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AIR POLLUTION: A STUDY WITH PARTICULAR REFERENCE TO SEATTLE-TACOMA INTERNATIONAL AIRPORT

BY

ELIZABETH M. WILLIAMS, M.A., A.B.S.

Chairwoman

Environment Committee

REGIONAL COMMISSION ON AIRPORT AFFAIRS

NOVEMBER 6, 1992

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SUMMARY

The Seattle Tacoma International Airport currently has no air-pollution monitoring system in place. The Washington State Department of Ecology (DOE) studied how seriously the airport is affecting the quality of the air we breathe.

The Seattle Tacoma International Airport covers 2500 acres of land in King County. This a mere 0.18% or less than 1/5 of 1% of the land in King County. The DOE found that Sea-Tac Airport contributed 8% of the carbon monoxide and 5% of the nitrogen oxide emissions in all of King County in 1991.

The following air pollutants, classified as either Criteria or Toxic

Pollutants, are not being monitored by Sea-Tac Airport staff:
Total suspended particulates, particulate matter, carbon monoxide, oxides of sulfer, oxides of nitrogen, hydrocarbons, ozone and lead (criteria pollutant) Phenyl, benzene, dioxin, toluene, manganese, xylene, formaldehyde and chloroform pc.,[Ed. note: unreadable text]. Benzene, one of the toxic pollutants, is a known carcinogen. Sea-Tac airport, according to the DOE study, contributed 12.7 tons of benzene in 1984. This amounted to about 0.16 parts per million or 24,000 parts per trillion. New WAC 173-460 proposes the acceptable impact levels for benzene at 0.063 parts per trillion.

There is no baseline for a study of air pollution at the Seattle-Tacoma International Airport. There is no system set up at this time to study air pollution. This is a fatal flaw in the [FlightPlan] Environmental Impact Statement which must be corrected.

Airport currently has no air-pollution monitoring system in place.

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Our creation of agents of pollution such as chlorofluoro-carbons has resulted in by-products which are destructive to the beneficial ozone layer of the stratosphere.[Footnote 1] This beneficial ozone layer protects all forms of life from the harmful ultra violet B (UVb) rays of the sun. Excess UVb radiation can cause cataracts, mutations in DNA which lead to skin cancers (including the often deadly melanoma). Excess UVb rays can also threaten the yield of the world's basic crops. UVb rays penetrate

below the surface of the oceans, killing phytoplankton and krill which nourish larger fish and ultimately humans.[Footnote 2] The United Nations Environment Program predicts a 26% increase in the incidence of nonmelanoma skin cancers worldwide if ozone (03) levels drop by 10%.[Footnote 3] Furthermore, excess UVb radiation affects the body's immune system, although to what extent has not been determined.

Trophospheric ozone is an air contaminant and must be controlled.[Footnote 4] It is produced in two different ways: Non catalytic reactions involving nitrogen dioxide (NO2) and light, and by catalytic production involving hydrocarbons.[Footnote 5]

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The Seattle-Tacoma International Airport is the focus of debate because of the perceived need to expand. Sea-Tac is located on 2500 acres in King County which contains 2130.9 square miles, and 640 acres equals one square mile. [Footnote 7] Simple computation shows that Sea-Tac occupies a mere 0.18% of the land in King County -- or less than 1/5 of 1%.[Footnote 8]

What is the airport's contribution to air pollution in King County? This tiny pinpoint of land "contributes 8% of the carbon monoxide and 5% of the nitrogen oxide emissions in Kirig County".[Footnote 9] This concentration of air pollutants, reflected in the study requested by State Representative Greg Fisher, (D, 33rd District) has not been followed up by the staff at Seattle Tacoma International Airport. Airport staffers are still "lookina

into", the problem. There is still no baseline and no Process in Place to study air quality at the airport.

The October 2, 1992 editions of the Seattle Times and the P.I. carried a story about the Center for Disease Control's (Atlanta, Ga.) investigation into the increase of deaths from asthma. Air pollution is one of the factors under indictment as a cause of asthma. In a talk with community•

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members on September 10, 1992, Dr. Gordon Baker, an allergist practicing in Burien, Washington said he found 34% of his patients with asthma residing in 4% of zip codes closest to Seattle Tacoma International Airport.

What cumulative effect occurs from all known sources of air pollution in the Puget Sound region, between the Cascade Mountains and Puget Sound? This region is severely impacted by many sources of pollutants. These sources include but are not limited to: shipping, air transportation, ground transportation, freight -- trucks and rail -- personal wood burning (indoors and outdoors), construction burns, logging burns, as well as commercial and industrial emissions and all kinds of leisure activity equipment and tools which utilize petroleum products.

Many of these sources of pollutants, such as aircraft, are included in a difficult to measure category because they are mobile sources. The Department of Ecology has certain specified

regions in Washington State where accumulations of air pollutants can be ascertained and evaluated geographically. These mobile sources of pollutants are included in the category of "other sources"[Footnote10] but there are no documented cumulative and compounded effects of these mobile sources.

This paper will concentrate on pollutants registered in six counties of Western Washington in regions identified by the Washington State Department of Ecology: Snohomish, King, and

Pierce Counties in the Puget Sound Region and Thurston, Whatcom and Skagit Counties in the Olympic-Northwest Region. [Footnote 11]

Air pollution is commonly divided into two major categories:

CRITERIA AND TOXIC POLLUTANTS

Criteria Pollutants consist primarily of the following elements: Total suspended particulates (TSP), particulate matter (PM10), carbon monoxide, oxides of sulfur, oxides of nitrogen, hydrocarbons, ozone and lead (Pb). These criteria pollutants are constantly monitored 365 days per year by the Department of Ecology (DOE). However, Sea-Tac Airport has no process for monitoring criteria or toxic pollutants.

TOXIC POLLUTANTS

Toxic air pollutants are colorless and odorless. Unfortunately, toxic air

pollutants are not yet regulated. Among the hundreds of chemicals are phenyl, benzene, dioxin, toluene, manganese, xylene, formaldehyde and chloroform. Not only are these pollutants toxic, many are known carcinogens. However, increasing attention is being given to them because of the potential effect to human health. In 1988, DOE began the process to regulate air toxins. In 1990, DOE started the laborious task of identifying and evaluating various toxic control strategies.

CRITERIA POLLUTANTS

Criteria pollutants --carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, particulates, hydrocarbons and lead --

are common air pollutants and have been shown to be harmful to human health and welfare.[Footnote 12] Criteria pollutants are regulated according to federal and state levels. Monitoring of criteria pollutants is constant.

Carbon monoxide (CO) is deadly in high concentrations. It is the cause of many deaths. CO is a colorless, odorless gas and is the most frequently monitored component of air polIution. CO binds to the hemoglobin in the bloodstream and replaces the oxygen molecules reducing the blood's potential to carry oxygen throughout the body. This reduction in the body's ability to transport oxygen throughout the body has been found to cause heart difficulties in people with chronic diseases. It also reduces lung capacity which may aggravate arteriosclerosis.[Footnote 13]

Lack of oxygen has also been found to be a cause of impairment to mental abilities.[Footnote 14] Carbon monoxide is not monitored at Sea-Tac.

Mobile sources which emit carbon monoxide and other pollutants are not fully monitored. Personal and business vehicles which rely on gasoline are monitored in much of the Puget Sound region and during the colder months of the year are required to run on oxygenated gas. Vehicles which use diesel

fuel are not as stringently monitored. Jet aircraft are under the jurisdiction of the FAA and are beyond Washington State's demanding regulations.

The primary standard for CO is 35 parts per million (ppm) for one hour and 9 ppm for 8 hours. The Puget Sound region and the Southwest Region exceeded these standards in 1989 six times in four months. In 1990, standards were exceeded four times in three months.[Footnote 15] The Puget Sound region is in nonattainment for carbon monoxide, particulate matter and ozone.[Footnote 16] Nonattainment is defined as exceeding the standards 5et by Washington State.

Particulates are classified in two ways: total suspended particulates (TSP) which are composed of particles of 10 microns (about the size of a human hair) or less in diameter and parti culate matter (PMio) which consists of tiny particles of dust, sand, cinders, soot, asbestos, smoke and liquids found in the

atmosphere. Suspended particles aggravate chronic disease and heart and lung disease symptoms. TSP and PMio often transport toxic elements such as lead, cadmium, antimony, arsenic, nickel, vinyl chloride, asbestos and benzene compounds throughout the body, often ending up in the respiratory, digestive and lymphatic Systems.[Footnote 17] Particulates are not monitored at Sea-Tac.

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Adverse effects of both SPand PMio are the aggravation of chronic disease5 and heart and lung disease symptoms."[Footnote 18] In the Puget Sound and Olympic-Northwest Regions TSP and PMio come• from many different sources: roads, fields, construction sites, factories, power plants, fireplaces, wood-burning stoves, windblown dust, diesel and car exhaust, ferry traffic, shipping and the region's numerous (two dozen plus) airports.

King County has begun regulating particulates from several sources: outdoor burning at all times; restricting the use of wood-burning stoves and fireplaces during specific weather condi tions; and requiring gasoline powered automobiles to have emission tests every two years in order to be relicensed. Unfortunately many sources of criteria pollutants remain unaffected from such stringent requirements: aircraft, diesel-fuel burning vehicles, shipping, ferry traffic, off-road vehicles such as snomobiles and all kinds of other leisure-activity equipment including jet-skis, lawn mowers, blowers, etc.

Washington State has set standards for TSP at 60 micrograms

per cubic meter.[Footnote 19] Aircraft are regulated by the FAA, not the State of Washington. In the regions being assessed, TSP standards were exceeded in the following months of 1990: February, April, May, July, September, October, November and

December. Fortunately, the amounts of TSP appear to be decreasing since monitoring in the regions began.[Footnote 20]

The Puget Sound region (Everett-Seattle-Tacoma) is designated as a "non attainment" area for carbon monoxide, ozone, particulate matter (PMlo) and total suspended particulates.[Footnote 21]

Oxides of sulphur (SO2 and S03) become acidic by reacting with the moisture in the atmosphere. This creates a mist (,acid rain) which damages the leaves and needles of trees and eventually kills the forests. Sulphur dioxide is known for its pungent, irritating odor and suffocating quality.

The oxides in the air we breathe must be filtered from the air to protect our respiratory system. Our sinuses are the filters of our bodies, and they are working overtime.

Sulphur dioxide particles and other inorganic sulphates penetrate the mucosal lining and are intensely irritating to the bronchial mucosa, damaging the cilia and initiating bronchitis, producing asthma which decreases human respiratory function both at the acute and chronic levels. Exacerbation of other lung

diseases also occurs.[Footnote 22] S02 also aggravates symptoms of heart disease.

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S02 standards set by Washington State are 0.02 ppm as an annual average, 0.10ppm 24 hour average and a 0.40 ppm for one hour.[Footnote 23] According to the DOE, annual standards are never to be exceeded and short term standards are not to be exceeded more than once Per Year unless noted. There were no documented exceedences during 1990 in the parts of the regions reviewed for this paper. S02 is not monitored at the airport.

Nitrogen oxides provide color to the cloud of air Pollution. They result from the high temperature oxidation of the nitrogen present in the air. Nitrogen oxides form particulates by coalescing into larger segments which reduces visibility and contributes to acid deposition. Nitrogen dioxide (NO2) is the most prevalent of the nitrogen oxides.

N02 is a yellowish brown, highly poisonous reactive gas. N02 forms when fuel is burned at high temperatures. It is used as an intermediate in the manufacturing of nitric and sulferic acids. Internal combustion engines (automobiles and aircraft) and stationary fuel combustion sources are the two major sources of nitrogen oxide. N02 has a primary standard of 0.05 ppM.[Footnote 24]

N02 increases the incidence of chronic bronchitis because it is a bronchoconstrictor.[Footnote 25] N02 causes lung irritations resulting in ciliary paralysis, bronchitis and pneumonia. N02

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exacerbates influenza by impairing the body's immune defenses against bacterial and viral infection.[Footnote 26] Nitrogen oxides are also factors in the generation of secondary pollutants such as ozone. Both ozone and N02 impair humans in very similar ways. This is why the air pollution equation of compounding and cumulative effects of these pollutants needs to be thoroughly researched before more pollutants are added. There is no monitoring of N02 at Sea-Tac Airport.

Hydrocarbons result from the release of unhurried fuel or incomplete combustion of fuel. Internal combustion engines (automobiles and aircraft) are a primary source of hydrocarbons which play an important role in determining air quality. Other sources of HC emissions are the result of industrial processes, industrial and household solvents and fuel transfers.

Fuel misting by aircraft occurs mostly during takeoff and landing. This is because aircraft emit small quantities of unburned fuel containing hydrocarbons and particulates from the exhaust ports of jet engines. There is an intense odor when these episodes occur. "These emissions occur during takeoff and landing and are most noteable near the ends of the runways." [Footnote 27]. Fuel venting occurs mostly during an emergency, when fuel is jettisoned.

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Hydrocarbons mix with oxides of nitrogen in the presence of

sunlight to form both ozone and N02. The amounts of hydrocarbons released increase ozone levels more than any other pollutant.[Footnote 28] Hydrocarbonsare highly irritating to the mucous membrane and make a generous contribution to upper respiratory distress.[Footnote 29] The compounding effects of N02, ozone and hydrocarbons on the entire earth's system must be researched. Each individual pollutant may not be harmful in small doses, but the compounding of all these pollutants and the cumulative effects are basically unknown because each is studied independently,

Ozone is found iri two regions of the earth's atmosphere: the troposphere and the stratosphere. Ozone in the lower, breathable part of the atmosphere (troposphere) is produced when sunlight acts upon nitrogen oxides and hydrocarbons, producing N02 and ozone. This ozone is highly toxic and is regulated and monitored. Exposure to ozone "results in eye irritation and Oamage to lung tissues, reduces re--istance to colds and pneumonia, aggravates heart disease, asthma, bronchitis and emphysema."[Footnote 30] Stratospheric ozone is beneficial because of its protection against the UVb rays of the sun.

The beneficial ozone is attacked by chlorine atoms from the chlorofluorcarbons (CFC'5). CFC'5 take one oxygen atom away from the ozone to form chlorine monoxide. [Footnote 31] The chlorine monoxide then combines with another oxygen atom to form a new oxygen molecule and a chlorine atom. The process can go on indefinitely. In fact, "each

atom of chlorine . . . could destroy up to 100,000 molecules of ozone." [Footnote 32] This results in the destruction of the beneficial stratospheric layer of 03 and leads to global warming. Human health effects due to the breakdown of the stratospheric layer of 03 include increased mortality in the elderly and very young populations due to heat stress, increased preterm and prenatal births and increased diseases carried by fleas, ticks and mosquitoes. [Footnote 33]

The newly formed oxygen molecules do not block the ultraviolet light, but allow it to penetrate to the surface of the earth where it is harmful to human and animal health, crops and forests. Although ozone is the air contaminant for which standards are set, its precursors (HC and NOx) are the pollutants which must be controlled. [Footnote 34] Areas with the worst ozone pollution are also those areas with the largest populations and served by the largest airports:

Southern California, the Northeast, Texas Gulf Coast and Chicago Milwaukee. Cities in California with the worst ozone pollution are Los Angeles-Long Beach, Riverside-San Bernardino and Anaheim Santa Ana. [Footnote 35]

The Seattle-Tacoma-Everett area with major shipping ports, a major international airport and over two dozen smaller airports, heavy road traffic, industry, large and small businesses has exceeded the primary standards for ozone levels of 0.12 ppm for a one-hour period in 1990 (two days in July and two days in

August.) [Footnote 36] The same area was declared as an Ozone Nonattainment Area in 1988, Ozone standards were exceeded in 1990 on three separate days at the monitoring site in Enumclaw. Because of these exceedences, the area will not be able to comply with the standard before late 1993 or early 1994. This assumes that the average of he three years is less than one exceedance per year. The Seattle-Tacoma-Everett area must attain the ozone standard no later than November 15, 1993. [Footnote 37] (see attachment) [Ed note: attachment not available at this time.]

Growing scientific evidence indicates that ozone is a significant risk to human health. It appears to affect healthy as well as impaired respiratory systems in children and adults. Although no direct research on ozone and the sinuses has been done, the Air Pollution Health Effects Laboratory, University of

California, Irvine has studied the effects of ozone on the nasal cavities of rats. Their findings of significant damage to the mucous membrane surrounding the opening to the maxillary sinuses as a result of inhaling ozone lends substance to the theory that ozone also damages the 5inuses. [Footnote 38] A recent study of ten and eleven year olds in Los Angeles shows lung capacity has diminished 17% compared to the normal range. [Footnote 39] Autopsies performed by a pathologist at the University of Southern California on accidentally killed children show a "disturbing frequency of emphysematous changes previously seen only in adult

lungs." [Footnote 40] "Ozone can also cause shortness of breath and coughing during exercise in healthy adults and more serious effects in the young, old and infirm". [Footnote 41] Monitoring for Ozone does not occur at Sea-Tac Airport.

Lead is an abundant metal. It is not readily excreted and therefore accumulates in the body within the blood, bones and soft tissue. Lead affects the kidneys, nervous system and blood forming organs. Excessive exposure may cause nervous system impairments: seizures, mental retardation, behavioral disorders, miscarriages, stillbirths and defects of the newborn. Lead may

also contribute to high blood pre--sure and sub--equent heart disease.[Footnote 42] Lead is not monitored at Sea-Tac Airport.

Standards to protect the public health have been set by the Federal Clean Air Act. These standards use conclusive scientific and technical information available at the time the standards are set. They are set to provide a reasonable degree of protection from hazards that scientists may not have identified.

Air pollutants which affect the biota can also accelerate the deterioration of property, cause changes in economic values and become a threat to the quality of life.[Footnote 43] Because air pollutants drift downward and settle in the soil, even those who buy "organic" food are impacted by chemicals. The food chain contains many chemicals which are harmful to our bodies. The

food we eat may contain minute levels of toxic chemicals, but the compounding effect of all these chemicals can be disastrous.

Researchers (Falck, et al) analyzed fatty tissue from the breasts of 40 women, 20 of whom had cancerous lumps and 20 had benign lumps. In the fatty tissue from the breasts, Falck, et al found significantly higher levels of the extremely long lived and stable chemicals DDT, DDE and PCBS. Their conclusion is that the chemicals in the food and animal fat (fish, fowl and meat) accumulate in the fatty tissue.[Footnote 44]

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Because of the implication that criteria air pollutants jeopardize human health, ongoing studies must continue. Sea-Tac Airport staff must be forced to begin the Process of monitoring its own air pollution.

TOXIC POLLUTANTS

Toxic pollutants have generally not been subjected to rigorous scientific studies and are not highly regulated at this time. However, increasing attention is being given to them because of the potential effects on human health. These include but are not limited to the following toxic pollutants: phenyl, benzene, dioxins, toluene, manganese, xylene, chloroform and formaldehyde. [Footnote 45] The Department of Ecology is concerned about exi--ting toxic air pollutant sources. These sources generate complex control issues and pose great health risks to the general population.

Many of the toxic pollutants are known carcinogens with no set standards for an "acceptable level" to human, animal or plant health; however, there are industrial standards set for products which contain hydrocarbons and toxins.

Benzene is one of the more dangerous toxic pollutants. it is a known carcinogen. It is about 4% of hydrocarbon emissions. In 1934, the Radian Corporation estimated that roughly 12.7 tons of benzene were emitted at the airport.[Footnote 46] Further estimates by

the Radian Corporation are that the hourly average contribution of benzene at Sea-Tac airport is about 0.16 parts per million (or an average of 24,000 parts per trillion annually). [Footnote 47] New WAC 173-460 proposes the acceptable impact levels for benzene at 0.063 parts per trillion. [Footnote 48] How will the airport manage to reduce benzene to acceptable level?

At the airport, toxic pollutants are measured in metric ton-per day, but a published baseline for 1992 is hard to find (if it exists.) A metric ton is 2204.62 avoirdupois pounds which is equivalent to 1000 kilograMs. [Footnote 49]

The Flight Plan Project Final Environmental Impact Statement projections for these toxic pollutants begins with the year 2000 and goes through 2010 to 2020. Where is the 1992 baseline

for toxic pollutants in the Puget Sound region?

Anecdotal evidence points to a greater frequency of many kinds of cancers in residents close to Sea-Tac Airport. Therefore, in the words of Dr. Michael Morgan, hired as a consultant to the Flight Plan committee:

> "THE CLAIM OF CANCER CASES AT HIGHER THAN EXPECTED FREQUENCIES AROUND AIRPORTS CANNOT BE DISMISSED WITHOUT SYSTEMATIC INVESTIGATION." [Footnote 50]

In 1987, Swedish dentists studied persons who had worked at an airport at some time in their adult lives. These workers had a greater frequency of brain cancers than persons matched for characteristics other than brain cancer. [Footnote 51

Toxic air pollution emissions in the entire Puget Sound Region must be determined on a cumulative and compounded level. There seems to be no plan to diminish criteria and toxic air pollutants from mobile sources other than internal combustion engines which are fueled by gasoline. Diesel and jet fuel sources are immune from these regulations. The contribution of emissions from the airport is viewed as inconsequential. Unfortunately, jet aircraft emissions permeate the atmosphere and leave residue on residential and business properties, in our lungs, on the ground and in the water.

QUANTITY OF EMISSIONS THROUGHOUT THE REGION

The Flight Plan Project was charged with identifying the amounts of emissions of air pollutants for the three airport system. This effort failed to take into consideration the CUMULATIVE AND COMPOUNDED effect of all emissions on the entire region. It is difficult to extrapolate from the information given in the Flight Plan Final Programmatic EIS how severely the region would be affected by any of the alternatives. [Footnote 52] Sea-Tac is a "major indirect source of carbon monoxide, hydrocarbons,

fine particulates and nitrogen oxides most of which are generated by aircraft operations and motor vehicle traffic". [Footnote 53] Aircraft emission standards are implemented by the FAA. Washington State and the Environmental Protection Agency have no ability to apply standards to the airport or the aircraft. [Footnote 54]

The Department of Ecology (DOE) has determined that carbon monoxide and hydrocarbon emissions generated by aircraft at SeaTac Airport occur in significant numbers when aircraft queue for take off and in taxiing in and out. The standard used by DOE for determining the amount of emissions is in metric tons. A metric ton (2204.62) is over 10% more than commonly used 2000 pound ton.

Carbon monoxide emissions total 1800 metric tons per year; hydrocarbon emissions are about 800 metric tons per year. [Footnote 55] Climb and approach figures for CO and HC are 400 and 100 metric tons per year respectively. [Footnote 56]

Nitrogen oxide emissions are1200+ metric tons per year for climb and approach, 500 metric tons/year for takeoffs, 175 metric tons/year for queues and 100 metric tons/year for taxiing in and OUt. [Footnote 57] Nitrogen oxides in aircraft exhaust generally oxidize to N02 and disperse over a wide area, reducing concentrations

around the airport. It is probable that other pollutants disperse as well.

Sulphur oxide emissions are 900 metric tons/year when aircraft are in climb and approach, 40 metric tons/year while in a queue, 20 metric tons/year on takeoff and 20 metric tons/year taxiing in and out.[Footnote 58]

Particulate emissions are 34 metric tons/year in climb and approach, 13 metric tons/year in queues, ten metric tons/year on takeoff and 9+ metric tons/year taxiing. [Footnote 59] These numbers must be added together to find the true impact of air pollutants generated by Seattle-Tacoma International Airport's business.

Aircraft at Sea-Tac produce 3,050 metric tons per year of carbon monoxide emissions, 1300 metric tons/year of hydrocarbon emissions, 1950 metric tons/year of nil.rogen oxide, 175 metric tons/year of sulfur oxide and 68 metric toris/year of particulate emissions. Compare these figures with motor vehicle emissions at the airport of less thari 600 metric toris/year of all pollutants

combined. (Figures have been totalled by estimation from graphs presented on pages 18 and 19, figures 4 - 8, SEATTLE TACOMA INTERNATIONAL AIRPORT: Air Pollutant Contribution.) Add 10% more to each of these figures to determine the impact: 6555.70 metric tons or 7211.27 tons per year.

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It is difficult to address all factors of air pollution with limits to amount of time and resources. I have not addressed the geophysical attributes nor weather patterns in this paper. However, both are important factors in air pollution monitoring. The region lies between two mountain ranges, contains large bodies of both salt and fresh water and has smaller plateaus and valleys. All these physical characteristics play an important part in air movement. Wind, rain, sun, snow, fog or the lack of these also impacts how, when or if the pollutants disperse and to where, Dispersal does not mean the pollutants disappear. Many of them remain with us far too long.

"Our environment is not infinitely resilient" and neither are we. "For too long we have assumed dominion over the environment and have failed to understand that the earth does not belong to us, but we to the earth." [Footnote 60]

CONCLUSION

We must remember that chemical pollution threatens all forms

of life. The serious effects of air pollution to this planet must be considered. We cannot always wait until there is indisputable evidence that serious damage is occurring before we try to halt the damage. The cumulative and compounded effects of air pollution is just one of the many dangers which can be avoided if there are monitoring safeguards for all forms of polluters. Aircraft and diesel burners (trucks, ships, cars,

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furnaces, etc.) must have regulations which provide for the capture and safe destruction of pollutants thereby preventing contaminants from being released into the air.

Automobiles which use gasoline are regulated and monitored. We must do the same for all other emission producers. It is not enough to point the finger at only one part of the problem, such as private vehicles, forcing these owners to comply with regulations when other sources are allowed to continue to pollute. All sources must be required to be clean. Special attention must be given to relatively small areas like Seattle-Tacoma International Airport with unacceptably high pollutant concentrations. We must be assured that such areas grow no worse as time progresses.

IT IS IMPERATIVE THAT THE STAFF AT SEATTLE-TACOMA NTERNATIONAL AIRPORT BEGINS TO DOCUMENT THE AIRPORT'S AIR QUALITY WITH THE BEST AVAILABLE TECHNOLOGY, NOT THE LEAST EXPENSIVE.

Footnotes

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