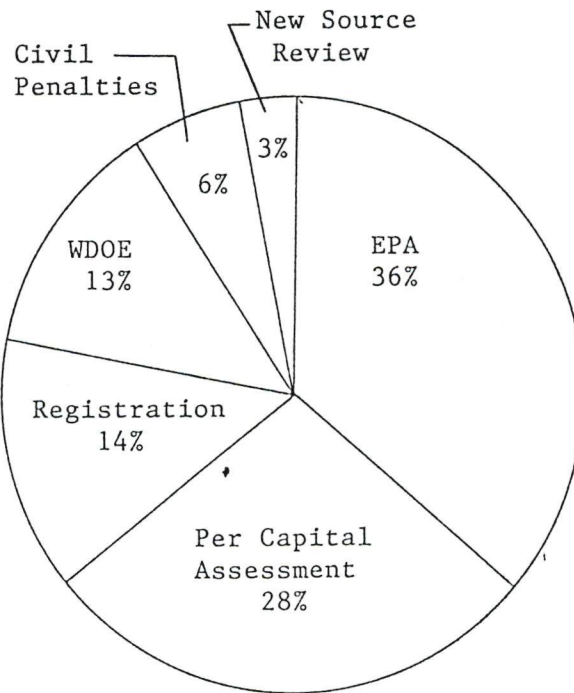
Current Employees of SWAPCA

<u>Name</u>	<u>Position Held</u>	<u>Date of Hire</u>
Dick Serdoz	Executive Director	June 1986
William Prastka	Chief Engineer	April 1970
Thomas Tabor	Chief of Tech. Serv.	January 1971
Jackie Sherby	Air Quality Cont. Spt.	October 1979
Lance Jackson	Air Quality Cont. Spt.	May 1988
Gerald Strawn	Air Quality Cont. Spt.	October 1988
Virginia Fry	Secretary (job sharing)	January 1982
Karen Nelson	Secretary (job sharing)	June 1989

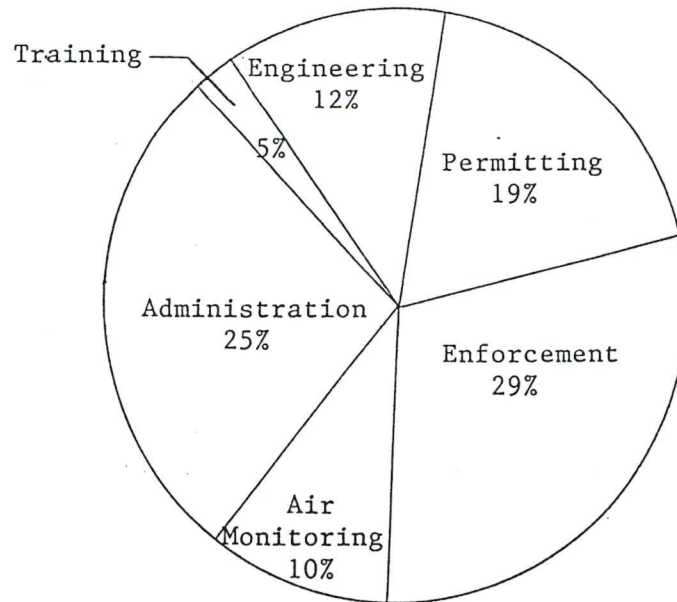
Current Board of Directors
(as of Dec. 1989)

<u>Name</u>	<u>Representing</u>	<u>Date Appt.</u>
Scott Collier (Chairman)	City of Vancouver	July 1987
Gregory Cox (Vice Chairman)	Lewis County	January 1987
Dennis Weber	City of Longview	January 1984
Bernard Cossette	City of Cathlamet	January 1987
Van Youngquist	Cowlitz County	January 1987
Doug Larson	Member at Large	March 1987
Ron Ozment	Wahkiakum County	January 1989
John Magnano	Clark County	January 1989
Kaye Masco	Skamania County	January 1989
Marvin Morasch	City of Stevenson	March 1989
Mark Miller	City of Centralia	May 1989
Ron Bartels (Alt.)	City of Vancouver	February 1982
Charles Wiggins (Alt.)	Cowlitz County	April 1988

1989
REVENUE DISTRIBUTION



LABOR DISTRIBUTION



Staff Training

Dick Serdoz, Executive Director

ALAPCO Bi-Annual Meeting - 4/89.
Ambient Sampling Telemetry Network - 5/89.
Operational Use of ESC Telemetry System - 5/89.
CPR Training - 5/89.
EPA Region X - Models for Impact Analysis - 5/89.
APCA Technical Meeting - 6/89.
ALAPCO Bi-Annual Meeting - 10/89.

William Prastka, Chief Engineer

EPA Region X Permit Applicability - 5/89.
APTI Effective Permit Writing Workshop (EPA #454) - 5/89.

Thomas Tabor, Chief of Technical Services

WDOE/DEQ Plume Evaluation Recertification - 3/89.
Creative Writing - 1/89 through 3/89.
QA Handbook Workshop - Met. Measurements - 3/89.
Ambient Sampling Telemetry Network - 5/89.
Telemetry System Trouble Shooting & Maint. Workshop - 5/89.
Operational Use of ESC Telemetry System - 5/89.
CPR Training - 5/89.
APTI Site Selection for Monitoring of CO & Photochemical Poll. in
Ambient Air (CC-437) - 8/89.
WDOE/DEQ Plume Evaluation Recertification - 9/89.

Jackie Sherby, Air Quality Control Specialist II

Nat. Fire Academy Public Fire Education Planning - 2/89.
WDOE/DEQ Plume Evaluation Recertification - 3/89.
Ambient Sampling Telemetry Network - 5/89.
Operational Use of ESC Telemetry System - 5/89.
CPR Training - 5/89.
APTI Baseline Source Inspection Techniques (#445) - 7/89.
APTI Inspection Procedures & Safety (#446) - 7/89.
WDOE/DEQ Plume Evaluation Recertification - 9/89.
APTI Electrostatic Precipitator Review (#SI-412B) - 11/89.

Staff Training (continued)

Lance Jackson, Air Quality Control Specialist II

WDOE/DEQ Plume Evaluation Recertification - 3/89.
CPR Training - 5/89.
APTI Emission Capture & Gas Handling (#345) - 9/89.
WDOE/DEQ Plume Evaluation Recertification - 10/89.

Gerald Strawn, Air Quality Control Specialist II

APTI Air Pol. Cont. Sys. for Selected Ind. (#SI:431) - 5/89.
WDOE/DEQ Plume Evaluation Initial Certification - 5/89.
CPR Training - 5/89.
APTI Emission Capture & Gas Handling (#345) - 9/89.
WDOE/DEQ Plume Evaluation Recertification - 10/89.
APTI Chain of Custody (#SI:443) - 10/89.

Virginia Fry, Secretary

CPR Training - 5/89.
Prime Learning International "The Secretarial Sem." - 10/89.

Air Pollutants and Their Related Health Effects

Suspended Particulates

Any matter that exists in a finely divided form, whether liquid or solid, is defined as particulate when airborne. In years past, emphasis was placed on the total combined weight of all suspended particles with no thought given to whether they were of a respiratory size or not. The latest research however, has caused the public officials to shift emphasis away from total suspended particulate and concentrate their control efforts in the direction of those particles that pose the most serious threat to the public's health. It is commonly accepted that matter having an aerodynamic diameter of less than, or equal to, a nominal 10 microns is breathable. These are the particles that are not usually filtered out by the nose and mouth before reaching deep into the lungs and internal organs. The terminology used to describe this fraction of the suspended particulate is particulate matter 10, or "PM-10".

Fine particulate matter (PM-10) exerts harmful effects on human beings in a number of ways:

- 1) Small particles may be toxic due to their chemical make up.
- 2) Small particles may absorb various other contaminant compounds and substances, and these compounds may very well be of a toxic nature. As these bond with one another the toxic compounds are more easily carried into the vital health centers of your body.
- 3) Small particles may interfere with clearance mechanisms of the respiratory tract.

Carbon Monoxide (CO)

Carbon Monoxide (CO) is a colorless, odorless, nonirritant gas that interferes with oxygen transport in the body. Studies of the effects indicate that exposure to high concentrations of CO can strongly impair the functions of oxygen dependent tissues, especially the brain, heart and muscles. Even low concentrations of CO can cause adverse health effects, particularly to those individuals already suffering with arteriosclerotic heart disease. Low concentrations can affect healthy individuals as well, by increasing risk of heart disease, decreased tolerance to

exercise and decreased mental capabilities. In addition, studies have shown that high levels of CO, sometimes found in heavily populated urban areas, can be responsible for a lower birth weight and increased deaths of infants.

Annually, transportation accounts for approximately 80% of the man-made CO emissions, but industrial sources, open burning, wood burning for space heat, and forest harvest slash burning also significantly contributes to the problem. On any single day the combination of open burning and industrial emissions may be responsible for up to 90% of total carbon monoxide buildup in the local air shed.

Ozone and Volatile Organic Compounds (VOC)

Many volatile organic compounds (VOC) contribute to ground level concentrations of ozone. Sunlight, in the presence of oxides of nitrogen, converts these VOC compounds into ozone. Therefore, our most severe ground level concentrations occur during the hot summer days. Characteristically these days normally occur in the months of June through September. This time frame is often referred to as "the ozone season". The conversion of these compounds generally takes from two to seven hours to complete, dependent upon the reactivity of the VOC's in the atmosphere mixture. As a result, heavy ground level concentrations usually occur miles from the source of emission.

Unlike the "ozone layer", located above our earth's atmosphere, ozone at the earth's surface is not a desirable thing. Ozone causes shifts in enzyme activities, chemical activities, and cellular activity in the respiratory tract. Individuals with existing conditions of asthma, heart disease and chronic lung disease suffer worsening conditions and increased hospitalization as well as loss of some of their physical endurance when exposed to ozone. In addition, healthy people may suffer eye irritation, respiratory tract annoyances, headaches, lessening of athletic performances, decreased visual acuity, an increase risk of chronic lung disease, increase risk of acute respiratory disease, potential risk of mutagenesis and carcinogenesis and women may have impaired fetal development.

Nitrogen Oxides (NOx)

Nitrogen Oxides are necessary in the chemical reaction with volatile organic compounds, water vapor and sunlight in order to form the contaminant - ozone. There is considerable evidence that persistent low levels of oxides of nitrogen pose considerable health threats to the populous. Of these compounds, nitrogen dioxide is the most toxic. People already plagued with respiratory disease will experience increased problems when exposed to ambient concentrations of oxides of nitrogen. The health effects to these people could take the form of aggravation of asthma, aggravation of heart and lung disorders, and increased acuteness of their existing respiratory diseases. For those individuals that are normally healthy, effects of exposure may lead to increased susceptibility to acute respiratory diseases, loss of physical capabilities, reduction of lung function, and a potential of carcinogenesis and mutagenesis.

The burning of fossil fuels, by industrial or municipal, stationary sources, contribute a little over 50% of the ambient nitrogen oxide emissions. The remainder is made up largely from transportation sources.

Sulfur Oxides (SO₂ & SO₃)

Sulfur is a nonmetallic element found in coal and petroleum products. When burned, this material is transformed into sulfur dioxide and sulfur trioxide. When these compounds combine with water they form sulfuric acid. On a national level, approximately two thirds of all sulfur oxide emissions come from coal and oil fired power plants. Sulfur oxide and nitrogen oxide emissions are responsible for the acid deposition phenomenon, or what is commonly referred to as "acid rain". Human health effects believed to be attributed to exposure of sulfur compounds are: acute irritation of the upper respiratory tract and conjunctiva, acute aggravation of cardiopulmonary disease, worsening of asthma and chronic destructive pulmonary disease, and a decrease in lung function capability.

Health Effects Related to Wood Stove Emissions

The Problem

Over the past few years there has been a growing trend to install wood stoves and fireplace inserts. Believing that this is a cheaper method of heat, sales of these products have soared and consequently, wood burning has escalated dramatically. As a result, air contaminant emissions, including compounds such as: creosote, polycyclic aromatic hydrocarbons, fine particulate, carbon monoxide, aldehydes (including formaldehyde and acrolein) and nitrogen dioxide have also increased proportionately. Residential wood heat emissions are unique in that, unlike industrial contamination and auto emissions, the pollution is released directly where we live - right in our "backyards". It is in the evening that this form of space heat is most often utilized. Unfortunately, this is also the same time frame that the most stagnant, stable conditions generally exist and when the largest portion of the populace is at home, being subjected to the increased levels of that contamination.

Further adding to the problem of contaminant build up, many newer wood burning devices provide the user the flexibility to damper the air flow down at times of non-use, generally when the resident is going to bed for the evening. This conserves on wood, but the air starved fuel continues to smolder and smoke for hours, providing little in the way of heat, but substantial amounts of air contamination.

Wood smoke is a mixture of organic compounds, many of which are the very same compounds found in cigarette smoke. Included in these compounds are fourteen which have been directly linked to causing cancer.

There is growing scientific evidence which indicate that serious health implications can be attributed to this trend of increased wood burning. A 1985 epidemiologic study reported that preschool children that spent their day in wood heated homes showed increased symptoms of airway irritation, allergy and asthma, when compared to those that lived in environments utilizing other forms of space heat.

In a three year study conducted in Montana, both healthy school children and adults with chronic pulmonary disease showed increases in pulmonary distress whenever wood smoke pollution levels were increased.

Other studies involving individuals of the third world that were subjected to heavy concentrations of wood smoke during their normal way of life, show evidence of chronic bronchitis, chronic obstructive pulmonary disease (COPD), and heart failure secondary to COPD.

It has been demonstrated that suspended particulate matter of less than 10 microns in diameter, is respirable. Or, to say it another way, particles of 10 microns or smaller can readily be taken deep into the respiratory system through a person's normal breathing process. In the case of residential wood combustion smoke, roughly 50% of the particles are less than 2.5 microns and 70% are less than 5 microns. This would indicate that over 70% of this contamination, when breathed in, would reach the person's throat, lungs and internal organs thereby causing irritation and/or health concerns.

Action to Cure the Problem

In an effort to help alleviate the growing problem of wood space heating emissions, the Washington Department of Ecology passed regulations to: 1) curb the smoke generated by existing wood space heating sources, and 2) put restrictive limits on the air contaminant levels that will be permitted from newly manufactured units. The visual emission restrictions took on a two step approach. Currently wood burners must meet a visual emission standard of 40% opacity. In July 1990 that level will drop to 20% opacity. Opacity is measured by a certified observer and is based on the degree that a background object is obscured when looking through the plume of smoke. Opacity is based on a scale of 0 to 100%, with 0 representing no visible smoke and 100% indicating that an object behind the smoke plume has become totally obscured from view. Since July 1, 1988 any new wood stove, or insert, sold in the state of Washington must meet the phase II DEQ certification, or EPA's test/certification program requirements, and must display this test certification sticker.

In addition to the above requirements and in an effort to protect public safety during times of severe inversions, the law includes provisions that requires curtailment of all wood space heating when WDOE calls an air stagnation advisory. The only exception to this rule is in the case of

a resident having no other means to heat their home, other than with wood. Daily burning information can be obtained by calling the Washington Department of Ecology "hot-line" at 1-800-523-4636.

Ambient Air Monitoring

Technical Services

The Agency sampling network is currently maintained by Mr. Thomas Tabor. Mr. Tabor has been in the Agency's employ since January 1971. In October of 1988 he took over the position of Chief of Technical Services. Before that time he worked in enforcement, as an Air Quality Control Specialist for the Agency.



A white quartz filter is placed on the PM-10 sampler in order to capture the fine particulate matter for later laboratory analyses.

Much of the ambient sampling equipment is owned by the Washington Department of Ecology (WDOE) and is on loan to the local Agency. The data gathered and processed by the SWAPCA staff is then forwarded to the WDOE via either the telemetry phone line and/or hard copy by the mail service. The sampling equipment is maintained by both SWAPCA and WDOE. Audits and calibrations are routinely performed by WDOE personnel and Mr. Tabor in order to maintain a consistent high degree of quality assurance.



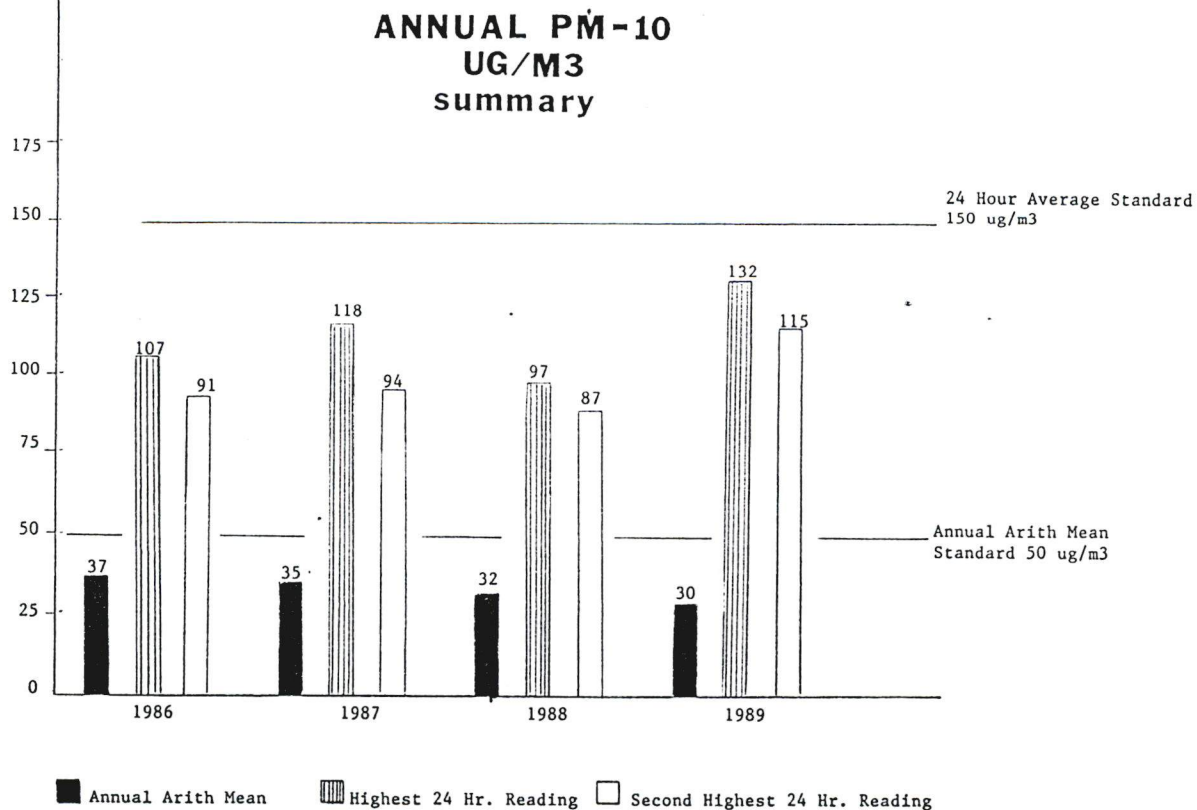
PM-10 Sampler

In 1974 the Agency's first ambient data telemetry system was installed. It quickly became obsolete however, and was replaced only a year or two later by a Monitor Lab "9400". The 9400 served the Agency and the State very well up until this year, when it too became antiquated and had to be replaced by a modern unit with more versatility. The new system, built by Environmental Systems Corporation, of Knoxville, Tennessee, provided many advantages that were not available until recent years. It allowed for easier access to data, the ability to generate instantaneous reports, better control over the performance of the monitoring sites, and many other advantages that help to insure data quality and ease of monitoring. The new ESC system began operation in May, but many problems were encountered and it wasn't until November or December that the vast majority of these were ironed out. Of course there is always "fine tuning" necessary whenever a major system like this is replaced and by the end of 1989 even though the majority of the problems had been corrected, some system changes will be needed in order to take complete advantage of its potential. Currently the SWAPCA staff as well as the other local agencies are working with the WDOE in this aspect.

Particulate

No longer does the Agency sample for total suspended particulate matter (TSP). Currently all particulate monitoring is through the use of PM-10 samplers, which have the ability of separating the larger particles out and only capturing those particles having an aerodynamic diameter of less than or equal to a nominal 10 microns. This has been determined by the U.S. Environmental Protection Agency to be the particles of respirable size. The new PM-10 samplers are costly and consequently in scarce supply at the present time. In the coming years it is hoped that more units can be placed into service, targeting both industrial areas and residential neighborhoods. During the 1989 calendar year, two PM-10 samplers were operated, both of which were located at the Longview City Shop, enabling the Agency to obtain a sample every three days. There were no PM-10 violations detected during year 1989.

LONGVIEW CITY SHOP



Particulate Matter 10 Micron and Under (PM-10) Data

Longview City Shop, Longview

Max. value recorded:	132 ug/m3
Min. value recorded:	7 ug/m3
Annual 1989 Average:	30.1 ug/m3
Number of Samples Over 150 ug/m3:	NONE
Number of Samples Over 50 ug/m3:	13 samples
Number of Violation Days:	NONE
Number of Samples Obtained 1989:	119 samples

Note: Refer to Appendix I for Ambient Air Quality Standards.

Sulfur Dioxide (SO2)

In conjunction with WDOE, the Agency staff operated and maintained an SO2 sampler at the Cowlitz County PUD warehouse in Longview until the end of July 1989. The instrument consisted of a Thermo Electron Corp. Model 43 analyzer, which utilizes a pulsed beam of ultraviolet illumination through a monochromatic filter. In September 1989 a sampler of similar design was installed at the Camas Armory in Camas and has been in operation since that time. There have been no SO2 violations recorded at either site during calendar year 1989.

Note: Refer to Appendix I for Ambient Air Quality Standards.

Ozone and Volatile Organic Compounds (O₃ & VOC)

An ozone sampler was installed and operated throughout the ozone season in Vancouver at Mt. View High School. Ozone is a product of volatile organic compounds which react chemically with oxides of nitrogen when exposed to sunlight. SWAPCA recognizes the months of June through September as the "ozone season". In order to monitor ozone the Agency uses a Dasibi Model 1003 analyzer. This is an ultra-violet absorption unit. UV light is generated by a low pressure mercury vapor lamp inside the unit. This light is then absorbed by the sampled gas. Based on the amount of light absorbed the analyzer displays instantaneously the ozone contamination in parts per million.

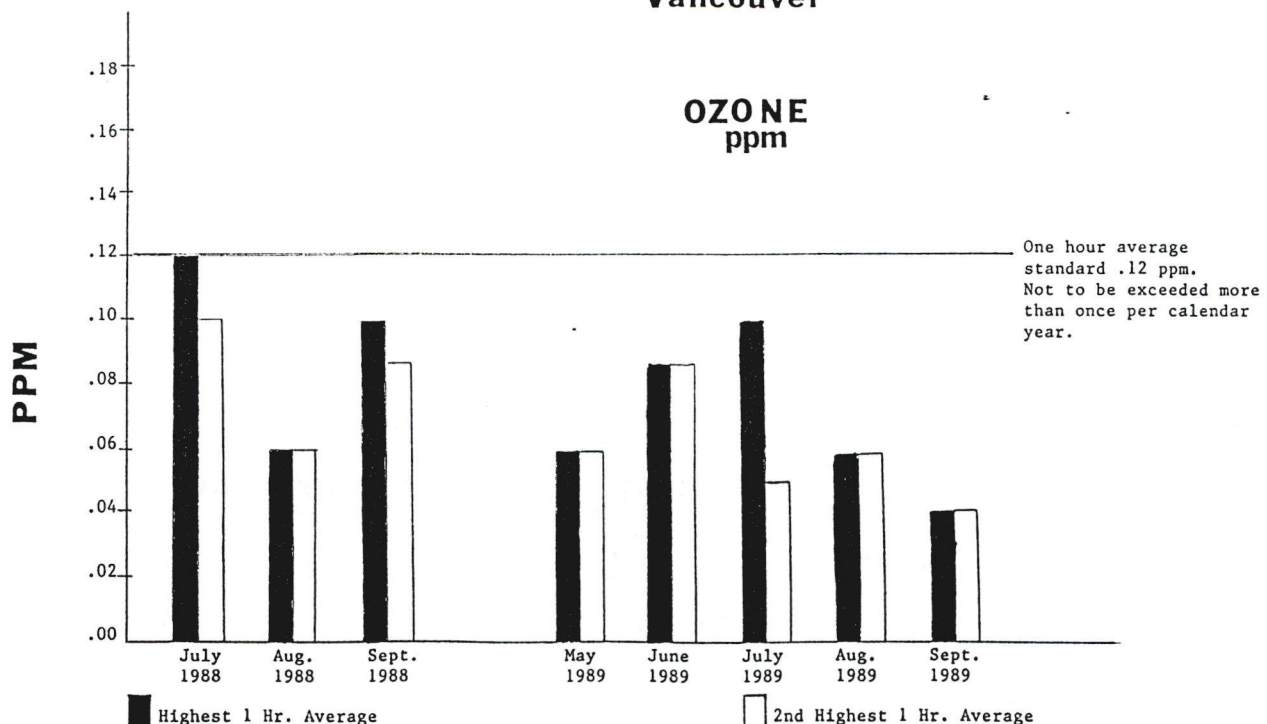
In calendar year of 1989 no violations were recorded at the Mt. View site. However, SWAPCA shares the same air-shed as Portland and within the years of 1986, 1987 and 1988 Portland has experienced a total of three violations.

After the summer months came to a close, the ozone monitor was removed from the sampling site by WDOE. It will be reinstalled in April 1990 in order to monitor the ozone levels during the 1990 ozone season.

Note: Refer to Appendix I for Ambient Air Quality Standards.

MT. VIEW HIGH SCHOOL

Vancouver

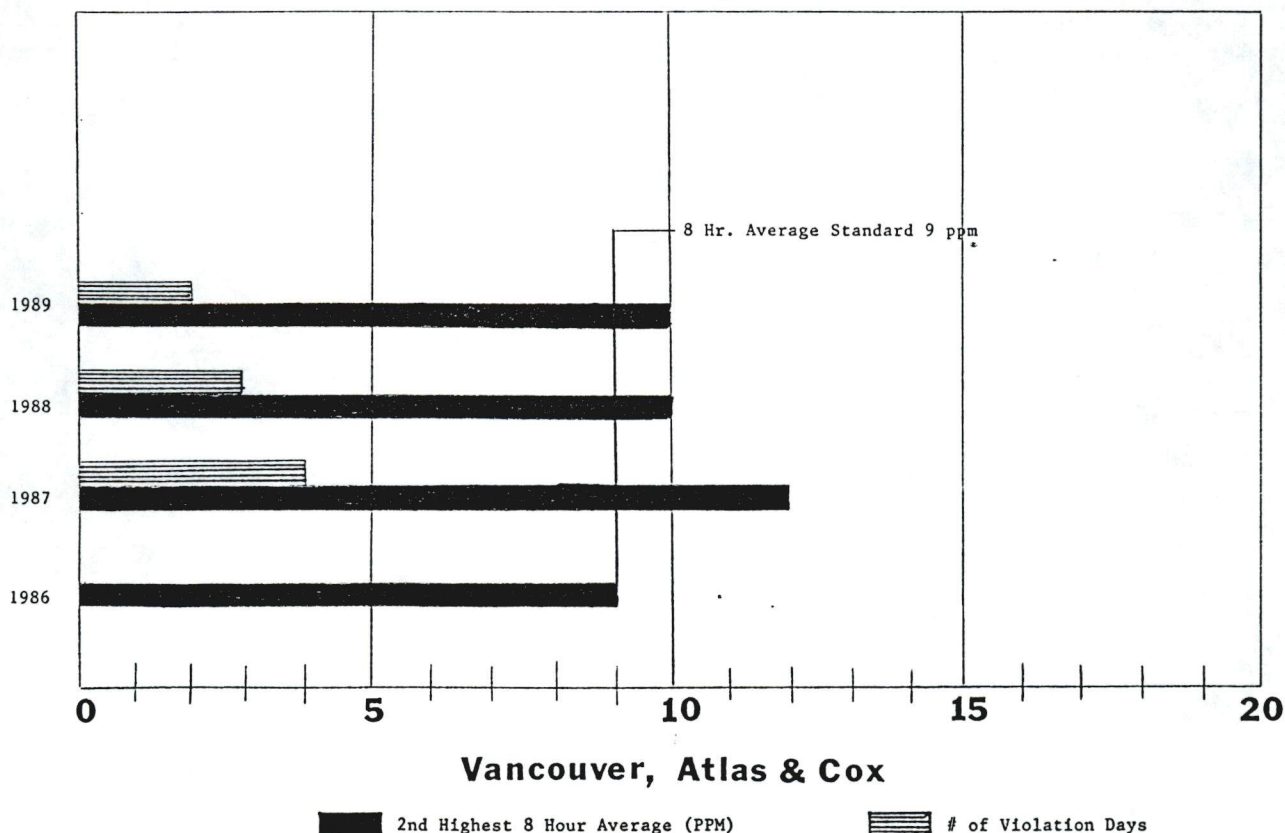


Carbon Monoxide (CO)

One carbon monoxide (CO) continuous monitor was operated in the Vancouver area in 1989. This site has become known as the "Atlas/Cox" site and is located near the intersection of Fort Vancouver Way and Fourth Plain Blvd. This monitoring site has been essentially in continuous use since 1986. Prior to that time, a CO monitor was operated and maintained at Action Camera (Justin's Photo) in the downtown area. The sampler currently used by the Agency is a Thermo Electron Corp., Model 48 which uses the gas filter correlation technique to measure the carbon monoxide.

In order for an area to be classified as "in attainment" neither the eight hour average limit of 9 ppm or the one hour average limit of 35 ppm, can be exceeded more than once in any one year. In 1988 this site violated the 8 hour average limit on three occasions and in 1989 there were two days with excessive 8 hour average levels. These occurred on December 13 and December 22, 1989.

annual CARBON MONOXIDE summary



Highest Levels of Carbon Monoxide Recorded 1989

<u>Ambient Concentrations</u>		<u>Date</u>	<u>The Standard</u>
Highest 1 Hour Average:	14 ppm	Dec. 21	Not to exceed
Second Highest 1 Hr. Ave:	14 ppm	Jan. 19	35 ppm
Highest 8 Hour Average:	10 ppm	Dec. 22	Not to exceed
Second Highest 8 Hr. Ave:	10 ppm	Dec. 13	9 ppm

Note: Refer to Appendix I for Ambient Air Quality Standards.

Meteorological Stations

During the first half of 1989, meteorological data was obtained at the Cowlitz County Sewage Treatment Plant, located in the Longview industrial area. In July, and at the end of the study period, the equipment was shut down and subsequently removed from the site. Wind speed and direction was monitored at this site, as well as sigma (generally used for air modeling purposes).

Administration

Primary administration is the responsibility of the Executive Director, Dick Serdoz. Mr. Serdoz was hired in June, 1986 and is a registered professional engineer.

The Executive Director's foremost responsibilities includes the planning and organization of the Agency's environmental programs, insuring compliance with the laws, regulations, rules and policies of the Southwest Air Pollution Control Authority, State of Washington, and Federal Government as well as providing staff direction, and review of subordinates.

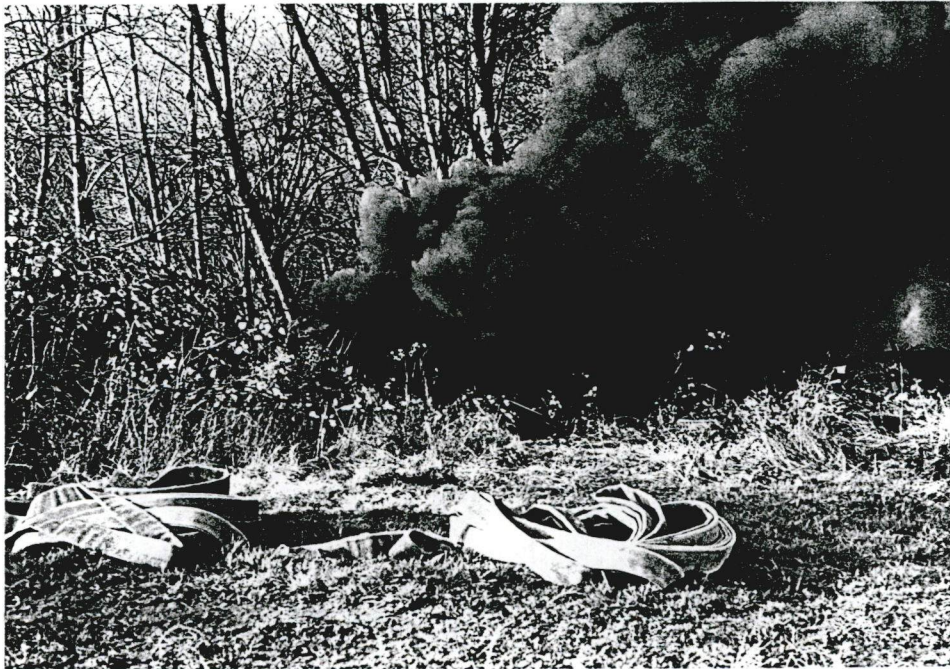
The function of the Administration is to manage the preparation and control of the budget, develop grant applications and reports within Federal guidelines, coordinate activities and provide advice, consultation and information to officials and the general public.

Office management is the primary responsibility of the two Secretaries - Mrs/s. Virginia Fry and Karen Nelson. Currently this position is a job sharing slot. Mrs. Nelson was hired in June 1989 and is currently in a training capacity, while Mrs. Fry has been in the Agency's employ since 1971, and full time for the past seven years. The position of secretary is charged with providing typing, clerical work, maintaining and ordering of office supplies and equipment, managing a system of money receipts, financial reporting and preparation of the monthly reports.

Enforcement

Field Activities

Primary enforcement in the field is conducted by the Agency's three Air Quality Control Specialists. Ms. Jackie Sherby, who has been with the Agency for ten years, and Mr. Lance Jackson and Mr. Gerald Strawn who were hired in 1988. Air Quality Control Specialist's foremost responsibilities include complaint investigations, inspection of industrial sources, enforcement of SWAPCA, State and Federal Regulations pertaining to air contaminant emissions, public information, tracking new sources, fire training investigation, final compliance investigation and monitoring/review of stack sampling procedures.



In addition to normal 40 hour/week enforcement, the Agency's staff responds to many complaints in the off hours as they arise. On weekends an answering service is used to field calls, pass on burning information and relay complaints to staff members for investigation. Weekend call duty is shared by four members of the Agency's staff.

Annual Summary 1989
Field Enforcement Activities
(Region Wide)

Notice of Violations Issued	329
Complaints Investigated by Field Inspection	502
Complaints Investigated by Non-Field Inspection	253
Annual Compliance Surveys/Update of Order of Auth.	386
Point Source Compliance Inspections	9,452
Area Compliance Inspections	2,794
Property Ownership Determinations	40
Fire Training Inspections	60
Asbestos Removal/Encapsulation Appl's. Processed	227
Meetings/Conferences/Public Participation	237



Illegal open burning constitutes a major portion of the Agency's enforcement action.

Open Burning

The Agency maintains a rigid program of enforcement and long standing regulation of open burning throughout its jurisdiction. No longer do you see the wigwam or teepee burners located at lumber mills belching their clouds of dense, choking smoke and no longer are grocery stores permitted to burn their cardboard boxes behind their stores. Even though the Agency does not issue written burning permits, it does work closely with local fire departments, many of which do issue various forms of open burning permits. The burning restrictions vary from area to area and county to county, with the most restrictive limits in those areas having the highest population density. The first adopted regulation in 1968 restricted all burning by commercial, industrial and municipal sources. Two years later, in 1970, all burning by those sources was considered illegal. Consequently, the Agency's staff still occasionally issues Notices of Violation to these non-residential sources. In addition, residential occupants are commonly cited for burning prohibited materials and/or burning outside the local burning seasons.

Open burning is still however, the number one source of nuisance complaints the Agency deals with. Virtually hundreds of complaints are received and investigated each year by the Agency's field people. Most of these fall into one of three categories: 1) smoke nuisance, 2) burning by sources that are not legally permitted to burn, or 3) the burning of prohibited materials.

Registration

Gasoline Transport Tanks & Dispensing Operations

The Agency currently maintains a system of registration and leak check certification for all gasoline transport tanks which operate within Clark County. This system began in 1982 and is mandated, in designated ozone non-attainment areas, by Washington Administration Code 173-490-202.

Operation of a transport tank includes loading and unloading at gasoline terminals, bulk plants and/or gasoline dispensing facilities. An annual registration fee of fifty dollars is levied on each tank. Upon receipt of the registration fee and certification that the tank has passed an annual leak test, a Delivery Vessel Sticker is issued. This sticker must be displayed on the side of the vehicle, and current registration must be maintained.

During calendar year 1989, a total of 285 transport tanks were registered with the S.W. Air Pollution Control Authority.

Source Registration and Tracking

As mandated under 70.94.151 of the Revised Code of Washington and Section 400-100 of the Agency's General Regulations for Air Pollution Sources, a program of air contaminant source registration was adopted and implemented in July 1981. As part of this registration, an annual fee of fifty dollars is levied on each emissions unit. In the case of minor emission sources, the fee is waived, but only when qualified under specific guidelines established for "small sources".

In calendar year 1989 there were 794 companies registered with the Agency. Of these, 517 are considered small sources. The remaining 277 were required to pay an annual registration fee for a total of 845 emissions units.

By law, the registration fees collected may not exceed the cost of administering that portion of the Agency's program. The money collected in the current program is less than the costs of conducting on site inspections, engineering analysis, as well as, clerical and administration needs. During the 1989/90 registration year, \$42,250 in fees were collected.

Annually, each source is inspected and evaluated for compliance status by the Agency's field staff. When determined to be "in compliance", the company is issued a document called an "Order of Authorization to Operate", which contains a listing of authorized equipment, as well as, ordered operating parameters.

Asbestos

Asbestos was commonly used for insulation against heat damage and fire hazard. For years it was used for insulation around commercial and industrial boilers and their steam pipes. In addition, it found its way into our homes, schools and businesses in siding, floor tile, glues, roofing, insulation in fireplaces and wood stoves, plastered surfaces and virtually hundreds of other applications. Not only did asbestos have distinct advantages for thermal protection, it was found to be useful as acoustical insulation and added much needed strength to plasters and adhesives. Consequently, the use of asbestos products soared.

It was not until years after the completion of World War II that the true health effects started to show up. Shipyard workers often used large amounts of asbestos in ship building. Unfortunately, it took twenty to thirty years for those individuals to show signs of the related health effects. Up until that time health officials were unaware of the severity of the problems associated with exposure to asbestos.

In order for asbestos to become a health problem it must be released into the air we breathe. This can take place over years of use and abrasion that naturally takes place or it can come when asbestos bearing products are sanded, sawn or broken. When this takes place, small submicron sized particles, small enough to be taken into the respiratory system, are allowed to escape into the air we breathe. Once these particles are inhaled, asbestos fibers can become permanently lodged in the tissue of our lungs and other areas of the internal body. Symptoms of asbestos related diseases usually do not become evident for 20 years or longer after the initial exposure. This delayed response is largely responsible for how long it took officials to recognize the problem.

Asbestos has been shown to cause cancer of the lungs and stomach, as well as in other internal organs, including, the mouth, esophagus, larynx, kidneys and colon. In addition, it has been responsible for non-cancerous respiratory disease called asbestosis. Asbestosis is an agonizing disease that in its advanced stages can cause cardiac failure and many times result in death.

Consequently, heavy emphasis has been placed on the removal and/or encapsulation of asbestos laden products throughout the nation, including S.W. Washington. Working with the Washington Department of Labor and Industries (L&I), the Agency tracks the removal and encapsulation projects and makes sure all jobs are only conducted by licensed contractors who are trained and certified in removal practices. In addition, each job application is screened in order to insure the asbestos is properly handled and disposed of. Most job site inspections are conducted by Labor and Industries personnel, who has jurisdiction in the work place environment. SWAPCA and L&I, over the past three years, have formed a close working relationship on these projects.

Before any friable asbestos can legally be removed within the Agency's jurisdiction, the contractor must submit a request form to the Agency called a "Notice of Intent to Remove or Encapsulate Asbestos". In order to process this request and insure that all responsible parties, including L&I, is properly notified, the application must be received at least ten days prior to the job. Information required has to do with specific site and handling methods, as well as, amount of material, specific type of asbestos, and final disposition.

During 1988 a total of 227 asbestos removal/encapsulation projects were approved by SWAPCA.

Air Pollution Episodes

The Plan

The Clean Air Act requires that action be taken during times of air stagnation and when potential dangerous levels of air contaminants may occur. In order to comply with this requirement, the Department of Ecology developed a program they entitled the "Air Pollution Episode Plan".

At times of air stagnation, contamination is trapped near the ground and allowed to concentrate and intensify. Stagnate air conditions usually occur when a high pressure system settles over the area, resulting in light surface winds and stable air. The result is calm conditions at ground level with temperatures lower at the surface than those above. When this occurs air contaminants are trapped much as they would be inside a bottle when a lid is placed on the top.

The Air Pollution Episode Plan is intended to address these stagnate periods. When air pollution concentrations exceed prescribed limits, and continued poor ventilation is expected, the Department of Ecology declares an "Air Pollution Episode". There are four levels of episode that may be enacted. At each stage certain activities are curtailed.

AIR POLLUTION EPISODE STAGES

FORECAST: The forecast stage is set when the National Weather Service issues an air stagnation advisory, or when there is indication that stagnant meteorological conditions are believed to continue for at least 24 hours.

ALERT: As contaminant levels reach preset levels, specific to that particular air contaminant, and are expected to remain at or above these concentrations for 12 hours or more, the "Alert" stage of the episode plan is set.

WARNING: The "Warning" stage is set as the contaminant levels reach an elevated, preset concentration that is higher than that of the "Alert" stage, and is intended to remain at that level for 12 or more hours.

EMERGENCY: The "Emergency" stage can only be called by the Governor. It is enacted when preset concentrations are reached and when pollutant levels could do significant harm to the health of the people.

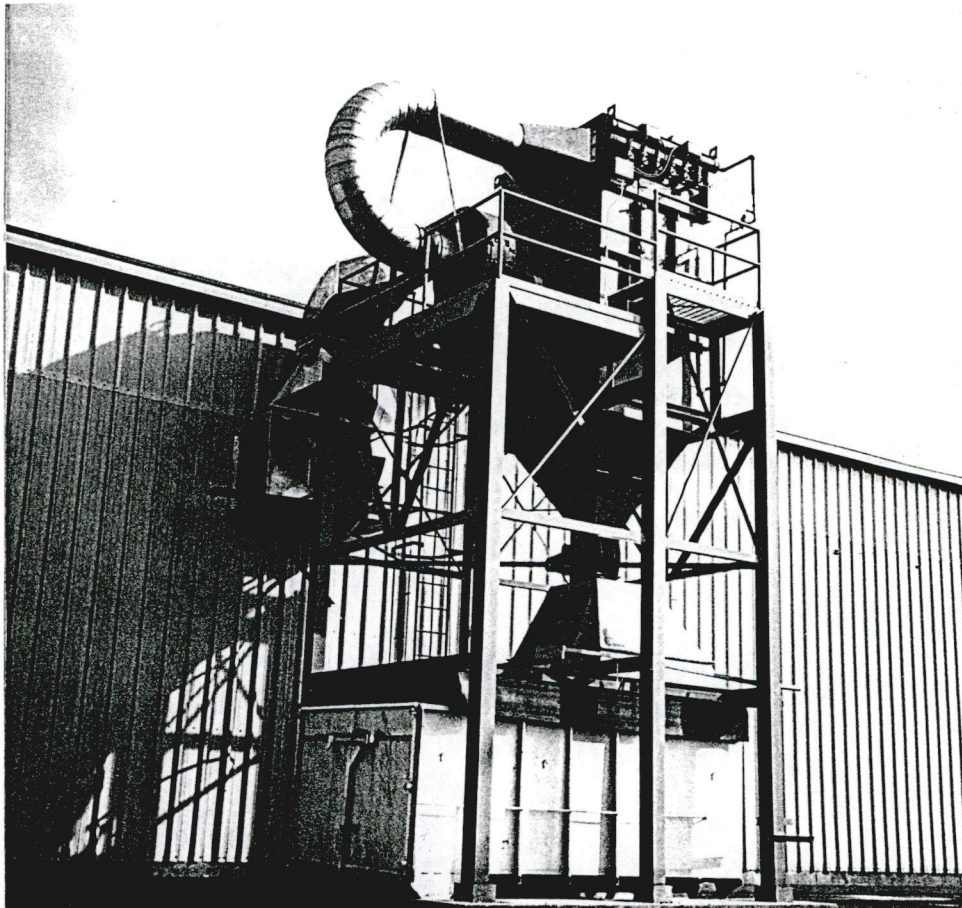
On two occasions during calendar year 1989 Air Pollution Episode "Forecasts" were called by the WDOE. These occurred in the months of November and December. Neither progressed beyond the first level of episode, called the "Forecast" stage. The first occurrence was called on the evening of Thursday, November 30, 1989 and was subsequently canceled on the proceeding afternoon, Friday, December 1, 1989. The second incident began on the afternoon of Monday, December 11, 1989 and covered most of that week, being canceled on the morning of Sunday, December 17, 1989.

As a requirement of a "Forecast Episode" local Agencies and the State Department of Ecology must require the curtailment of all residential wood combustion sources, except those that are used as the sole source of space heat. The calling of these forecasts caused significant problems for the SWAPCA staff. The Agency was almost immediately inundated with phone calls asking about the current level of stagnation, inquiring about the restrictions and consequences, and registering complaints. Virtually all the Agency's phone lines were tied up on a continuous basis until the episode was lifted. It took the entire staff to simply answer the phones, field complaints, and try to address everyone's questions and concerns. It is hoped that procedures, policies and assistance will be established by the WDOE to help SWAPCA, as well as the other local agencies, during times of future episodes. Explicit and uniform, statewide direction is called for in order to provide fair and equal treatment to all parties and to insure that the public health is always maintained and protected.

Engineering

Application Review and Emission Evaluation

Primary responsibility for engineering and Application review falls under the responsibilities of the Agency's Chief Engineer, Mr. Bill Prastka, who has been with the Agency for approximately twenty years. Prior to the establishment of any new source of air contaminants, or modification to existing sources, the Agency must review the proposal in order to judge if the project will conform to the criteria generally associated with Best Available Control Technology (BACT). Before any construction can legally take place, SWAPCA's approval must be granted. In some cases this can become a lengthy and time consuming process. In order to help offset the cost of this review a \$75.00 filing fee is required on each Application.



New sources must be equipped with air pollution control devices, like this baghouse, and be capable of meeting a control criteria commonly referred to as "Best Available Control Technology" (BACT).

After the Agency's review has been completed and SWAPCA is satisfied that the proposal can be built in a manner that will not violate any portion of the State or Federal laws pertaining to air pollution, a document called a "Preliminary Determination" is issued. This is sent to the applicant and a copy is then kept on file with the Agency. The applicant is required to place a public notice in the local newspaper where the construction is intended to take place, announcing their plans. The document and Staff review remains open for public input and comment for thirty days. After the review process is completed, and if no input has been received that affects the Agency's original determination, the document is finalized and the facility is approved. When built it is then inspected by Air Quality Control Specialists and an Order of Authorization is issued.

SWAPCA shares the same air shed with Portland, which is in nonattainment for ozone, of which volatile organic compounds (VOC), is a precursor. Consequently, the Agency developed an emission offset banking system in order to achieve compliance with the federal ambient air standards. Any potential source of new VOC emissions, over one ton per year, must "offset" those emissions by a ratio of 1 to 1.3. In other words, a source expecting to increase their emissions by 2 tons/year, by establishing a new process, would have to locate offsets in the amount of 2.6 tons per year before they would be allowed to construct the facility. Offsets can be either purchased outright from any facility that may be holding credits or they may apply for publicly held credits. SWAPCA maintains a public bank and under established guidelines can issue these to new and modified sources. If however, the amount requested is over 10% of the total bank balance, SWAPCA Board approval is necessary.

Emission Credits currently (12/89) in SWAPCA Bank

745.4 kg/day

Emission Credits Withdrawn from the Public Bank 1989

559.3 kg/day

A total of 139 "Applications for Approval/Notices of Construction" were received during calendar year 1989. 110 were processed and either approved or denied based on an engineering evaluation. This amounted to an estimated value of \$1,272,000. in capitol construction.

CONCLUSION

Many challenges are on the horizon for air pollution officials. In the future there will be increased concerns over the toxic compounds that have, in some cases, become a threat to human health. Elaborate regulations for the control of certain toxics are now visible on the horizon. These compounds, and their control, will be possibly the single most difficult problem ever faced in the environmental field. Until recently, most contaminants were thought of in terms of tons per year. Now however, in the world of toxics, very minute levels of these poisonous gases can be lethal. Consequently, much of the emphasis will have to be redirected accordingly.

Wood stoves will continue to be of intense concern as southwestern Washington's population continues to grow. As more home owner's attempt to stretch their heating dollars by heating with wood, we expect there will be a steady increase in neighborhood nuisance complaints. Given this increased level of concern over public health and the additional air contamination associated with this activity, it is feasible that additional control over wood heating activities could be forthcoming.

As an enforcement agency charged with the job of keeping the air of southwestern Washington clean and safe, we must strive to protect the beauty and well being of the area. The alternative is to turn our pristine area into a dumping ground for toxic waste and smog, and for our children and grandchildren to grow up not knowing what it is like to live, work and play in a clean and beautiful environment.

AMBIENT AIR QUALITY STANDARDS

POLLUTANT	NATIONAL		WASHINGTON STATE
	PRIMARY	SECONDARY	
TOTAL SUSPENDED PARTICULATES Annual Geometric Mean 24 - Hour Average	75 ug/m ³ 260 ug/m ³	60 ug/m ³ ^a 150 ug/m ³	60 ug/m ³ 150 ug/m ³
PM10 Annual Arith Mean 24 - Hour Average	50 ug/m ³ 150 ug/m ³	50 ug/m ³ 150 ug/m ³	50 ug/m ³ 150 ug/m ³
SULFUR DIOXIDE (SO₂) Annual Average 24 - Hour Average 3 - Hour Average 1 - Hour Average	0.03 ppm 0.14 ppm ----- -----	----- ----- 0.50 ppm -----	0.02 ppm 0.10 ppm ----- 0.40 ppm ^b
CARBON MONOXIDE 8 - Hour Average 1 - Hour Average	9 ppm 35 ppm	9 ppm 35 ppm	9 ppm 35 ppm
OZONE 1 - Hour Average ^c	0.12 ppm	0.12 ppm	0.12 ppm
NITROGEN DIOXIDE (NO₂) Annual Average	0.05 ppm	0.05 ppm	0.05 ppm
LEAD Quarterly Average	1.5 ug/m ³	-----	-----

NOTES: (1) ppm = parts per million

(2) ug/m³ = milligrams per cubic meter

(3) Annual Standards never to be exceeded, short -term standards not to be exceeded more than once per year unless noted.

a - This is not a standard, rather it is to be used as a guide in assessing whether implementation plans will achieve the 24 - hour standard.

b - 0.25 ppm not to be exceeded more than two times in any 7 consecutive days.

c - Not to be exceeded on more than 1.0 days per calendar year as determined under the conditions indicated in Chapter 173-475 WAC.

Note: Reprinted from "Washington State Air Monitoring Data for 1988" 9/89.